

Research on the Business Model Challenges for the Media Industry in the New Era

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Abstract. This paper examines the business model challenges faced by the media industry under the influence of technological advancements, aiming to explore the issues and opportunities encountered during the transition from traditional media to digital and intelligent media. By analyzing the development of the media industry through various conventional media, digital transformation, "Internet Plus," and intelligent media, the paper reveals the profound impact of technological progress on the media industry and investigates the evolution of media formats and shifts in business models. The main research content focuses on how advanced technologies such as cloud computing, big data, and artificial intelligence have driven the transformation and upgrading of traditional industries, especially in sectors like manufacturing, agriculture, and services. The paper also highlights the rise of personalized content recommendation and online-to-offline (O2O) business models, exploring new business models emerging in intelligent media related to content production, distribution, and user engagement. The conclusion indicates that technology is the core driving force behind the evolution of the media industry. With the continuous development of technologies such as augmented reality (AR), virtual reality (VR), and artificial intelligence (AI), user experiences and content distribution methods in the media industry will be further revolutionized. However, as opportunities arise from technological advancements, challenges related to data privacy and security are also emerging. In the future, the media industry will face the challenge of balancing technological innovation with regulatory oversight to ensure sustainable development.

Keywords: Media industry transformation; Digitalization and intelligent media; Technological innovation in media; Personalized content recommendation; Business model evolution.

1. Introduction

From a historical perspective, the evolution of media from the "news reports" of China's Tang Dynasty to subsequent newspapers, radio, and television illustrates the emergence of diverse media forms across different eras. This relentless drive for progress stems from humanity's insatiable thirst for information, highlighting that information transmission is not merely an industry but an essential component of society's functioning and development. Even entertainment news has carved out its niche, evoking passionate debates among the general public.

From a developmental angle, as technology continues to advance rapidly, an increasing number of advanced technologies have emerged as media carriers. In this backdrop of technological explosion, the media industry is destined to harness new carriers and encounter novel opportunities, such as the incorporation of AR (Augmented Reality) and VR (Virtual Reality) technologies. Concurrently, traditional media may face the challenge of being phased out, as listeners of radio broadcasts and even subscribers of newspapers may opt for more innovative media experiences. Consequently, examining the business model challenges faced by the media industry amidst technological advancements is a crucial topic for the future. It is imperative to clarify the development patterns of the media industry and enable individuals to navigate and grow along with these trends.

Previous studies have proposed various business models for the media industry and explored potential optimization strategies. A common thread among these studies is their emphasis on guiding future speculations about emerging media models and optimization techniques.

Karimi argues that innovation in the media industry deviates from traditional entrepreneurial models, noting that factors such as autonomy and risk-taking do not significantly impact outcomes

and there is no straightforward linear relationship involved [1]. This suggests that media innovation requires a unique approach distinct from other industries. Sylvie points out that the traditional newspaper industry can create value through strategic resources, and by leveraging the Global Long Tail (GLT), it can transform into consumer-oriented content preferences and evolving business models in the digital age [2]. This highlights the necessity of integrating the latest technologies and concepts for the successful renewal of traditional media. Pramataris and Papakyriakopoulos suggest that Interactive Television (iTV) combines the appeal of traditional TV with the interactivity of the Internet, offering personalized entertainment experiences to viewers. This technological integration compels the industry to adapt its business models, develop new value chains, and establish market intermediaries that align with future technological platforms [3]. Doyle concludes that the advent of digital platforms is profoundly altering the financing strategies for media production and the development of economic value in creative content [4]. The success of digital media platforms, which have empowered traditional television media, underscores the role of technology in transforming the industry. These platforms, accessible via mobile devices, better align with contemporary living habits and methods of information acquisition, marking a significant departure from traditional cable TV. Steve and Yuen observe that AR applications, now portable and operable on mobile devices, have permeated various aspects of daily life. The feasibility of AR technology allows users instant access to location-specific information compiled from multiple sources [5]. This suggests that AR could effectively project current media information onto AR applications, potentially becoming one of the first widely adopted applications on any AR device. Javornik and Marder highlight that AR filters have gained over 600 million users across platforms like Instagram and Snapchat, with many users employing these filters to enhance their uniqueness or mask perceived imperfections [6]. This technology not only boosts users' confidence but also lowers barriers to entry in the media industry, encouraging broader participation in both traditional and user-generated content creation. AR technology augments users' perception of the external world, ushering in an era of multimedia experiences that transcend mere visual and auditory senses. This represents a monumental leap forward, a functionality unprecedented in history. Envision the prospect of previewing tomorrow's weather through AR, where you can virtually feel the impending raindrops as they virtually splash around you and hear the patter against your window, prompting you to grab an umbrella in advance. Consider the experience of viewing a concert video on social media, where one feels immersed in a vibrant crowd of fans, collectively enjoying the music. In this virtual setting, your favorite artist performs just feet away, creating an intimate atmosphere that transcends physical boundaries. These scenarios underscore the transformative potential of AR technology, reshaping the way everyone interacts with and perceives our surroundings. Mosharafa highlights the significant impact of recent media technology advancements on youth media consumption. The portability of media devices and the fusion of interpersonal and mass communication have drastically altered young people's media habits. Utilizing the Uses and Gratifications Theory (UGT), Mosharafa's study examines how individuals' needs and goals influence their adoption of new technology and media consumption behavior [6]. The study reveals that young people spend more time online than watching TV, preferring different media at specific times of the day radio in the morning, computers in the afternoon, and television in the evening. Social activities like chatting on WhatsApp and networking on Facebook consume the most time daily. This research complements earlier findings by Karimi and Sylvie, illustrating that as technology evolves, media business models must adapt to meet the changing needs of younger audiences [1, 2]. Mosharafa's insights emphasize the necessity for media industries to continually evolve, integrating new technologies to cater to the shifting behaviors of the youth.

2. The Experience of Changes in the Media Industry

2.1. The Traditional Media Stage

The development trajectory of the traditional media era, spanning from the late 19th century to the end of the 20th century, was marked by the emergence and prosperity of newspapers, radio, and television. Newspapers, as the earliest form of modern media, leveraged advancements in printing technology to disseminate information widely, with content gradually diversifying and giving rise to commercialized operational models. Subsequently, the invention of radio technology shattered geographical and temporal barriers, providing the public with a convenient avenue for information acquisition through sound broadcasting. Furthermore, the rise of television in the mid-20th century revolutionized the audiovisual experience, with television programs becoming increasingly diverse and an integral part of societal life. During this period, traditional media, characterized by its authority, widespread reach, and one-way communication, profoundly influenced social development. It not only drove the proliferation of information dissemination and the cultural industry but also played a pivotal role in guiding public opinion and overseeing society.

2.2. The Digital Transformation Stage

The evolution of the digital transformation phase represents a continuous journey from technological germination to comprehensive penetration, deep integration, and ultimately towards advanced stages. It commenced with the invention of transistors and microchips, laying the foundation for digital advancements, and progressed with the initial development of the internet and information technology. Driven by informatization policies, digital transformation gradually gained momentum and accelerated its pace. As digital technologies were widely adopted, traditional industries underwent transformation and new business models emerged, while policies further deepened the integration of digital technologies with the real economy. Corporate digital transformation initiatives were fully launched, with smart cities, intelligent manufacturing, and other projects thriving. Looking ahead, digital transformation will ascend to higher levels, with emerging technologies propelling its development and fostering the construction of an interconnected and intelligent digital ecosystem, presenting unprecedented opportunities and challenges for enterprises and society alike.

2.3. The Internet Plus Stage

The evolution of the "Internet Plus" era has progressed from its conceptual inception by Yu Yang of Analysys International in 2012 to its transformation into a national strategic initiative. In 2015, Ma Huateng's proposal and Premier Li Keqiang's official announcement in the government work report marked the official elevation of "Internet Plus" as a national strategy, aimed at fostering innovative economic and social development through the deep integration of Internet technologies with traditional industries. Cinelli and Quattrocioni proposed that an analysis of data from various social media platforms reveals similarities in the information dissemination patterns and characteristics across these platforms [7]. Driven by continuous policy support, technological innovations such as cloud computing, big data, and artificial intelligence have made significant breakthroughs, providing robust momentum for "Internet Plus" and facilitating its widespread application across sectors including education, healthcare, transportation, and environmental protection. Traditional industries like manufacturing, agriculture, and services have undergone transformation and innovation through their deep integration with the Internet, yielding remarkable achievements. Nevertheless, as "Internet Plus" deepens, issues such as data security, privacy protection, and inter-industry data silos have emerged as challenges that need to be addressed in future development. Overall, the evolution of the "Internet Plus" era represents a process intertwined with policy guidance, technological innovation, and application expansion, continuously propelling China's digital transformation and upgrading of its economy and society.

2.4. The Intelligent Media Stage

The evolution of the intelligent media era represents a profound transformation within the media industry, fueled by advancements in mobile internet, big data, and artificial intelligence technologies. Beginning in 2016, with the introduction of the concept of intelligent media by industry leaders such as Li Peng, who envisioned its utilization of AI to restructure the entire production and dissemination process of news and information, the intelligent media era officially entered the public spotlight and garnered widespread attention.

Subsequently, major media conglomerates like Xinhua News Agency and Shanghai United Media Group embarked on practical endeavors within the intelligent media realm, establishing "intelligent media laboratories" and creating intelligent media centers. This period saw the core of intelligent media lie in technology-driven innovations, fostering both content and dissemination mode revolutions. Through algorithmic recommendation, machine-generated writing, and other technological means, intelligent media not only enhanced the efficiency and personalization of news production but also dismantled traditional media's dissemination barriers, enabling information to flow through multiple channels and formats.

Concurrently, the development of intelligent media necessitates policy guidance and regulatory frameworks to ensure its sustained and orderly progression. Looking ahead, the emergence of novel technologies such as 5G, the Internet of Things, and blockchain, along with continually expanding application scenarios, will usher in broader horizons and limitless possibilities for intelligent media. It will continue to propel the digital transformation and innovative development of the media industry, shaping the future landscape of information dissemination and consumption.

3. Technological Advancements and Changes in Business Models.

3.1. The Traditional Media Stage

The development of traditional media was heavily influenced by technological advancements that allowed for wider dissemination of information and more engaging content experiences. In this era, the primary media people used included newspapers, radio, and television. Each of these played a unique role in how individuals accessed and consumed information.

Through newspapers, people could read the latest news, editorials, and advertisements by purchasing physical copies or subscribing to regular deliveries. Radio enabled individuals to listen to live broadcasts, including news, music, and entertainment, by simply tuning into a frequency, making it convenient to receive information while at home, at work, or on the go. With the advent of television, users could sit in their living rooms and watch a variety of content that combined visual and auditory elements, such as news reports, shows, and live events, revolutionizing the way people consume media.

These media captivated audiences for several reasons. Newspapers provided the most detailed and in-depth reporting, while radio offered real-time updates and entertainment at any time of day. Television, however, became particularly addictive because of its immersive audiovisual experience, providing a new level of engagement through moving pictures and sound. These media all offered a continuous flow of fresh content, keeping people coming back regularly for updates.

As for the pricing models, newspapers often charged readers through either subscription services or single-issue purchases. Radio broadcasting was typically free for the listener, relying on advertisements to generate revenue. Television followed a mixed model, with free-to-air channels supported by advertising and some premium channels or cable services requiring subscription fees. High-quality or exclusive content on both newspapers and television could also come with additional paid access, creating a direct revenue stream. Sundar and Limperos argue that older media can utilize measurement tools to capture the list of gratifications from new media, thereby providing users with new experiences [8].

The main reason people were drawn to these media was the constant availability of new content and the engaging format each platform offered.

3.2. The Digital Transformation Stage

The digital transformation stage was driven by key technological advancements that revolutionized industries and reshaped how information was accessed and shared. In this era, the primary media people use are digital devices such as smartphones, computers, tablets, and smart home systems, all connected through the internet. These devices serve as the primary gateways for a wide array of activities, from communication and entertainment to shopping, education, and accessing services like healthcare and financial management.

Through these digital media, people can browse the web, stream videos and music, engage with social media, shop online, and use various apps to accomplish tasks, all with just a few clicks or taps. The experience is highly interactive, allowing users to search for and receive information in real time, communicate instantly with others around the world, and even create and share their own content on platforms like YouTube, TikTok, or Instagram. This ease of access and the range of functionalities make these devices indispensable in daily life. Dominique and Dietram proposed that in the United States, the vast majority of internet users rely on search engines to find information, highlighting the increased importance of effectively communicating information in the new "online" environment [9].

One of the primary reasons this digital media captivates users is its ability to provide personalized, on-demand content. Powered by big data and artificial intelligence, platforms analyze users' preferences and behavior to offer highly tailored content, whether it's customized news feeds, video recommendations, or personalized shopping suggestions. This constant stream of content that fits individual tastes creates a deeply immersive and often addictive experience. Regarding pricing, while many digital services are available for free, they often rely on ads for revenue, offering users premium or ad-free experiences through subscription models. Other platforms adopt a freemium approach, providing basic features for free but charging for advanced tools or exclusive content.

Compared to traditional media, the biggest advantage of digital media is the convenience and precision with which information is delivered. In contrast to traditional media like newspapers, radio, and television, which broadcast the same content to a broad audience, digital platforms push information that is specifically tailored to each user. For example, video platforms like TikTok and YouTube use algorithms to curate a "For You" page based on user habits, ensuring that content is highly relevant and engaging. This personalized delivery, combined with the ability to access information anytime and anywhere, makes digital media far more convenient and flexible than traditional formats.

3.3. The Internet Plus Stage

The "Internet Plus" era was characterized by the integration of advanced technologies that enabled industries to evolve and innovate. In this era, people primarily use digital media such as smartphones, computers, tablets, and internet-connected smart devices. These media serve as the key tools for accessing cloud-based platforms, big data analytics, artificial intelligence services, and other internet-based applications that define this period.

Through these media, individuals can perform a wide variety of activities: they can shop online, stream movies, engage with social media, work remotely, participate in online education, access healthcare through telemedicine, and even monitor smart home devices. The interaction with these platforms is effortless, often requiring only an internet connection and an app or website to gain access. Consumers can use mobile devices to seamlessly switch between tasks like making appointments, attending virtual meetings, or even controlling home appliances.

One of the major reasons these media are so captivating is the personalized content and services they provide. Platforms powered by big data and AI analyze user preferences and behavior patterns to offer highly tailored content, such as custom news feeds, personalized shopping suggestions, or entertainment recommendations. For instance, video platforms like YouTube or streaming services

like Netflix use algorithms to suggest content based on what users have previously watched, creating a highly engaging and immersive experience. Many of these services are free to access but generate revenue through advertisements, while others operate on subscription models, offering premium, ad-free, or additional features for paying users. Freemium models are also popular, providing free basic services with paid upgrades for enhanced functionalities.

Compared to the digital era mentioned earlier, the key advantage of the "Internet Plus" era is the precision of content delivery. In the past, digital media relied on broadcasting the same information to all users, whereas now, information is specifically tailored to each user. Algorithms analyze user data to push content that matches individual interests and habits, as seen in platforms like TikTok's "For You" page or Netflix's personalized recommendations. This level of precision in content delivery not only enhances user engagement but also makes the browsing experience far more efficient, as people receive the information or entertainment that is most relevant to them. This shift from generic content to personalized, data-driven interactions represents a significant leap in user experience, improving convenience and satisfaction.

3.4. The Intelligent Media Stage

The evolution of intelligent media was driven by the convergence of advanced technologies that transformed how content was produced, distributed, and consumed. In this era, the primary media people use are smartphones, tablets, computers, and other smart devices connected to the internet. These digital devices enable users to access a variety of platforms- social media, streaming services, news apps, and websites-providing instant access to information, entertainment, and services easily.

Through these media, individuals can watch videos, read news, engage with social networks, shop online, and even use AI-powered apps for activities like virtual assistants, automated content curation, and personalized health tracking. The interaction is seamless and highly interactive, with users often receiving real-time updates and personalized recommendations with minimal effort.

The reason these media are so captivating lies in the personalized experience they offer. Powered by big data and AI, platforms analyze user behavior to tailor content and recommendations specifically to individual preferences. This means that users are constantly provided with content that interests them, making the media consumption experience more engaging and immersive. For instance, video platforms like YouTube, TikTok, and Netflix use AI-driven algorithms to suggest videos based on previous viewing habits. This creates a feedback loop where the more users engage, the more relevant and personalized the content becomes, leading to longer consumption times and increased user engagement. Pricing models vary across platforms, with some content offered for free, and supported by targeted advertising, while other platforms use subscription-based services or freemium models, where users can access premium features for a fee.

Amato and Behrmann argue that with the enhancement of big data and computing capabilities, Artificial Intelligence (AI) has achieved remarkable progress across multiple domains, particularly within the creative industries where its applications are increasingly prevalent. The creative industries have not only embraced AI technology from its early stages but have also witnessed the continuous expansion of AI's application boundaries as technology advances. For instance, AI has demonstrated its potential in creative content generation by authoring film scripts and producing music albums, showcasing its capability to contribute significantly to the creative process [10].

4. Conclusion

This paper primarily investigates the business model challenges faced by the media industry in the context of technological advancement, with a focus on the problems and opportunities encountered during the transition from traditional to digital and intelligent media. By analyzing the development of the media industry in various stages-from the traditional media phase, through the digital transformation and "Internet+" stages, to the current stage of intelligent media paper examines the relationship between technological evolution, changes in media formats, and shifts in business models.

It aims to reveal the profound impact of new technologies on the media industry and provide insights for its future development.

The study finds that technology is the driving force behind the evolution of the media industry. From traditional media like newspapers, radio, and television to digital and intelligent media, technology has continually redefined the way media content is produced and distributed. Emerging technologies such as augmented reality (AR), virtual reality (VR), big data, and artificial intelligence (AI) have become key drivers, fundamentally altering user interaction and experience. Furthermore, the media's business models have evolved from early subscription and advertising models to personalized recommendations, data-driven content distribution, and a hybrid "freemium" model combining paid and free content. User behavior has also shifted, with younger audiences increasingly relying on mobile devices and social platforms to actively seek information. While technological innovation has opened up new opportunities, the media industry faces challenges such as privacy concerns, data security, and regulatory issues, necessitating a balance between innovation and policy development for sustainable growth.

This paper argues that with the continuous advancement of technology, an increasing number of media platforms will emerge, providing consumers with more convenient and enjoyable user experiences. Technologies such as AR and VR are already within reach, and I believe that in the future, even more advanced platforms or devices will undoubtedly appear. The future direction of development should incorporate additional sensory dimensions beyond just sight and sound, enabling more efficient information transmission. This will not only lead to the emergence of new industries but will also drive the evolution of more diverse business models.

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