

DIGITAL TRANSFORMATION OF MEDIA: CHALLENGES AND OPPORTUNITIES

Ruslan Yu. Novikov, Eva P. Zohrabyan

Abstract. This paper is the result of the analysis of the evolution of media landscape in the context of the development and spread of digital technologies. The article examines the qualitative impact of digitalization on the business and operational models of traditional print media in the context of the obvious need for organizations in this field to adapt to the requirements of the digital age. The research emphasizes the importance of trust as a cultural phenomenon and its key role in decision-making under conditions of information overload. Using analytical and systemic approaches, the authors of the study explore the scale and multidimensionality of the evolution of the media industry in a multifaceted way. The article also analyzes the current state and prospects of AI integration in media activities, in particular, such technology products as predictive analytics and content personalization, which are significantly changing the processes of information content creation and distribution. The authors also consider the shift from hierarchical content distribution to a model of co-production and co-consumption, and highlight the importance of content personalization and the impact of the platform economy on the business models of modern media. The authors conclude that, despite the challenges, print media can remain relevant and successful if they can pay sufficient attention to the quality and uniqueness of their content to maintain the trust of an audience that needs to effectively navigate the competitive digital environment.

Keywords: digital transformation, media industry, print media, artificial intelligence, predictive analytics, content personalization, media trust, platform economy, information overload, content co-production

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Information about the authors:

Ruslan Yu. Novikov, PhD in Economics.
CEO of the Argumenty i Fakty Publishing House.
RNovikov@aif.ru

Eva P. Zohrabyan,
3rd year Bachelor's student of the Institute of Social Sciences, RANEPA RANCHIGS.
eva.zograb@mail.ru

Introduction

Today's era, which can rightly be called the digital age, is the beginning of a serious and qualitative transformation of the media, as the landscape of creation, distribution and consumption of information content is fundamentally changing within the current phenomena. The creation of new products of digital technologies has not only expanded communicative opportunities, but also led to the emergence of a poly-media environment in which traditional and new media coexist and interact in quite complex configurations. In this research, the authors present the results of a study of the complex dynamics of this transformation and show the key directions of the processes that are changing the media industry.

The relevance and significance of this topic is confirmed by the rapid pace of development of digital technologies and the profound impact they have on the media sector as a whole. From the emergence of printed periodicals to the modern digital revolution, media distribution channels have had to constantly adapt to technological advances. Today, the integration of artificial intelligence (hereafter AI), predictive analytics, and other areas such as neuromarketing based on the analysis of emotional reactions exemplifies the depth and complexity of digital integration [13]. This digital transformation presents media businesses with serious challenges, but also with the unprecedented opportunities at the same time. These polarized trends require careful consideration of the implications of the digital revolution.

The purpose of this paper is to provide a comprehensive analysis of the digital transformation of the media industry, identify the key factors driving these changes, and suggest strategies that media companies can use to survive and grow in the new era. The objectives of the study are:

1. To evaluate the current state of digital transformation in the media and show its impact on traditional print media.
2. To examine the role of trust as a cultural phenomenon in the digital media landscape and its impact on audience engagement and content consumption decision-making systems.
3. To explore the application of AI-based technologies in media, including predictive analytics, emotional response analysis, and content management.
4. To formulate strategies and approaches that print media can use to remain competitive and relevant in the face of digital developments.
5. To assess the potential of digital technologies to complement and expand traditional media business tools (rather than replace them).

Within the framework of the set goals and objectives, this article, as the authors hope, will be able to give a clear picture of the potential ways of digital transformation of the media industry, to highlight the main challenges and opportunities faced today by specialists in this complex and constantly changing field.

The concept and nature of digital transformation in the media sphere

By digital transformation in the media industry, we mean a profound and constantly progressive modification of media systems, processes and practices that are carried out through the introduction and integration of digital technologies [3]. This transformation is not inherently a mere technological shift, but a fundamental change in the way media content is created, distributed and consumed. The digital era has led to the emergence of a poly-media environment, an integrated structure in which traditional and new media coexist, which leads to the creation of a qualitatively new, co-mediated reality that is constantly being constructed, managed and changed both through media activities and by the users themselves.

At the same time, the impact of digital transformation on the media industry is multifaceted. The ongoing processes have democratized content creation, allowing content creators to present and consumers to access a wide variety of opinions and viewpoints. As part of these processes, barriers to market entry have been significantly lowered, resulting in increased accessibility of content. Digital platforms have also enabled media companies to reach global audiences with unprecedented ease, opening up new opportunities for business scaling and monetization [4]. However, this transformation in turn has also led to increased competition not only between traditional media, but also with “digital” companies operating exclusively on the Internet. Under these conditions, modern scientists often mention such phenomena as convergence and divergence of technologies, which are understood as the development of various systems, spheres, industries towards the fulfillment of similar tasks (convergence) or, conversely, the development of similar systems towards divergence into new areas (divergence). In particular, technological convergence “connects” industries such as information technology, telecommunications, consumer electronics, and entertainment, i.e., it combines telecommunications, computing technology, and broadcasting system into a single digital stream within a single interface on a single device. Convergence and divergence are causing major paradigmatic and structural changes in the economies of individual nations as well as in the global economy, and these phenomena have an important impact on the media sector [12].

Media companies face a number of challenges in the process of digital transformation. One of the main challenges is the need to adapt to rapidly changing consumer behaviors and preferences. Audiences today demand instant access to content across multiple devices, often favoring digital platforms over traditional print or broadcast media.

Another problem is the business model of such companies, as monetization of digital content follows a different logic compared to, say, print content, and traditional models of generating revenue through advertising are collapsing due to the development of ad-blocking technologies and the changing structure of employers’ spending on advertising promotion.

In addition, in the digital era, the phenomenon of trust is becoming increasingly important. In the context of widespread fake news and misinformation, print media manage to maintain and even increase the level of trust in their materials in both print and digital formats [9]. This trust and audience loyalty are crucial for the successful functioning of print media today, despite the rapid development of digital technologies.

Technological innovations in media, particularly those based on AI, are having a significant impact on the entire industry. AI-based predictive analytics allows analyzing huge amounts of data to predict user behavior and preferences, tailoring content to each specific user [6]. Emotional response analysis allows us to assess users' attitudes towards certain topics and stories based on their social media behavior. AI-based content creation and management tools allow generating and promoting content based on the most relevant topics and audience reactions, thus optimizing business costs and increasing user engagement.

Despite the almost revolutionary changes presented above, digital technologies should be seen as tools that complement and enhance traditional media business tools, not replace them. Successful integration of digital technologies requires media companies to strategically utilize these tools to create unique, high-quality content that builds trust and audience engagement. Thus, the authors believe that in this environment, print media will be able to maintain their relevance and success in competing with digital technologies.

Overview of major technological innovations affecting the media industry

The media industry is at the forefront of disruptive innovations. These innovations have changed not only the process of creating and distributing media content, but also audience engagement and monetization strategies, as we have just shown. Below is an overview of the main technological innovations that have had a major impact on the media industry, as well as two large-scale examples of successful implementation of digital technologies in media [11].

Today, no one would argue that one of the most significant technological advances in the media industry is the use of AI. We have already mentioned such areas as predictive analytics, analysis of emotional reactions, and content creation and management as tools that are literally revolutionizing various areas of media. Let us explain that predictive analytics allows us to use AI to analyze huge data sets in order to predict user behavior and preferences, which enables media companies to more effectively tailor a set of content to the interests of a particular user [16]. Analyzing emotional reactions with the help of AI allows us to interpret interaction in social networks and obtain information about the audience's attitude to certain topics, stories, personalities, etc. AI-based content creation and management tools allow managing the autonomous generation and promotion of content based on current topics and audience perception and reactions, thus contributing to optimizing business costs and increasing user engagement.

Another technological innovation that has had a significant impact on the media industry has been the development of digital platforms that have been used for content distribution. Such platforms have facilitated a shift from traditional print and broadcast models to digital strategies, allowing media companies to reach a wider audience and develop new revenue streams through the introduction of new business models that may be based on paid subscriptions, targeted advertising, and other non-traditional ways of monetizing content.

It is most interesting to consider how media with a long history and a traditional brand have transformed under these conditions. In particular, the New York Times (NYT) is a prime example of a traditional print media outlet that has successfully “survived” digital transformation. As part of the transition, the NYT has invested heavily in its digital platforms, offering a wide range of multimedia content, including podcasts, a variety of interactive features (actually a paradox for traditional media) and mobile applications. At the same time, the NYT continues to invest in high-quality journalism, and along with its active use of AI to personalize content for its readers, the NYT has seen significant growth in digital subscriptions, making digital revenue a significant part of its business model [17].

Another example is also a traditional media - The Guardian. This company uses digital technology as part of its own innovative “open journalism” initiative, which motivates and encourages reader participation to contribute to news production processes. Using social media and digital platforms, The Guardian has expanded its reach and influence. It has managed to build a community of readers who actively engage with the content [19].

This approach not only increased audience trust and loyalty, but also opened up new revenue opportunities, including paid community membership programs and fundraising models of funding from readers [15].

These examples clearly demonstrate that the rapid development of digital technologies not only poses threats to traditional media, but also opens up new opportunities for media companies to develop, moving to a qualitatively new level - all of which are new directions for strategic development. Thus, by utilizing the technologies presented above and focusing on trust, quality and audience engagement, print media can still occupy a key role in the industry and continue to play an important role even in the digital age.

Changing business models in the media

In the following, we will note the new conditions in the context of monetizing media businesses in more detail. Digital transformation is forcing media companies to reassess and rethink their business models to meet the new digital reality. The following analysis of changes in the business models of media companies under the influence of digital transformation is presented in such a way as to focus on new promising opportunities for content monetization and audience engagement [18].

The traditional sources of revenue for print media were primarily dependent on the circulation of the publication and the amount of advertising in it. This has been significantly disrupted by the proliferation of digital technologies. With the growing popularity of digital platforms, media companies faced the problem of declining print sales and, moreover, a qualitative phenomenon - the fragmentation of the advertising market [14]. In order to survive and to maintain revenue, traditional media began to develop new strategies for monetizing their business based on digital technologies, which would allow them to generate profits in the digital ecosystem.

The most obvious strategy is the introduction of subscription models for accessing content. By offering exclusive, high-quality content to loyal paid subscribers (so-called paywall), media companies receive a steady income from loyal readers willing to pay for exclusive content. This model has already been successfully applied by a number of traditional print media which have started publishing a digital version of the newspaper, and as a result, these companies have ensured the growth of digital subscribers.

Another, qualitatively different approach is the diversification of monetization areas through the development of additional digital services. Here we are back to the convergence and divergence phenomena described above, where media companies use their brand and audience to create and provide additional services such as e-commerce, educational and entertainment events, and the development of their own digital educational platforms. Such services not only open up new opportunities for revenue generation, but also increase the engagement and loyalty of the audience, which in these conditions comes into contact with the media company through a range of services [18].

It should be noted that the very nature of interaction with audiences has changed under the influence of digital technologies. Contemporary researchers argue whether the nature of the human being is currently changing in the context of the spread of digital technologies. Some scholars talk about the expansion of the "human" due to the active use of technology, including in the communication loop. Others believe that the very nature of human is changing, shifting the boundaries at the intersection of the physical and virtual, corporeal and technological [7]. In any case, the authors are convinced that the information space has expanded in all directions, and together with this, social media platforms and mobile applications have become the most important channels for content distribution and interaction with users (who were previously only readers). Media companies use such platforms to create communities to distribute their own content, to motivate participation in real-time discussions, and to collect and analyze data on user preferences and behavior [10].

In addition, the integration of AI into media has opened up new opportunities for personalizing content and advertising. AI-based analytics can predict user behavior and preferences, which gives media companies the opportunity to provide individual content and advertising to individual users. This level of personalization improves user experience and has a positive impact on the growth of audience engagement in a particular media outlet.

If we look superficially at the current situation and pay attention only to the linear figures of the decline in print circulation, we can miss key new grounds and new positive and promising factors. Despite the truly disruptive phenomena in the industry, print media have managed to find their niche, and once again we note that they have managed to maintain and even increase the credibility of their products in both print and digital formats.

Opportunities and further development prospects

In the midst of a whirlwind of digital transformation, traditional media are facing profound changes, and we will take a more in-depth look at the future of the media industry in terms of new opportunities and trends that will shape the future of media. In this context, the issue of trust needs to be discussed in more detail.

In an earlier article, one of the authors of this publication noted that the convergence of media and technology has catalyzed a metamorphosis in the media landscape, forcing traditional print media to adapt to new digital realities [14]. As digital technologies evolve, media companies are faced with great opportunities to innovate and redefine the value proposition to consumers. Trust, as noted in the aforementioned study, is becoming a key mechanism for people to navigate the flow of information in the digital age.

Print media has gained credibility over the years, and one of the most significant opportunities lies in leveraging this category. In an era of misinformation, the value of a reliable source of information cannot be overemphasized. Print media should capitalize on this advantage by ensuring the credibility of their digital counterparts and thereby justifying the loyalty of an audience that values trusted and reliable content.

Modernity is often called the era of “post-truth”, because the spread of fake- and dis- information (these almost synonyms have come into common use in recent years) has become widespread, facilitated by the ease of sharing content in the digital space, primarily in social networks [8]. All this has led to the fact that people are more likely to consume news which corresponds to their already established perceptions, rather than searching for accurate and verified materials. As a result, the credibility of the media as a whole was questioned and public trust in journalism declined. In the face of this crisis, the print media have become a crucial source of verification and the struggle for truth. Print media, with its long tradition of fact-checking and investigative journalism, has taken on the role of truth-tellers. Unlike digital platforms that prioritize speed and virality, print media takes the time to thoroughly check information before publication. This commitment to accuracy and accountability allows print media, as we have shown, to maintain a level of trust with readers.

Incidentally, the “material nature” of print media also plays a role in the struggle against the post-truth era. The physical existence of newspapers and magazines creates a sense of authenticity and credibility that online platforms often lack. Readers can

physically “hold” information in their hands, which gives them a sense of reliability and legitimacy [5].

At the same time, the thoughtful integration of AI into media activities is another tool for the development of traditional media. We have already written about specific technologies that can personalize content, manage preferences, thereby improving the user experience and creating new ways to engage audiences.

A separate, still problematic area of AI application is content creation, i.e. writing articles with the help of generative AI, which is making such a big step forward in 2023. This seems to be a debatable topic, and despite the seeming simplicity of the new possibilities, a number of frameworks, both ethical and professional, need to be established in order to utilize this technology for the benefit of users.

As a follow-up to the above-mentioned development of platform economy models in media, it seems promising to develop in this direction in the media sphere as well. By applying platform business models, media companies can create ecosystems that facilitate collaborative content production and consumption. This model promotes personalization and interactivity, allowing users to interact with content in a more meaningful way.

Demographic shifts and changes in consumer behavior highlighted by the World Economic Forum report suggest that media companies need to be flexible and responsive to the preferences of a diverse audience, including a younger, digitally-oriented generation that is increasingly willing to pay for quality news [1]. This demographic not only consumes media in a variety of ways, but also expects media to be present and interactive on a variety of digital platforms.

So-called omnichannelization is developing. In media, it is the integration and coordination of different communication channels and platforms to ensure a consistent and seamless interaction with users. Omnichannel approach involves using a variety of channels such as websites, mobile applications, social media, email and traditional media to interact with audiences and communicate across channels in a user-friendly format [2]. By adopting omnichannel strategy, traditional media can increase the reach and interaction with the audience. For example, a news outlet can publish articles on its website, share updates on social media, send announcements and newsletters via email, and still act as a traditional print media. The goal of such a strategy is to provide users with a continuous, consistent and comprehensive stream of content according to their preferences.

In addition to these opportunities, the digital transformation of media offers opportunities for cross-industry collaboration. Media companies are actively collaborating with technology enterprises, data analytics companies and other industries to create innovative methods of content delivery. Tomorrow’s perspective in this area is the development of metaverses based on augmented reality (AR) and virtual reality (VR) technologies, where users will have a qualitatively new experience of interacting with media.

Conclusion

The authors examined the multifaceted impact of digital technologies on the media industry, with a special focus on the role of AI. At the same time, they highlighted the importance and significance of a completely “non-digital” category - trust - and its enduring value, which is an important element for the survival and development of media in today’s environment.

Digital technologies, especially AI, have become an integral part of the functioning and development of media, as the use of these tools makes it possible to significantly optimize business costs, increase user engagement and tailor content to individual preferences.

However, the current situation cannot be described as stable or exceptionally prosperous. Despite the opportunities offered by digital transformation, the media industry faces major challenges, including the need to adapt traditional business models to generate revenue in a new environment; to “save face” in an era of post-truth and misinformation; and, of course, to make difficult decisions about digital monetization.

As a result of the research, the authors believe it is possible to formulate the following promising areas of business development in the media sector in the context of the need for digital business transformation:

1. Leveraging AI and data analytics: it is important to invest in AI technologies to develop and use predictive analytics, content personalization and effective content management in strategic management. Data analytics allows one to understand and manage audience preferences and behaviors to create more interesting and relevant content.

2. Introducing platform economy models: It is promising to develop business models based on platforms that allow creating and consuming content together with users. This approach can help to create and develop loyal communities and improve interaction between users and media.

3. Importance of maintaining credibility and a trustworthy image: Priority should be given to the quality, credibility and integrity of content to maintain and build audience trust. In a digital landscape rife with misinformation, the role of a trusted source of information can differentiate media that focus on this from competitors.

4. Diversification of revenue streams: alternative revenue models that exist outside of traditional advertising, including those that go beyond the traditional industry, should be explored. Such diversification can reduce dependence on a single source of income and ensure financial stability.

5. Attracting a younger audience: the preferences of a younger audience which is willing to pay for quality news should be taken into account. In this direction, it is necessary to rely on the above-mentioned directions, which can contribute to attracting this audience and ensuring their loyalty.

6. Developing cross-industry cooperation: It is important to establish and develop partnerships with technology companies and businesses from related industries to explore innovative methods of content delivery, such as AR and VR, which have a long-term perspective and which will undoubtedly be actively integrated into the media sphere.

Thus, the authors conclude that the triad of 1) strategic use of technology; 2) preserving trust; and 3) developing and applying innovative business models, all together creates favorable conditions for media companies to overcome the difficult and painful period of digital transformation. The authors believe that successful development in the new environment requires a synergistic approach that balances the preservation of traditional media values with the need to incorporate new digital tools and platforms into operations.

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