TRT WORLD research centre

Trend Watch: Media Technology in 2023

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The year 2023 will likely see the emergence of new technologies that have the potential to transform the news media industry. This policy outlook examines recent transformations impacting the news media industry and global society. Then, it will delineate technological advances expected to affect the news media industry in the coming year and explain what they mean for news production and consumption. Whether through the integration of AI, the use of VR and AR, the application of blockchain technology, the expansion of data analytics and streaming services or the creation of entirely new platforms and devices, these technologies will widen the horizons for news media organisations and content creators.

Introduction

Since the past decade, the news media industry has changed significantly in terms of both news production and news consumption. The news media has been contended to be one of the most important tools for change in the world. Thus, the importance of changes within the news media industry cannot be discounted in terms of impact on the development of society itself. As per an interview with Jean Houston, a scholar and one of the founders of the Human Potential Movement:

> "We have new media, new forms of connectivity, and an enormous transference of knowledge. When you study evolution, you see that when new genes meet and multiply, they create new contexts and new species. In a sense, the gene-pool of knowledge and people connecting at all levels is spawning infinite possibilities.

This policy outlook will examine recent changes in the news media industry and parse their impact on the industry and society at large. Further, it will delineate technological advances expected to affect the news media industry in the coming year and explain what they may mean for news production and consumption. News media organisations and content creators can benefit from preparing and innovating to thrive in the days to come.

Recent Transformations

Increased Digitalisation

The first major change has been increased digitalisation. Developments in media technology, particularly the internet, seem to have democratised information and knowledge acquisition, leading to many traditional media outlets having to merge with new forms of media to accommodate the changing demands associated with a digitised media landscape. This type of new media has led to changes on two fronts: reproducibility and distribution. Traditional news organisations have had to adapt to this shift by developing online platforms for their outlets and apps to reach the same audiences and beyond. Many have also introduced paywalls or subscription models to generate more revenue. Concurrently, new online-only news outlets have emerged, providing even more competition in the market.

The Decline of Print Journalism

The shift to digitalisation has led to a decline in print circulation and advertising revenues. Many newspapers have had to reduce staff or close entirely due to the decline in print revenues, resulting in a loss of jobs for journalists and other newspaper employees. Some newspapers have scaled back their print editions or changed the format of their papers to make up for a decline in revenue by reducing costs. Unfortunately, this has led to a reduction in both the amount and diversity of content available in print, feeding into the ever-increasing redundancy currently experienced by print journalism. Historically speaking, the role of newspapers has been considered significant in informing the public and holding those in power accountable. However, with the decline of print journalism, there has been a notable decline in the influence and authority of traditional news media.

Social Media as a News Medium

On the other hand, as a news medium, social media took a very short time to reach the mainstream. By 2022, almost 3 billion people use Facebook globally, with nearly 1.5 billion users on Instagram. Tiktok is being used by 755 million people today, with Twitter having 450 million users. As per Pew Research Center, half of the American adults get news at least sometimes from social media, and almost a third (31%) of Americans regularly get news from Facebook. Twitter is used by about three-in-ten American adults (27%), and nearly half of its users (53%) turn to the site to regularly access news. Many social media platforms, such as the ones mentioned above, use algorithms to personalise and target content to individual users based on their interests and behaviour. This can help news organisations to reach their target audience more effectively and to deliver more relevant and engaging content. These algorithms are supposed to be used to personalise the social media experience for users. However, they can become harmful by becoming "automatic gatekeeper[s] to news consumers", while making news consumption biased towards a particular frame of news content. In terms of the reproduction of news, or even the production of news itself, increased interaction between content creators and producers on several social media platforms has resulted in a breakdown of monopolistic practices of mainstream news media organisations. Not only is it very challenging for mainstream media organisations to produce multiple forms of content, but it is also difficult to control the flow of information from news producers to news consumers, with many consumers becoming content creators. Social media platforms enable "a two-way communication between news producers and news consumers through user-generated content (UGC)», with users of these platforms increasingly taking on the role of news producers and giving rise to terminology like «participatory journalism,» «interactive journalism,» and «citizen journalism.»

The Ascent of Visual Media

Another significant change has been the increased use of visual media in news reporting, such as live video and interactive elements. Visual media can engage readers more effectively and make complex stories more accessible. For example, live video can enable readers to see events as they are happening. However, increased digitalisation and the use of visual media in news reporting have been connected to the proliferation of "fake news." Certainly, false or misleading information has gained a considerable footprint in the information space. This phenomenon has significant implications for societal cohesion and political decision-making. The use of visual media can also raise concerns about the manipulation of images and the potential for biased reporting. In fact, due to algorithms of social media platforms, as noted above, biases particular to an individual are amplified as the algorithms aim to present that individual with content they would like and enjoy retaining that user for the sake of increased profitability of the for-profit social media platform. This leads to the creation of "echo chambers", broadly speaking, any "environment where a person only encounters information or opinions that reflect and reinforce their own". This is associated with the development of strong viewpoints that can be "so extreme that individual users' political leanings can be predicted with high accuracy [with users having] the same opinions as the majority of [their] connections». Extremism on potentially polarising and socially fraught subjects can engender online and offline violence.

Adapting Business Models

In terms of business models, many news organisations have struggled to monetise both their print (as mentioned above) and online content, leading to changes in how they generate revenue on both. In terms of digital outlets, some news organisations have turned to subscription or paywall models, requiring readers to pay for access to their content. Others have relied on advertising and sponsored content or sought alternative funding sources. On top of that, technological advances at very regular intervals have forced many news organisations to upgrade their networks, journalistic practices, teams, and modes of operation. The Covid-19 pandemic has also had a huge impact on the news media industry, with many news organisations experiencing significantly decreased advertising revenue and logistical challenges related to news production. Indeed, the news industry has undergone significant changes in recent years. These changes have led to the rise of digital news media, new online-only news outlets, and the adaptation of traditional news organisations to the digital world. They have also led to job losses, changes in content and format, and shifts in resources and attention. In addition, they have raised concerns about the spread of misinformation, dented the credibility and trustworthiness of the information being shared, and the affordability and accessibility of news. These changes will likely continue to shape the news industry, and that new technologies and developments will further transform how news is produced and consumed. It will be important for news organisations to adapt and innovate to stay relevant and meet their audiences' changing needs and preferences. At the same time, it will be important to ensure that the principles of quality journalism, accuracy, and accountability are upheld to maintain the public's trust and the news industry's integrity.

Trend Watch 2023: News Media Changes

While it is undeniably difficult to predict with certainty what changes in the news media industry will be seen in 2023, as the field is constantly evolving. Moreover, Black Swan events such as the Covid-19 pandemic can take place and alter the trajectory of history itself. With that said, there is a high likelihood that some potential developments can take place that can radically change the news media industry in 2023. These changes in the news media industry are predominantly linked to advancements in media technology for both hardware and software. These changes include greater use of artificial intelligence and machine learning, utilisation of virtual and augmented reality, growth and evolution of streaming services, and data analytics and blockchain technology. This policy outlook will expand on each one of these and more below.

Artificial Intelligence (AI)

The media industry is expected to see increased integration of artificial intelligence and machine learning soon. These technologies will allow computers to exhibit human-like intelligence by comprehending language, recognising patterns, and making decisions. Within the media industry, these technologies will have the potential to revolutionise the production and distribution of news.

On the news production side, the gathering and synthesis of information are already benefiting from technological advances that facilitate the analysis and cross-examination of diverse sources of information in multiple languages, including linked open data and crowdsourcing. These technologies are being used to validate information and facts on a large scale (such as for fact-checking), to provide personalised news feeds with helpful visualisations and summaries, and to identify fake news. AI projects like Pheme, REVEAL, and InVid use natural language processing (NLP), text mining, and other techniques to debunk fake news. On the news consumption side, AI technologies are also transforming how news is consumed. User profiling and recommender systems are becoming more common as sources increase, including UGC. This increase in sources will continue to require tools for us-

ers to evaluate the reliability of the information received from all sources in a manner that is even beyond what press agencies are capable of (across language barriers) to counter fake news and the issue of disinformation.

Even though AI is frequently seen as a way to automate complex tasks, and it has been used in various fields, including news media, AI can introduce biases because it hides the decision-makers behind the technology. For example, if an AI system is used to create someone›s news feed, a company or group of people is profiting from these actions, even though the user may not know who is behind the recommendations. In addition to financial biases, AI can also introduce power biases. For example, in the field of international media, media organisations and their influential backers can create or push content that is favourable to them. They can also silence dissent or content that is unfavourable to them, as they have control over the data and algorithms that are used to create content. It can be foreseen that this will cause problems in the near future as this has implications for freedom of expression in the media, as those who control the data and algorithms may have more influence over the information that is presented to the public. This can have real-world consequences.

Furthermore, AI tools may make media more accessible to everyone in 2023 and beyond by decreasing language barriers or barriers confronting people with disabilities. This will likely be achieved through automatic machine translation of text and speech and the generation of automatic subtitles and sign language. AI may also be utilised to address accessibility challenges related to migration using news media's power. Public broadcasters, in particular, can serve as educational and knowledge diffusion platforms for refugees, immigrants and the local population. Content creators and storytellers may be encouraged to produce content related to immigrants beyond news and emergency reports using real-time translation tools powered by AI. All content creators and storytellers may be encouraged to do so, along with using other AI tools related to visual imagery and music to create compelling content.

Virtual and Augmented Reality (VR/AR)

It is anticipated that the media industry will experience a rise in incorporating virtual reality (VR) and augmented reality (AR) in the upcoming year. The advancement of 360-degree and 3D video capture, computational capacity, and display technology has given rise to a new generation of consumer VR production. These technologies allow users to engage with immersive and interactive environments or to view digital content superimposed on the real world. Within the media industry, such technologies can potentially transform how news is produced and consumed significantly. VR journalism is part of a "continuum of visual mediums" that have long influenced journalism, one that arguably moves basic concepts of representation and immersion. The development of VR technology and other advances in visual media has led to a progression of "witnessing" in which the viewer feels increasingly connected. As per VR journalism researcher Nonny de la Peña, this progression has ranged from print to television to social and digital media. It will now include live-motion VR and other novelties. This will continue well into 2023. VR journalism, based on techniques such as video-based foreign reporting and the incorporation of journalism into VR environments, will increasingly involve the audience in the storytelling process by "offering agency" and a degree of presence in the narrative.

Additionally, the advancement of hardware technology (such as headsets), the biggest roadblock to large-scale VR adoption, is likely to occur in 2023. Google, HTC and Apple are releasing VR headsets in 2023 that will likely make the VR experience more immersive and comfortable. VR and AR may be utilised much more in 2023 to create immersive and interactive content that enables users to experience events or locations more engagingly. This could include news reports, documentaries, or other types of content that take advantage of the immersive nature of VR and AR. It is estimated that by 2024, VR revenues will exceed 12 billion USD; it is set to become one of the fastest-growing entertainment and media segments from 2020 to 2025. In 2020 alone, it raked in a revenue of 1.8 billion USD. In addition, these technologies may be utilised to create novel advertising forms or enhance the user experience of news websites and apps.

Continued Growth of Streaming Services

The continued growth of streaming services in 2023 is expected to bring about further changes in the production and consumption of news. These platforms, which offer subscribers access to a wide range of content, including movies, TV shows, music, and news, have become more popular with the expansion of high-speed internet and the availability of streaming devices such as smart TVs, streaming sticks, and game consoles. Streaming services have allowed news organisations to reach new audiences and distribute their content to a wider audience by creating their own news programming or partnerships with news organisations. The way in which people access the news (and media in general) is constantly evolving. A recent survey conducted by Verizon found that 20% of millennials have never subscribed to a cable or satellite television service, even though millennials were more accustomed to traditional TV viewing. They quickly adopted streaming services as their primary method of watching TV. Moreover, binge-watching has become a popular trend, with "47% of Gen Z respondents (a younger generation) stating that they prefer to watch content in this manner rather than episodically». Thus, the younger the generation, the

more likely they are to watch the news on streaming platforms. This trend will only continue and potentially hasten, with the share of all Americans who say they watched television via cable or satellite plunging from 76% in 2015 to 56% in 2021. Streaming services or platforms have also facilitated experimentation with new formats and the creation of interactive and multimedia content, leading to a shift towards these forms in future news production.

The increasing prevalence of streaming services has many implications for the news industry. For news organisations, it may present new opportunities to engage with audiences and reach new demographics. It may also require these organisations to adapt their business models (including advertising models, with most advertising dollars moving to streaming platforms) to remain competitive in the changing media landscape. For consumers, the availability of a wide range of news content on these platforms may lead to a greater diversity of viewpoints and a more personalised news experience.

Greater Use of Data Analytics

It is predicted that the use of data analytics in the media industry will continue to grow in 2023 and will have several significant impacts on the production and consumption of news. Data analytics involves collecting, organising, and analysing data to gain insights and inform decision-making. In the news media industry, data analytics can be used to understand audience behaviour and tailor content to their needs and preferences through machine learning and artificial intelligence to personalise content for individual users. Data sources may include social media analytics and other large and complex connected data sets such as election or population data. By using data analytics to identify popular stories and topics and optimise the format and distribution of content for different platforms and devices, news organisations can improve engagement and increase retention and loyalty.

The increasing use of data analytics in the media industry may also have wider implications for society. It may raise concerns about the concentration of media ownership and the impact on the sustainability of traditional news organisations. Though not strictly a news organisation per se, the effect of concentrated media ownership has even been chaotic for Twitter, a social media platform that has become a news medium. Since taking over the company, tech billionaire Elon Musk has made several major changes, including replacing the board, dismissing the CEO and a majority of executives, and ending content moderation teams. He also introduced Twitter Verified, a subscription service that allows users to purchase verified status on the platform (in the past, this status was only available to celebrities, journalists, and government officials). The implementation of Twitter Verified faced controversy and was eventually suspended due to its impact on impersonation on the platform and huge financial losses for impersonated companies. In addition, Musk has restored the accounts of several controversial individuals, including Kanye West, Andrew Tate, Jordan Peterson, and Donald Trump, leading to several corporations refusing to advertise on the platform.

The use of data analytics may also raise questions about the privacy of individuals and the use of their personal data for targeted advertising and content personalisation, which may increase revenue for news organisations but potentially erode trust in these organisations. As more social media platforms become news media and more media outlets use social media platforms to disseminate or even produce news, there are growing legal or ethical issues. Most of these involve sensitive personal data that is usually extracted without explicit consent. It will be important for news organisations to carefully consider the potential impacts of data analytics on their audiences and society.

The Rise of the Blockchain

Blockchain technology is expected to significantly impact the distribution and monetisation of content within the media industry in the future. As a decentralised, distributed database, blockchain allows for secure and transparent tracking of transactions, which can be applied to distributing and monetising content. One potential application of blockchain in 2023 for the media industry is the creation of micropayment systems for content. If news organisations utilise the blockchain to create micropayment systems for their content, it may generate new revenue streams and allow them to monetise their content in new ways. Blockchain technology may be used to verify the authenticity of and prevent the circulation of fake videos. It may also allow consumers to select specific content and pay only for the content they wish to access. Additionally, non-fungible tokens (NFTs) may create exclusivity in a streaming environment where all content is constantly available.

Another potential use of blockchain in the media industry is tracking the use and distribution of content more transparently and safely. Blockchain technology can be effectively utilised to address issues such as copyright protection and royalty distribution. It can also prevent plagiarism. This could help ensure that content is adequately credited and compensated and prevent unauthorised use or distribution of content.

Further, by using blockchain to track the use and distribution of content, news organisations could better understand where, how and by whom their news content is being consumed and potentially monetise it more effectively. This will allow for the planning and production of better content also. With all the upcoming benefits and applications of blockchain technology, it will be important

for news organisations to keep abreast of blockchain technology developments, consider its use to meet changing needs and preferences of their audiences, and continuously innovate.

New Platforms and Devices

The media industry is also likely to be impacted by the emergence of new platforms and devices that enable new forms of content consumption. For example, new wearables or smart devices may be developed to allow users to access content in new ways. These include wearables (such as smartwatches and fitness trackers, which would enable people to access news and other content on the go) and smart devices with voice assistants. This development could also take the shape of integrating content into new types of applications or services. For example, integrating Amazon's Alexa or Google's Assistant into various smart devices has made it easier for users to access information and stay updated with the latest news by simply speaking to their devices. These new platforms and devices may create opportunities for news organisations to engage with their audiences and change news production and consumption. Regarding news production, devices like Kapture, a wrist-based device that always records but only stores audio when instructed, can improve news reporting. Such devices are likely to be developed more in the future.

In terms of news consumption, it is said that "when smartwatches make notifications an immediate and pervasive interruption to the everyday life of the user, those interruptions must be personal...or risk the user ignoring the notifications or stopping using the device". The year 2023 may see the integration of AI to enable the personalisation of news content on smartwatches or other wearable devices.

Additionally, the emergence of new platforms and devices that enable new forms of content consumption is likely to have implications for UGC in the news media industry, as it may create new opportunities for individuals and groups to create and distribute content that informs news. This could also lead to an increase in the amount of news content that is available and may also lead to the development of new formats and styles of news content. UGC is considered by many to be the future of marketing, journalism and all kinds of narrative-based storytelling. Devices or platforms enabling better quality UGC to be produced or improving how UGC is discovered and shared will likely hit the markets from 2023 onwards.

Conclusion

Overall, it is likely that the year 2023 will see the emergence of new technologies that have the potential to transform the news media industry. Whether through the integration of AI, the use of VR and AR, the application of blockchain technology, the expansion of data analytics and streaming services or the development of entirely new platforms and devices, these technologies will widen the horizons for news media organisations. They may also significantly change how news is produced and consumed. News media organisations must learn, apply, and innovate or become redundant. The future is already here.