

MEDIA CONVERGENCE: STAGES, FORMS, DEVELOPMENT TRENDS - IMMERSIVE AND ARTIFICIAL INTELLIGENCE JOURNALISM

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Abstract: Based on our scientific-practical research presented in this article, we examine the process of convergence between the components of Azerbaijan's media communication system and mass media. We identify the levels, directions, effects, and new trends in the development of media convergence in Azerbaijan. The levels of media convergence - technical, industrial, social, and content - are analyzed. We also determine the factors shaping algorithmic journalism and drone journalism. Convergent journalism is explored not only as a technological process but also as a specific configuration with new forms and genres. Its analytical structure, including integrated production, multi-disciplinary professionalism, multi-platform delivery, and an active audience, is defined.

Keywords: media convergence; convergent journalism; artificial intelligence; virtual reality-VR and augmented reality-AR; immersive journalism; drone journalism; robot (algorithmic) journalism.

1 Introduction

Convergence is a defining feature of the modern information and communication society. The process of media convergence encompasses all areas of journalism, from the merging of media companies to the synthesis of media content presentation forms. Furthermore, the psychological profile of the audience is evolving from passive consumers to active participants who influence the information space through modern technical means. Convergence, which unifies different media platforms and configurations, enables the creation of new genres and makes multimedia broadcasting possible.

Media convergence involves the interaction of information and communication technologies, computer networks, and media content. It integrates the "three Cs" - computing, communication, and content - through technology. The most relevant example of media convergence is the smartphone, which combines various media such as print (e-books, news programs), broadcast (websites, radio, music programs), and new media (internet). A single device performs a multitude of functions, from calling and texting to photography, videography, gaming, and more.

Media convergence is transforming industries, services, and work practices, enabling entirely new forms of content. Broadly, convergence can be defined as the integration of different fields. Convergent journalism involves the production of digital multimedia content and its multi-channel distribution using network technologies under conditions of media convergence, resulting from the interaction of different types of media.

Digitization has facilitated the merging of mobile communications, the internet, and digital television, leading to the convergence of telecommunications and broadcasting. This trend is conceptually established, though terminology varies across studies. Consequently, convergence is described in various ways: multimedia, media convergence, convergent journalism, data journalism, algorithmic journalism, and drone journalism.

This article examines the paradigm shifts occurring with the convergence of IT, AR, VR, and EU technologies with journalism. It explores new forms of news configuration in the media communication system and defines the nature of immersive media. The application of artificial intelligence in modern journalism, including robot journalism, drone journalism, and algorithmic news, is analyzed, along with their legal and ethical implications. The possibilities, challenges, and limitations of drone journalism, including news production, distribution, and consumption practices, are explored. Additionally, the development potential of these journalism types in Azerbaijan is assessed, considering ethical and legal aspects and the use of drones.

The risks and problems associated with drone journalism are identified and analyzed from ethical and legal perspectives. The potential practical applications of artificial intelligence and the development prospects of immersive journalism are also investigated.

2 Method

The article is based on both academic and applied research. Within the context of communication and mass media theories, common logical methods such as synthesis, induction, deduction, generalization, comparative analysis, statistical analysis, content analysis, and other scientific research methods were employed.

Systematization and classification methods were used to study and analyze the theoretical-methodological and functional-typological aspects of convergent media. Observation, survey, and interview methods were applied in the study of Azerbaijani internet mass media and their audiences, the activities of convergent editorial offices, journalism based on artificial intelligence, and immersive journalism.

The analysis of scientific literature on journalism and artificial intelligence was carried out systematically. In addition to providing a general and quantitative overview of the topic, this method aimed to collect, evaluate, and synthesize the results of primary studies from an integrative perspective.

3 Results and Discussion

The study of the Azerbaijan media communication system from different aspects shows that the dynamic development and comprehensive application of ICT, as in all spheres of activity, causes radical changes in the media sphere. The structure, forms, methods, and directions of development of the Azerbaijani media are undergoing significant transformations. These transformation processes reflect the globalization, convergence, diversification, and demassification of the field. Transformation in the media sphere is observed at both macro and micro levels.

Convergence is a term used across various disciplines to describe and analyze processes of change towards uniformity or unity. The term "convergence" originates from the Latin word "converge", meaning "to approach". Translated from English, it means "gathering at one point", which is similar in meaning. The term is widespread in various natural and social sciences, including biology, linguistics, economics, political science, and telecommunications. Since the 1970s, the term has also been used in the field of media. In "The End of Ideology", Daniel Bell discussed new concepts and ideas related to the information society, proposing a new context for understanding convergence [10].

In the Green Paper of the European Commission, convergence is described as "delivering similar types of services through different network platforms or integrating consumer devices such as telephones, televisions, and personal computers" [18].

Media researchers have been interested in media convergence since the 1980s. However, significant publications, conferences, and discussions on media convergence surged after the release of Henry Jenkins' book "Convergence Culture". Since the 1990s, the rapid penetration of the Internet into the daily lives of millions has given the concept of convergence a broad practical meaning [14].

According to the opinion of American scientist and professor Ithiel de Sola Pool, which he expressed as early as 1987, convergence "means the removal of boundaries between mass media (press, radio, television) and communication media (telephone, post office, telegraph)" [20]. Canadian media and communication researcher Denis McQuail, referenced by

Russian researcher M. Pavlikov, stated that “convergence is the placement of the same content material by different means and channels” [20]. These theoretical approaches do not fully explain the concept of media convergence. Media convergence also entails the disappearance of boundaries between mass media, their merging on a single platform, and the distribution of diverse content on this platform. Media convergence occurs not only at the technical level but also at the service, content, genre, and semantic levels.

The above-mentioned theorist Henry Jenkins, author of “Convergence Culture: Where Old and New Media Collide”, describes convergence as “a never-ending and ever-evolving stream”. Jenkins elaborates on his argument with three concepts: convergence, participatory culture, and collective intelligence. He notes that in this process, education, media reforms, and democracy are influenced by this flow [12].

Remediation is another concept frequently encountered during research on the transformation, integration, and convergence processes of traditional media. In the book “Remediation: Understanding New Media” by David Bolter and Richard Grusin, the authors define remediation as “the reshaping or reformation of media” [3]. According to the researchers, this process of change has a broad and deep meaning, encompassing everything from technology to the individual. The philosophy behind the process includes not only a technical transition from the old to the new but also a content transition. Complete integration cannot occur if the content does not align with the form.

Structurally, convergence changes the techno-social communication system in relation to the media landscape. It combines the computer sector, media, and telecommunications. This process has undergone two main stages since the end of the 20th century. In the first stage, transmitted data and digital telephones were recorded on computers, and electronic communication technology (informatics) was invented as telematics. In a similar vein, “mediamatics” integrates these fields [13]. According to the scientific literature on media convergence, the second stage involves further integration of these technologies. We consider the application of artificial intelligence in journalism, the combination of journalism and AI algorithms on one platform, the use of drone technology in news production, and immersive journalism as the third and newest stage of media convergence.

As mentioned, all definitions of convergence share the fundamental concepts of coming together, integration, and the disappearance of boundaries. It is more accurate to examine this concept in two directions. The first direction is accumulation. Technical aggregation refers to the integration of services provided by different technologies. Corporate aggregation involves cross-sector mergers aimed at providing integrated services. According to the second theoretical direction, the traditional divisions within the media industry are disappearing due to the expansion of digital technologies. However, it is also important to note that new technologies support traditional media, and the multimediaization of traditional mass media does not completely eliminate or replace classical media. In other words, traditional media integrate digital technologies. Additionally, products and services that were previously distinct are combined into hybrid products thanks to new technologies. For example, web TV and interactive TV have emerged from the combination of television and the Internet. Convergence changes the relationships between existing technologies, industries, markets, genres, types, and users.

According to a number of researchers, “any form of convergence is not a full integration stage of the convergence process” [9]. We consider theorist Deussen’s definition acceptable: “Convergence should not be linear; otherwise, the process may not be realized” [8].

Thus, media convergence involves the disappearance and blurring of technical and regulatory boundaries between telecommunications, radio, TV broadcasting, and other

information sectors, as well as information technologies, artificial intelligence, and media. This phenomenon entails presenting the same content in different forms (text, audio, video) and through various communication channels (press, radio, television, internet, mobile devices). This process is a key direction in the transformation of traditional mass media. Convergence is an ongoing process that leads to the emergence of hybrid genres and the combination of genres in journalism. With the proliferation of new channels, prototyping computers, and telecommunication technologies, a media system emerges in which all types of mass media are interconnected at all times, everywhere. Convergence functions to simplify complexity by replacing devices with metaphorical equivalents. It applies to almost all aspects of digital media development. The direction and pace of convergence are determined by the interplay with technological innovations, corporate strategies, political-legal reforms, and changes in the mass media structure.

The law governing convergence is the law of digitization. Digitization is the conversion of information from its natural, analog state into a format readable by computers. The biggest advantage of digitization is that digital information can be easily transferred from one medium to another. Digitization, at the heart of these changes, contributes significantly to the convergence of technologies.

In the experience of foreign countries, the process of media convergence dates back to the 1980s. While traditional mass media continued to operate in the media market, the market itself began to develop towards diversification. In the 1990s, the rapid introduction of the Internet into the daily lives of millions of people led to the practical discussion of convergence. For this reason, “convergence is also a concept that characterizes the period of transition from the analog world to the digital world” [15]. Internet phenomena, digital foundations on technological platforms, and new media content with multimedia features are emerging. Consequently, not only organizational and structural convergence of media companies is observed, but also convergence of various forms of media products. During these years, the convergence of foreign media companies (printing, broadcasting, and online media) and a unified management structure are observed. The media convergence and integration process saw more than 100 newspaper companies worldwide, including The Financial Times (1999) and The Guardian (2000), developing in this direction. “At this stage, traditional mass media models are being improved” [16].

Understanding the parameters specific to all media types facilitates the convergence process. It enables the modeling of the interaction within the effective structure of the media. Issues such as lack of financial resources, absence of a multimedia editorial system, legal restrictions, and conflicts between information and entertainment culture can be cited as challenges of this era.

The development of the Internet and the creation of active Internet resources in the late 1990s laid the groundwork for integrating Azerbaijan’s traditional mass media into the virtual space. During those years, the websites of media companies were primarily considered business cards. With Azerbaijan’s transition to a market economy, the transformation of socially important areas, including mass media, began. Since the 2000s, the stage of integrating media within the mass media system of Azerbaijan has progressed based on mutual activity. The rapidly developing Internet, which is at the heart of these reforms, also significantly impacted the online media consumption market.

Since the 2000s, such websites have evolved into full-fledged information resources. A few years later, the modernization of the media market led to the emergence of convergent editorial offices in the Azerbaijani media business. In multimedia tapes, information is presented in different forms (text, photo, video, infographics), and events are reported not sequentially but in parallel. The integration of mass media into the global network led to the creation of the first models of convergent newsrooms.

Currently, media companies like APA Holding, ATV company, and SES information agency operating within the Azerbaijani media system produce and broadcast content across almost all types of mass media. The formation of such media businesses in Azerbaijan is a key factor in shaping the structure of the convergent type of mass media.

Convergence is driven by various types of innovation. The interaction between different levels has significant features. The capital-evolutionary approach assumes the interdependence of technical, economic, political, and socio-cultural convergence processes, resulting in a complementary understanding and diverse outcomes for political and corporate strategies. These concepts provoke heated debates about technological and social determinism in the scientific literature on media transformation and convergence.

A capital-evolutionary approach to the Internet serves as an exemplary model of communication and change within the digital creative economy. This perspective presents the Internet as a complex, adaptive system - a decentralized structure with nonlinear properties. The capital-evolutionary approach explains the interaction, or more precisely, the mutual pressures and behaviors of technologies, organizations, and business models that support each other. Evolutionary processes are also evident in the World Wide Web (WWW): from a simple web to a complex structure, a general behavioral complex, and an individually organized social system.

In addition to the scientific theoretical approaches and researchers' opinions, it is important to note that five key directions determine the development and sustainability of media convergence:

- **Technological Direction:** The adoption of digital technology increases production speed and fosters a creative approach to producing unique information products.
- **Economic Direction:** Reducing production costs enhances economic stability and increases competitiveness.
- **Spatial Direction:** The development of mass media in the national market contributes to the growth of the global information space.
- **Professional Direction:** This involves forming an original strategic concept and tactical development of the convergent newsroom, creating a professional team, and modernizing the existing forms and language principles of mass media.
- **Cultural Direction:** The aim is to create a high-quality multimedia product that meets the needs of the information society, upholds moral values and rules of intercultural communication, and promotes social consciousness and sustainable development.

Depending on conceptual frameworks, the explanation of convergence varies and is classified at different levels. Various directions, forms, and levels of media convergence have been studied to date. Based on the analysis of these trends and our scientific-practical research, we have identified new development trends by examining the process of media convergence within the media communication system and media components of Azerbaijan. We have studied convergent journalism not only as a technological process but also as a specific configuration with new forms and genres, and we have identified its analytical structure, including integrated production, multidisciplinary professionalism, multi-platform delivery, and active audience engagement.

One of the theorists of the information society, Manuel Castells, writes: "Convergent mass media", "media convergence", and "multimedia journalism" are used to describe ambiguous terms "due to the fact that the media revolution is happening before our

eyes, and that the press, radio, and television are coming together in different ways" [5].

Anders Fagerjord and Tanya Storsul's research identifies six interpretations of media convergence: network, terminal, service, market, genre and form, and regulatory.

- **Network Convergence:** This refers to the conversion of analog signals to digital signals, enabling integration across modern digital cable TV networks that encompass both broadcast TV and computer databases.
- **Terminal Convergence:** This involves the integration of separate devices with different functions into a multifunctional device. Examples include computers, PDAs, laptops, and smartphones.
- **Service Convergence:** This pertains to the provision of similar services through diverse electronic means based on digital networks and terminals. Examples include mobile text messaging, chat, blogs, and accessing email via TV.
- **Market Convergence:** As a result of the convergence of terminals, networks, and services, telecommunications companies increasingly become active participants in the media market.
- **Genre and Form Convergence:** This occurs when previously distinct media genres are assimilated across various media platforms.
- **Regulatory Convergence:** This results from market convergence. As markets become unified, governments introduce common regulatory measures. For instance, in the past recent years, various institutions in Azerbaijan have merged. An example is the consolidation of "Aztelecom" and "Baku Telephone Communications" (BTRIB) into a single joint-stock company since 2014.

Russian theoretician Anna Kachaieva proposes an additional classification of convergence types: as a business strategy of media holdings; as tactical knowledge management; as a new form of information presentation; and as the sphere of information gathering and production [19].

According to two main features of convergence - synthetic and interactive - multimedia can be considered a new type of information product. The synthetic feature involves combining different types of information products, while the interactive feature allows for selection and customization among various options. As a result of strategic goals, convergence has progressed more intensively in telecommunications compared to media circles. The integration of broadband ISDN networks and fiber-optic technology, anticipated thirty years ago, demonstrates that communication convergence is already partially realized.

With the dissolution of boundaries between telecommunications and mass media, research into media convergence has emerged. Subsequent studies have focused on the intersections between individual and mass communication. In this process, the mode of communication becomes central, blurring the lines between traditional mass media, which are now considered sub-sectors of mass communication. Analytically, it is useful to conceptualize the erosion of boundaries between telecommunications and mass media as both the core and essence of media convergence.

These processes interact with both traditional and emerging domains - politics, education, marketing, advertising, public relations, and human resource management. Journalism, as a means of mass communication, is inevitably involved in these fields. However, journalism must remain distinct from publicity or politics. Indeed, when journalism becomes entangled with political praise, it compromises impartiality and objectivity. Consequently, convergence can be viewed as a characteristic of various communication practices within the information society.

From this perspective, a new paradigm in information communication is forming within the media. This paradigm is characterized by: the expansion of the media landscape to include non-journalistic information technologies such as PR, advertising, and managerial tools; the integration of communicative practices, particularly journalism and PR; and the alignment of information policies with independent market entities, including mass media companies and products from corporate industry, science, and educational institutions. In this context, journalists may find themselves engaged in PR, publicity, and marketing rather than traditional journalism. These challenges are addressed through collaboration between enterprises and media organizations. The convergence of media practices necessitates precise professional distinctions. For instance, a journalist involved in preparing PR materials should be distinct from a PR specialist who employs journalism for his objectives. Journalists should also consult other communication experts when needed to achieve the desired goals. This situation highlights the risk of losing professional identity; however, a journalist's professional integrity and ethical standards guide the practice in this sphere.

In the convergence of mass media, various combinations of components (press, radio, television, and the internet) result in diverse forms of hybrid media: newspaper-internet, radio-newspaper-internet, television-newspaper-internet, etc. The convergence of the modern Azerbaijani media system is characterized by communicative features such as interactivity, hypertext, multimedia, online presence, and multi-channel capabilities. These features facilitate continuous information updates. The internet underpins these convergence processes, serving as a catalyst for their development. The complex interplay of different media content can create a synergistic effect, necessitating specialists who understand the internal structure of new media components.

Numerous terms, classifications, and scientific literature suggest that media convergence occurs at technical, economic, political, and socio-cultural levels. Based on these theoretical approaches and our scientific-practical research, we can identify several levels of media convergence within the modern digital network and traditional mass media, including technological, industrial, social, content, and journalistic convergence.

- **Technological Convergence:** This involves the integration of computing, communication, and content within networked digital media platforms.
- **Industrial Convergence:** This refers to the involvement of established media institutions in the digital media space and the emergence of digital-based companies such as Google, Apple, and Microsoft as significant media content providers.
- **Social Convergence:** This encompasses the rise of social networking platforms like Facebook, Twitter, and YouTube, along with the proliferation of user-generated content.
- **Multimedia Content Convergence:** This involves the presentation of media content in multimedia formats, including hypertext, hyperlinks, images, audio, and video materials.
- **Content Convergence:** This indicates the expansion of media content in the digital environment, incorporating fields such as journalism, advertising, film, art, public relations, distance education, marketing, libraries, trade, and gaming.

Technological media convergence focuses on integration and interoperability, specifically the convergence of computing networks, information and communication technologies, and digital forms of adaptive information delivered through "smart" platforms, applications, and devices. Known also as digital convergence, it refers to the trend where previously unrelated

technologies become increasingly integrated. For instance, devices like watches, phones, televisions, and computers, once separate and largely unrelated, have converged into interconnected components within the telecommunications and media industries, sharing common elements of digital electronics and software.

This technological transformation has been paralleled by industrial convergence, marked by significant mergers and the rise of major new digital media companies. During the 1990s and early 2000s, major media companies undertook substantial mergers to diversify their interests across media platforms. Notable mergers include Viacom-Paramount (1994), Disney-ABC (1995), Viacom-CBS (2000), NBC-Universal (2004), and the America Online-Time Warner merger in 2000, which was the largest corporate merger at that time.

The industrial aspect of convergence is characterized by the interpenetration of various information sectors within the economy. This includes both the convergence of information and communication businesses - such as the integration of computer, telecommunications, and media companies into a single entity - and convergence within the media industry itself, for example, the production of diverse types of media content by a single organization.

The broad and multifaceted nature of convergence leads to both general and highly specific interpretations of the converged communications sector. This sector significantly overlaps with the digital creative economy, with common sub-sectors and subjects such as communications, broadcasting, publishing, advertising, music, film, and gaming experiencing growth due to convergence. Additionally, the impact of media convergence extends to other areas of the creative industries, including museums, libraries, and design.

Media convergence in the form of multimedia content involves presenting information or content in various formats simultaneously, such as audio, animated graphics, and video. For instance, a single container object may include text, audio, graphics, and video, and support interactive engagement. This is achieved through specific hardware and software systems. Technical convergence in media also encompasses the integration of information production and distribution technologies. As previously noted, "the essence of convergence is rooted in digitization. A product with the same content is broadcasted through both cable and mobile devices. Information is presented on television, computer, and phone screens without temporal or spatial limitations" [16].

In robot journalism, news is automatically generated and disseminated on social networks according to algorithms, with no human intervention. This form of journalism, which reduces costs and accelerates the news cycle, is rapidly gaining traction worldwide. Another form of technical convergence involving artificial intelligence is drone journalism. The development of small, remotely piloted drones equipped with cameras has made aerial photography more accessible. Drones are now employed for both personal and professional purposes, offering significant insights into the interplay between technology, economic and legal constraints, professional cultures, and audience preferences. Research in media convergence now includes the adaptation of drone technology in newsrooms, audience reactions to drone use, the relationship between journalists and government agencies, and the evolving perspectives on robotic journalism and algorithmic news.

Thus, technological convergence has led to the emergence of new digital media forms, such as: interactive television combined with digital satellite and cable networks, which provide users with continuous access to the digital world; digital terrestrial television broadcasting that merges digital technology with radio frequencies; internet radio and internet protocol television (IPTV) delivered over the internet; and mobile TV. These innovations represent significant advancements in digital mass media.

Technological convergence leads to industrial convergence through agreements, mergers, and acquisitions among the computer and information processing industry, telecommunications companies, and the media sector. For example, the privatization of the Turkish company Azercell (55%) in 2005, which owns telephone and internet infrastructure, exemplifies this trend. Back in 2000, the acquisition of a portion of the traditional media giant Time-Warner by the world's largest Internet service provider, AOL (America Online), marked a significant merger in the field. This merger combined AOL's telecommunications infrastructure with Time-Warner's cable networks, movie studios, and extensive archives of music, film, and television programs, representing the largest industrial merger in world history.

The mass communication and media business sector is among the most dynamic components of modern social systems. Integration processes at the institutional level, such as the convergence of media holdings, are particularly evident here. This convergent structure produces diverse forms of information, including verbal, illustrative, audio, and video materials. The principle of complementarity underpins the resulting multimedia products. For instance, ATV, which began as a commercial TV channel, now encompasses a wide range of media fields including TV, radio, print publications, and online media. Similarly, media companies such as Global Media Group and Baku Media Center exemplify the convergence within the Azerbaijani media industry [17].

Converged products and services, digitization possibilities, interactive communication, and the benefits of broadband network infrastructure constitute new forms of media content. The transition across service sectors, local or consumer sectors, entertainment, communication, and information sectors has resulted in another form of convergence. For example, international commercial product sharing through electronic data exchange and money transfer indicates content and service convergence. "In the 1990s, the entry of service sectors formed by small offices into electronic commerce and information exchange accelerated this trend. E-commerce websites and extensive email networking were early examples of service convergence. By the 2000s, the convergence of SMS (Short Message Service) capabilities in mobile communications and digital television services enabled the creation of limitless possibilities by integrating content, products, and services directly targeting viewers and consumers" [10]. Digital television not only provided high-quality sound and images but also allowed access to websites and text-based information through television.

Media convergence also brings about changes in social practice. Theorists argue that convergence, along with cultural convergence, "affects the formation of mass culture" [12]. Thus, mass media can be viewed as a milieu of technological and socio-cultural experiences. The impact of convergence includes the integration of consumers into media and telecommunications, as well as the generation of user content and collective intelligence. Consequently, media convergence represents not only a top-down movement but also a reciprocal process.

Based on our research within the Azerbaijani media system, we propose adding social-functional aspects of convergence to the existing body of global research. Social-functional convergence is characterized by the integration of enterprises, state structures, the private sector, advertising firms, business companies, and non-governmental organizations into the media-communication environment, particularly within the framework of electronic state programs and innovative communication initiatives. Additionally, telecommunications are increasingly used for entertainment rather than for information and communication purposes. Spatial convergence, on the other hand, links cross-border services and technologies, particularly within the context of globalization.

The primary distinction between convergent journalism and traditional journalism lies in the approach to content creation, the

structuring of editorial offices, the distribution of functions, and the utilization of internet-based tools. Several researchers argue that the concept of convergence in journalism "should be based on the understanding of the processes encountered by the media industry, such as lack of regulation, privatization, and monopolization" [14]. However, we contend that dramatic changes such as privatization, monopolization, and mergers are characteristic of any market economy sector; thus, their identification and investigation should be the focus of economic sciences rather than journalism alone.

The intensification of the convergence process is driven by identifying similar activities across different media types. This includes: the aggregation of information into a unified thematic base; accommodating the diversity of media languages; catering to the demand for multi-variant forms of information products; employing PR and marketing strategies to attract audience attention; and optimizing cost efficiency through targeted ad distribution methods, which contribute to the capitalization of media structures by encouraging convergent media companies.

Our research indicates that convergence in professional journalism manifests in several forms [15]:

- Convergence brings together various and somewhat disparate media and content forms. A journalist can present prepared material across different platforms, such as traditional newspapers, online sites, and TV programs like teletext. This results in a radical transformation of traditional information and communication channels.
- Convergence influences the language and style of mass media, blending different journalism genres and leveraging multimedia technologies to create new genres.
- Journalists must adapt to work with multimedia technologies and prepare content across various media formats.
- The application of artificial intelligence in journalism manifests through practices such as algorithmic journalism and drone journalism.

Immersive journalism is a form of journalistic production that enables users to experience events or situations depicted in news reports and documentaries from a first-person perspective. By utilizing 3D and immersive technologies, users can enter a virtual representation of the location where an event occurred or experience the viewpoint of a character featured in the news. This technology provides unprecedented access to sights, sounds, and even emotions [2]. Immersive news constructs allow users to engage with a virtually recreated scenario that represents the story. Video and audio from the physical world are incorporated to reinforce the notion that participants are engaging with a nonfiction narrative. For instance, video triggers at key points within the virtual environment remind participants that the computer-generated setting is based on real news. Scripted events that create first-person interactions with the report further enhance the sense of "being there". In automated journalism, also referred to as algorithmic journalism or robotic journalism, "news is produced automatically by computers using artificial intelligence (AI) software" [11].

The concept of "immersive journalism" as an independent form of journalistic activity has not yet been well defined in Azerbaijan. Currently, immersive journalism is in its formative stages within the country. Virtual reality in Azerbaijani journalism begins with the systematization of conceptual frameworks. Today, theorists are working on classifying immersive journalism within the modern media landscape both in Azerbaijan and internationally.

According to experts in artificial intelligence, as well as software providers, "media will increasingly offer personalized and immediate services based on specific requests, transitioning from their traditional role as intermediaries that select and categorize information on behalf of users to a new role as information

providers” [4]. Analysis of algorithmic journalism suggests that these changes mark the beginning of significant transformations in the coming years. The current developments represent some of the most radical changes in the history of journalism. As the application of artificial intelligence expands across various journalistic practices, the interaction between journalists and machines is likely to increase, necessitating organizational adjustments [1].

Our study of drone journalism, algorithmic news, and robotic journalism across different periods (2015-2016, 2017-2019, 2020-2024) indicates that AI-driven journalism offers a novel and expansive perspective. The convergence of artificial intelligence and journalism will facilitate the distribution of automated text news, audio, and video on demand, thereby altering business models through new communication methods. Additionally, non-linear, unstructured news consumption is expected to prevail, leading to changes in the professional profile of less active journalists who may enhance their cognitive contributions to news production.

General scientific and theoretical considerations in robotic journalism, based on practical analyses of algorithmic news, suggest that while artificial intelligence can assist and partially replace journalists, no automated software or amateur reporter can fully substitute for a skilled journalist. The use of drones in journalism also faces challenges, as it is not always suitable for surveillance purposes. Discussions in this domain include security concerns such as national security, airspace safety, privacy protection, and the rights and freedoms of individuals [7]. Given that each country has legal restrictions on drone use, obtaining permission for editorial purposes can be challenging. Although some view restrictions on commercial drone use as an infringement on press freedom, we argue that privacy and security concerns make such regulations necessary. Since there is no standardized access control for reporters using drones, press cards and similar programs for unmanned journalism are yet to be developed [6]. Another contentious issue is whether journalists can use drone footage for non-journalistic purposes and share it with third parties. We believe it is crucial for news organizations to establish guidelines for the use and exchange of drone footage. The legal regulation of drone use for journalistic purposes will likely evolve through ongoing negotiations between government authorities and media organizations.

Effective drone journalism necessitates ethical guidelines and legal norms to ensure a balance between safety and freedom. The increasing application of artificial intelligence in journalism across various countries highlights the relevance and importance of future research in this field.

4 Conclusion

Based on our research within the Azerbaijani media environment, content distribution has significantly improved due to convergence. The integration of the Internet, mobile communications, and digital television systems has expanded the range of opportunities for users to access information. Convergence necessitates the development of a multi-platform distribution strategy. Telecommunications companies and software providers are actively promoting the creation of specialized services for content delivery as a means of identifying new revenue streams. In this demand-driven model, users gain more control over the content they access, receiving it at their preferred time and in their desired format. A key parameter for analyzing this dimension is multiplatform broadcast management. Digital technology enables fully automated, software-driven content acquisition through various media, with user intervention also playing a role.

Multiplatform distribution is the most apparent form of convergence. Currently, 85% of Internet mass media in Azerbaijan operate on a multiplatform basis. Often, without the involvement of journalists, the same information products are disseminated from leading news sites to other online and traditional mass media outlets. Agencies such as AzerTAC, APA, and Trend are prominent sources of information. The

characteristics of convergent journalism are particularly evident in the news provided by AzerTAC. “The site allows readers to utilize a multimedia service that integrates text, video, and audio news, and to share news on social networks such as Facebook, Twitter, Digg, and Google” [10].

Our research into media convergence in Azerbaijan, including convergent newsrooms, the professional culture across different media levels, business priorities for individual journalists, and the decisive factors influencing the formation and evolution of convergent projects, indicates that the quality of news production and content distribution is not consistently positive.

The convergence process observed in Azerbaijani online journalism not only blurs the boundaries between mass media but also diminishes the distance between the audience and content producers. This perspective is supported by the qualitative changes in audience habits and perceptions regarding interactions between journalists and citizens.

One of the most significant impacts of media convergence is the fragmentation of the collective audience into individual consumer segments. Consumers, accessing information through various broadcasts and channels on their mobile phones, receive news across a range of topics. Although convergent journalism is operational in Azerbaijan, it has not yet been extensively studied from a scientific and theoretical perspective, nor has it been integrated into the journalism education system.

By synthesizing various elements, we can define the analytical framework of convergent journalism as comprising integrated production, multidisciplinary professionalism, multi-platform delivery, and active audience engagement. This analytical approach allows for comparative analysis across different media companies and facilitates the study of the development and convergence processes within Azerbaijani online media. We anticipate that our model will also help identify stakeholders and groups resisting the convergence process.

An analysis of algorithmic journalism indicates that the changes observed are indicative of broader transformations likely to occur in the coming years. These developments represent some of the most radical shifts in the history of journalism. As artificial intelligence (AI) continues to be integrated into various journalistic practices, the interaction between journalists and machines is expected to increase, necessitating a reorganization of journalistic practices.

Our research into drone journalism, algorithmic news, and robotic journalism - spanning the years 2015-2016, 2017-2019, and 2020-2022 - demonstrates that AI-driven journalism represents a phenomenon with expansive and evolving potential. The convergence of AI and journalism will facilitate the extension of automated text news to include on-demand audio and video content, thereby driving changes in business models through new communication channels. Concurrently, there will be a shift towards non-linear, unstructured news consumption, leading to changes in the professional profile of journalists. Less active journalists may need to enhance their cognitive contributions to news production.

In our view, the future of media convergence should not be interpreted as a singular and uniform transformation of all mass media. It is expected that the process of media convergence will be accompanied by divergence and new differentiations within the convergent communication sector.

The advancement of information and communication technologies (ICT) underpins the convergence process, which integrates communication services and information products on a unified platform. Media convergence encompasses all aspects of journalism, from the integration of media companies to the synthesis of media content presentation forms. Additionally, the psychological profile of the audience is evolving from passive consumers to active participants who influence the information landscape using contemporary technologies. Convergence, which integrates various media platforms and configurations,

enables the creation of new genres and multimedia broadcasting. As a defining feature of the modern information and communication society, convergence is poised to impact not only ICT systems but also various related fields in the future.

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Primary Paper Section: A

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