M+E JOURNAL

AUTOMATION INTEGRATION

The media and entertainment industry implementing artificial intelligence throughout the global entertainment supply chain.

It's not just artificial intelligence but a real tool for complete automation and integration

SMART CONTENT
Speech-to-text solutions, translation tools, live captioning and dubbing … AI localization applications are broad, with proven efficiencies

SECURITY & WORKFLOW
Server blocking, zero-trust cybersecurity strategies, future-proofing contracts and rights management systems, all are seeing advances

24.01

Cover photo illustration by Cash Macanaya

AI: AUTOMATION & INTEGRATION

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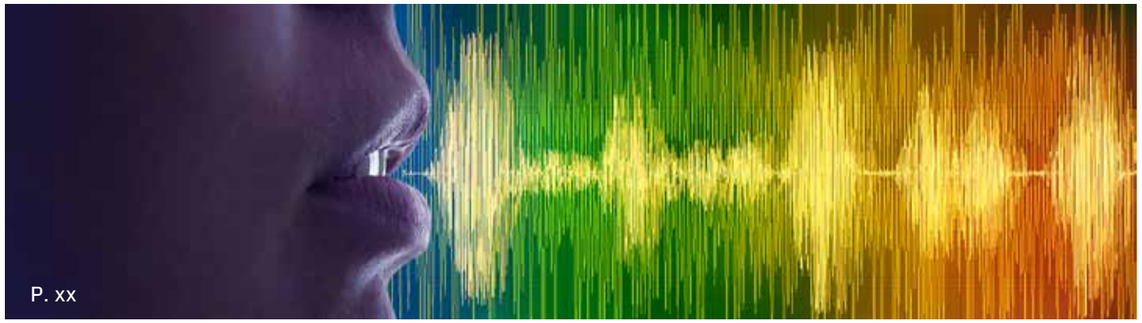
THE VIEW FROM MESA



SMART CONTENT

SECURITY AND WORKFLOW

AUTOMATION AND INTEGRATION: THE BEST APPLICATIONS OF AI

By Guy Finley, President, MESA

Guy Finley *is the founder, CEO, and president of MESA.*
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There's never been a Gartner hype cycle curve media and entertainment hasn't embraced. Like DVD and HDTV, second screen and SaaS, blockchain and the metaverse, we get excited about the future-forecasted potential of new technologies (and the new acronyms that come with them).

AI will be different. As you get down the generative AI path and begin talking about all the possibilities, it truly is game changing in how it will impact the entire world. The only comparable technological change that compares would be society before and after the public internet.

This is going to affect everything, and how we do everything. The Gartner curve is so massive you can't even take it on the macro. Apply that old saying: how do you eat an elephant? One spoonful at a time. We should be thinking of that one spoonful approach for our industry because of just how disruptive AI is already becoming.

The industry is already facing challenges across production following the strike, compounded with the distribution challenges thanks to the fallacy of the FAST model and where it's taken us. Throw AI on top of that and we have a holy trifecta of disruption to deal with.

Perhaps it helps to approach AI by thinking of it as a different acronym, standing for automation and integration. The practical applications of AI are going to happen when your supply chain is automated. That's the core mission of MESA, driving efficiencies in the supply chain, and AI will prove the perfect companion to that mission statement. And AI can help right away. The question is, how prepared is your enterprise? Is your workflow, is your business able to adopt some of those solutions around the edges before you light everything up and start getting rid of personnel?

> *THAT'S WHERE AI'S PROMISE lies for media and entertainment, where it can realize our supply chain nirvana of transparency and instant accessibility, always on and always knowing.*

To see how practical applications of AI will help our enterprises, relate it to what Canva did for art departments and what WordPress did for building web pages. While it's OK to appreciate the macro, the only way we're going to win in the short term is by doing the micro.

Take it as a one field approach works, because if we solve one thing, that means we can always solve the next thing. Sometimes we get to boil the ocean and we start thinking of all the great ways that this is going to impact our industry. You lose sight of the forest for the trees. We can't get too distracted thinking about what could be without really putting the rubber to the road and starting to use AI to fix things, one thing at a time, applied around our day-to-day responsibilities in our individual roles.

If we all start thinking about AI less fearfully from a disruptive perspective and start thinking about ways where this is going to make life easier for all of us, we're

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MESA is a community dedicated to shaping the media and entertainment industry's future. MESA's 150-plus members and content advisors collaborate to advance change management, new workflow solutions, and production/supply chain efficiencies. Launched in 2008 as Media & Entertainment Services Alliance, MESA produces quarterly events (in-person and hybrid), daily email newsletters, webinars, and the M&E Journal on behalf of its members. MESA is the management company responsible for the community efforts of Media & Entertainment Data Center Alliance (MEDCA), Hollywood IT Society (HITS), Smart Content Council, and Women in Technology: Hollywood (WiTH), as well as the business operations of the Content Delivery & Security Association (CDSA), the Entertainment ID Registry (EIDR) and the WiTH Foundation.

For more information, visit mesaonline.org

⊞ Bringing Ideas Into Action

NAVIGATING OWNERSHIP IN THE AGE OF AI-GENERATED CONTENT

By Christina Aguilera, President, WiTH Foundation

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In today's media and entertainment landscape, artificial intelligence (AI) is reshaping content creation processes. AI algorithms are generating scripts, music, and visual effects with remarkable efficiency. However, this shift raises complex questions regarding copyright and ownership.

For instance, in scriptwriting, AI algorithms analyze vast data to craft narratives. Who owns the rights to these AI-scripted stories — the programmer, the studio, or the AI system itself?

In music composition, AI tools like MuseNet and Jukedeck Composer produce original compositions. But determining copyright ownership becomes murky. Is it the developer, the artist, or the AI system?

Similarly, in visual effects, AI-powered tools streamline filmmaking processes. Who owns the rights to AI-generated visual effects — the production company, the developer, or the AI system?

These examples underscore the need for clarity in copyright laws and ownership guidelines. As stakeholders navigate this evolving landscape, they must strike a balance between innovation and ethics. The story of copyright and ownership in AI-generated content is still unfolding, but it's clear that addressing these challenges is essential for the future of the industry.

Consider a scenario where a company uses a generative AI algorithm to create marketing content, including written articles or promotional materials. The AI generates text that closely resembles existing copyrighted material without proper attribution or licensing. If this AI-generated content is published or distributed without the proper permissions, it could potentially infringe on the copyright of the original creators. This poses a significant risk of intellectual property (IP) litigation and damages for the company using the AI tool, as well as reputational harm.

BY INVESTING IN PROPRIETARY AI, collaborating with legal experts, and championing diversity, companies can not only navigate this landscape but also emerge as leaders, shaping a future where innovation and ethics coexist.

Developing a proprietary generative AI network can mitigate certain legal risks, such as intellectual property protection. For example, if a company creates a unique AI system for generating artwork and doesn't use open-source frameworks, they have more control over their technology and can better protect it from unauthorized use or reproduction. However, there are still potential legal challenges related to patents, copyright, and data privacy that need to be considered and addressed.

Imagine an art studio creating a proprietary AI system called "ArtGen" for generating unique digital paintings. By not relying on open-source frameworks, they safeguard their technology from being freely accessed or modified by competitors. However, they need to ensure they have proper patents in place to protect their algorithms and processes. Additionally, they must be diligent in respecting copyright laws by not infringing on existing artwork

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THE RISE OF NICHE STREAMERS: DEMOCRATIZING CONTENT IN THE STREAMING ERA

By Mary Yurkovic, Director, Smart Content Council

***Mary Yurkovic** is the director of MESA's Smart Content Council. She has more than 15 years' experience in the publishing, entertainment, and technology sectors.*
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The landscape of media and entertainment continues to undergo profound transformation, largely propelled by the democratization of streaming content. While major platforms like Netflix, Amazon Prime, Disney+, etc., dominate the market with their blockbuster hits and high-budget productions, there's been a simultaneous surge in the popularity of niche streamers. These creators, often with specialized interests or unique perspectives, are carving out their own space in the digital realm, offering valuable content to audiences hungry for diversity and authenticity.

The democratization of streaming has leveled the playing field for these niche streamers, providing them with unprecedented opportunities to reach global audiences without the need for traditional gatekeepers or hefty financial investments. Unlike the constraints of traditional television networks or film studios, where only a select few could make it to the screen, streaming platforms offer a more inclusive platform where anyone with a camera and an internet connection can share their stories and perspectives.

One of the key drivers behind the rise of niche streamers is the low barrier to entry. Unlike traditional media, which often requires substantial financial resources to produce and distribute content, streaming platforms offer relatively affordable avenues for content creators to showcase their work. With just a smartphone and access to the internet, aspiring streamers can broadcast their content to millions of potential viewers worldwide.

Also, streaming platforms provide a diverse array of tools and resources to support creators in building their channels. From user-friendly interfaces to analytics dashboards, these platforms empower streamers to understand their audiences better and tailor their content accordingly. Additionally, features like live chat and viewer interaction foster a sense of community, enabling streamers to engage directly with their fans in real-time.

> *AS THE STREAMING INDUSTRY continues to evolve, it's essential to celebrate and support the diverse voices and talents of niche streamers who enrich our digital experiences with their authenticity and passion.*

Another significant aspect of the democratization of streaming content is the ability for niche streamers to find their audience and cultivate a loyal following. Unlike traditional media, which relies heavily on mass appeal and mainstream trends, streaming platforms thrive on niche content that caters to specific interests and demographics. Whether it's gaming, cooking, DIY crafts, or niche hobbies, there's an audience for virtually every niche imaginable.

For niche streamers, this presents a golden opportunity to connect with like-minded individuals who share their passions and interests. By creating content that resonates with a specific audience, niche streamers can foster a sense of belonging and community, which is often lacking in mainstream media. This sense of connection can be incredibly powerful, leading to devoted fans who support their favorite streamers through subscriptions, donations, and word-of-mouth promotion.

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THE EVOLUTION OF LOCALIZATION AND THE CHANGING MEDIA AND ENTERTAINMENT LANDSCAPE

By Caroline Baines, Senior Director, Client Services

***Caroline Baines** is the senior director of client services for MESA. She joined MESA Europe in 2018, as director of operations following a 20-year career in research and consulting within the media, entertainment, and technology sector. In her current role she oversees the European community, helping to raise the profile of members by providing various platforms for collaboration, networking and thought leadership. She is also director of the Content Localisation Council and secretariat for the Content Delivery & Security Association (CDSA).*
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As I write this I am reflecting on the roller-coaster that has been the last 12 months in the media and entertainment industry. The last few years have seen many highs and lows, but 2023 proved to be one of the most challenging with costs continuing to rise while volumes were not growing as they have in previous years. This lackluster market performance was further compounded by the actor and writers strike during the Summer which placed huge pressure on the entire industry. The monetary loss was purported to be in the billions of dollars and the road to recovery will take time.

The strike finally ended in September last year and as we ushered in 2024 there was cautious optimism that this would be a better year. In January we were busy organizing our ITS: Localisation event, which is always the first MESA conference of the year and is an opportunity to bring our localization community together to network and share thoughts and opinions.

The theme of the conference was very much driven by AI, of course, aren't most media and entertainment events these days? But it wasn't all about technology, as an association MESA has always prided itself on its broad coverage and desire to be inclusive of the whole industry, and the localization sector is made up of many moving parts.

This industry is all about inclusivity, it's that ability to share content with everyone, regardless of language and cultural differences and it's about making sure that content truly resonates with the viewer. It is a creative sector and one that has so many talented people working within it. At MESA we have always felt that it is vitally important to showcase this talent at our events and what better way than having Änne Troester, a very talented German dubbing scriptwriter opening the show. Hearing Änne's impassioned speech about the process she undertakes to ensure that the viewer is watching an authentic version of the original was very inspiring and throughout the day her words were echoed by many other presenters. Learning about subtle nuances, such as the German word which is used for the nickname of the Bones character in Star Trek was fascinating, but it is those nuances which make the movie or TV series worth watching for the viewer and they are so important.

THIS INDUSTRY IS ALL ABOUT INCLUSIVITY, it's that ability to share content with everyone, regardless of language and cultural differences and it's about making sure that content truly resonates with the viewer.

However, whilst we recognise how important it is to stay true to the original movie when dubbing or subtitling and we know a significant proportion of a film's revenue is generated by localized versions, the industry is also looking towards technology solutions to help streamline the process. Embracing AI technology as a 'tool' for innovation and efficiency will be key to staying competitive in an increasingly globalized media landscape. Enter automatic dubbing solutions which are growing in prominence and sophistication.

During the event, we heard from one of MESA's newest members, Dubformer about

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A 'SECURITY RISK' WE TAKE FOR GRANTED: GPS

By Richard Atkinson, President, Content Delivery & Security Association

***Richard Atkinson** is president of CDSA, and his experience covers more than 15 years in classified defense and 23 years in M&E senior leadership positions, driving profound business revenue and change for Northrop Grumman, Disney, EA, and Adobe. ratkinson@CDSAonline.org*

"AI and Security Converge" is not just the theme of the Content Delivery & Security Association's (CDSA) Content Protection Summit. Artificial intelligence is also increasingly impacting every one of us in a multitude of ways. It is making things better and easier than was ever possible before.

WIn today's world, as consumers and businesspeople we have GPS-reliant features baked into just about every device we own and use, from our phones, to cars, to cameras. The aspect of "location" and knowing where we are and where we are going has become something we have gotten so used to, so rapidly that it has started to be completely taken for granted.

We all tend to get quite frustrated when we no longer have a connection, even if it is for a few moments while our device tries to locate a few more GPS signals and we go from that "big blue dot" of determining roughly where we are to that comforting small dot that means "it's OK, I've got our location." For those of us who are older, we remember a previous time when there was no GPS ... or it was very spotty. We still had physical maps and other "traditional" forms of location that were reliable ... especially in a pinch. Ah, we have come so far!

And, in much the same way that our consumer lives have leveraged GPS to do remarkable things, so have the militaries of our and every other country. GPS is so fundamental to the "war-making machine" that modern armies and air forces use it to not only plan and execute their ground and airborne actions, but to deliver bombs and other things exactly on-target. Which is exactly why disrupting or maintaining GPS is a strategic part of the battle plan, and why "the war around GPS" has been a very active yet rarely highlighted battle aspect in the Ukraine and more recently in Israel. GPS has been being actively jammed by some forces, while being supplemented with local solutions less susceptible to jamming ... all in an effort to keep your side functional while forcing the opposition to lose all the advantages that GPS offers.

FOR SOME OF YOU, THIS MIGHT be a key topic for your org and others to talk about. For others, this might just be more of an intellectual curiosity with the hope that you are never directly impacted.

Meanwhile, the people and businesses in these regions have been dramatically impacted. Anything that relies on GPS is at risk. Phone and car locations services no longer work (I say this casually but think about how much we rely on this now). We use these mapping, routing, and location aspects so frequently and they are so reliable that we have adopted them completely. Going back to some previous non-GPS method is not only hard ... but might be impossible. What we used to fill the gap, like paper maps, are not even out there ... and certainly not right at our fingertips like they were back prior to the modern days of GPS.

So far, I have really been speaking to the more obvious aspects of how GPS is used. But there is another fundamental aspect that GPS provides that is used in an additional number of ways: time. GPS, at its core, is about time. It works through extremely tight coordination of time ... which

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AI: AUTOMATION & INTEGRATION

The pace of the constant innovations and transformations in media and entertainment, across all aspects of content creation and distribution, from advanced workflows to evolving industry technology requirements, can be a challenge for even the most tech-savvy among us. The role of artificial intelligence has become more pronounced than ever before.

EMBRACING AI FOR MEDIA AND ENTERTAINMENT: A JOURNEY BEYOND AUTOMATION

The role of AI in modern business

ABSTRACT: Artificial intelligence (AI) is no longer a buzzword or dreamy framework. It is an indisputable cornerstone of modern business practices, with its accuracy and outcomes no longer speculative, but measurable. The evolution of large language models (LLMs) in recent years has sparked debates on AI's potential to supersede human roles. A McKinsey report suggests that by 2030, AI and automation could assume nearly 30 percent of work hours in the U.S. economy. Yet, the narrative of AI as merely a substitute for human labor, reminiscent of the Industrial Revolution's machinery, fails to capture its nuanced role in knowledge-intensive sectors.

By Teresa Phillips, Co-Founder, CEO, and
Pranav Joshi, Head of AI Product Management, Spherex

Workers in the Industrial Revolution era were often tied to specific steps in a manufacturing process, performing repetitive, manual tasks that contributed to the production of physical goods. In contrast, knowledge-based workers engage in roles that require analytical thinking, decision-making, and creativity, focusing on the manipulation of information and generation of ideas rather than the execution of physical tasks. This fundamental shift from process-oriented to role-oriented work places a high burden on AI to be trusted before it can replace intellectual labor in the workforce. This is particularly true in the complex domain of media and entertainment, where AI's decision-making capabilities raise both hopes and concerns.

THE HISTORY AND COMPLEXITY OF THE M&E INDUSTRY

Any video created in media and entertainment holds a highly nuanced expression of storytelling to evoke human emotions and sentiments. A seemingly simple task of video creation spans numerous functions including production, localization, distribution, and sales and marketing. It requires an ecosystem of business entities to provide the services necessary for an efficient supply chain. Once released, the video engages a diverse audience across global markets with varying languages, cultures, and regulations. Implementing AI to transform this intricate ecosystem is a formidable undertaking, prompting the industry to favor gradual innovation for broader acceptance.

Two other factors provide headwinds to implementing AI in M&E. First, the conundrum of localization. Before digital distribution, content was licensed to regional producers, who tailored it to fit cultural norms and regulations. This process could delay a show's debut in international markets by years from its original U.S. release. Fast-forward a mere 15 years, and programming is now released the same day on digital platforms worldwide. As an industry, we're still at the dawn of global digital distribution, and localization requirements remain a "black box" for many companies. At Spherex, our role extends beyond providing local age ratings and advisories to educating our clients on content regulation and culture. In a period where industry-wide comprehension is still evolving, the demand for AI to offer transparency and understandable logic in its decision-making is paramount.

Second, there is a concern among artists and creators that AI could potentially replace them or use their work without proper attribution. This genuine concern echoes historical apprehensions within the creative class about technology. With the advent of cameras in the early 1800s, many painters worried it would make their art obsolete. They feared a camera's ability to capture and produce realistic images would undermine their skillful painting techniques. Even the introduction of digital art and design software triggered concerns among traditional artists about the authenticity and value of digitally created art compared to hand-drawn or painted works. In each case, while technology did change the landscape of industries, it also opened new avenues for creativity and expression. Similarly, the advances in AI highlight a moment of transition and adaptation for the creative community, yet artists' concerns must be addressed.

THE INDUSTRY WILL NOT EMBRACE artificial intelligence designed to disrupt and transform overnight. Instead, incremental innovation that achieves a win-win scenario for all stakeholders is the smarter alternative for validation and industry-wide adoption of AI.

HUMAN-CENTRIC AI ACHIEVES A COMPROMISE

The industry will not embrace artificial intelligence designed to disrupt and transform overnight. Instead, incremental innovation that achieves a win-win scenario for all stakeholders is the smarter alternative for validation and industry-wide adoption of AI.

Human-centric AI focuses on designing and deploying AI systems that support and augment human activities rather than replacing them. Human-centric AI is developed with a strong emphasis on ethical guidelines, transparency, accountability, and ensuring that AI decisions can be explained and understood by humans. Human expertise is applied to oversee the evolving job-to-be-done. At Spherex, our AI systems have been developed to align with the goals of a specific client role and work seamlessly alongside the person in that role, enriching their work rather than disrupting it. Our AI technologies are guided by our deep domain expertise, advanced knowledge of culture and content regulation, and our decision-making methodologies. Every nuance in our AI models, including training, detection, interpretation, and validation, is subject to human oversight and control.

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HARNESSING THE POWER OF AI

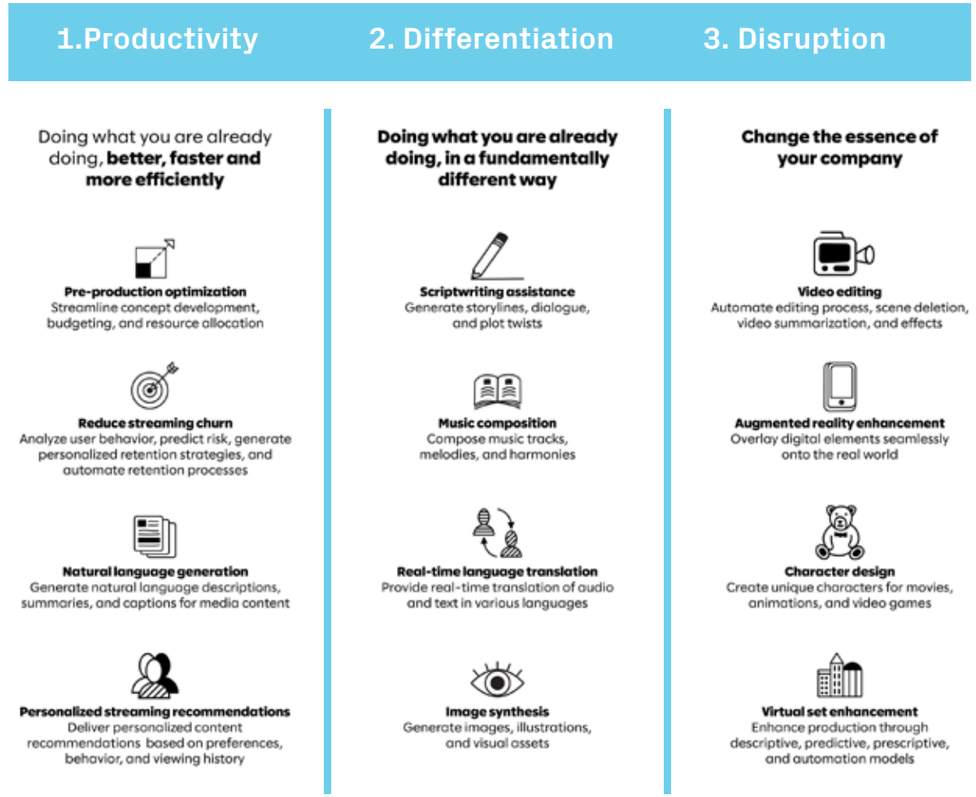
The rise of AI presents both risks and rewards

ABSTRACT: The iPhone and Netflix launch in 2007 triggered transformative disruptions across global media, entertainment, and communications. Over 15-plus years, streaming reshaped M&E, leading to mergers, acquisitions, and the urgent need for profitability. Cable providers faced cord-cutting and shifting ad spends to digital platforms. Technology blurred industry lines, ushering in an attention economy era. Amid constant change, companies aligning strategic visions with evolving customer needs thrive, while others risk obsolescence. As the M&E industry heads toward a projected $4.5 trillion by 2027, organizations focus on attention competition, AI utilization, customer experience, advertising transformation, media supply chains, and converged connectivity for success in the dynamic landscape.

By Steven Polster, Managing Director, Slalom

We now find ourselves firmly in the midst of an AI-driven technological revolution that many expect will change the world as we know it. With GenAI entering the scene and platforms from ChatGPT, Bard, Midjourney, Dall-e, and hundreds of plug-ins rolling out, media companies are on the front lines of yet another wave of disruption. GenAI makes possible what had previously been only imagined in sci-fi movies, such as the ability to write a script or create artwork just by telling the "computer" what you want.

While GenAI offers the promise to potentially bring full video and synthetic actors to the screen, these use cases are not ready for prime time. Regardless, these new tools place creative industries on the front lines of further disruption, creating unknown risks and rewards. So much so that studios and unions took significant time to come to an agreement on how to distribute earnings from streaming and how to blunt any adverse impacts of AI on future job stability while tapping into positive benefits that AI can offer the industry and consumers. This is no trivial debate. In the time it took to agree terms, an estimated $6 billion negative impact on the US economy was realized from the strike.



Some ideas across these horizons are shared here as examples, but there are countless others.

USING AI AS A TOOL, NOT A SUBSTITUTE

While uncertainty and concern about its impacts are understandable, AI's true potential lies in the ability to augment and support human productivity in the creative industries and will emerge as a powerful tool for creatives rather than a substitute. For example, storyboard artists require a great deal of time to draft

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WHILE UNCERTAINTY AND CONCERN ABOUT ITS IMPACTS are understandable, AI's true potential lies in the ability to augment and support human productivity in the creative industries and will emerge as a powerful tool for creatives rather than a substitute.

sketches of their creative ideas, as each iteration may require hours.

With GenAI tools, an artist can quickly generate as many ideas as they need until they capture the essence of a visual concept. This tool could enable producers to pitch their stories to secure funding for their projects in days or even hours rather than weeks or months, and when successful, a storyboard artist will still be needed to bring the final high-quality content to life. From a different lens, one can look at dubbing. Localizing high-quality content for diverse audiences is a creative, labor intensive, costly activity, and typically, studios invest in dubbing content costs for only five to ten languages with very large audiences (e.g., English, French, Spanish, German, Russian, Chinese, Italian, etc.).

However, with GenAI, companies will most likely add dubbing for languages that previously did not have a sizable enough audience to support the cost of this enhanced storytelling experience.

THE THREE HORIZONS OF AI USE CASE

There are hundreds of AI use cases being uncovered across every sphere of M&E, from content production to distribution, marketing, sales, subscriptions, operations, customer support, and back-office solutions. With so many possibilities, companies are working to make sense of their AI journey. Many find it helpful to classify along three horizons:

- ***Productivity:*** Do what you are already doing better, faster, and more efficiently

- ***Differentiation:*** Do what you are already doing in a fundamentally different way

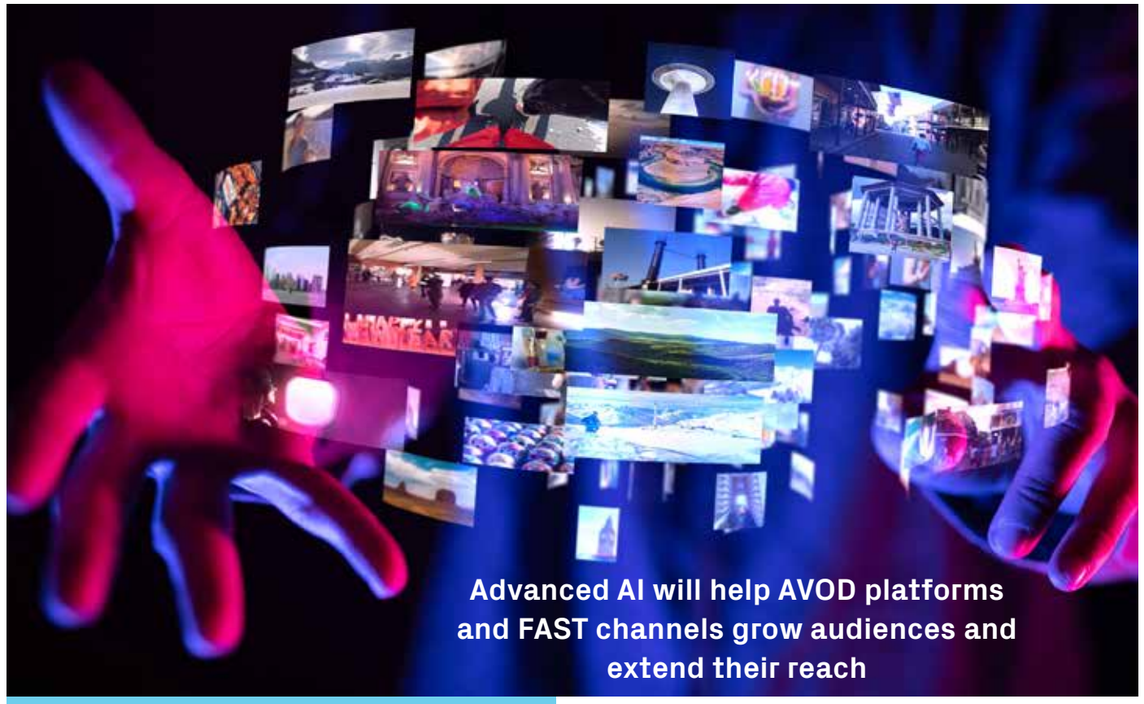
- ***Disruption:*** Change the essence of your business

The perceived opportunities and threats of GenAI have already had an impact on the industry as a major focus point between studios and creatives, and further disruption seems certain. To truly harness the power of AI, leaders in the M&E industry should seek ways that AI can support productivity and allow teams to focus more time on creative aspects. Still, it remains to be seen how companies, stakeholders, consumers, audiences, and fans will navigate the yet-undiscovered territory of AI advancements.

As we continue to explore these uncharted but exciting territories, we can expect to see a persistence of other trends throughout this year. In addition to AI, we expect M&E organizations to invest heavily in:

- ***Competing in the attention economy***
- ***Customer experience***
- ***Advertising transformation***
- ***Media supply chain***
- ***Converged connectivity*** .⊞

AI IS JUST WHAT STREAMING NEEDED



Advanced AI will help AVOD platforms and FAST channels grow audiences and extend their reach

ABSTRACT: Finding the right solution to reporting challenges is more crucial than ever. AI and automation can be leveraged for data aggregation to better collect, analyze, and update viewership and content insights to drive performance and accuracy for AVOD platforms and FAST channels. By reducing manual effort, increasing accuracy and dynamically aggregating and analyzing data from different sources in different formats, the use of AI and automation can ensure a real-time, unified view of content performance everywhere.

By Jerry Inman, CMO, Whip Media

The media and entertainment industry is at the forefront of adopting innovative technologies to stay ahead. AVOD platforms and FAST channels are increasingly leveraging advanced Artificial Intelligence (AI) and automation to revolutionize their operations and extend their reach. This transformative approach not only addresses the critical need for accurate and real-time reporting but also unlocks new potentials in audience engagement and content strategy.

SOLVING FAST REPORTING CHALLENGES

The cornerstone of this technological evolution is the integration of AI and automation in data aggregation processes. This enables AVOD platforms and FAST channels to collect, analyze, and update viewership and content insights more efficiently. Traditional methods, often reliant on manual effort, result in inaccuracies and a lack of timely data. However, with AI-driven solutions, these platforms can now ensure a real-time, unified view of content performance across various distribution channels. This shift not only enhances operational efficiency but also drives performance and accuracy to unprecedented levels.

One of the key advancements in this area is the development of automated data acquisition reporting. By incorporating AI-enhanced robotic process automation (RPA) components, platforms can now automatically retrieve data from any source. More importantly, these systems are designed to dynamically sense changes, ensuring that content creators and marketers always have the most current insights at their fingertips. This capability is crucial for maintaining a competitive edge in the fast-paced digital media landscape.

Another significant innovation is advanced automated title matching. Utilizing AI, this streamlines the process of cross-platform content reporting. In the past, understanding how content performed across different platforms and services was a daunting task, fraught with manual errors and inconsistencies. Now, with AI-powered title matching, FAST channels can effortlessly navigate these complexities, gaining a clear understanding of audience behaviors and content performance variations. This insight is invaluable for tailoring strategies to grow audiences wherever the content is featured.

PREDICTING CONTENT TRENDS

Beyond operational efficiencies, AI is transforming how content trends are predicted and analyzed as well. When AI powers millions of real-time data points generated by viewers around the globe, there are new tools that offer granular analysis of content outcomes. Can you really get real-time sentiment at scale? When you use AI algorithms to sift through vast amounts of unstructured consumer-generated data, this process rapidly identifies patterns, trends, and insights that would be imperceptible to human analysts, offering a nuanced understanding of audience emotions and anticipations.

Moreover, utilizing advanced predictive content analytics represents a leap forward in content strategy. By training AI models on a blend of quantitative and qualitative data, platforms can now foresee future viewing behaviors, preferences, and engagement. This predictive capability enables content creators and marketers to make informed decisions, optimize content offerings, and enhance viewer engagement strategies.

BEYOND OPERATIONAL EFFICIENCIES, AI IS TRANSFORMING how content trends are predicted and analyzed as well. When AI powers millions of real-time data points generated by viewers around the globe, there are new tools that offer granular analysis of content outcomes.

The integration of AI and automation into AVOD and FAST channels marks a pivotal moment in the media and entertainment industry. These technologies are not merely tools for operational improvement; they are catalysts for strategic innovation. By automating data acquisition and analysis, enhancing title matching accuracy, and predicting content trends, AI is setting a new standard for content performance and audience engagement.

As we look to the future, the role of AI in AVOD and FAST platforms will undoubtedly expand. The potential for AI to unlock new insights, drive efficiency, and foster growth is immense. For content creators, programmers, licensing professionals, marketers, and platform operators, embracing these technologies is imperative for success in an increasingly competitive and digital-first world.

To conclude, the adoption of advanced AI and automation by AVOD platforms and FAST channels is reshaping the media landscape. These technologies are empowering platforms to grow their audiences and extend their reach by unlocking new insights into audience behaviors and content trends and through overcoming traditional reporting challenges. As the industry continues to evolve, the strategic use of AI will play a critical role in defining the future growth of AVOD platforms and FAST channels. ⊞

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GENERATIVE AI ENHANCED CONTENT DISCOVERY

ABSTRACT: Here we explore how the application of Generative AI (GenAI) enriches content discovery experiences for users within this industry, identifies and converts complex components such as actor entries, musical themes, and landmark dialogues into text-based metadata to benefit various production and post-production departments. We delve into technical aspects, methodologies, and implementation strategies to leverage Gen AI algorithms effectively and explore how content providers can personalize recommendations, curate diverse content libraries, enhance search capabilities, and facilitate interactive storytelling experiences.

A breakdown of M&E GenAI applications

By Muralidhar Sridhar, AI/ML, Global Head, Product Management, Prime Focus Technologies

A spotlight today is rightly thrown on how GenAI can leverage a multimodal AI analysis to meticulously dissect video content, detect subtleties from emotional undercurrents to thematic elements like romance and action sequences. Furthermore, it can be utilized to identify and convert complex components such as actor entries, musical themes, and landmark dialogues into textual metadata.

GenAI models can be used to apply retrieval augmented generation (RAG) and chain of thought reasoning to craft context-aware synopses, ensuring that each scene is not only understood in isolation but also in relation to its narrative arc. Beyond mere analysis, GenAI can be extended to generate profound insights and trivia, offering creative suggestions for social media engagement, and suggesting appropriate hashtags, empowering content creators and marketers to create compelling promotional content like trailers and highlight reels, enhancing content visibility and audience engagement.

In recent POCs with industry giants and sports bodies, we witnessed significant benefits of GenAI enrichment of content metadata that was hitherto very challenging to achieve. The ability to get insights, suggestions, recommendations, and analy-

BEYOND MERE ANALYSIS, GENAI CAN BE EXTENDED to generate profound insights and trivia, offering creative suggestions for social media engagement, and suggesting appropriate hashtags, empowering content creators and marketers to create compelling promotional content like trailers and highlight reels, enhancing content visibility and audience engagement.

sis has greatly benefited our work. We can generate new content, clips, cutdowns, highlights, marketing posts etc. and this powers higher creative enablement, efficiencies, and greater monetization opportunities."

IMPORTANCE OF CONTENT DISCOVERY IN THE DIGITAL AGE.

If you are struggling to find the right content, it'll be even more challenging for you to repurpose or monetize it effectively. It's become more important than ever to find, use and re-use content in the library and content arriving fresh into the library to work on various downstream use cases. To find the right content, we need three key features:

- *To tag the metadata of the content correctly and comprehensively.*
- *To have the right technologies that can search for/discover deep metadata.*
- *To have the appropriate tools and technologies to use this discovered content in downstream use cases.*

CHALLENGES IN TRADITIONAL CONTENT DISCOVERY MECHANISMS

Traditional methods of content discovery have involved manual metadata tagging, that may not be deep enough* on a per clip or shot basis covering complete multimodal capture from visual to audio transcript.

- *Typical manual cataloging has focused on title, synopsis, keywords matrices.*
- *Doing a complete multimodal tagging requires large manual operations that are time-consuming, costly, and unscalable.*

Discovery and search have been restricted to typical search engines which are not equipped with modern AI technologies that can perform multidimensional semantic search.

- *Searching content deeply inside an archive was limited by text-based search engines.*
- *The ability to do a semantic search was limited with the metadata.*
- *Post discovery, getting to the right clip to use in downstream use cases was not easy.*

The solution involves the following key components:

- **Multimodal, GenAI-enabled discovery and machine wisdom**
- **Vectorization for search**
- **Semantic search**
- **RAG-based conversational search and actions**

MULTIMODAL AND GENERATIVE AI'S POTENTIAL TO REVOLUTIONIZE CONTENT DISCOVERY

A comprehensive multimodal discovery of content that can tag metadata deeply at every frame, shot, clip and scene level can build a solid foundation for discovery. Through all audio and visual facets and other inferences in context, it can enable the use of PFT's patented Machine Wisdom to summarize findings in context of dimensions of time and a union of facets discovered.

Discovery facets encompass a range of elements such as named people, objects, keywords, transcripts, emotions, on-screen text, and more. Higher level discoveries like Compilations, Key Moments (patented by PFT), Key Dialogues (patent for PFT pending), Romance, Action, Medical, Landscapes, etc. Extraction of key thumbnails / stills and their description are captured.

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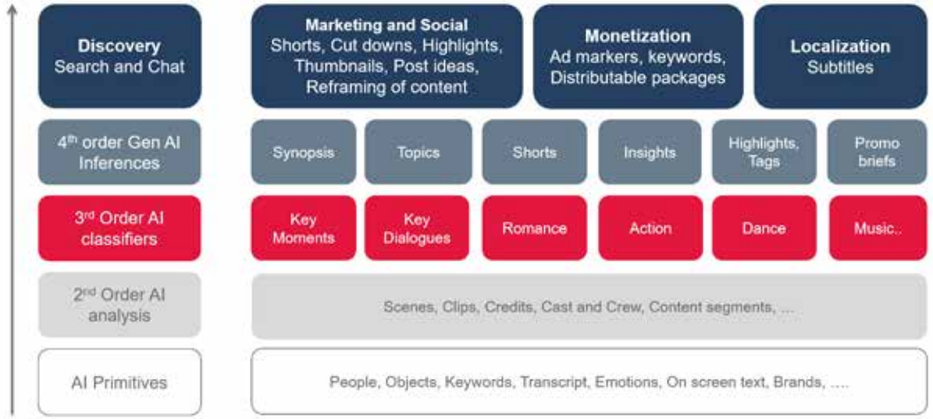
CLEAR® AI – Multi Model Deep Metadata Stack



Multimodel deep metadata stack synopsis generation process.

DEEP INSIGHTS USING GENAI

Using GenAI, we can auto-create synopsis at a clip, scene and asset level. This involves chaining discovered contents and insights on a per frame basis and per shot basis into clips, summarizing and then rolling it up to scenes and then the whole asset.

At each clip or scene level, the summarization needs to be done in context of the previous set of summarized clips and the current clip as a sliding window analysis all through the length of the video.

Propose scripts for trailers and promos:

- ***Based on the summarization, Gen AI LLMs are used to identify scripts for trailers and promos.***
- ***This may involve visual analysis and other multimodal analysis to be put together in the machine wisdom framework to arrive at the trailer and promo ideas and scripts.***

Propose storylines for social media posts

- ***Based on the analysis done in the content, several attractive mini storylines are created and reformatted to give a promotional appeal.***

- ***Suitable intonation is applied to the storylines to make it attractive.***

Identify highlight moments of the content

- ***Based on the multi modal analysis done, LLMs are used to identify highlight moments in the content.***

- ***Pre-identified key moments, key dialogues and compilations are used to make a higher and more accurate quality of prediction.***

VECTORIZE FOR SEMANTIC SEARCH

The intelligently captured metadata is vectorized using LLMs and stored in an Index of smart vector enabled AI search engines. At every clip level, based on multimodal identification of content, a document that can be vectorized in several dimensions is created. This document per clip is then vectorized and stored in a vector search engine that can store and find semantic similarity between the key and data stack.

CONVERSATIONAL SEARCH WITH RAG

A conversational search is the most appropriate use case to be enabled on top of this rich metadata. This is enabled using RAG frameworks. The search query is first classified and analyzed to check what part of the query is more relevant for search. This part is then vectorized and looked up in the Vector search using KNN and such similarity search algorithms.

After retrieving the search results, the context of the search and any preceding context stored in the thread are analyzed using LLMs. Subsequently, the results are re-ranked and reformatted. A response to the user based on the identified results, is created, and shown to the user. While the results identified could be just metadata, the engine translates this into Video clips and presents this as a set of video clips, the key metadata that matched the

Continued on page 100

THE BOUTIQUE ALLIANCE: EXPANDED SERVICES, CLIENT FOCUSED, AI DRIVEN

In media and entertainment, ‘boutique’ means so much more than ‘small’

ABSTRACT: In the rapidly evolving media and entertainment (M&E) landscape, small firms face the challenge of scaling their services without losing their boutique essence. One solution is collaboration, where two smaller companies combine resources to offer a broader spectrum of services, enabling competition with larger corporations without sacrificing their core value of personalized service. The strategic use of artificial intelligence (AI) serves as a force multiplier in this alliance by streamlining operations and fostering creative solutions that were previously beyond the reach of smaller companies.

By Ramón Bretón, CTO, 3rd i Digital

The media and entertainment (M&E) industry sits at the dawn of an unprecedented era of transformation, powered by the explosive growth of artificial intelligence (AI) in all aspects of content creation and distribution, resulting in a seemingly endless amount of content viewable on a multitude of platforms. Smaller M&E service providers are thus presented with opportunities and challenges, finding themselves at a crossroads where the path forward requires growth while retaining the essence of their boutique nature.

One solution lies in collaboration. By forging alliances, smaller firms can combine their strengths and resources, effectively broadening their service offerings to meet increased demand. Such partnerships, especially when underpinned by the strategic use of AI, allow for streamlined operations and the development of innovative solutions, ensuring that smaller companies can compete with their larger counterparts while their foundational principle of personalized service remains intact.

THE CONCEPT OF BOUTIQUE IN M&E

Within the M&E industry, “boutique” signifies more than just the size of a company; it embodies a commitment to personalized service and solutions tailored to fit each project. These smaller firms excel not just in the services they provide but also in the way they provide them, transforming standard business interactions into

BY FORGING ALLIANCES, SMALLER FIRMS CAN COMBINE their strengths and resources, effectively broadening their service offerings to meet increased demand.

bespoke service experiences rich in personal touch and attention.

When clients entrust their content to a boutique firm, their vision is heard, understood, and valued. Each project, regardless of its budget or market size, receives the same level of dedication and care. In these settings, clients find their work treated with the reverence it deserves, matching the passion they have for their content. This equal treatment spans the spectrum, from indie filmmakers to producers of A-tier Hollywood titles — ensuring every project, no matter how grand or modest — is given the spotlight. This personalized approach at boutique firms engages clients in a collaborative partnership where the success of their project is seen as a mutual goal between customer and service provider.

This level of engagement and personal investment in clients' projects is something larger M&E corporations, burdened by their need to focus on volume due to their significant overhead and sprawling operations, struggle to replicate. Consequently, where large entities offer a service experience that often feels automated and detached, boutique firms stand out by providing a sanctuary for creative minds seeking validation and a collaborative spirit, bringing the human touch back into the world of media and entertainment.

However, the current transformation of the M&E industry presents these boutique companies with a paradox. The very essence of their value — personalized, high-touch interactions — is at risk in an age where automation and scalability are the currencies of success. To navigate this new terrain, small M&E companies must find ways to adapt without eroding the personal client relationships that define their brand. Their challenge is to scale without becoming impersonal, to grow without losing the boutique touch that is their hallmark.

COLLABORATION AS A STRATEGIC SOLUTION

To address the challenge of expanding their range of services without compromising their direct, personal approach, boutique M&E firms can form strategic partnerships with like-minded companies that specialize in different areas of the M&E workflow, resulting in a wider yet complementary portfolio of service offerings. Such collaborations cater to the current clientele of both companies, who will welcome the enhanced range of services delivered with the personal touch they value, while also attracting new clients who are in search of the convenience of a comprehensive provider who delivers service with care and attention. The concept of the "one-stop shop" — once the domain of larger, more impersonal corporations — is now transformed to reflect the boutique ethos characteristic of smaller firms.

Such strategic partnerships allow boutique firms to seamlessly integrate their services, creating a comprehensive suite of offerings that spans a larger portion of the M&E pipeline. For example, a firm specializing in audio mixing, localization, color timing, and finishing can partner with a company that excels in quality control, file packaging, and other delivery services. By joining forces, these two firms can offer a more comprehensive range of solutions, ensuring a smooth and cohesive path to project completion. This not only enhances the value proposition for their clients but also establishes the firms as competitive players in the industry, capable of meeting a wide range of needs with the detailed precision and personalized care characteristic of boutique operations.

THE ROLE OF AI

For boutique M&E companies engaged in collaborative partnerships, AI has emerged as a pivotal force multiplier, optimizing internal operations, simplifying delivery

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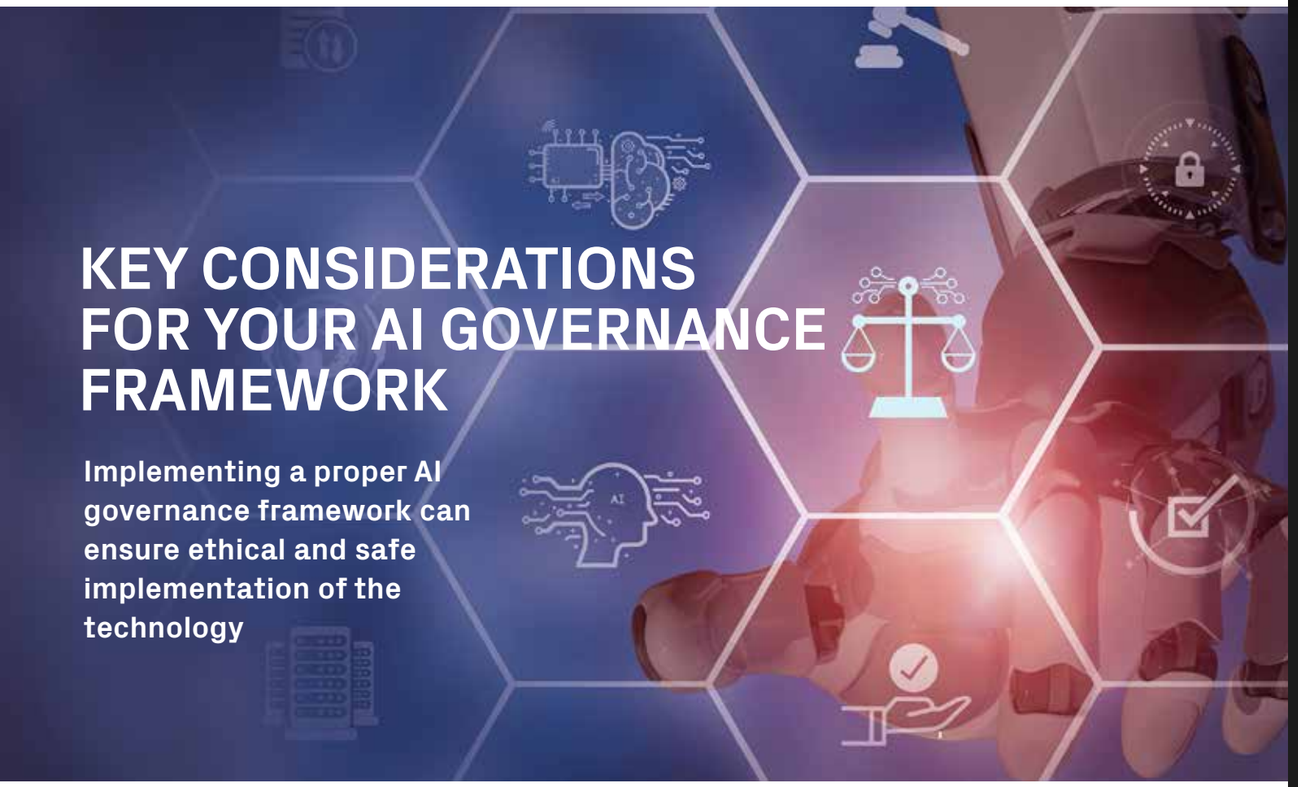

KEY CONSIDERATIONS FOR YOUR AI GOVERNANCE FRAMEWORK

Implementing a proper AI governance framework can ensure ethical and safe implementation of the technology

ABSTRACT: Media brands are fielding overwhelming but critical questions about how to implement generative AI tools ethically and safely into their workflows to avoid known risks. To navigate the evolving landscape successfully, key stakeholders must create an AI governance framework for their teams to ensure they're appropriately utilizing GenAI.

By Anne Neubauer, Writer, Brightspot

The M&E industry has reached an inflection point thanks to the rapid rise of generative AI. Content creators and advisors are not only trying to figure out how to utilize gen AI to their benefit at a macro level, but they're also navigating logistical questions and concerns about how these tools could upend their current workflows, impact their organization's privacy and security, and even influence their brand's reputation.

Questions about any new capability or platform should be asked and answered, but fear of the unknown shouldn't impede innovation. Understanding and utilizing GenAI within content creation processes can streamline workflows, save teams time and resources, and expand an organization's revenue-generating opportunities. More minor AI advancements like checking an article for copy editing and grammar improvements to more advanced capabilities like multi-language translation and image generation allow content experts to focus on what they love most: telling compelling stories to the audiences they know and care for.

NAVIGATING UNKNOWN TERRITORY

M&E organizations are eager to implement gen AI platforms from a time- and resource-saving standpoint, but they're understandably nervous about the known and unknown risks of giving the green light.

These tools are advancing at a rapid pace — perhaps too rapidly. A workforce survey found that nearly four out of five junior employees feel like they can't keep up with the speed of technological change. Because of this fast pace, there are many unanswered questions about the implications gen AI could have for individuals, businesses, and industries alike:

- ***Workforce impact:*** A recent survey found that over half of employees have no idea how their organization utilizes AI. Unfortunately, there's often a lack of transparency from leaders on how the business approaches AI, its current use, and future roll-out plans, yet individuals and teams are eager to learn, evolve how they work, and contribute to the company's competitive advantage. In most cases, there needs to be an increased focus on communicating and educating teams about AI, especially as its usage starts to scale.

- ***Privacy and security risks:*** Another survey found that 40 percent of respondents use AI tools without disclosing it to their manager or colleagues. Using AI without guardrails can pose privacy and security risks to the business, especially if the models are fed confidential information. The M&E industry regularly handles sensitive information, so it's critical to place parameters around which roles can access these tools and how to use them.

- ***Ethical questions:*** There are ongoing ethical questions about using GenAI in content creation, which becomes even more complex as regulations evolve. M&E organizations are especially concerned about potential missteps that could lead to copyright infringement, mishandling data, or publishing misinformation that was AI-generated or influenced. Many are asking if it's ethical to use these tools in their workflows or to inform their intellectual property at all.

REDUCE RISK WITH AN AI GOVERNANCE FRAMEWORK

Adopting any new tool or technology carries inherent risk, given the shift to the organization's existing infrastructure and workflows, but the payoff is usually worth it. Implementing a new third-party system and ensuring everything still functions properly and efficiently requires time, attention, and governance — no matter what the new tool is.

The best practice for any team in any industry is to wait for their organization to communicate how new systems can and should be used. Even though gen AI tools are readily accessible and experimenting with them at the individual level is inevitable, this type of technology shouldn't be treated differently than any other new platform or system.

However, because many people are already off to the races, organizations need to create an AI governance framework to get ahead of potential misuse. The framework should provide a checks-and-balances structure and outline necessary parameters around how gen AI is used and who is using it, so it can be easily managed and regularly monitored. It's also important to include stakeholders across IT, marketing, communications, and operations teams at the onset of this process to ensure all bases are covered.

The AI governance framework should account for three different layers:

- ***Model layer:*** Providers such as OpenAI and Amazon Web Services have a level of governance baked into their AI models in terms of how they develop and deploy AI systems in a way that is ethical, fair, transparent, and accountable. This includes safeguarding the data used by AI systems to protect individuals' privacy and ensure data security as well as addressing biases to prevent discriminatory outcomes.

- ***Application layer:*** The application layer is where a model is integrated into an application, such as a content management system (CMS). Safeguards for content moderation and various parameters can be configured and set to control the creativity level of the model, and the organization's IT teams, and AI practitioners can set parameters relevant to their business. For example, they can decide how comfortable they are with the model being more or less creative by setting the "temperature." The model will generate a broader range of outputs with more creativity and less predictability with a higher temperature. A lower temperature, on the other hand, will provide more focused, specific outputs.

- ***End-user layer:*** The end-user layer is where most team members will interact with gen AI. It's essentially the organization's code of conduct, outlining acceptable use and policies regarding how AI is utilized across different business functions. Was it used for research in a reporter's article? Did it generate imagery for a new microsite? Did it generate headline samples? This layer requires experts to review, manage, track, and measure outputs to ensure they align with internal and external regulatory and compliance guidelines.

The best way to weather industry-wide change is to prepare. The adoption and use of AI applications within the M&E industry can lead to incredible benefits at the individual and organizational levels — but first, proper guidance is needed so these tools are used appropriately. ⊞

ADOPTING ANY NEW TOOL OR TECHNOLOGY carries inherent risk, given the shift to the organization's existing infrastructure and workflows, but the payoff is usually worth it.

Introducing AI into Content Programs

Integrating AI tools necessitates a thoughtful approach to experimentation and implementation. Recent research from Gartner underscores the importance of commencing with pilot projects to gather metrics for success.

These metrics encompass various aspects, including time efficiency, draft quality, and asset utilization. Through iterative experimentation, organizations can ascertain the efficacy of AI tools and their potential impact on content strategy.

However, before even gathering the data, companies must agree on if, where and how AI fits within their content governance framework. Questions to ask and answer include:

- ***Strategic alignment:*** Does AI align with our overall content strategy and business objectives? How does integrating AI into content governance contribute to our long-term goals?

- ***Resource allocation:*** What resources (financial, human, technological) are required to implement and maintain AI-driven content governance? Do we have the necessary expertise, or do we need to invest in training or hiring AI specialists?

- ***Risk assessment:*** What are the potential risks and challenges associated with AI adoption in content governance? How can we mitigate risks related to data privacy, security, accuracy, and ethical considerations?

- ***Impact on content workflows:*** How will AI integration affect existing content creation, review, and distribution processes? What changes need to be made to accommodate AI tools within those workflows and approval processes?

- ***Quality assurance:*** How do we ensure that AI-generated content meets our quality standards and brand guidelines? What measures will be put in place to validate the accuracy and authenticity of AI-generated content?

- ***Regulatory compliance:*** Are there any legal or regulatory requirements that govern the use of AI in content governance? How do we ensure compliance with data protection laws and regulations when using AI?

- ***User experience:*** How will AI-driven content governance impact the overall user experience? Will AI enhancements improve accessibility, personalization, and engagement for our audience?

- ***Measurement and evaluation:*** What key performance indicators (KPIs) will be used to assess the effectiveness of AI-driven content distribution? How do we measure the ROI and business impact of AI integration in content governance?

- ***Ethical considerations:*** What ethical guidelines and principles should govern the use of AI in content creation and distribution? How can we ensure transparency, fairness and accountability in AI algorithms and decision-making processes?

- ***Long-term sustainability:*** How scalable and adaptable is our AI-driven content governance framework to future changes and advancements in technology? What steps will be taken to continuously optimize and refine our AI strategies for long-term sustainability?

As is clear from the above, it's important that your site lives up to your organization's standards, which means that you need to constantly monitor your content to flag anything that goes against your website standards. Furthermore, given the data protection and privacy concerns around AI, it's vital for organizations to remain compliant with all regulatory requirements.

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OPPORTUNITIES FOR GENERATIVE AI IN MEDIA FIRMS' CORPORATE FUNCTIONS

ABSTRACT: While much of the early excitement around generative AI centered on the creative side of the media and entertainment industry, there are also multiple gen AI opportunities in corporate functions such as finance, sales and marketing, technology, and HR. These functions can tap into the benefits of GenAI and play a critical role in driving commercial value for enterprises.

By Brajesh Jha, SVP, Global Head, Media, Publishing, Entertainment, Genpact

Use cases for GenAI across the enterprise

Generative AI (GenAI) has had a huge impact on the media and entertainment industry. New tools are driving creativity and productivity gains in storyboarding, simulations, and postproduction activities, taking advantage of GenAI's advanced capabilities in creating text, images, and videos.

Heightened expectations around productivity are combined with apprehensions around obsolescence and copyright infringement. The initial excitement around better quality and faster content creation has led to fears of redundancy and writers' and actors' concerns around the misuse of existing content by large language models (LLMs).

While much of the early reaction centers on the creative side of the industry, there are also multiple GenAI opportunities in corporate

TO NAVIGATE THIS FAST-CHANGING LANDSCAPE, media leaders need to understand where to selectively deploy GenAI to maximize its acceptance and impact. They should analyze the entire content value chain with their service providers to identify where GenAI can enhance human capabilities.

functions such as finance, sales and marketing, technology, and human resources. Drawing on lessons from other industries, these functions can tap into the benefits of GenAI and play a critical role in driving commercial value for media companies.

To navigate this fast-changing landscape, media leaders need to understand where to selectively deploy GenAI to maximize its acceptance and impact. They should analyze the entire content value chain with their service providers to identify where GenAI can enhance human capabilities. Here are some of the opportunities that Genpact has already identified across corporate functions:

Finance. We're working with leading media conglomerates to modernize corporate financial planning and forecasting functions and drive adoption of GenAI. The month-end close, planning cycle, and performance reporting have been redesigned by embedding conversational analytics and intelligent insights. The C-suite now has better visibility of cross-business unit revenue associated with studios, subscription platforms, ad sales, and affiliates.

2023 has been the year of efficiency for media organizations, with long-awaited transformation projects kicking off. GenAI arrived at just the right time to show the benefits of standardized, shared services. We've deployed solutions in accounts payable and cash applications, automating AP helpdesks to read, analyze, and respond to supplier emails with minimal supervision and reimagining cash remittances by generating automated remittance details from customer emails.

Technology. In recent years, media IT leaders have lowered costs by leveraging agile DevOps and the cloud to roll out direct-to-consumer platforms but have still seen negative ROI. GenAI's automated code generation offers CIOs the opportunity to further reduce application development costs. We've built a proprietary platform that reimagines all stages of the development life cycle using GenAI — natural language processing for backlog management, knowledge graphs for architecture design, automated code refactoring for build, generative adversarial networks for testing, automated release note generation, and prompt engineering to automate ongoing performance optimization. Resulting cost reductions often exceed 40 percent.

Sales and marketing. Chatter through media companies' contact centers ramps up before big events, such as new releases or campaigns and provides valuable data to get to know customers better and identify areas for potential growth. Text mining efforts in the past could improve productivity and customer satisfaction, but GenAI is taking this to the next level. We're using it to deliver more accurate insights into the likely customer response to an announcement or campaign message. Empowered staff, aided by contextual prompts, are reaching new levels of productivity. And we've boosted revenue by increasing cross-selling and upselling.

We're also helping entertainment companies mine data from chat transcripts, asynchronous messaging systems, product reviews, and social intelligence. We're building private LLMs with product review classifiers, sentiment analysis tools, and topic modelers for unlabeled text data and testing using industry-standard statistical modeling approaches before being put into production. This results in improved customer and employee experiences, higher revenues, lower churn, and more repeat customers.

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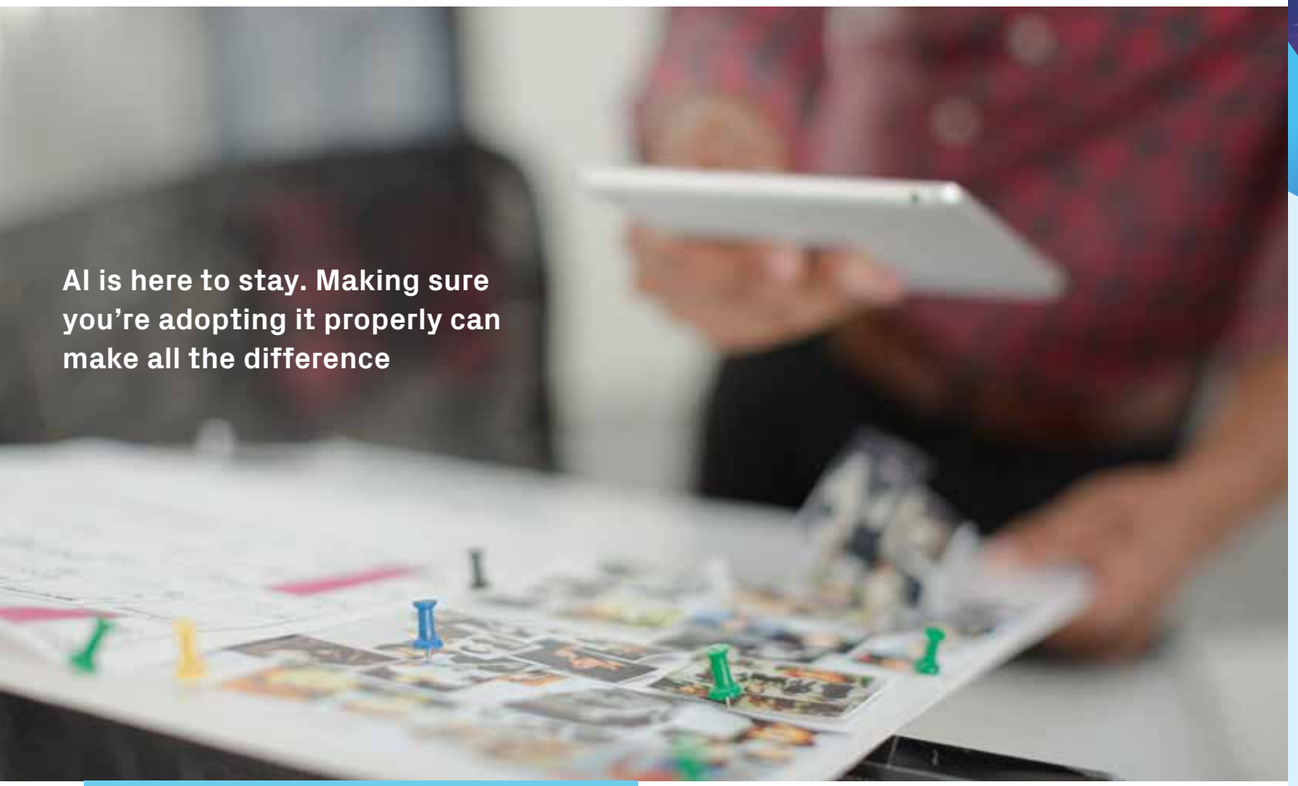
Brajesh Jha *is SVP and global head of media, publishing, and entertainment for Genpact. He has over three decades of experience in building and running professional services business at multi-billion-dollar companies. His organization delivers a range of services such as strategy consulting, process re-engineering, technology led transformations, target operating model design/implementation, and customer focused growth strategies. brajesh.jha@genpact.digital*

TO MAKE THE MOST OF AI, SCALABLE DATA MANAGEMENT IS KEY



AI is here to stay. Making sure you're adopting it properly can make all the difference

ABSTRACT: Generative AI is poised to revolutionize media and entertainment, but studios are rightfully cautious to avoid IP lawsuits. Rather than replacing creatives, AI can act as an assistant, removing the tedium of labor-intensive manual tasks like mockups, storyboarding, and file management. Regulation will shape how rapidly generative AI is adopted, but whenever and however studios adopt it, they'll face a data management crisis without the proper tools in place.

By Ryan L'Italien, Gaming, M&E Evangelist, Perforce Software

For many folks in M&E, the topic of generative AI is contentious. The dust has hardly settled on Hollywood's 2023 protests, and the AI protections in the resulting SAG-AFTRA agreement were dissatisfying for many people. Some studios have put an outright ban on using generative AI, for fear of facing costly lawsuits if the art it's trained on is copyrighted.

Still, many studios are feeling the pressure to adopt AI for fear of being left behind, and others are already beginning to experiment with it. It goes without saying that it's here to stay, and your team may already be looking at how to use it for time and cost savings. But before you overhaul your processes with AI, it's important to level-set about what it can realistically be used for

(hint: not replacing the creative process) and the infrastructure adjustments your team needs to make to take full advantage of it.

AI CAN LET CREATIVES DO WHAT THEY DO BEST

First things first: Generative AI cannot, and will not, replace human creativity. We will always need people to manage and revise AI's input and output. Otherwise, computers will be making content for other computers, and nobody wants that. In fact, a paper from Stanford and Rice University found that if you don't feed AI enough original, human-made content, it breaks, and its outputs suffer drastically.

It doesn't have the potential to replace a creative team, but it does have the potential to eliminate a lot of the tedium from creative work. For example, let's say you're creating art for a scene in which a thousand soldiers come storming over the horizon. You need to create a thousand realistic human faces.

Designing each of those thousand unique faces manually would take at least as many hours, and your team doesn't have time or bandwidth for that, so that isn't going to happen. Without generative AI, you may have to settle for a sea of copy-pasted faces that ruin the illusion and distract from the magic of the scene if your viewer looks too closely at them. With gen AI, you can make countless unique and realistic ones and automatically populate the models. Now you end up with a scene that's every bit as powerful as your team imagined it would be when you storyboarded it.

From generating preliminary mockups and rough storyboards, to renaming hundreds of files, to applying textures to thousands of files, AI can alleviate the tedium that plagues many creative workflows, letting artists focus on art — and making it easier for them to hold onto the creative spark that impactful content cannot be created without.

AGING TECH STACKS WILL CRUMBLE UNDER THE WEIGHT

AI is, and will continue to be, one of the most powerful and revolutionary tools in media and entertainment. Studios who are scrambling to make use of it are justified in doing so, but moving too quickly could create way worse problems for your organization down the road. You can't add AI onto an outdated tech stack.

FROM GENERATING PRELIMINARY MOCKUPS and rough storyboards, to renaming hundreds of files, to applying textures to thousands of files, AI can alleviate the tedium that plagues many creative workflows, letting artists focus on art — and making it easier for them to hold onto the creative spark that impactful content cannot be created without.

In my role at Perforce, I have worked with many M&E studios and found that teams, both small and large, have development pipelines straight from the 1990s and 2000s. In some cases, even large, established studios are having artists save files to their local machines, send them to each other via email, and have no secure way to share them with external collaborators. Many of these teams are already trying to implement modern technologies like real-time 3D engines, neural networks, and distributed render pipelines into their aging tech stack. It's no surprise they're running into countless issues, from file conflicts to storage issues, to slowdowns when trying to share and collaborate on art assets.

Many studios' tools and systems are already struggling to handle the immense data and iterations involved in creating a film or show, let alone all that's involved in using the latest tech. Many of their pipelines and workflows involve numerous manual processes, from the way they exchange files, track file versions, handle layers, and manage rendering. These inefficiencies compound into massive time sinks, in turn causing production delays. And time equals money.

AI will introduce even more processes and exponen-

Continued on page 102

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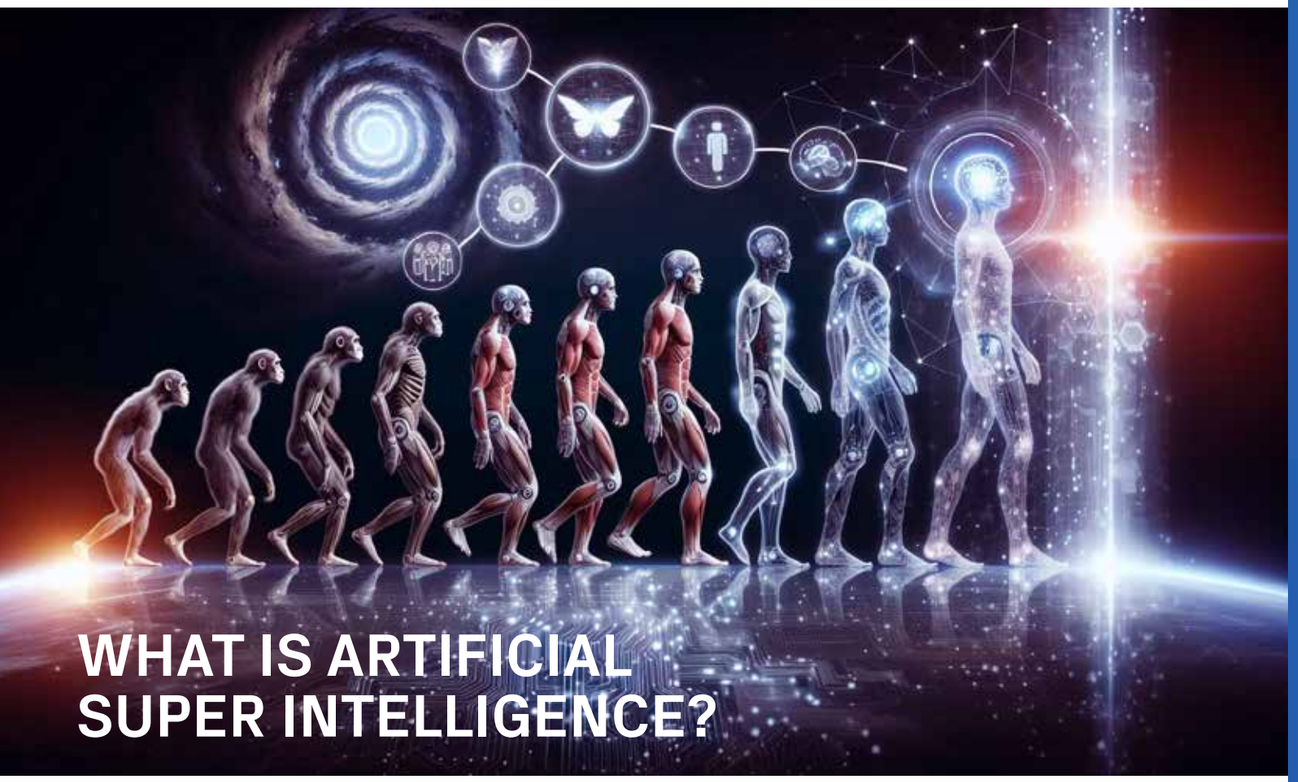

WHAT IS ARTIFICIAL SUPER INTELLIGENCE?

And how does it relate to the singularity?

By Jason Gish, President, Duplitech

ABSTRACT: Moore's law predicts that the number of transistors on microchips doubles every two years. What we are experiencing now suggests we are moving beyond Moore's Law and into a much faster paced technology-development cycle. Will we reach the singularity theorized by Vernon Vinge? What could this mean for our industry, our society, and humanity? And is this something we want? Or is it too late to make that choice?

The recent developments in AI have sparked a great deal of fear and speculation. The fearful worry that the potential of Vernor Vinge's "singularity" could result in robots running amok, no longer relying on humans to program them or direct them with prompts. A future where AI has grown beyond our ability to control it. But they also fear more realistic and tangible issues such as deep fakes; a video of a political figure or Hollywood star saying or doing things they didn't actually say or do. Or job displacement, which will certainly occur. The latter fears are more likely, in the near-term at least. But we shouldn't totally discount the former one. An ounce of prevention and all that.

I want to quickly address the immediate or near-term type of risk. Although they are very important concerns, they are not the most interesting parts of the cultural fear in my opinion. So, let's quickly discuss and then move on to the more complicated and scarier potential world takeover by AI.

I'm not suggesting there is an easy answer to people misusing AI to steal money, sway elections, misrepresent famous figures, and more. These fears exist for a good reason and are near-term problems we must deal with. There will be plenty of bad actors. Regulations and oversight around AI and its uses will help, but they will

not ultimately be preventative. New technologies to detect deep fakes, government agencies to pursue bad actors, and a highly critical and vigilant populace along with, hopefully, lots of other solutions will be needed. As serious as these concerns are, they do not pose the existential threat that the Singularity poses.

So, let's focus on the singularity itself; what it is and what AI must become to achieve it. To start, the term "AI" is not well defined. We need an agreed upon definition of AI and what it means to achieve the Singularity. Without a definition of a thing, how can we evaluate or understand it? I'm reminded of U.S. Supreme Court Justice Potter Stewart's lack of a definition of "hard core pornography" and instead stating "I know it when I see it" in the case of Jacobellis vs The State of Ohio. Justice Stewart's famous phrase is an argument for subjectivity, leading to further debate and confusion. So, let's not take the "I know it when I see it" position. Let's try to define what we mean by AI, what it is we fear, and maybe even if it is reasonable to fear it as an existential crisis.

We are trying to define machine/artificial intelligence and what happens at the point of the Singularity, which Vinge introduced in his 1993 paper. He defined the singularity as the point at which computers or machines have "superhuman intelligence," bringing about the end of the human era.

In AI discussions today, the term "artificial superintelligence" (ASI) has emerged. ASI seems to be the same as, or comparable to, Vinge's "superhuman intelligence." ASI is roughly defined as having intellectual scope and cognitive function beyond human intelligence. Human intelligence is foundational to Superhuman Intelligence and similarly to ASI. So, what does "human intelligence" mean? And what does it mean to go "beyond human intelligence."

A fundamental principle of human intelligence is awareness of the self. Currently, AI is not self-aware, instead AI is a tool used by humans to perform tasks. As an example, machine learning (ML) is the process of feeding lots of samples of a thing into the machine and then having the machine create something "new" based on its data set. I do not mean to downplay this skill. This is an incredible advancement in technology and may have great implications in our society, especially in healthcare access and equity. For example, having AI/ML that has access to millions of cases of cancer, the treatment implemented and the results, can elicit impressive and highly accurate assessments of new cases and best courses of action. A single doctor, or even a whole cancer treatment clinic, may only have the experience of dozens or hundreds of cases but AI can reference exponentially more cases. Although this, and other, incredibly valuable skills, will result from LLMs and ML, it would be a stretch to call it intelligence. At least not human intelligence. Again, current ML models are tools. Very powerful tools, but tools nonetheless. These tools do not have human intelligence of the sort referred to with the term ASI because it does not include an awareness of a self.

> *TO BE 'SUPERINTELLIGENT' AI must first have human intelligence. And since human intelligence requires self-awareness, then the understanding that there is a 'self' is crucial.*

To be "superintelligent" AI must first have human intelligence. And since human intelligence requires self-awareness, then the understanding that there is a "self" is crucial. Rene Descartes, in "Meditations on First Philosophy," discusses self-awareness in a fundamental way, of being aware that I am a thing that is thinking. AI does not yet do this. This discussion alone could get very complicated, further noting how difficult it is to understand how self-awareness occurs. And how difficult it may be for AI to ever attain it.

According to scholars, human intelligence also requires being able to reason; to answer the question "why?" and to form judgements. This requires a complex set of thoughts that include personal opinions, beliefs, ethics, morality, etc. If you ask a LLM to do some task and then ask why it did that task, it will only tell you some version of "because you asked for it". It is a tool. It cannot currently decide to do things on its own or have

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any sort of reasoning of why it did that thing, or even why it did it in any particular way. It cannot answer "why do I do what I do?" or "why did I choose this?" It can make no judgment of morality. It can only carry out tasks that it is prompted to perform.

These aspects of intelligence, self-awareness, and reason, are arguably the most important aspects of human intelligence, and a thing cannot have superhuman intelligence without having human intelligence. Therefore, these are also requirements of ASI.

Although AI does not yet have true intelligence as defined here, requiring "human intelligence", it does already have "super"; the "S" in the term ASI. AI already has access to huge amounts of data, and this reference library of data can be expanded to any size with recall speeds limited only by the size of the computer processing power. Anything that is currently on the internet and/or will be born digitally or could be ingested as digital information, could be part of a machine's reference library, making it "super." As opposed to a human who may not have access to all this information, and certainly couldn't process or reference it in any comparable way to AI. This has the potential to be, essentially, instant access to all recorded information. With current LLMs we already see how the "super" part of ASI is basically already possible and is improving every day by gathering more data.

So, we have a fair definition of ASI, but not how it comes to be; to get to the singularity. We don't understand how a machine gains human awareness. An analogy to Moore's law leads to the Singularity. If technology keeps progressing exponentially in shorter amounts of time, it should reach a point where it is out of our control, a singularity.

Gordon Moore, co-founder of Intel, and the source of Moore's Law, in 1965, was actually making a statement about the speed of the technological development of microchips doubling every two years by creating smaller and more powerful transistors. But this was based on the observation of a manufacturing process. Even though Moore's Law might soon be irrelevant in reference to microchip manufacturing, its intention may still be relevant in a broader sense of the exponentially increasing speed of technology.

As far back as 1957 Newel and Simon spoke about a point where computers would be able to problem solve at the level of a human mind. They put forth, arguably, an early concept of a Singularity, where computers are smart enough to make themselves smarter (Human Problem Solving 1972). The point at which technology is uncontrollable and irreversible.

Without much explanation of how that transition happens, we are guided by a rough extrapolation of Moore's Law, suggesting a point of no return of the exponentially increasing speed of technology. Nobody seems willing, smartly, to predict when the singularity might happen, but let's look at our progress so far.

- ***From life beginning on earth to humans took roughly 4.18 million years.***
- ***From humans creating stone tools to farming took over 2 million years.***
- ***Then another 9,300 years later we discovered electricity.***
- ***It took us another 2,260 years to produce our own electricity.***
- ***The first working telephone 276 years later (1876).***
- ***Radio in another 25 years later (1901).***
- ***First computer only 39 years later (1940).***
- ***First microchip 18 years later (1958).***
- ***First mobile phone 25 years later (1983).***
- ***First smartphone nine years later (1992).***
- ***In 1995 an autonomous vehicle drove from Pittsburgh to San Diego with almost no human assistance.***
- ***The iPhone came out only 15 years after the first smartphone (2007).***
- ***The first Tesla hit the road in 2008.***
- ***ChatGPT launched in November of 2022.***

It's notable that as technology accelerates, so does the adoption rating. For example, it took about 50 years for ubiquitous adoption of landline telephones, 10 years for cell phones, and five years for smartphones. And the tipping point of adoption of Teslas (and then other electric vehicles) on the road after the 2008 launch is arguably less than 10 years. More apt to this conversation, ChatGPT had 100 million users within a few months, nearly doubling its users over the next year.

So, when will the singularity occur, if it occurs at

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BALANCING INNOVATION AND RISK WITH AI-GENERATED DUBBING TECHNOLOGIES

ABSTRACT: AI-enabled dubbing presents legal complexities regarding copyright, data privacy, and accuracy. Upholding intellectual property rights and adhering to data privacy regulations are imperative. Security risks like hacking and data breaches threaten content integrity. Ethical considerations demand transparency and honesty in content manipulation.

By Nicole Quilfen,
Chief Operating Officer, Mediartis,
and Stephanie Iyayi,
Senior Vice President,
Legal, Privacy, Convergent

AI technologies are revolutionizing the media and entertainment industry, and bringing immeasurable creative and operational opportunities to the global localization and dubbing market. Localization service providers and content owners are sprinting to find secure, economic, and efficient AI-generated dubbing solutions to meet the high demand of localized content in native languages, from consumers and content providers, that continues to catalyze growth in the dubbing market in spite of industry-wide content budget cuts.

Our industry is at the forefront of a technological revolution. These disruptive and innovative voice technologies present rapidly evolving legal complexities with regard to data privacy, copyright law, intellectual property rights, right of publicity, and regulatory compliance for legal teams in the media and entertainment sector. Businesses must

TO NAVIGATE THIS FAST-CHANGING LANDSCAPE, media leaders need to understand where to selectively deploy GenAI to maximize its acceptance and impact. They should analyze the entire content value chain with their service providers to identify where GenAI can enhance human capabilities.

consider not only ethical issues and internal legal risks, but also the compliance of their AI service providers. This new era demands strategic and meticulous diligence in identifying and analyzing risks associated with generative AI development and deployment, in defining and implementing policies that protect and respect the entire dubbing ecosystem, and in selecting AI technology providers responsibly.

AI LEGISLATION

The world's first comprehensive AI legislation, the EU Artificial Intelligence Act (the "AI Act"), was approved by the European Parliament on March 13, 2024. The AI Act applies to providers who place or put into service AI systems on the European market, regardless of where they are located or established. Relying on a risk-based approach, the AI Act imposes varied requirements on businesses depending on the level of risk of AI systems and requires vendors to disclose training data and comply with copyright laws. Violations of the AI Act can incur penalties of up to 30 million euros, or six percent of a company's annual global turnover. The rise in copyright lawsuits against OpenAI, Microsoft, and others tech leaders, has businesses concerned about IP violations of AI-generated content and the legal risks of adopting third party systems that may put companies at risk down the line as legislators, regulators and policy makers look to the AI Act for inspiration in the rush to push through AI protection laws.

PRIVACY IMPLICATIONS

Voice data has been protected by the European General Data Protection Regulation ("GDPR") since it went into effect in May 2018. In addition, in the United States, the state of Tennessee passed the world's first legislation specifically addressing deep fakes and voice clones, the Ensuring Likeness Voice and Image Security Act (ELVIS Act) on March 21, 2024, to protect sound and voice from unauthorized usage by artificial intelligence.

Synthetic voice development depends on the ingestion of large datasets (input), meaning voice recordings, to train algorithms to produce accurate output. Where this training data includes personal data, the technology will be subject to applicable global privacy laws regarding transparency, consent, and data security.

Voice actor unions, guilds and associations worldwide have been publicly claiming that their members' works have been, and continue to be, illegally used to train AI-generated voice technologies. More than ever, companies need to ensure they are respecting actors' data privacy rights, some of which include alerting talents that their data is being processed, obtaining freely given opt-in consent of use that is 100 percent independent of work contracts and NDAs, securing voice data in all workflows across their organization (production, human resources, marketing, IT, etc.), and providing full transparency of the personal data that is being collected, processed and shared.

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AI IS CREATING NEW PARADIGMS

ABSTRACT: The value of data has risen proportionately as the media industry looks to artificial intelligence (AI) to streamline workflows, improve operational efficiency, and subsequently reduce costs. However, AI depends on data even as it creates new data in unprecedented volumes. As a result, data integrity must be the new imperative.

Data integrity is the new imperative

By Peggy Dau, Marketing Director, MetaBroadcast

Since the dawn of technology, persistent change has been the norm. The CEO of a Silicon Valley IT company once said that if you are uncomfortable with change, you are in the wrong business. Technology has improved productivity, resulting in greater efficiency. It has also disrupted existing processes, giving businesses and consumers new alternatives for creating and receiving value.

The latest technology to upend and reframe business methodologies is artificial intelligence (AI). It's not new. Consumers have been exposed to AI concepts for years through autocorrect, mapping services, and facial recognition. Businesses have adopted low-level AI in their use of automation. So, why is AI suddenly attracting the attention of industry leaders? Well, the underlying technology has gotten smarter and faster. Chips, or AI accelerators, are specifically designed to execute AI workloads efficiently. They can significantly improve the performance of AI algorithms compared to general-purpose CPUs or GPUs. This performance improvement allows faster training and inference times, enabling real-time or near-real-time AI applications.

With the proliferation of data from various sources, including sensors, IoT de-

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vices, social media, and digital platforms, advanced AI algorithms are necessary to process, analyze, and derive insights from large datasets efficiently. AI is now more accessible to anyone at home or in the office through various generative AI platforms. So, with this heightened awareness, it's time to clarify the importance of the relationship between data and AI.

DATA DRIVERS

The rise of data-driven decision-making not only influences the adoption of AI but also reinforces the importance of data itself. The DPP 2024 Predictions highlighted the importance of media organizations defining their data strategies. Throughout the media supply chain, data is critical to the effectiveness of various integrations and workflows. At the same time, high volumes of data are created at every stage, from creation to consumption.

The demand for cost reduction, streamlined workflows, and operational efficiency are the primary drivers of AI adoption across the media and entertainment industry. According to Grandview Research, the market value of AI in this sector is projected to reach $124.48 billion by 2028, a compound annual growth rate (CAGR) of 31.89 percent.

The application of AI will not only create efficiencies but also more data. The media and entertainment industry must ensure that the underlying data used to train AI engines is complete, validated, and unbiased. If the quality of the underlying data is in question, then the output is also problematic.

THE IMPORTANCE OF CLEAN DATA

With the rising use of generative AI (GenAI), media organizations must ensure that the data underlying GenAI platforms integrated with media workflows is accurate, comprehensive, and complete. GenAI incorporates algorithms and data models to create new data. If errors exist in the data used in these models, the outcome will magnify those flaws. On the other hand, clean data ensures that the generative model learns meaningful patterns and produces accurate and relevant outputs.

Generative AI has many applications, including image generation, text generation, music generation, and more. In each application, clean and high-quality data is essential for training accurate and realistic generative models. For example, in image generation, if the input images are blurry or contain artefacts, the generated images may also suffer from the same issues.

Preparing data for use in a GenAI model requires ensuring the data is in a consistent format and data schema. Understanding the source, provenance, and

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Peggy Dau, *currently the marketing director at MetaBroadcast, has been connecting the dots for tech companies enabling the media supply chain for 20-plus years. Her experience spans roles and projects with companies such as Hewlett-Packard Enterprise, Amino Communications, Avid, Grass Valley, Quantum Corporation and Microsoft. peggy@metabroadcast.com*

SMART CONTENT

The automation aspects of AI are especially eye opening for the localization areas of media and entertainment. Speech-to-text solutions, translation tools, live captioning and dubbing … the applications are broad, and the efficiencies are proven.

ABSTRACT: As automation transforms all industries, including media and entertainment, the focus shifts to automating content localization, traditionally a most challenging task. With ample language technology offerings available in the market, such as speech-to-text solutions and translation tools, this last frontier is gradually being conquered. OOONA leads the technological evolution, championing a future where automation in content localization is guided by human intelligence, ensuring thoughtful decision-making in the automation process.

By Ma'ayan Leeper Carr, CMO, OOONA

In an era where automation is not just a buzzword but a fundamental shift in operational paradigms across industries, the media localization sector is no exception. The drive towards speed, efficiency and scalability has led to the integration of sophisticated artificial intelligence (AI) solutions at every level. The rise of AI in media is a hot topic, with discussions centering around its potential to revolutionize the way we produce, translate, and distribute content.

The landscape is brimming with startups and tech giants alike, unveiling groundbreaking AI solutions tailored for the media. These innovations span various applications, from synthetic media to AI dubbing solutions, signaling a new era in media access and consumption.

LANGUAGE TECHNOLOGY: THE PAST

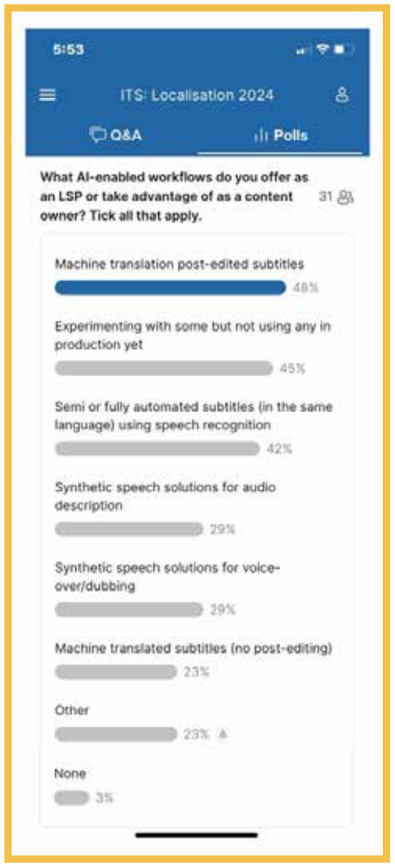
The reality is language technologies have been in use in the media for a while now for accessibility purposes. Both speech recognition and synthesis have been used for over two decades to provide media accessibility to the deaf and hard-of-hearing as well as blind and visually impaired viewers. In the case of the former, live captioning and subtitling services have long been produced with a human in the loop in the form of a respeaker (or voice writer, as they are called in the States) speaking the on-screen dialogue into an automatic speech recognition (ASR) system that churns out live subtitles and captions at the speed of the audio delivery. In the case of the latter, screen readers and audio subtitling have been used to voice on-screen text, while in the past decade audio description tracks have also been recorded with synthetic voices.

The advent of machine translation in broadcast media, however, marks a more recent milestone. Although early attempts trace back to the early 1990s, it wasn't until neural machine translation (MT) came along and streaming platforms like iflix and later Netflix adopted it that the technology gained traction in the media sector. The promise of the technology to localize vast libraries of content rapidly and cost-effectively for global audiences was too large to ignore and the fluency of neural MT too promising, so everyone started experimenting with it.

LANGUAGE TECHNOLOGY IN SERVICE OF MEDIA LOCALIZATION CHALLENGES: THE PRESENT

The application of language technologies in media localization can address several pressing challenges:

- ***Cost efficiency:*** Traditional localization workflows may offer high product quality, but they are labor-intensive and costly. Full or partial automation through language technologies can significantly reduce operational costs, making it viable to localize content for niche markets and languages as well as for distribution avenues such as FAST channels and the like which do not offer an upfront guarantee on the return on localization investment.



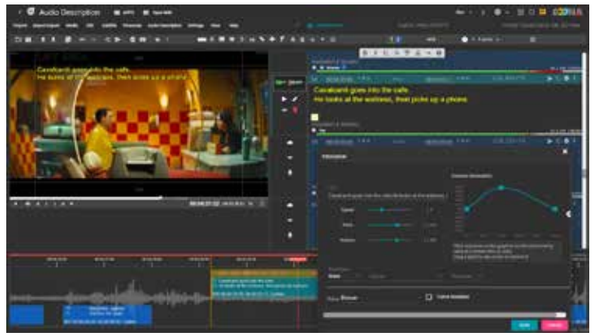
Poll results at MESA's ITS: Localisation! event in London on Feb. 29, 2024.

- ***Time-to-market:*** In the competitive landscape of digital media, speed is of the essence and day-and-date releases are becoming the norm. Language technologies streamline the localization process and as a result can reduce turnaround times from weeks to days or even hours, depending on the level of human involvement, thus enabling faster global distribution.

- ***Scalability:*** With the explosive growth of digital content, one of the foremost challenges is scaling localization efforts to meet global demand. Language tech-

Ma'ayan Leeper Carr, *CMO at OOONA, brings over a decade of experience leading marketing strategy and growth for several global B2B tech companies and start-ups across multiple industries. Now she is geared to make OOONA synonymous with the gold standard for media localization.* *maayan@ooona.net*

LANGUAGE SERVICE PROVIDERS ARE BEING CALLED ON TO DELIVER on all three aspects of the "speed, price, quality" trifecta without compromising on any of the three.



User interface for post-editing synthetic voices on OOONA.

nologies enable content providers not only to localize content faster and more cost-effectively but to do so in more languages and dialects than ever before.

■ ***Accessibility:*** Beyond translation, language technologies play a pivotal role in making content accessible to people with disabilities. Live intralingual captioning, subtitling and audio description are not just regulatory requirements but essential services that enhance the viewing experience for all.

■ ***Personalization:*** With the inclusivity afforded by accessibility services and the hyper localization of content into viewers' regional languages and dialects, language technologies make it possible for the first time to personalize access to content and truly break down language barriers globally.

Post-COVID recession in the market, paired with the resulting price pressure and a continuous demand to localize large volumes of content that could not have been localized at the time and the cost constraints of traditional workflows, has led to an increased push for the use of such technologies. Language service providers are being called on to deliver on all three aspects of the "speed, price, quality" trifecta without compromising on any of the three. One after the other, they are experimenting with and adopting fully automated and hybrid workflows where language technologies are the enablers of new product lines that can satisfy the demands of the market, as evidenced by recent stats and discussions at MESA's ITS: Localisation! event in London.

LEVERAGING LANGUAGE TECHNOLOGY: INTEGRATING AI IN MEDIA LOCALIZATION

OOONA, a leader in the field of software for content localization, is harnessing the power of AI to provide innovative solutions for localization workflows. Not only is it integrating speech recognition, machine translation and text-to-speech (TTS) engines into its vast array of tools, it offers such integration upstream, directly in its media localization management platform.

In OOONA's Integrated platform, AI is no more than an available resource to be selected in any given workflow. Once a video asset is available on the platform, it can be subtitled in the source audio language by a professional or by one of the available ASR engines. The same goes for any translation task. Such automation can carry on to post-editing by a professional with the relevant qualifications if the workflow envisages such a step. Once an AI-enabled workflow is set up, task initiation and succession take place in an automated manner and the completion of each step automatically triggers the next one in the process with the relevant resource notified.

When it comes to scripts, they can be recorded by voice talents or by one of the available synthetic voices in each TTS engine – audio description being the primary use case. Post-editing of the synthetic voice output is also possible for pronunciation, speed, pitch, volume etc. as all editable features of the TTS engine are made available in the OOONA user interface via API.

As client demand for these technologies increases, OOONA plans to adhere to its standard approach of prioritizing user feedback in further development ef-

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VOICE WITHOUT BORDERS

Revolutionizing localization with AI and Respeecher

ABSTRACT: Here we outline how Respeecher can revolutionize the process of localization, highlighting the technology's impact, practical applications, and future potential in making media content globally accessible.

By Alex Serdiuk, Co-Founder, CEO, Respeecher

As content creators strive to reach audiences across borders and cultures, the importance of localization has surged. Localization, the process of adapting content to suit different regions' linguistic, cultural, and technical requirements, is no longer just a trend but a necessity in today's interconnected world. However, it comes with challenges, such as needing authentic, native language voiceovers. Respeecher, a cutting-edge AI voice cloning company, is revolutionizing the industry. It offers unparalleled solutions to localization challenges, allowing content creators to adapt their content for global audiences seamlessly.

THE NEED FOR LOCALIZATION IN TODAY'S GLOBAL MARKETPLACE

Today, the demand for localized content spans various industries, from entertainment to education and corporate communications. With the proliferation of digital platforms and the democratization of media production, audiences have access to an unprecedented array of content from around the globe. However, to truly resonate with diverse audiences, content must speak their language, both figuratively and literally.

In the entertainment industry, the demand for multilingual content is driven by the desire to cater to audiences' unique preferences and cultural nuances in different regions. From Hollywood blockbusters to indie films, audiences expect more than just subtitles; they want authentic voiceovers that capture the essence of the original content while seamlessly integrating with their language and culture.

Similarly, in the gaming industry, where immersive storytelling and interactive experiences are crucial, localization is essential for engaging players globally. Game developers must ensure their content resonates with players from diverse linguistic and cultural backgrounds. Also, as businesses expand into new markets and educational institutions embrace online learning, the need for localized educational materials and training resources has never been more significant.

However, traditional localization methods often pose significant challenges for content creators. Hiring voice actors, recording studio sessions, and coordinating translations can be time-consuming and costly. Moreover, maintaining the content's original tone and emotional impact across different languages and cultures can be incredibly challenging.

THE DEMAND FOR COST REDUCTION, STREAMLINED WORKFLOWS, and operational efficiency are the primary drivers of AI adoption across the media and entertainment industry.

AN INTRODUCTION TO RESPEECHER AND AI DUBBING AND LOCALIZATION

Respeecher offers AI-driven voice cloning for localization, a solution to longstanding challenges associated with traditional methods. The company employs sophisticated machine learning algorithms to analyze and replicate the nuances of human speech, enabling content creators to generate authentic voiceovers in multiple languages with unparalleled accuracy.

Respeecher's AI algorithms are trained to understand and mimic the nuances of the target voice, allowing it to generate synthesized speech that closely resembles the original speaker. This process involves training the AI model on a dataset of recordings from the target speaker, which may include various speech samples and emotional expressions to capture the full range of their vocal performance.

Once trained, Respeecher can synthesize new speech samples in the target voice, allowing content creators to generate lifelike voiceovers in multiple languages with remarkable accuracy. Moreover, it can be done in real-time (speech-to-speech technology).

CASE STUDIES: RESPEECHER IN ACTION

Following the untimely passing of renowned DJ and musician Avicii, Aloe Blacc, one of his esteemed collaborators, sought to honor his legacy. On the fourth anniversary of Avicii's death, the musician performed and recorded Avicii's chart-topping hit "Wake Me Up" in five languages: English, Mandarin, Spanish, Italian, and French.

Leveraging Respeecher's AI voice cloning tech and expertise, Aloe Blacc's multilingual rendition aimed to introduce Avicii's music to a global audience, transcending language barriers and fostering a deeper appreciation for his talent. This project exemplifies Respeecher's capacity to facilitate cultural exchange and connect diverse communities through the universal language of music.

The timeless villainy of Darth Vader from the "Star Wars" franchise hinges on his imposing presence and unmistakable voice. When the iconic actor James Earl Jones retired, leaving a void in the role of Darth Vader for the latest Star Wars TV series, Disney turned to Respeecher's voice cloning technology for a solution. Through advanced machine learning algorithms, Respeecher recreated the Hungarian voice of Darth Vader, ensuring that the character retained his menacing allure and international recognition. This project showcases the company's ability to seamlessly integrate new technology with beloved cultural icons, providing audiences with an authentic and immersive experience.

In both instances, Respeecher's technology has facilitated the localization of content on a global scale, whether it be reviving iconic characters or honoring musical legacies. By leveraging Respeecher's innovative solutions, organizations can effectively localize their content for diverse markets, whether for AI dubbing and localization of foreign films, creating multilingual educational materials, or launching global marketing campaigns. The benefits include enhanced audience engagement, accelerated turnaround times, and cost savings.

THE ADVANTAGES OF AI-DRIVEN LOCALIZATION

One of the primary advantages of AI-driven localization is its ability to preserve the authenticity and emotional impact of the original content across different languages and cultures, unlocking new possibilities for audience engagement and content accessibility. Unlike traditional dubbing methods, which might result in a loss of nuance and emotional resonance, AI-driven localization enables content creators to capture the subtle nuances of human speech, including tone, emotion, and intonation.

Moreover, AI-driven localization offers unparalleled scalability and efficiency, allowing content creators to

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UNLOCKING NEW REVENUE OPPORTUNITIES THROUGH AI-ENHANCED LOCALIZATION

Localization is not just about reaching more viewers anymore

ABSTRACT: Localization expertise and in-region knowledge are key to achieving superior viewer satisfaction and global content monetization. The focus must be on the entertainment experience of the end viewer, delivering high-quality dubbing and artfully crafted subtitles, while integrating advances in AI technology to increase efficiency on all fronts.

By Matteo Natale,
Head of Global Localization, Vubiquity

In the dynamic landscape of global entertainment, delivering diverse content through accessible and relatable formats is not just good business — it's essential. The rise of streaming giants like Netflix, Amazon Prime Video, and Disney+ has ignited an irreversible trend for exceptional localized content. But with a global audience comes a vast array of cultural and language nuances, making localization an increasingly complex process that requires deep expertise.

In today's data-driven world, AI offers localization service providers a unique opportunity to expand the reach and impact of that expertise by streamlining and enhancing processes. Like all things AI, it's not a magic wand and it cannot replace human expertise and creativity. But it can help providers offer more targeted, efficient, and cost-effective services to their clients, creating new revenue opportunities and increasing content accessibility in the process.

EXPANDING REACH AND REVENUE

Localization is not just about reaching more viewers; it's about unlocking new revenue streams. By making content accessible to as many audiences as possible, content owners can further monetize their assets by expanding to niche markets that are typically underserved by localization efforts. AI-enhanced localization facilitates the exploration of languages beyond the commonly localized ones, thus addressing a critical gap in global content accessibility.

BREAKING NEW GROUND WITH AI-ENHANCED LOCALIZATION

The integration of AI/ML-powered tools, such as Vubiquity's language and transcription technologies that incorporate best-in-market innovations like OpenAI's Whisper Platform, has revolutionized the localization process. These technologies enable rapid and accurate translation, subtitling and dubbing of content into languages that were previously considered economically infeasible due to the high costs associated with traditional localization methods. By automating significant portions of the localization workflow, service providers can efficiently produce localized assets for languages with smaller speaker populations or complex linguistic structures. This enables immediate accessibility to new and underserved regions, expanding content monetization potential in the process.

TRANSLATION IS ONLY PART OF THE EQUATION …

Localization extends beyond just language translation. It involves adapting content to the cultural norms and expectations of a specific region or country. This includes everything from dialogue, music and jokes to cultural references, product placement, and even character names. Ultimately, it's about creating an immersive experience for the viewer that feels as if the content was originally created for them.

However, localization encompasses more than just extending content accessibility across various regions and cultures; it also includes timed-text accessibility features such as closed captioning and audio description, creating a more inclusive experience for all viewers.

… SINCE YOU ALSO NEED IN-REGION EXPERTISE

To successfully localize content, having in-region knowledge and expertise is crucial. Viewers know immediately when something doesn't translate (literally or figuratively). Localization experts with deep knowledge of a region's cultural nuances, slang, and idioms can adapt content in a way that resonates with the local audience. This level of expertise not only enhances the quality of localized content but also helps avoid potential misinterpretations or a cultural faux pas.

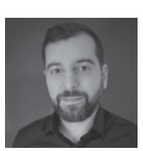
While AI significantly enhances the efficiency and scope of localization, the importance of human oversight cannot be overstated. Integrating AI tools with the expertise of in-house, external translators, and studio partners worldwide ensures that localization services uphold the highest standards of linguistic quality and cultural sensibility.

A VISION FOR GLOBAL CONNECTEDNESS

The integration of AI into localization processes represents a pivotal shift towards a more connected and accessible global content landscape. As we continue to innovate and expand our localization capabilities at Vubiquity, our goal remains clear: to bridge linguistic and cultural divides, fostering a deeper understanding and appreciation of diverse stories and perspectives.

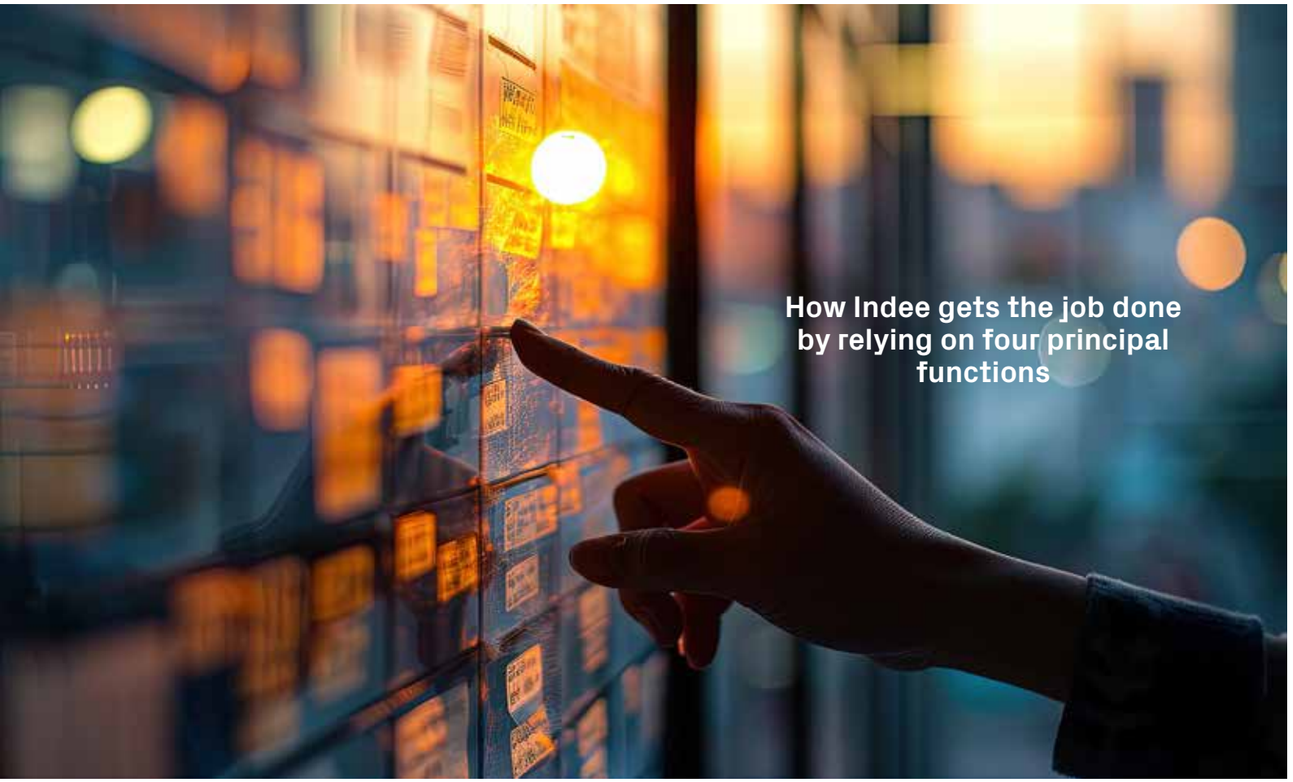
By embracing AI-enhanced localization, the media and entertainment industry can unlock unprecedented opportunities for global content accessibility and revenue generation. It's a future where every story finds its audience, and every voice is heard — regardless of language or geography. ⊞

LIKE ALL THINGS AI, IT'S NOT A MAGIC WAND and it cannot replace human expertise and creativity. But it can help providers offer more targeted, efficient, and cost-effective services to their clients, creating new revenue opportunities and increasing content accessibility in the process.



Matteo Natale, *Vubiquity's head of global localization, is a 20-year industry veteran who pioneers quality-focused localization and access services. Continuing to navigate the ever-evolving media environment, he helps entertainment providers to move audiences around the world by harnessing the latest technologies, the right professional talent, and the power of audiovisual communication.*
mnatale@vubiquity.com

THE PRIMARY COMPONENTS OF INDEE



By Sharan Reddy, CEO, Founder, and Vivek Venugopalan, CTO, Indee

ABSTRACT: Indee handled more than 70 percent of the studios' film titles for the 2023 awards season. Here we will explain how Indee's purpose-built video platform manages harmonization, transcoding, watermarking, and delivery of media via human and artificial intelligence with the highest level of security.

To understand where AI and integration play a key role at Indee we delve into the inner mechanisms of our product, while also exploring the technical intricacies of how some of the features are implemented.

The Indee product comprises four principal functions from an end-user perspective. As an enterprise customer, when you choose Indee as your video distribution system there are four stages your content goes through before it can be viewed by your intended audience.

Content ingestion: This is the process of uploading your content to Indee for processing. We achieve this through a collection of APIs that are referred to as the ingestion APIs. These APIs help create metadata about the content by creating the appropriate Indee entities such as 'project' and 'video'.

THE INDEE PRODUCT COMPRISES four principal functions from an end-user perspective. As an enterprise customer, when you choose Indee as your video distribution system there are four stages your content goes through before it can be viewed by your intended audience.

At Indee, content ingestion is the first integration point. When a customer uploads media files, our primary objective is to expedite this process, ensuring that content is uploaded within the shortest possible timeframe. To achieve this, we offer a highly scalable endpoint specifically designed to accommodate the swift and seamless upload of content. Furthermore, our platform facilitates multiple uploads concurrently, enabling numerous users to upload content simultaneously. Consequently, the implementation of a highly scalable endpoint is the fundamental component of this process. To realize this objective, we capitalize on the robust capabilities of our cloud provider, harnessing a multitude of resources to bolster the efficiency and scalability of content ingestion.

This content ingestion initiates automated processing, where we swiftly verify media compliance with Indee's specifications by checking audio and video streams. If the media is determined to be fit for use, we promptly convert it to an internal standard format for downstream processing. Subsequently, Amazon Web Services (AWS) MediaConvert processes the media to a standard internal representation and storage.

Traditionally, we had custom web-based applications for our customers. As we onboard more technology-savvy customers, there is a clear ask for using ingestion in an automated fashion. Thus, we have launched the "Ingestion API" where the entire process of moving content and content-specific metadata to Indee can be directly integrated into the client's system through a set of REST APIs provided by us.

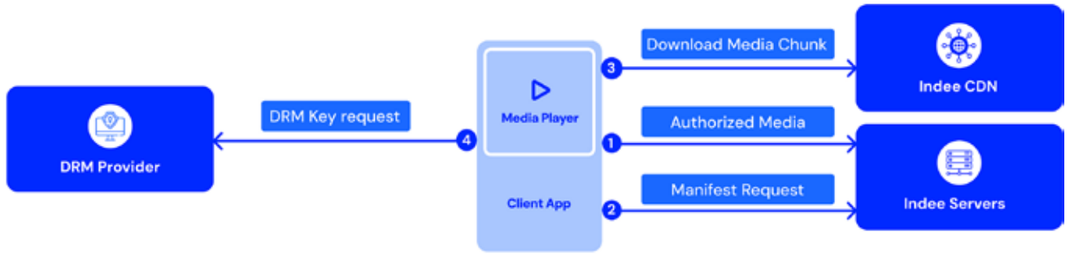
CONTENT PROCESSING AND MANAGEMENT

Once media has been ingested, Indee allows the creation of screeners. A screener represents an instance of the uploaded media that is created to be shared with a specific viewer. They can have specific rules such as expiration dates, maximum number of views, different levels of security, and so on. A collection of such screeners can be organized into various logical groups and presented to viewers.

A set of automated steps comes into play when content processing occurs. First, the video is converted to multiple bitrates to support adaptive streaming. This is followed by our core security feature, watermarking. Depending on the type of watermarking chosen, Indee's video subsystem can launch a few to several thousand servers to process various copies of the video to burn-in the appropriate watermarking patterns on the videos.

The challenges in the watermarking step are multifold. Launching multiple video processing servers is expensive and time-consuming. Our system optimizes both for cost and the completion time. It uses a priority-based queuing system to provision servers on the go and trigger the processing of the video. During processing, the system is designed to accommodate various types of failures and requeues the videos dynamically based on the time available to complete the process. Once the transcoding is completed, the media is moved to our content distribution network (CDN).

To enable our customers to create custom watermarking videos directly from their current workflow, our processing workflows are available as REST APIs as well. This allows customers to determine the expiration date of the screener, the type of security, and the exact watermark content etc., for every individual video that they want to share with their customers. This facilitates an intricate orchestration of video delivery from within client environments.



MANAGING AUDIENCES

Viewers in Indee can be grouped into distinct audiences and audience-specific content can be shared across the entire audience with additional metadata.

Audience Management allows customers to create specific campaigns targeting customer segments. The process involves creating an audience list of names and email addresses which can be uploaded to Indee. Clients can customize their content for each audience segment right down to the watermark. The Indee system then performs an operation that is similar to a "mail merge" and securely dispatches thousands of emails to recipients, each personalized with their screeners.

Our system also integrates with various email delivery systems to successfully deliver the email and track failures of delivery, if any.

VIEWING CONTENT

Screeners on Indee are accessible on viewing apps, or through an API on the client's custom viewing applications. Our native Roku, iOS and Android TV apps ensure that your content reaches audiences on all devices. We provide customized branding for the content, multiple swim lanes for categorizing content and control over screener expiration dates. We have also enhanced viewing experience and ease of access by incorporating OTT like features such as adding favorites, resuming playback from where they left off, etc.

To view a video, a multitude of systems and subsystems must work together. The client-side application, whether it is a web or native TV application, is a custom application developed by Indee for viewing authorized content. This application first makes a call to the Indee systems to obtain a list of authorized content and displays the same.

Once the user selects a particular media to be played, the application requests for the media manifest files (MPD/M3u8) for media playback.

The manifest files provide the DRM key information and the media chunks to be downloaded for playback. The player initiates the media chunk downloads from the CDN while making a request to the DRM provider for decryption keys.

During video playback, the system continuously monitors and records user engagement, including watched duration, pauses, forwards, and location via IP address and watch times. This data forms the basis for watch analytics.

THE INTELLIGENCE LAYER

Across the four stages, there is an overarching intelligence layer that records the user behavior. This information forms an audit trail of key actions taken by the user on Indee systems. The audit trail covers both the end user and Indee support personnel.

The additional intelligence we are building on top of the audit trail is to discern periodic patterns in user

Continued on page 106

Vivek Venugopalan *is the CTO of Indee and has decades of experience driving innovation as a technology leader. At Indee, he oversees all aspects of technology, from establishing policies regarding tech infrastructure to researching and developing new tech for production. His passion lies in building massively scalable internet businesses by leveraging cutting-edge technologies. vivek@indee.tv*

Sharan Reddy *is the CEO and founder of Indee. He previously worked as a consultant at Deloitte, where he worked with Disney on some of their IP security. He is focused on product and customer feedback loops at Indee and can't believe how dry this profile makes him sound. sharan@indee.tv*

SECURITY & WORKFLOW

Finding the right server blocking approach for your anti-piracy strategy, the ins and outs of a zero-trust cybersecurity strategy, detecting deepfakes, future-proofing contracts and rights management systems, and building an ultramodern production and media hub from the ground up. Here are some of the latest innovations in the security and workflow corners of media and entertainment.

BLOCK PARTY: WHY WE SHOULD MOVE TO SERVER BLOCKING

How to select the right blocking approach for your anti-piracy strategy

ABSTRACT: Piracy costs the U.S. economy billions of dollars and rather than just focusing on front-end pirate services to combat it, we should focus on video delivery servers. Executed through legal orders at the local level, server blocking is a network-level enforcement mechanism holding immense potential for broadcasters, content owners, and rights holders. With it, organizations can safeguard revenue streams, redirect diverted audiences, and significantly mitigate piracy.

By Robin Boldon, Head of Product, Friend MTS

To mitigate the threat of video piracy, media and entertainment companies are increasingly exploring blocking: a sophisticated enforcement method that is designed to stop piracy more effectively than traditional methods.

Essentially, blocking disrupts access to illegal content. Once an organization has determined that content is being stolen, blocking can be deployed to make a rapid and considerable impact, cutting off access to illegal streams and helping content owners and rights holders secure their revenue.

Though it may sound like an easy solution in principle, there are many levels and types of implementations to be considered, including static, dynamic, domain, etc. Most blocking implementations combine several of these, and it can be overwhelming to know which solution is best suited to address the specific requirements of an organization's unique piracy challenge.

THE RIGHT BLOCKING TYPE WILL VARY depending on several factors, including the nature of the content, the location of licensed legitimate transmission and the regional legislation.

The right blocking type will vary depending on several factors, including the nature of the content, the location of licensed legitimate transmission and the regional legislation. This article explores two proven types: Dynamic Domain Blocking and Dynamic Real-Time Delivery Server Blocking.

DOMAIN AND DYNAMIC DOMAIN BLOCKING

Domain blocking works by deleting certain records in the Domain Name System (DNS), which is essentially the phonebook of the internet. If an address has been subject to a domain blocking order, the record of the domain is removed from the public register so that when someone types in the URL in their browser, no result will appear.

Domain blocking is one of the most popular forms of supply side content protection actions that allows internet service providers (ISPs) to block access to pirate websites, following specific legislation issued by the appropriate regional authority. It can be especially effective in changing consumer behavior, as potential workarounds can involve a high level of inconvenience for consumers.

This type of blocking is a technical tool and one approved by legal governing bodies in 40+ countries including Argentina, Canada, Denmark, France, Germany, Japan, Spain, and the UK. These regions have either adopted and implemented or are legally obligated to adopt measures helping to ensure that ISPs can block access to copyright-infringing websites.

Unfortunately, pirates are persistent and can use new domains and URLs that provide access to the same websites. These new sites can usually be discovered through search engines and social media. Luckily, there's a solution to counter that approach too: dynamic website blocking. Using dynamic website blocking means that ISPs can block access not just to the primary pirate website but also to the subsequent mirror sites that pirates create to circumvent the initial injunction order.

Dynamic domain blocking is a great way to tackle web-based piracy. However, according to Friend MTS' proprietary intelligence, this type of piracy can represent only a small minority of piracy consumption.

Specifically, it doesn't solve access to illegal live sports content across the whole piracy landscape because there simply aren't any websites to block as the problem can stem from pirate apps, illicit streaming devices, add-ons, or plugins. If this is the challenge you're facing, it's time to explore server blocking.

REAL-TIME DELIVERY SERVER BLOCKING

Unlike blocking orders used to target particular websites, dynamic delivery server blocking is a network-level enforcement mechanism that focuses on video delivery servers in real-time.

Server blocking in content security is an effective method of restricting access to pirate content, to encourage viewers to turn to legitimate alternatives. Executed through a legal order for local jurisdiction, server blocking is a network-level enforcement mechanism that can offer immense potential for broadcasters, content owners, and rights holders.

Pioneered by Friend MTS in 2017, Dynamic Real-Time Delivery Server Blocking focuses on video delivery servers, rather than front-end pirate services. With a server blocking approach, access to illicit servers can be restricted in real time, drastically reducing the number of illegal streams available, driving viewers to legitimate alternatives, and therefore helping to maintain the value of that content to the platforms that have licensed it. It has been implemented for rights owners and broadcasters around the world, with a proven impact on piracy consumption and conversion to legitimate commercial services.

Continued on page 103

***Robin Boldon** is head of product for Friend MTS. With a wealth of experience delivering content protection programs for some of the world's most well-known rights owners, Boldon works with key accounts to ensure successful partnerships. He previously held senior positions at the intersection of broadcast, post-production, rights, and content distribution, spending nearly 20 years at the BBC including leading supply chain strategy for BBC Worldwide.*

ZERO TRUST MACHINE LEARNING: A PIONEERING APPROACH IN CYBERSECURITY

Venture into the application of zero trust principles within the realm of video entertainment and broadcasting

ABSTRACT: This article delves into the transformative shift in cybersecurity strategies required to navigate the evolving computing landscape, marked by the widespread adoption of bring your own device (BYOD) policies, edge computing, and cloud-based services. With the increasing integration of machine learning (ML) and artificial intelligence (AI) across various sectors, safeguarding the security and integrity of these technologies will become a critical concern. Traditional security frameworks will often fall short when confronted with the distinctive challenges presented by AI/ML systems, which will include their complex nature, opaqueness, and vulnerability to novel threats.

By Will Hickie, Data Science Architect; Phil Eisen, Product Owner; Robert Durand, Senior Systems Architect, Irdeto

In an era characterized by rapid digital transformation and escalating cybersecurity threats, traditional security models are proving inadequate. This challenge is further compounded by a significant portion of the workforce operating remotely and the expected proliferation of 64 billion IoT devices by 2025. The massive scale and complexity introduced by these developments, alongside the adoption of edge and cloud computing, necessitate a revaluation of our cybersecurity strategies. The once-effective centralized, gatekeeper approach to security is now insufficient to handle the vast and varied digital landscape, prompting a move towards more innovative and adaptive security solutions.

This need has led to the emergence of the zero trust model in cybersecurity. Zero trust operates under a simple yet radical principle: trust nothing and verify everything. It negates automatic trust for any entity, irrespective of its position relative to the network perimeter, advocating for a shift from network segment security to direct resource protection. This approach acknowledges the dynamic nature of modern network boundaries and posits that a security breach is a question of "when," not "if," necessitating continuous verification of all access requests to bolster digital asset security.

The integration of zero trust principles into machine learning (ML) and artificial intelligence (AI) heralds a significant advancement in cybersecurity, leading to the development of zero trust ML. This innovative approach leverages the zero trust framework to address the unique security challenges and opportunities within the ML/AI domain. By embedding zero trust principles into ML/AI systems, the aim is to navigate and mitigate the complex security vulnerabilities inherent to these technologies, thus enabling the creation of more secure, reliable, and resilient AI-driven solutions for our highly interconnected digital world.

THE JOURNEY OF INTEGRATING ZERO trust principles with AI/ML is ongoing, characterized by continuous advancements and a commitment to a more secure digital future.

PARADIGM SHIFT IN SOFTWARE DEVELOPMENT

AI and ML represent a paradigm shift in software development, moving beyond traditional programming towards statistical models capable of autonomously identifying complex patterns and inferring rules from vast datasets. This has had a profound impact across a spectrum of technological domains, most notably within the realms of natural language processing (NLP) and machine vision. The advent of advanced large language models (LLMs) such as ChatGPT, generative image models such as Midjourney, and even the wide scale prevalence of ultra-rapid and highly accurate face detection, has marked a significant milestone in the way machines understand and interact with us.

However, the transformative potential of AI/ML systems does not render them immune to the security vulnerabilities that afflict conventional software. The complexity and the opacity of many AI algorithms complicate vulnerability diagnosis and mitigation. Furthermore, AI/ML systems are prone to unique attack vectors, such as adversarial and cloning attacks, which pose significant concerns in critical applications like autonomous driving.

While the way in which AI/ML systems are used is varied and diverse, the mathematical operations under-

***Robert Durand** is a senior systems architect for Irdeto. He has worked for more than 30 years as a source-to-source compiler. Durand was the first to perform reengineering of language into modern language and after to perform code obfuscation. His main areas of interest are compiler, formal language, and obfuscation. Lately, he has developed an interest in artificial intelligence and the possibility of merging the two fields together.*

***Phil Eisen** is a product owner with Irdeto. He is the co-inventor of whitebox cryptography and helped design CloakedCA, the world's first cardless Conditional Access solution. He has been with Irdeto since 2001.*

***Will Hickie** is a data science architect within Irdeto's Advanced Technology and Innovation unit, where he investigates new technologies in the domains of machine learning, artificial intelligence, and cyber security. Will has extensive experience in both software development and applied AI/ML.*

A Deep Dive Into Deepfake Detection

By Levent Özparlak, Emerging Technology Manager, Advanced Technology, Innovation, Irdeto

Deepfake technology, characterized by its ability to generate highly realistic digital impersonations, is making significant waves in the video entertainment industry, while simultaneously presenting unique challenges for content protection. Utilizing sophisticated artificial intelligence (AI) methodologies, including deep learning and generative adversarial networks (GANs), deepfakes have the capability to alter appearances and voices with exceptional accuracy. These AI-driven processes meticulously replicate human expressions and speech patterns, producing content that increasingly blurs the line between reality and fabrication.

The genesis of deepfakes, derived from "deep learning" and "fake," highlights the intricate AI algorithms that underpin the creation of these convincing digital deceptions. The technology's intricate workflow involves AI models — encoders and decoders — processing visual or audio inputs to regenerate them with a superimposed likeness. This not only requires substantial computational power but also relies on extensive datasets of the target's visual or auditory elements, emphasizing the sophisticated technology driving deepfakes.

As deepfakes evolve, their impact on the video entertainment industry is twofold. On one hand, they offer groundbreaking opportunities for creativity and innovation. Deepfakes can rejuvenate actors in films, bring historical figures to life in educational content, and even allow for posthumous performances by iconic artists. Such applications enrich storytelling and offer audiences new and immersive experiences that were previously beyond the realm of possibility.

However, the rapid advancement of deepfakes poses significant concerns, particularly regarding content authenticity and protection. The ability to create convincing fake content can undermine the integrity of original works, leading to issues of copyright infringement and unauthorized use of likenesses. This not only affects the reputation and financial viability of content creators but also erodes audience trust in the authenticity of what they view.

Deepfake incidents

The darker side of deepfake technology is significant and growing. Incidents of deepfakes include scams, such as the case in Hong Kong where a deepfake of a company CFO was used in a fraudulent scheme to mislead employees into transferring funds over 25 million dollars. Similarly, political manipulation is a rising concern, illustrated by Iran-backed hackers broadcasting deepfake news to disrupt TV streaming services in the UAE, thereby sowing misinformation and distrust. Deepfakes pose a substantial threat to journalism and the integrity of public discourse, as they can be employed to fabricate news, impersonate public figures, and create false narratives, undermining trust in media and institutions. Recent developments happening around the leakage of explicit photos of Taylor Swift, which turned out to be another deepfake incident are almost impossible to neglect and unsee.

Given these concerns, there is a pressing need for strategies to mitigate the impact of deepfakes. This includes the development of detection technologies, digital literacy campaigns to educate the public on the existence and identification of deepfakes, legal and regulatory measures to combat malicious uses, and ethical guidelines for creators. Platforms and policymakers are urged to collaborate in establishing standards and practices that balance innovation with privacy, security, and authenticity to safeguard against the potential harms of deepfake technology.

Developing new technologies

In the content protection industry, the challenge is to develop robust mechanisms to detect and mitigate the use of unauthorized deepfake content. The current trajectory of detection technologies has moved from analyzing inconsistencies to deploying more sophisticated AI-driven methods. The application of transformer models and Vision Transformers (ViTs) in detection represents a significant advancement. These models, adept at dissecting images and audio into sequences, enable a deeper analysis that is crucial for identifying the subtle anomalies indicative of deepfake manipulations.

Research efforts, such as those from Stanford University and the University of California, Berkeley, demonstrate that deep learning models can achieve high accuracy rates in detecting deepfakes. This is a testament to the progress being made in safeguarding digital authenticity. Yet, the dynamic nature of deepfake technology means that as detection methods evolve, so too do the techniques for creating more convincing deepfakes. This ongoing "cat-and-mouse" game necessitates continuous innovation and adaptation in detection strategies to stay ahead of the curve.

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Levent Özparlak is the emerging technology manager at Irdeto. He has more than 20 years of experience in academic and corporate environments in the research, innovation, and ideation fields.

lying them are surprisingly uniform. Unlike traditional software, which uses hundreds of unique operation types to control the flow of information, systems like neural networks use repeating homogenous patterns of neurons and synapses (expressed using linear algebra).

This uniformity in how AI/ML systems are expressed makes it much easier to implement scalable and robust innovative security strategies. Neural networks, despite performing varied tasks, share a foundational uniformity conducive to the development of comprehensive security protocols applicable across different AI/ML models in ways that simply couldn't be imagined with traditional software.

NEURAL NETWORKS PATTERNS

In-depth research into AI/ML security has revealed that the predictable operational patterns of neural networks can be leveraged to devise sophisticated security frameworks. By integrating security concepts, such as encryption and data authentication into the pathways connecting the layers of neurons within a neural network it is possible to establish a controlled environment. This environment significantly reduces the risk of unauthorized access and manipulation, enhancing the security of AI/ML systems and contributing novel defense mechanisms tailored to the specific demands of AI-driven technologies.

In other words, it's possible to re-wire an existing neural network so that it only operates on data from a specific source, while producing data in a manner that is intelligible to all but the intended recipient.

Consider the transformative potential of this approach, for example in healthcare. Traditional methods process medical data uniformly for all users, exposing sensitive information to security breaches. However, by applying zero trust ML principles, security measures can be customized for each user. This method encrypts and secures the data and processing uniquely for every individual, significantly enhancing privacy and security. In this way a breach in one instance does not compromise another's data.

Furthermore, zero trust ML enables the restriction of a system's deployment to specific, authorized devices or locations, essential for organizations aiming to leverage their proprietary ML models without risking unauthorized replication or misuse. This control ensures the safeguarding of intellectual property while facilitating the broad application of these innovations.

A pivotal component of zero trust ML is the use of data transforms, a technology enabling operations on encrypted data without necessitating decryption. This innovation, developed by Irdeto, secures neural network operations, keeping them confidential and protected from tampering, thereby preserving the intellectual property and integrity of ML models.

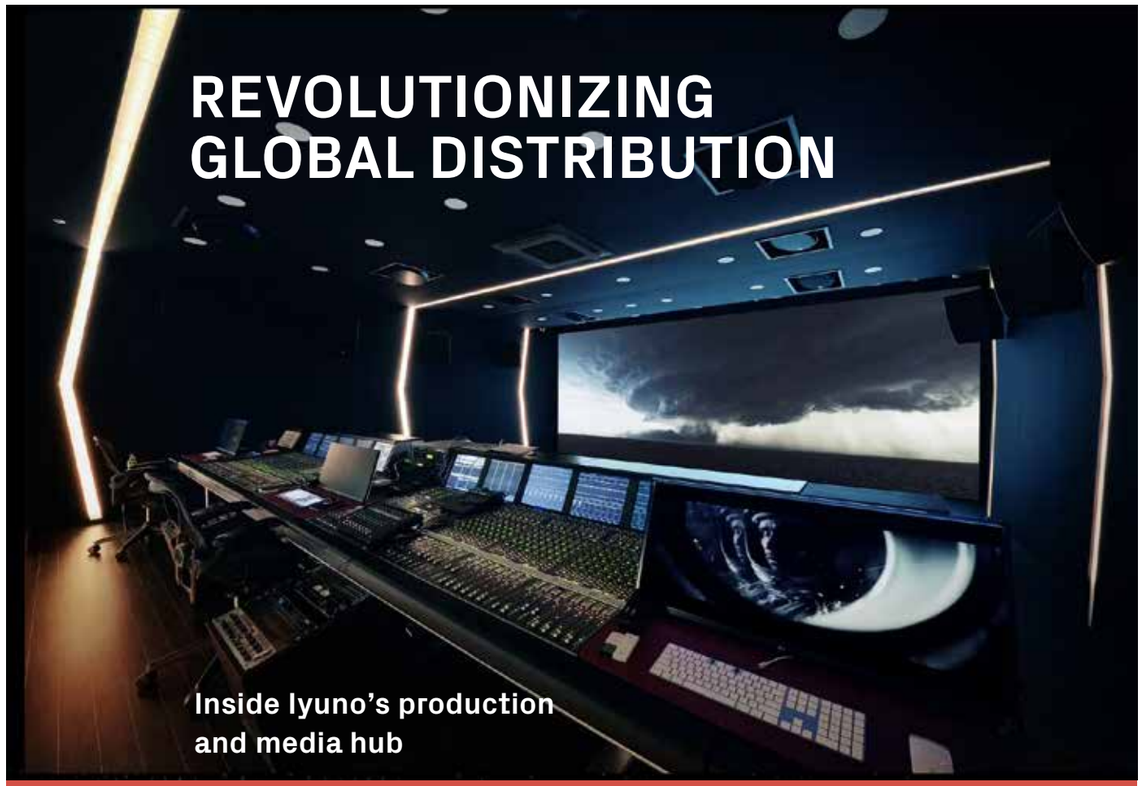
The journey of integrating zero trust principles with AI/ML is ongoing, characterized by continuous advancements and a commitment to a more secure digital future. Although no security measure can guarantee absolute invulnerability, the adoption of zero trust ML represents a significant step forward. This approach builds on proven technologies to tackle the evolving cybersecurity landscape, marking a pivotal moment in the development of secure, reliable, and resilient AI-driven technologies in our increasingly interconnected digital world. ⊞

IRDETO SIDEBAR *Continued from page 82*

Beyond technological solutions, addressing the deepfake challenge in the video entertainment and content protection sectors requires a multifaceted approach. Legal frameworks, like the proposed DEEPFAKES Accountability Act in the U.S., aim to deter the malicious use of deepfakes by enforcing accountability and transparency. Additionally, raising digital literacy among the public and content creators is crucial to foster an informed and vigilant community that can recognize and report deepfake content.

Moreover, ethical considerations around the creation and use of deepfakes call for the establishment of industry-wide standards and best practices. These guidelines should balance creative innovation with respect for individual privacy and consent, ensuring that the transformative potential of deepfakes is harnessed responsibly and ethically.

As the video entertainment industry continues to navigate the opportunities and challenges presented by deepfake technology, collaboration among content creators, technology developers, legal experts, and policymakers will be key to developing sustainable solutions. This collective effort is essential to protect content integrity, uphold copyright laws, and ensure that the innovative potential of deepfakes is realized without compromising ethical standards or public trust. ⊞



REVOLUTIONIZING GLOBAL DISTRIBUTION

Inside Iyuno's production and media hub

ABSTRACT: As Iyuno unveils its cutting-edge global headquarters at 2901 W Alameda Ave. in Burbank, Calif., spanning more than 52,000 square feet across three floors, witness the intersection of innovation in smart content, workflows, and localization. Explore nine state-of-the-art recording studios, including a group ADR stage and four Dolby Atmos mix stages, revolutionizing our dubbing capabilities. With eight master/QC suites, a Dolby Atmos/HDR QC suite, and dedicated stations for graphics, video compression, and ingest/I.O., this expansion underscores the leader's commitment to excellence in media localization. Join Iyuno in celebrating its grand opening, a milestone where technology meets vision, embodying the latest industry insights and setting the stage for future growth in AI, ML, data, IT, cloud, supply chain, and beyond.

By Chris Carey, EVP, Operations, Iyuno

In the fast-paced global distribution supply chain of the media and entertainment industry, the increasing demand for simplification requires innovation and comprehensive service offerings. Content producers look for end-to-end providers capable of managing the entire distribution process seamlessly.

The inauguration of Iyuno's ultramodern production and media

HOWEVER, TRADITIONAL LOCALIZATION METHODS often pose significant challenges for content creators. Hiring voice actors, recording studio sessions, and coordinating translations can be time-consuming and costly.

hub in Burbank, Calif., underlines Iyuno's commitment to be the preferred premier service provider and partner in the field.

Here we offer insights into how Iyuno caters to clients' needs, highlighting the company's dedication to understanding and addressing the evolving requirements of both clients and the industry. Furthermore, it highlights Iyuno's efforts to elevate creative, technical, and workflow standards to unparalleled levels.

Designed to better serve our clients' needs, this strategic investment will ensure long-term partnership viability. Key among the expressed needs was the desire to provide high-quality English dubbing for the U.S. and other English-speaking territories at scale.

Responding to this demand, this new Iyuno English dubbing facility boasts 10 dubbing studios and four Dolby Atmos-equipped mixing stages, meticulously crafted to the acoustic standards set by renowned designer Andy Munro. Included in this are a large format ADR/Pre-Lay studio capable of supporting groups of performers and an impressive Dolby Atmos Theatrical Mix Stage. Additionally, our expanded Media Services department houses eight audio and video QC suites, extensive encoding, graphics, and conformance/editing capabilities, and a dedicated ATMOS master QC suite. This enhanced infrastructure empowers us to deliver end-to-end localization workflows that align with the diverse requirements of global streaming and broadcast platforms. This increased ability, and range of services enables us to deliver end-to-end localization workflow media operations, meeting the diverse specifications of streaming and broadcast platforms worldwide.

As the global headquarters for Iyuno, this new facility now serves as a hub for innovation, allowing us to integrate the latest technological advancements into our creative and technical processes. From AI-based workflows and tools, to streamlined management practices we continually strive to deliver an unparalleled strategic partnership experience.

Whether you're a content creator, industry professional, voice talent, or technician, we invite you to collaborate with us to elevate the art of storytelling. Visit our website at iyuno.com or contact chris.carey@iyuno.com to learn more about Iyuno and our new Burbank headquarters and how we can partner to bring your content to life. ⊞

***Chris Carey** is the EVP of Americas operations, overseeing the production facilities, dubbing and subtitling operations for Iyuno's facilities across the Americas region. He brings more than 30 years of experience to his role at Iyuno having joined the company from Verizon Media. Prior to Verizon, Carey served as EVP of worldwide technical operations at Paramount Pictures. chris.carey@iyuno-sdi.com*

STRIKE FORWARD: FUTURE-PROOFING CONTRACTS AND RIGHTS MANAGEMENT

ABSTRACT: The 2023 writer strike highlights the need for flexible contract and rights management systems to accommodate changes like evolving contracts and technologies. This adjustment mirrors historical transitions, such as from VHS to DVD/Blu-ray to digital streaming, underscoring the need for proactive, agile, and reliable methods to stay competitive and maximize ROI.

By Michael McGuire, COO, FilmTrack

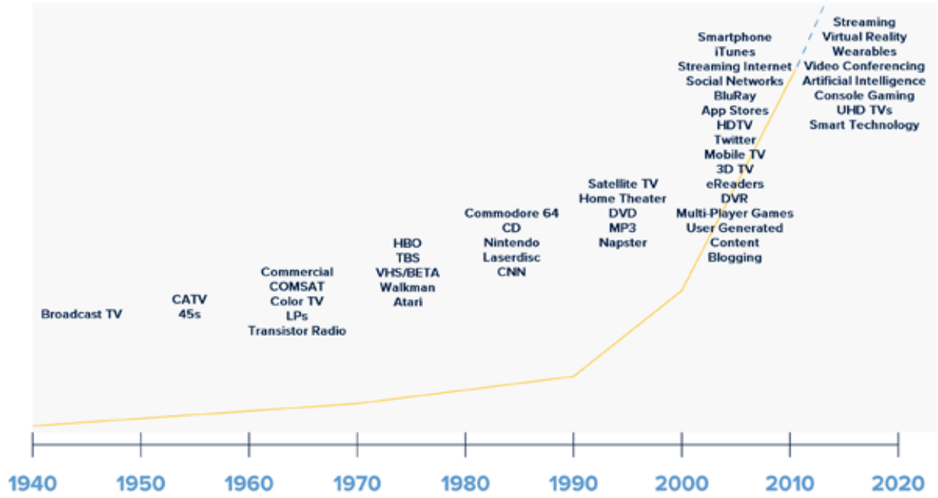
The 2023 Writers Guild of America (WGA) strike largely focused on writers' residuals from streaming media and concerns about the impact of AI on jobs. Following the lengthy strike, one of the longest in WGA history, writers secured approximately a 75-percent increase in residuals from major streaming services, along with bonuses linked to viewer numbers. Additionally, they gained safeguards against the substitution of AI for human scriptwriters and its potential to cut earnings.

This action is just the latest way the entertainment industry is constantly reinventing itself. This article explores strategies for future-proofing contracts and rights management amidst the fast pace of technological progress and evolving consumer behaviors.

60 YEARS OF BROADCAST HISTORY

Let's consider the transformative advancements in the entertainment industry over the past few decades. HBO, launching nationwide as the first true premium channel in 1975, marked a significant milestone. Today, it might surprise many that HBO stands for "Home Box Office," a name that harks back to its origins of bringing the movie theater experience into the home at a time when the concept of premium, subscription-based television was novel.

Consumers Adopting Innovation



Charting the adoption by consumers of entertainment advances.

THE NEXT 60 YEARS: NEW OPPORTUNITIES AND CHALLENGES IN RIGHTS MANAGEMENT

When looking at how quickly things have evolved from just a handful of options, you have to wonder what's next and how media companies can future-proof their businesses to manage it all.

The transition from film to VHS/DVD to digital streaming brought a wealth of new opportunities for program producers, distributors, and rights owners. However, it also made contract and rights management significantly more complex. Staying competitive and maximizing ROI has become more challenging, and many companies are leaving money on the table.

Today, media companies must navigate multifaceted rights across numerous platforms and players. They can no longer rely on spreadsheets and manual contract management to stay on top of everything and optimize their earnings.

Even smaller media companies can wind up dealing with massive data sets. A studio with 200 titles might have rights spread across hundreds of territories in different markets and languages. This can result in millions of rows of combinations. For more extensive libraries,

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BY ADOPTING A SYSTEM THAT SEAMLESSLY MANAGES both rights and financial aspects, organizations eliminate inefficiencies, reduce the risk of errors, and enhance their agility.

the challenge intensifies. A streaming provider might send tens of thousands of data points every month, which requires tracking and reporting back to various stakeholders. And that's just one streaming service.

Managing this level of complexity in digital rights requires a new approach. Some critical areas to consider include:

- ***Managing platforms and windows.*** With content now distributed across broadcast, cable, SVOD, AVOD, theatrical, and more, managing rights across windows and platforms has become exponentially more complicated. Sophisticated systems must actively track rights sales, their durations, and territorial coverage.

- ***Dealing with legacy contracts.*** Many legacy contracts fail to account for modern distribution methods, such as offline downloading, which creates confusion around who has the right to distribute content via these emerging methods. Renegotiating all legacy contracts is not really feasible, so companies need flexible systems to interpret rights.

- ***Keeping up with evolving business models.*** Evolving business models such as ad-supported subscription tiers have also complicated matters. Tracking streaming income based on viewing data has complicated the process, especially when each service reports things differently. While these evolving business models have opened new opportunities to maximize libraries, it also adds directly to the complexity.

- ***Maintaining international rights.*** Sorting out the tangled web of territorial rights across regions and countries requires robust systems and processes. The global spread of streaming has made this issue far more challenging.

Here's the bottom line: The more distribution methods and partners, the more complicated accounting and revenue tracking become, with companies missing out on opportunities to maximize revenue.

STAYING AHEAD: FLEXIBILITY, SCALABILITY, AND INTEGRATION IN RIGHTS MANAGEMENT SYSTEMS

To stay ahead of evolving technology, rights management systems must quickly adapt to new distribution platforms, business models, and emerging contract terms. Trying to manage rights outside of a core contracts system, such as in spreadsheets or documents, makes it impossible to update changing terms and conditions. Old accounting and management methods leave data compromised — outdated, incomplete, or inaccurate. Rather than a rigid rules-based approach, systems must take a principles-based approach that can adapt and accommodate future changes and find opportunities to maximize revenue.

Scalability holds equal importance. Systems must scale to manage the increasing volume of new content, higher transaction volumes, and greater complexity. Trying to do this with spreadsheets, homegrown methods, or ERP systems not designed for entertainment rights impacts the bottom line – often creating conflicts that are difficult to untangle.

To effectively navigate these hurdles, an integrated approach becomes indispensable. Without a unified system, the manual effort needed to synchronize contract details across various platforms and documents not only introduces errors, but also significantly slows down an organization's ability to adapt quickly, thus hindering its opportunities to increase profits and take advantage of optimal times to exercise rights. By adopting a system that seamlessly manages both rights and financial aspects, organizations eliminate inefficiencies, reduce the risk of errors, and enhance their agility.

FUTURE-PROOF YOUR ENTERTAINMENT CONTRACTS AND RIGHTS MANAGEMENT

Our industry will continue to experience rapid change, whether that is new technology, consumer behaviors, or business models. Companies must take a proactive approach to future-proofing contracts and rights management to stay competitive.

Legacy contracts, processes, and inefficient systems reduce agility. To optimize content library returns, companies need scalable, adaptable systems. Embracing agile contracting and rights management enables entertainment companies to transform disruption into opportunity, future-proof their operations, and uncover hidden ROI opportunities. ⊞

FINLEY *Continued from page 6*

going to get a lot more adoption, a lot more integration, and we're going to achieve the AI future that we know is coming. And I think it's inevitable.

Will AI encroach into function? Absolutely. But will it also encroach into art, the cornerstone of the media and entertainment business? I don't think so, at least not right away. Because when it does, that will be truly revolutionary, parking a point where AI is truly sentient. And we're nowhere near that yet. Because if you have some idea that you're going to suddenly replace your entire writing staff with robots, chances are your art or your output or your function is going to be diminished rather than improved.

Focus on what we can do now. Look at how people are using ChatGPT to get practical work done, shaving minutes off of their already packed, post-COVID, crazy busy schedule. Find ways where AI can help, instead of asking it to do the ultimate solve. That's where AI's promise lies for media and entertainment, where it can realize our supply chain nirvana of transparency and instant accessibility, always on and always knowing. AI is going to be a big part of what we do simply because we don't have enough human hours and eyeballs to do all that work we want done. Look to the security side, where we're already using AI to comb through log roles and do mass compute functions where it's simply impossible to accomplish the task manually.

We've been using AI in production for 20 years. That blurring of the lines, between what you think is real and what's an automated bot, it's only going to become blurrier in the future. As an industry, we should be working off an AI vision that focuses on what it can do for our platform systems integrations and connected global supply chain.

One bite at a time. ⊞

ATKINSON *Continued from page 14*

in turn is used by GPS and other systems to synchronize things ... like broadcast signals. Once the GPS signal is gone/jammed, those devices that use GPS as a fundamental timing signal across regions start to have issues.

This risk has been recognized for years, and there have been "local rack-based systems" that – through a LOT of work keep things in time synchronization to the accuracy needed (beyond what a computer clock uses and sync's to) – some backup capabilities have been in place. But these are very expensive, and very operationally intensive. Meaning that, other than the big operations, few can afford these solutions and none want the complexity and cost. But this has been getting easier, through companies like Hoptroff (hoptroff.com) that virtualize the issue and have cleverly figured out how to provide extremely accurate time as a SaaS Service. I am not endorsing Hoptroff, but rather just highlighting what I have found to be an amazing solution that makes addressing the issues of time (with or without GPS) relatively easy using extremely innovative approaches that seem like magic. Yes, I am impressed by what they do. So much so and the underlying risk of time that I am asking Tim Richards, CEO of Hoptroff to present on this topic at our CPS@IBC and CPS@LA events.

From a security perspective, I personally had not really appreciated how critical GPS and the underlying aspect of accurate time is to our societies and business (I knew about the war aspects), and in speaking to others in our community they also had under-appreciated this aspect too. So, I am highlighting it here, for all of us in this CDSA community. If you had not thought about this aspect and the underlying risks – professionally and personally – maybe give it some thought, put it in your priority list, and start developing some form of plan. For some of you, this might be a key topic for your org and others to talk about. For others, this might just be more of an intellectual curiosity with the hope that you are never directly impacted. But, since we are in the risk management business, I encourage all of you to at least have this risk visible and appreciated to some degree. It was something I had missed, and I appreciate a friend highlighting it to me ⊞

SPHEREX *Continued from page 19*

For instance, Spherex initially encountered challenges when deploying AI to analyze films and TV shows, primarily due to the intricate cultural contexts that influence regulatory scrutiny and viewer interpretation worldwide. Early attempts to integrate machine learning and AI resulted in outcomes that lacked clarity and consistency, with AI models often generating misleading or incorrect analyses. To improve, Spherex trained its AI on handcrafted, culturally relevant, and sensitive data that addressed the concerns of explainability and bias. It developed a human-in-the-loop (HITL) interface, which not only facilitated direct feedback on the AI's performance, but also allowed analysts to reintroduce and adjust data elements that the AI had initially overlooked or misinterpreted. Before introducing artificial intelligence, processing a video for cultural nuances and compliance took approximately three to five times the length of the video itself, a significant bottleneck for scalability. With the introduction of a human-centric AI approach, Spherex has drastically reduced its processing speed to approximately 1.25 times the length of the video and can index hundreds of such assets simultaneously.

THE PATH FORWARD

By focusing on human-centric solutions, we can use AI to address immediate challenges while laying the groundwork for future innovations. AI's capacity to automate tasks and streamline workflows promises significant time and cost savings. Yet, its true value lies in its ability to empower the M&E industry to achieve unprecedented global reach and scale. The journey of Spherex, with its focus on augmenting the intellectual capacity of its enterprise clients rather than replacing it, showcases a future where AI plus HITL achieves economies of scale, while keeping humans at the center of value. ⊞

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BAINES *Continued from page 12*

the tools which can be utilized to aid the dubbing process. Being able to re-record one line or background voices can be very beneficial and help create some time and cost efficiencies, and in the future there could be opportunities to dub in languages which are currently viewed as too expensive or unlikely to deliver a good ROI. This could ultimately result in more content being localized, allowing media companies to reach global audiences more efficiently than ever before.

When Yoram Chertok from Dubformer presented, there were a few comments that resonated with me, the first was "AI needs to be on a leash" we all recognize that the AI horse is out of the stable, but it's how we control and utilize it which will be key in the months and years ahead. The second comment was "AI needs human intelligence", and Volker Steinbiss from AppTek summed it up later when he said it can't be "AI nothing or AI everything". Recognizing the value of AI whilst also appreciating the vital importance of human touch and creativity will be paramount as we navigate our way through this technology minefield.

The media and entertainment landscape has constantly changed and developed, from silent movies to the talkies, from black and white to color, from VHS to DVD and then Blu-ray to multiple streaming platforms offering a plethora of options. The viewer has never had so much choice and it's a constant battle to maintain customers and grow subscribers. This change will continue and technology will undoubtedly play an ever more prominent role in localization services.

As a trade association we are passionate about the localization industry and will continue to offer a place for the community to come together, to talk about the challenges and the solutions and just to network. By fostering this collaboration and knowledge exchange we hope to help support the responsible and ethical adoption of AI in media localization.

The Content Localisation Council which operates out of the UK remains a safe forum to speak openly and to connect with like minded peers and colleagues. We welcome new participants and look forward to supporting the industry through this next passage of change.

For more information on how to join The Content Localisation Council, please email caroline.baines@MESAonline.org. ⊞

WITH *Continued from page 8*

and managing any data privacy concerns related to the images used to train the AI.

Another benefit to consider when developing an internal AI platform without relying on open-source frameworks will be to enhance diversity, equity, and inclusion (DEI) across outcomes. By creating proprietary AI tools, companies can tailor algorithms and datasets to be more representative of diverse perspectives and demographics. This customization can mitigate biases inherent in off-the-shelf AI solutions, which often reflect the biases present in their training data. Additionally, in-house development allows for greater oversight and accountability in addressing bias and ensuring fairness throughout the AI development process. Moreover, by fostering a diverse team of developers and researchers, companies can incorporate a wider range of perspectives and experiences into the creation of AI technology, leading to more inclusive outcomes. Overall, proprietary AI development offers the potential to advance DEI goals by promoting fairness, accountability, and representation in AI-driven products and services.

How can a company ensure that, as it expands its capabilities in generative AI, it leads ethically? Imagine the roles of the senior leadership team. The CEO underscores the importance of leveraging AI for innovation while upholding intellectual property rights. The chief technology officer (CTO) advocates for developing proprietary AI systems to maintain control over creative output and mitigate copyright risks. The head of creative development emphasizes the need for clear attribution in AI-generated content to recognize the contributions of human creators. The chief marketing officer (CMO) suggests communicating the company's ethical stance on AI to external stakeholders. The team resolves to balance innovation with ethics by investing in proprietary AI, collaborating with legal experts, prioritizing transparency, and clearly communicating their stance.

As we tread this path, the industry's future hinges on these ethical considerations. By investing in proprietary AI, collaborating with legal experts, and championing diversity, companies can not only navigate this landscape but also emerge as leaders, shaping a future where innovation and ethics coexist. ⊞

OOONA *Continued from page 64*

forts. This means integrating any AI engine and any interface functionality that users request. Given the rapid advances in language technology development and the competitive landscape among the different engines, it is crucial to be able to select different ones for different languages at different times. This makes it important to be able to select them on a case-by-case basis. To address this, OOONA offers flexible AI bundles for purchase, allowing users to deploy them as needed on any integrated ASR, MT, or TTS engine.

GOING FORWARD

The journey of language technologies in media has been marked by remarkable progress, from their first steps in the 1990s to the specialized solutions of today. As we navigate the challenges and opportunities of a global digital landscape, the role of language technologies has never been more pertinent. OOONA's approach to content localization automation focuses on the dynamic synergy between human expertise and artificial intelligence, leading the way towards a more inclusive, accessible, and connected world. ⊞

INTRODUCING...

WiTH women in technology hollywood

WiTH BELIEVES IN:

MAKING A DIFFERENCE
Lifting the aspirations and careers of one, raises all

BELONGING
Celebrating and respecting our differences while making space where we can unleash our unique genius

CURIOSITY
Exploring paths to fuel learning and growth

LEADERSHIP
Blazing new trails to confidence, courage, vision, and joy

THE PILLARS OF WiTH

Where WiTH members get into action:

- Professional Development — leverage our resources to broaden our collective expertise
- Mentoring and Networking — connect, inspire, and encourage each other while fostering growth in our professional network
- Community Engagement — be avid ambassadors of technology by encouraging youth to pursue careers in our field

WiTH EVENTS

The members of WiTH gather* at these events:

- WiTH Leadership Awards — honoring contributors who serve as role models and mentors and who empower women to be bold leaders
- SoCal Women's Leadership Summit — designed to inform and inspire members around issues vital to the community
- WiTH Workshops — periodic educational and interactive events featuring keynote speakers and round table discussions with industry leaders

*In-person and online

For more information, visit withhollywood.org

WiTH is a 501(c)3 charitable organization

of existing services, while also facilitating the creation of innovative solutions to provide new services that were previously beyond reach.

AI-powered tools can be leveraged at almost every stage of a business's operation. For instance, AI can refine the process of scheduling by intelligently assigning projects to the appropriate personnel and facilities, balancing specific equipment and room requirements. Similarly, AI-based analytics can target promotional efforts more effectively, ensuring that marketing dollars are spent reaching the most receptive audiences. With AI underpinning these processes, tasks that once consumed hours of manual effort can now be completed swiftly, freeing up staff to focus on high-value activities and foster deeper connections with clients.

When it comes to enhancing current services, AI's impact is transformative, significantly boosting the efficiency and range of services offered. This is particularly evident in transcription services, where advanced automated speech recognition (ASR) technologies enable rapid and increasingly accurate conversion of speech to text. Similarly, translation services have been revolutionized by AI through neural machine translation (NMT) systems, which comprehensively analyze the full context of sentences to produce translations that are highly accurate while maintaining the natural flow of the original language. Moreover, a groundbreaking use of AI in the M&E industry is voice conversion. This technology allows the transformation of a recorded voice into another language while retaining the original speaker's unique vocal characteristics. This innovation streamlines the dubbing process, eliminating the need for individual recordings for each language version.

This shift towards AI-driven services enables boutique partnerships to undertake localization projects that previously required outsourcing to numerous local providers. Smaller firms can now handle a broader scope of localization tasks, offering global audiences more localized content with greater efficiency while requiring fewer resources. This development marks a significant stride in how boutique firms can leverage AI to expand their service offerings and compete on a global stage, marrying technological innovation with their hallmark personalized touch.

AI is streamlining other aspects of M&E post-production. Automated video editing tools can assist editors by selecting the best shots, optimizing video framing, and even suggesting edits to match the content's pacing and style. In the realm of color grading, AI leverages historical data from the colorists' previous work to apply consistent adjustments to new projects, maintaining visual consistency while significantly reducing the time and expense involved in manual corrections. Previously, the sophistication and cost of these technologies might have placed them beyond the reach of smaller companies. However, by leveraging AI, these cutting-edge tools are now accessible to strategically aligned boutique M&E firms.

AI is also significantly enhancing automated quality control (QC) systems, bringing a new level of precision and insight to the identification of errors in M&E content. By leveraging deep learning and computer vision technologies, AI algorithms meticulously examine video files, uncovering flaws that might have previously required the discerning eye of a human operator. These AI systems can detect a wide range of issues, from technical glitches such as dropped frames, audio out-of-sync, and color inconsistencies to more nuanced problems like region-specific inappropriate content. Furthermore, AI can analyze files frame-by-frame in real-time, a task that is incredibly time-consuming for human reviewers. This not only increases the efficiency of the QC process but also elevates the standard of the final product by ensuring a higher degree of accuracy in error detection. As AI continues to evolve, its ability to learn from vast datasets allows these systems to constantly improve, adapting to new types of content and identifying errors with increasing sophistication. This breakthrough in QC technology signifies a shift towards a more reliable, efficient, and thorough content verification processes, ensuring that viewers receive the best possible visual and auditory experience.

Furthermore, AI-powered tools are opening new horizons for boutique M&E firms, enabling them to venture into areas beyond their traditional scope. This expansion includes delving into data management for their clients, leveraging data as a strategic asset, analyzing historical projects to refine content strategies, automating content tagging for improved discoverability, and tailoring content for new platforms. Moreover, AI-driven analytics enable these firms to offer predictive recommendations, thereby enhancing viewer engagement strategies for their clients. By adopting these AI-enhanced services, boutique firms are transforming their value proposition, taking on the role of managing and delivering sophisticated, innovative solutions tailored to the evolving needs of their customers.

CONCLUSION

Amid the transformative shifts within the M&E industry, smaller firms are discovering that the key to not just surviving but thriving lies in forging strategic partnerships. By pooling their resources and expertise, these boutique firms expand their portfolio of services beyond their individual capacities while retaining the personal touch which separates them from larger companies.

AI plays a crucial role in this partnership, streamlining routine processes to achieve greater efficiency and reduce operational costs. AI's ability to automate complex tasks means that existing services can be delivered with greater speed, precision, and cost-effectiveness. Additionally, AI enables these collaborative partnerships to offer innovative services previously beyond reach.

By forming partnerships and leveraging AI technology, boutique M&E firms can offer a suite of services that rivals their larger counterparts, attracting a broader client base without sacrificing the personalized attention and bespoke experience that define their boutique nature. This unique combination ensures that these firms are not only competitive in the rapidly changing M&E market but are also positioned as leaders in innovation, heralding a new era of technology-driven media and entertainment services delivered with the care and attention that only a boutique firm can provide. ⊞

PFT *Continued from page 30*

links to the catalog of the clip and the actions that can be taken on them.

CONVERSATIONAL ACTIONS WITH RAG

During a conversational search, the user may ask for information that may not be readily available through a search. For example, the user may want us to describe a piece of content in 20 lines or perform an action of translating the content using Generative AI into another language.

The solution will apply RAG to solve this as follows:

- ***Classify the request using LLMs***
- ***Identify what actions and its parameters are intended by the user***
- ***Handle the respective use cases appropriately within the system***
- ***Present the content back to the user***

USE CASES AND BENEFITS

The applications of GenAI-enabled discovery and its downstream use cases can be classified into three key types of benefits and in three key verticals.

The benefits are in the areas of:

- **Creative enablement**
- **Operational efficiencies**
- **Monetization**

The key areas where its use cases would be very relevant:

Content creation: Content reuse. Search clips and content to find reusable clips for new content creation. Examples would be to show all the clips where someone says a "Yes" or "I do" at a wedding, or show clips of all skylines and landscapes.

Social media monetization: Create scene lifts, cut downs and show all the romantic clips of this movie. Find clips, pick up key moments and assemble them and speed up the social media distribution. Get recommendations on clips in the library from social media

FAST: Create interesting compilations for monetization. Create automatic highlights or stories of the content.

Content marketing: Discover and get recommended highlights, story lines, promo briefs and ideas. Search and pick up clips to build social media promotion. Create GenAI assisted promos and trailers for FAST channels on scale.

Content monetization: GenAI-enabled discoveries of automatic ad slots and contextual ad keywords for the ad slots. Gen AI discovery enabled social media monetization of content clips like scene lifts.

CONCLUSION

As described in the sections above, Generative AI is enhancing content metadata and discovery in ways that were traditionally not viable and scalable. This approach to content metadata enrichment, discoverability, searchability, convenience, speed and scale enables faster and better content creation, management, marketing and monetization. Enterprises can use it to gain a significant leap in creative enablement, operational efficiencies, and monetization. ⊞

GENPACT *Continued from page 42*

Human resources. Driving the adoption of any new technology requires robust change management. Training employees in a way that fosters learning and collaboration in a self-paced environment is considered the ideal approach, but building the skills taxonomy of the existing workforce across all functions is the first challenge. The next is figuring out where the gaps are at an individual level. Addressing gaps with targeted programs, measuring progress, and removing bottlenecks can quickly become overwhelming. Genpact's unique Genome learning platform includes a gen AI-powered guru that uses prompt engineering to answer questions from knowledge curated by subject experts, recommends content, and suggests steps in learning journeys. There are plenty of learnings that are readily deployable for educational content companies and the broader media sector.

Gen AI's arrival offers corporate functions in media and entertainment firms formed by years of mergers and acquisitions the opportunity they've craved for better insights to support more effective decision-making and more automation. But to embed it successfully and drive adoption, leaders need a framework to ideate, select, prototype, and roll out gen AI solutions across the enterprise. This requires a holistic multistage approach that considers existing data and tech ecosystems and stakeholder requirements. There also needs to be an up-front commitment to develop responsible gen AI solutions that prioritize ethical considerations, fairness, and transparency.

Media and entertainment leaders should lean on their service providers who have the frameworks, data know-how, and AI expertise to move from identifying use cases to driving commercial value beyond productivity. ⊞

DUPLITECH *Continued from page 51*

all? The usual answer is that it's probably not tomorrow, and probably not 100 years from now. It seems reasonable, based on our progression of accomplishments above, and the increasing speed of advancements, that major leaps in technology now seem to take only about a decade or less, even in the notable case of electric cars which have lots of big money interest in keeping that adoption limited. At this speed and adoption rate, what will ChatGPT turn into 3-5 years from now? Certainly, we are in a unique place in history where technology advances, and is adopted, not within centuries or even decades but in just a handful of years. We certainly seem to be on the precipice of the singularity according to that model (extrapolation of Moore's Law).

But does the occurrence of the singularity mean we will become pets or slaves to our ASI robotic overlords? Will a singularity result in machines with beyond human level intelligence? Will that include consciousness? Will ASI have rights? Can they be owned and exploited for profit? These are all important questions that should be asked, and seriously considered, when ASI starts becoming a reality. For now, we wait and see and continue to utilize AI as tools in our lives and businesses, both to improve our lives but also to steer development in a direction that continues to be useful, and not dangerous, for humanity. ⊞

PERFORCE *Continued from page 46*

tially more data into studios' pipelines. For one, some studios will opt to train AI on their own IP to avoid risk of lawsuits, and doing this requires a tremendously large dataset. All these assets need to be cataloged and all the metadata tagged. On top of that, regardless of whether a studio trains its own AI or uses an out-of-the-box tool, they will have countless iterations of files to manage, each with its own trove of file metadata.

Spending additional dollars on solutions that will save them money over time directly conflicts with most studios' actual yearly budget constraints. If they try to add AI to their outdated processes and legacy tech, though, they will risk their operations falling apart. It will take more time to script, glue services together, and maintain those shaky pipelines than to look at their current pipeline and evaluate if it's time to upgrade to a modern data management system—one that can support contributions from global and remote teams, easier reuse of IP, and automation within creative workflows.

RAPIDLY EVOLVING TECH CALLS FOR NEW, SCALABLE SYSTEMS

To make the best use of generative AI, studios need to first assess their existing infrastructure to determine if it could keep up with the massive influx of data. They need to ask themselves questions like:

- ***Where are we running into bottlenecks?***
- ***Where are team members becoming stalled and wasting time?***
- ***What are our current storage limitations?***
- ***How can we iterate on content faster?***
- ***Who will manage the large amounts of data generative AI will produce?***
- ***How will data be stored, managed, and transferred?***

They also need to consider if they have the expertise and resources to design and implement AI according to best practices.

While AI could be the key to accelerating your team's creative workflows, scalable, secure, and highly configurable data management is the key to getting the most use out of it, and out of your own IP. We've all seen how much an industry can change in a few short years. Don't skimp on establishing infrastructure that your studio can rely on for many years and advancements in technology to come. Version control is worth the investment. ⊞

FRIEND MTS *Continued from page 78*

Live sports piracy is especially challenging to combat due to its popularity and time-sensitive nature. However, there are solutions available to win this battle. Friend MTS has developed content protection services around server blocking for sports leagues and service providers to remove illegal streams in less than 4 minutes of notification. To contrast, a similar approach using simple domain blocking can take multiple days.

Dynamic server blocking enabled by large-scale automated content monitoring is one of the most effective methods to mitigate the threat of illegal live content redistribution today. Video capture and analysis monitoring is equally effective for all live content and service providers can deploy the same monitoring solutions to protect their valuable content within early-release windows when rapid IP enforcement is of the essence.

Of course, with any good solution comes challenges as well. In this case, server blocking isn't available in every region due to varying regulations – something providers run into with nearly every type of anti-piracy approach.

Any technology that results in reduced access for consumers, such as server blocking, has to be extremely carefully monitored to ensure that access is only restricted to content that is known to be illegally obtained and broadcasted. The accidental blocking of legitimate content is known as over-blocking, and it is vitally important in any content protection program that this is avoided at all costs. Providers are legally and morally obliged to implement continuous, rigorous checking to ensure no over-blocking takes place.

With all the above in place, and when implemented by experienced professionals, dynamic server blocking can safeguard revenue streams, redirect diverted audiences, and significantly mitigate piracy.

WHAT'S BEST FOR YOU?

Not every solution is appropriate for every challenge. What works for some OTT service providers or content owners, will not work for others, so it's important to recognize that one isn't better than the other – it all comes down to the individual provider's requirements and the legal frameworks implemented in each territory.

If you're looking to tackle specific pirate sites, and server blocking isn't available in your region, then dynamic domain blocking may be a solution.

But if you're looking to scale beyond websites and time is of the essence, then dynamic delivery server blocking is the method you should be entertaining – should it be supported in your territory.

Both blocking solutions have their pros and cons. In an ideal world, every customer would implement a combination of both, complementing each other to ensure maximum coverage and effectiveness, with support from high quality monitoring services that can find infringing sites to begin with.

And one final note: In a streaming-first world, the most valuable content requires enhanced end-to-end protection with a full suite of content protection and anti-piracy measures from forensic watermarking to digital fingerprinting, smart piracy detection systems and server blocking continually upgraded to stay ahead of the constantly evolving piracy threats. ⊞

MEDIARTIS *Continued from page 54*

If adopting third party AI-generated voice technologies, businesses should exercise extreme caution and perform due diligence to mitigate potential legal risks. Companies should verify the sources of the voice data used to train the models, that it was collected legally, that proper licensing was obtained if copyrighted, that use of the voice data for training purposes and use thereafter was transparent to the voice provider.

INTELLECTUAL PROPERTY

A major concern around AI-generated voices is the potential infringement of copyright and intellectual property rights in relation to the training sources and usage of the AI for replicating voices of real people, including celebrities. Numerous celebrities, including Emma Watson, Prime Minister Narendra Modi, Scarlett Johansson, and Tom Hanks to name a few, have already been victims of unauthorized voice cloning and its use in deep fake videos. AI was used to create a deep fake of the popular song "Heart on My Sleeve" mimicking Drake and The Weeknd. Featured on TikTok and Spotify, the fake song was removed after Drake, The Weeknd and their record label protested.

In the United States, the primary framework for copyright protection is provided by federal law, the Copyright Act of 1976. Under this law, the characteristics of an individual's voice are not subject to copyright protection, but copyright law does protect "original works of authorship fixed in any tangible medium of expression." A recording is protected, or may be, but it's the audio recording that is protected by copyright; the specific performance of the individual that was portrayed in the recording.

On April 9, 2024, legislation was introduced in California that would require companies to disclose copyrighted works used to train generative AI systems. If passed, OpenAI, for example, would have to reveal content used to create Sora. If companies used copyrighted content from artists, writers, filmmakers, or others, to train AI models, this legislation could open the door for many lawsuits.

The right of publicity is a matter of state law in the United States, though recently many are calling for a federal right of publicity, specifically to address the risks of generative AI. In New York and California, the right of publicity is established via statues, and they have specific laws addressing the unauthorized use of someone's voice. A United States Court of Appeal, in the case of Midler v Ford Motor Co. (U.S.), held a voice is not copyrightable in the Copyright Act, but common law rights could be enforced since it is as distinctive as one's face (Midler v. Ford Motor Co., 849 F.2d 460 (9th Cir. 1988). In Butler v. Target Corp. (US), a United States District Court found lyrics to a song are copyrightable, however the underlying voice is not (Butler v. Target Corporation, 323 F. Supp. 2d 1052).

The "No AI Fraud Act" (U.S.) was introduced in the U.S. House of Representatives in late January. The legislation aims to hold individuals and companies liable if they created a digital replica of a person's voice, image, or likeness with generative artificial intelligence.

TRADEMARKS

A mark may qualify for trademark registration if it can be visually represented to distinguish the goods or services of one entity from those of others. When it comes to sounds, representing them graphically for registration can pose challenges due to the complexity of achieving clear and precise representations. However, advancements such as the acceptance of MP3 recordings by various countries have enabled the successful registration of several iconic voices and sounds. Examples of this include Tarzan's yell and the roar of the MGM lions. Notably, the EU Trademark Implementing Regulations of 2015 acknowledge and safeguard sound marks, providing legal recognition and protection for such auditory trademarks.

In the U.S., sounds can be registered if they create an association with specific goods or services in the mind of a consumer. To qualify, the said voice must be "distinctive." A jingle in an advertisement sung in a unique identifiable way can be safeguarded under Trademark Law but registering a voice is not yet possible.

PATENTS

Voice artists cannot patent their voices under Patent Law in the United States, though some inventions with sound as a primary component have been registered. As AI continues to evolve however, patents will be critical in protecting the technologies that will copy voices and sound in the future.

APPLICABLE SECURITY STANDARDS

ISO/IEC 42001 is a globally recognized standard outlining criteria for the creation, execution, upkeep, and ongoing enhancement of an Artificial Intelligence Management System (AIMS) within various organizations. This standard caters to entities involved in offering or utilizing AI-driven products or services, with a primary focus on fostering responsible development and deployment of AI systems.

SAFEGUARDING THE FUTURE

AI-generated voice technologies bring exciting creative and operational opportunities to our industry, but they also pose several privacy and security risks. To address these concerns, stakeholders including technology developers, content creators, policymakers, and regulatory bodies should collaborate to establish comprehensive safeguards and best practices for the responsible deployment of AI-enabled dubbing technology. This may include implementing robust data protection measures, transparency requirements, and mechanisms for accountability and redress in case of misuse or harm. ⊞

METABROADCAST *Continued from page 58*

copyright of the original data and any updates to that data is an element that is often overlooked. As GenAI advances, tracking data lineage will increase in importance. Upon validation of data formats, schemas, accuracy, completeness, and consistency, the data is ready for normalization. This process ensures that data is suitable for use in a GenAI, machine learning, or more advanced AI training environment.

AI ENHANCING METADATA MANAGEMENT

When it comes to monetizing content catalogs, AI algorithms will analyze user behavior, consumption patterns, and preferences, enabling them to deliver personalized content recommendations. By analyzing the descriptive and collaborative data associated with content, content recommendation engines can strengthen personalization beyond genre or cast members. Using a broader data set when training AI algorithms, will provide greater relevance, thereby improving user engagement and satisfaction.

Another area ripe for AI is that of image generation. Images play a significant role in enticing consumers to watch a series or movie. Audiences with different backgrounds or cultural beliefs are attracted to different types of imagery. Generating a wider range of images is appealing to many video service providers. However, using AI-generated images raises legal and ethical concerns, particularly regarding copyright and ownership. Video service providers must navigate these issues carefully to ensure they have the rights to use and distribute AI-generated content legally.

There are several ways in which a pragmatic approach to AI can add value to metadata management. Starting with quality control, AI models can identify inconsistencies or errors in metadata. In learning patterns such as date or text formats, AI can detect anomalies and flag data fields that are likely to be incorrect. Then, GenAI can make recommendations to improve data quality. AI can also identify opportunities for metadata enrichment by assessing existing descriptive metadata and suggesting relevant keywords, tags or captions.

As AI is trained to understand the content and context of data fields and content records, many use cases may be defined where it can standardize and accelerate outcomes. For example, as video service providers aggregate data from different sources, machine learning can streamline the matching and linking of metadata across different datasets or sources. Another critical use case for broadcasters and streaming services is that of genre classification. Clustering algorithms help identify common characteristics within each genre and differentiate between different genres, even in cases where traditional genre definitions are ambiguous or overlapping. It is in these types of narrow use cases that AI can provide measurable value. However, this is only possible with a foundation of clean data.

MetaBroadcast has been consolidating and cleansing data for over ten years. It is a critical prerequisite to the automated equivalence process enabled by Atlas, our metadata management platform. Our metadata repository of over 140 million master MBIDs and their associated content records reflects millions of data fields ingested, cleansed, and equipped from many sources (e.g., ITV, Gracenote, IMDb, Press Association, Wikipedia, broadcaster CMS, etc.). The records have been persistently updated as existing data changed or new data became available, giving MetaBroadcast enhanced capabilities to match content records successfully and deliver clean, consolidated metadata to our customers.

There is no argument that the data to train all AI models is present and available through the media supply chain. Yet, as all forms of AI are implemented across the media and entertainment industry, we must acknowledge that clean, validated, and verified data is imperative. ⊞

INDEE *Continued from page 72*

behavior. Machine learning (ML) algorithms can discern such patterns easily and alert the project owners of any unexpected changes in behavioral patterns. This forms the basis of our anomaly detection system - an intelligence layer that monitors user actions for significant change in patterns, raising alerts as necessary.

We see multiple use cases for such an anomaly detection system:

- ***Viewers:*** Changes in viewing behavior, including device switches, rapid IP address changes, altered viewing times, and content consumption speed, will be flagged.
- ***Administrators:*** The number of screeners being issued in a week, roles and their actions, number of videos uploaded, and so on can be monitored as well.

With an ML algorithm, we envision a greater understanding of customer behavior over time as well as providing a strong backbone for anomaly detection.

AN API-ENABLED BUSINESS

As part of our roadmap for 2024, we are looking at APIs enabling every stage of our system. The goal is to provide a seamless way by which customers can replace a particular stage with a custom solution and leverage existing applications and solutions within the Indee platform for managing their workflow.

Indee has been a high-touch business where our success has come from our customer success team. At the same time, an API model predicates that the customers build their own solutions and run and operate their solutions. While that may seem antithetical to one another, we see that dichotomy as being crucial to providing exceptional customer service to both business and technology teams.

We foresee customers picking a part of a stage or possibly one stage and building their own solutions, such as say ingestion and still leveraging the rest of Indee and our managed service offerings to complete their screening needs. Our aim for the API-enabled business deepens our integration with customer systems and enables customers to build what they want faster. ⊞

RESPEECHER *Continued from page 67*

generate high-quality voiceovers in multiple languages with remarkable speed and accuracy. By automating the voice cloning process, AI-driven localization reduces the time and resources required, enabling content creators to reach new markets and engage with diverse audiences more effectively.

By breaking down language barriers and offering content in multiple languages, AI-driven localization expands the reach of content creators, allowing them to connect with audiences in new and meaningful ways. AI-driven localization empowers content creators to transcend linguistic and cultural boundaries and reach audiences on a global scale.

ETHICAL CONSIDERATIONS AND FUTURE DIRECTIONS

As AI-driven localization technologies continue to advance, addressing the ethical considerations surrounding voice cloning and its implications for content creation and representation is crucial.

One of the primary ethical considerations of voice cloning is consent. While AI voice cloning technology offers unprecedented capabilities for generating lifelike voiceovers, it also raises questions about using individuals' voices. Content creators must ensure they have the rights and permissions to use a person's voice for localization purposes, respecting their right to control how their voice is used and represented.

Also, AI-driven localization must strive to ensure the authentic representation of diverse languages and accents. As content creators adapt their content for global audiences, it's essential to recognize and respect the linguistic diversity of different regions and cultures. AI for localization should prioritize preserving linguistic diversity and avoiding stereotypes or misrepresentations that may perpetuate cultural biases or inequalities.

Looking ahead, the future of localization with AI technologies holds tremendous potential for innovation and advancement. As machine learning and artificial intelligence evolve, we expect further improvements in voice cloning accuracy, naturalness, and versatility.

CONCLUSION

AI-driven localization represents a transformative advancement in content adaptation, offering unparalleled solutions to the challenges of traditional localization methods. By maintaining the original speaker's emotional tone, nuances, and character in multiple languages, AI-driven localization enhances audience engagement and content accessibility, paving the way for a more connected and inclusive global media landscape. As technology continues to evolve, the possibilities for AI-driven localization are endless, offering content creators new opportunities to reach and resonate with audiences worldwide.

With its cutting-edge AI voice cloning technology, Respeecher empowers content creators to generate high-quality voiceovers in multiple languages quickly, efficiently, and cost-effectively, ensuring that your content resonates with audiences around the world. By partnering with Respeecher, you gain access to state-of-the-art AI-driven localization solutions and contribute to a more connected and accessible world through innovative AI solutions. Together, we can break down language barriers, promote inclusivity and diversity in media consumption, and create more meaningful and engaging content experiences for audiences of all linguistic backgrounds. ⊞

The rise of social media and digital marketing has enabled niche streamers to promote their content and attract new audiences more effectively than ever before. Platforms like Instagram, TikTok, and other social platforms provide invaluable tools for self-promotion, allowing streamers to showcase their personality, highlight their content, and engage with fans on a personal level. Through strategic use of hashtags, collaborations with other creators, and leveraging trends, niche streamers can amplify their reach and grow their channels organically.

Despite the many opportunities afforded by the democratization of streaming content, niche streamers still face challenges in standing out amidst the sea of content available online. With millions of channels vying for attention, breaking through the noise can be a daunting task, requiring creativity, consistency, and perseverance.

There are some areas where small streamers may encounter big challenges or find opportunities lacking such as:

Monetization and sustainability: While platforms like Twitch and YouTube offer various monetization options such as subscriptions, donations, and ad revenue sharing, it can be challenging for niche streamers to achieve sustainable income levels. Many rely heavily on the generosity of their viewers, which can be inconsistent and unpredictable. Securing brand partnerships or sponsorships may be more difficult compared to mainstream channels.

Discoverability: With the sheer volume of content available discoverability remains a significant challenge. Algorithms often prioritize popular and trending content, making it harder for niche streams to surface to potential viewers. Without the backing of extensive marketing budgets or the support of platform algorithms, niche streamers may struggle to reach their target audience and grow their channels organically.

Technical infrastructure: While streaming platforms provide accessible tools and resources for content creation, niche streamers may still face technical barriers, particularly when it comes to equipment and infrastructure. Issues such as internet bandwidth and stability can impact the quality of streams, affecting the overall viewing experience. Additionally, software tools to help them extend their reach are also lacking, such as affordable title management, rights management, and digital asset management solutions.

Community support and validation: Building a supportive community is crucial for niche streamers, but it can also be challenging to cultivate. Niche audiences may be smaller and more dispersed, making it harder to foster a sense of community and engagement. Without validation and support from peers and viewers, niche streamers may feel discouraged or isolated, hindering their ability to sustain their channels in the long term.

Platform policies and regulations: Streaming platforms often have strict guidelines and policies governing content, which can pose challenges for niche streamers, particularly those with unconventional or controversial subject matter. Navigating these policies while staying true to their creative vision can be a delicate balancing act for niche streamers, who may risk censorship or demonetization if they run afoul of platform rules.

Despite these challenges, niche streamers continue to thrive and innovate, leveraging their creativity, passion, and authenticity to carve out their own unique space in the streaming landscape.

The democratization of streaming content has opened exciting new possibilities for niche streamers to share their unique perspectives and valuable content with the world. With the low barrier to entry, robust tools and resources, and the ability to connect directly with audiences, niche streamers are reshaping the digital landscape and challenging traditional notions of mainstream media. As the streaming industry continues to evolve, it's essential to celebrate and support the diverse voices and talents of niche streamers who enrich our digital experiences with their authenticity and passion. ⊞

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