



# ROADMAP ON AI TECHNOLOGIES & APPLICATIONS FOR THE MEDIA INDUSTRY

## SECTION: “OPPORTUNITIES IN THE TIME OF THE PANDEMIC”



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## Opportunities in the time of the pandemic

The ongoing COVID-19 pandemic has abruptly disrupted our lives, has deeply affected society and has re-shaped the global economy. It has also undoubtedly boosted and in some cases catapulted AI research, with governments, researchers and industries trying to explore and exploit AI's potential, first and most in health and medicine but also in supply chain management, education, work, communication, etc.

The pandemic did not leave the media & entertainment industry unaffected. Consumer behaviours changed – in some cases overnight – accelerating changes that have been slowly manifesting during the last years. This in return resulted in significant shifts in the industry's internal dynamics (e.g. shifting from movie theatres to streaming services, renewed interest and trust in broadcast news, etc.) reshaping its future and overturning previous assumptions and expectations.

Obviously, the main factor driving the shifts in the media and entertainment industry was the abrupt migration towards digital consumption of media content. People could not go to the cinema or to concerts and live music events, they were reluctant to buy a print newspaper or book, and in most cases they were forced to stay at home for long periods of time with TV, podcasts, streaming services (for audio and film), online news sites, online games, e-books, and social media communities being their companion as they were trying to inform and entertain themselves or simply get through the day. This resulted on huge demand of online content consumption but not only that. It also fuelled e-commerce, with pandemic restrictions and humans' fear massively preventing people from going to the physical stores and forcing a lot of people to purchase goods online for the first time. This, on one hand, increased internet advertising of consumer products, benefitting the advertisement sector, but also increased ad revenue for other media companies whose channels were used for online ad placing.

Another trend accelerated by the pandemic was a generational shift towards younger audiences that increasingly set trends (e.g. by catapulting to fame TikTok personalities) and also a shift from producers to content creators<sup>1</sup> (while large production companies had to postpone or shut down production due to restrictions, social media were flooded by content created by independent creators).

The pandemic and the shift towards digital consumption also increased internet connections worldwide, with broadband connections showing a growth rate of 3.2% between 2019 and 2020, while smart phone connections have risen by 6.5%<sup>1</sup>. More connections, more devices and increased online activity all over the world resulted in an extraordinary growth of 30% in data consumption, with this growth trend projected to persist in the next few years.

All the aforementioned changes converge in a long developing trend: meet the users where they are, whether this is the internet, their home or the Metaverse, their PC or their mobile phone. And also give users what they want. The explosion of the online available media content has left

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<sup>1</sup> PwC, Perspectives from the Global Entertainment & Media 2021:  
<https://www.pwc.com/us/en/industries/tmt/library/assets/pwc-web-ready-pwc-outlook-perspectives-2021-2025.pdf>



users with a vast amount of choices and little time to spend on things they do not really like, making media companies enter an arms race to catch and most importantly retain user's interest and compete for the revenue generated from this interest.

Besides business or creative challenges, the pandemic also brought many media companies as well as the whole world face to face with unprecedented challenges concerning everyday work routines. Millions of professionals from the media and entertainment industry had to work from home, forcing managers to come up with emergency plans to re-invent how operations can continue to run smoothly in an abruptly changed reality.

But where AI stands with regard to all these pandemic-induced shifts in the media and entertainment sector? How can it help media companies amid new realities, new challenges and rapidly changing consumer behaviours? Based on the analysis of the previous sections of this Roadmap, it is safe to predict that AI has an increasingly important role to play in the ever-changing media industry landscape. Below, we offer some insights on the role of AI in the media industry in the pandemic and post-pandemic era.

***Users hungry for more content – How to facilitate new content generation?*** As mentioned above, the consumption of content skyrocketed during the pandemic, with users eager to spend their time at home as enjoyably as possible but also anxious to catch up with pandemic news and get trusted information. With content demand on the rise, the need to produce more content becomes pressing for media and entertainment companies. AI can play a double role in facilitating this trend: enable the automatic production of media content (from films and music to news) but also assist creators in the creative process, combining human creativity and machine intelligence and opening new roads for creative expression.

***More and more content... – How to manage it?*** The pandemic saw a rise in the production of online media content both by the users but also by independent creators. At the same time, the audiences' demand for content they had not seen before led media companies, especially in the film/TV/music industry, to bring back old classics. The need to build large content libraries and exploit and make available all content calls for AI-driven content management functionalities. Advanced content indexing, search and retrieval will be required to allow journalists to mine the ever-growing media archives but also user generated content or to help streaming services to manage audio and video content. At the same time, AI-powered techniques for video and audio restoration or enhancement can help make old content more appealing to youngest audiences or provide new versions of old classics.

***Tons of content everywhere – What to choose?*** Although, the pandemic has driven high rates of subscriptions for streaming giants like Netflix (with the trend seeming to continue well into the future) there is a limit to the number of subscriptions a house can make or the number of films a family can see or the number of books or news that an individual can read. With a plethora of offerings out there, media companies need to be able to attract user interest on their content and services by offering users exactly what they want and most importantly be able to continue to retain the user's interest, minimising churn. This is already unavoidably leading to a new phase of content delivery and experience, more focused on improving user experience and on retaining and creating increased value from already existing audience bases.



AI is fundamental in this direction by analyzing user behaviour and real-word trends to offer users content that they will like or that it will be useful to them and by enabling highly personalised experiences but also new multi-platform experiences.

***Users spending more and more time online – How to exploit and monetise the data they generate?*** An unquestionable effect of the pandemic is the shift to digital content consumption and the increased time spent online. As a result, users generate more data than ever with their online actions, behaviours and creations. This goldmine of data necessitates new innovative ways of analysis to fully exploit their potential. AI can help make sense of this data to improve user experience, content creation and delivery, to understand the audience, to predict future trends, to drive revenue growth and to plan in the short and long-term. To address, the ethical and legal concerns that such an analysis may justifiably raise, it is necessary to comply with relevant regulations such as the GDPR or the AI Act and adopt an ethics-by-design AI development approach.

***Metaverse – How to be a part of it?*** With the pandemic forcing most of us to work at home and get entertained or communicate with friends and coworkers online, the Metaverse seems the next logical step regarding Internet evolution. AI has a big role to play not only in creating the Metaverse experience but also in facilitating media companies to move their business in this virtual world, by transforming existing content to fit the Metaverse, by allowing users to consume content in this world in novel multimodal ways, by designing sentient AI agents that will be our guides, assistants or companions (e.g. virtual characters that help us find content that we like, digital reporters providing the news of the day, or companions that play games with us), and by allowing part of the existing content creation, curation and delivery processes to take place in the Metaverse.

***A sea of disinformation – How to navigate it and who to trust?*** The last couple of years have seen a sharp rise in online disinformation mainly related to the pandemic and vaccines. As a result, journalists are being overwhelmed by the gigantic volume of fake news, struggling to keep up with fact-checking processes, and in many cases failing, especially under the pressure to get the scoop first and beat the competition in reporting it, in a 24-hour news cycle that never slows down<sup>2</sup>. At the same time, the global audience, anxious for the present and the future, overwhelmed by the plethora of news and news outlets, and worried about disinformation, is thirsty for real news, facts, and news organisations and journalists that they can trust. AI can help journalists and the audience to navigate the Wild West of disinformation by offering fact-checking and content verification tools for newsrooms & content moderators but also for the public while also providing the tools to study the disinformation phenomenon in depth (how disinformation starts, how it spreads, who are the main disseminators, how it affects people, etc.). The pandemic was also shown to be a real opportunity for traditional news outlets, seeing consumption of TV news and print press (the online version of it) increasing considerably, reflecting the audience's need for accurate and reliable news sources that they cannot find on

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<sup>2</sup> M. Scott, Politico, 'It's overwhelming': On the frontline to combat coronavirus 'fake news' (2020): <https://www.politico.eu/article/coronavirus-fake-news-fact-checkers-google-facebook-germany-spain-bosnia-brazil-united-states/>



like social media<sup>3</sup>. While trust in news has been globally declining over the last decade, it has actually grown by six percent in 2021 in the wake of the pandemic, while the trust gap between the news sources people generally rely on and the news they find in social media and search further increased, climbing to 20% (44% vs. 24%)<sup>3</sup>. Traditional media have the opportunity to consolidate their position as reliable news sources against social media and further consolidate audience trust by widely adopting AI-powered tools for rigorous fact-checking and content verification.

**Workplace disruption – How to deal with it?** As with all other aspects of personal and professional life, the media industry faced major disruptions in the wake of the pandemic that upended established workflows and threatened the smooth operation of organisations. With the pandemic still looming over us, CEOs, business managers and data officers need to ensure that employees are protected, on one hand, and keep the business running as usual, on the other. This balance act becomes increasingly challenging, requiring new operational models that will adapt to changing conditions, effectively combining traditional workplace workflows with remote work. In the quest for flexibility, resilience and agility, AI can facilitate the implementation of new, more flexible operational models and task workflows, by automating existing processes and tasks but also by providing the tools (e.g. AI assistants) that will allow media professionals to seamlessly do the work independently of where they are or what resources are available.

**More users, more devices, more services, more content, more data, more demand – What about processing power?** The pandemic has brought an explosion in content and data created and consumed online as well as a sharp increase in demand for new media services available to the user any time and any place. There is an increasingly growing need for processing power that will support demand and facilitate the AI-powered applications for the analysis of gigantic volumes of data. Emerging technologies like quantum computing for AI and AI chips can be a game changer in this direction.

In a few words, the pandemic created exciting new opportunities for the growth of the media and entertainment industry and the expansion of their services and audience, while at the same time brought significant operational and creative challenges. These trends consolidate the position of AI as a transformative power in this industry, capable of revolutionising how operations run and how content is created, delivered and consumed. To exploit this potential, media companies should define clear strategies for operationalising AI across the whole industry, pay close attention to new AI advances and breakthroughs being ready to leverage them to improve business, and invest on AI training of their personnel and collaborations with research/academia to develop new exciting AI-powered applications for the media sector. There is overwhelming agreement that AI will drive the majority of innovation across nearly every industry sector in the next decade, especially in the wake of the pandemic, as was shown by a recent IEEE survey<sup>4</sup>. 51% of technology leaders surveyed said that due to the pandemic their

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<sup>3</sup> N. Newman et al., Reuters Institute Digital News Report 2021 (2021):

[https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2021-06/Digital\\_News\\_Report\\_2021\\_FINAL.pdf](https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2021-06/Digital_News_Report_2021_FINAL.pdf)

<sup>4</sup> IEEE, The impact of Tech in 2022 and beyond, <https://transmitter.ieee.org/impact-of-technology-2022/>



companies accelerated the adoption AI and machine learning (second only to cloud computing at 60%) while 66% strongly agrees that AI will drive innovation.







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