Challenges and Access to Production and Distribution of News in the Era of Big Data

Sirui Zhu*

Miller School of Albemarle, Charlottesville, Virginia, America

Abstract: With the strategy of media integration, transformation and upgrading of media has become an important issue. In the era of big data, due to the dual impact of data and technology, the media brings both challenges and opportunities. The paper traces the characteristics of the era of big data, focuses on analyzing the challenges and opportunities in the media industry, and analyzes the transformation and upgrading of the media from the dimensions of news production and distribution to better realize the social functions of media in the era of big data. Some strategic suggestions are put forward to improve the propagation effect.

Keywords: Big data; News production; News distribution; Media integration

In the 1980s, the futurist Alvin Toffler predicted the basic status of massive data in the future third wave, which created the computer group of big data to promote the research. The big data at that time was still a small and professional studied field, involving almost no ordinary people. In 2008, Nature Magazine published a special issue of Big Data, and brought widespread concern through media reports, substantially bringing big data to the public. In 2011, McKinsey Company issued a report on Big Data: The Future Frontier of Innovation, Competition, and Productivity, which clearly proposed the concept of big data and fully explained the importance of big data in future economic and social development, which announces the emergence of the era of big data[1]. In just ten years, big data has emerged from the professional field and has become a basic variable that promotes social development and affects to ordinary people. It has changed the operating logic of political, social, and cultural life in the media industry.

From the perspective of the process of media, the decline of traditional media has become an obvious trend from the beginning of the 21st century. The theory of inflection point, the theory of cold winter, the theory of decline, the theory of extinction have been widespread[2]. As a new technology of news production and propagation, a new media era has come led by the so-called "Network Media", "We-Media", "Social Media", etc. With the strategic coordination of the media integration, the media seems to bring in a new life. Although traditional media has been significantly impacted, some media seem to be more difficult to process; on the other hand, some media are filled with integration, empowerment of data and technology, and many transformations of media emerge, which has brought new influence, and the media industry has developed rapidly.

Under this background, why are some media more difficult to survive while some media can successfully transform? Based on this, the paper puts forward the following two questions: First, what impact did the era of big data have on the media industry? Second, how can the media adapt to new changes and better achieve media functions? This paper answers the general process of news production and distribution.

1 Characteristics of the era of big data

The study on big data constitutes the current various disciplines, with some controversies on some basic issues. This study defines and explains related issues from the perspective of news propagation.

The first characteristics of big data generally refer to "4V" by researchers, namely Volume (large volume of data), Variety (various types of data), Velocity (fast and efficient data) and Veracity (objective and true data)[3]. There are unified opinions on the former three "V"[1], but there are still different opinions on the last "V". If any researchers think that Value (low value) is the fourth feature. The statement of these characteristics on the one hand constitutes the basic background of the era of big data, on the other hand it is also the starting point and preparatory condition for any research.

Second, big data is not only mass data, but also a series of technical applications and thinking models in the era of data. For example, through the application of big data, the massive data in time and space can be achieved, and the permanent storage and time call of information can be achieved, which helps to break the traditional disorder of searching data. The current study on public opinions of big data is to use the big data and related technologies to automatically collect and classify massive information, realize the rapid search and analysis of information, cultivate awareness of social public opinions, and discover the general rules of evolving public opinions.

In addition, applications of social media, mobile Internet, big data, cloud computing and other technologies are widely applied. The development of artificial intelligence, Internet of Things, VR / AR and other technologies has become direct technical drivers for media intelligence. Through the use of survey methods of big data, the media can comprehensively present social events, thereby revealing perceivable details, so that people even living in distance can have a overall perspective beyond local perspectives[4][5].

Finally, based on the promotion of data and technology, the era of big data may realize balance between accurate supply and demand. At this moment, the audience becomes individual: from the perspective of production, it provides more targeted products; from the the perspective of distribution, it provides more precise personalized promotion, and the content of news propagation is customized.

2 Challenges and opportunities brought by the era of big data

Big data has both challenges and opportunities for social science research including news propagation. At present, China's media industry is facing double pressures from transformation. First, it is a transformation of traditional media to new media, or the evident transformation and upgrading of traditional media; on the other hand, the transformation of intelligent media is based on data and technology. Media integration is the means and process, while intelligent media is the direction, and mass media is the goal. In an objective sense, it is clear that many traditional media have not yet passed to new media. Under the impact of the era of big data, they naturally show the dread of incompetence.

First, big data will put forward higher requirements to the journalists' overall quality . In other words, the threshold for becoming a good journalist is higher. Based on the characteristics of big data analyzed above, at present and in the future, for news production, technical support for data mining and storage is required; it needs to process and analyze massive, complex, heterogeneous, and unstructured data; it requires data to present challenges such as news of the data and news visualization. Scholars point out that the visual logic of news production will change in the future: this logical change is driven by cutting-edge technologies in the field of computers and the Internet from montage to visualization to virtual reality[6].

Second, big data may bring significant challenges to social ethics. From the perspective of personal privacy, the era of big data often makes personal privacy transparent. Scholars concluded that the data tracks left by the third eye of big data often violate personal privacy[7]. It is easy to cause a series of social ethical issues. For example, the big data killing has broken out. Commercial platforms will use price discrimination based on different users' data of consumers' habits to create a certain degree of unfair consumption.

Third, the research and practice of news propagation may form an "information cocoons" and an "effect of echo wall" under the algorithm recommendation and over fitting mechanism of big data, which makes the users of news products more and more keen on the virtual society by the algorithm. Concepts, emotions, and values are easily strengthened or even cause social crisis. For example, the social platform has brought an "algorithmic society" to a certain extent through the personalized customization and precise news pushing, and the individual subjectivity declines.

However, while big data brings challenges to the news media, it actually provides sufficient data and technical tools to strengthen news production, enrich news distribution, realize the empowerment of the media industry, and bring more opportunities .

For example, big data reconstructs the traditional method of gaining media profit and enriches the channels of gaining profits from news service and knowledge service including We-media. A large number of vertically subdivided knowledge services have sprung up to activate new channels of knowledge realization; ordinary people can also use their right to speak on the Internet to demonstrate their lives and talents, and gain social attention and recognition.

Big data and related technologies bring more flexible mechanisms to the development of new media. From the perspective of news production, highly developed new media greatly reduces the cost of news production and propagation; from the perspective of news propagation, the technological advantages, new media searching technology and related functions can help audiences get the news they want. The cost of people's access to propagating news is also greatly reduced. Audiences who have the opportunity to reach new media can obtain a large amount of news at a very low cost.

The application of both big data and technology helps to promote more forms of news production, including visual news, VR/AR / MR news, interactive news, etc. Taking visual news as an example, it is taking advantage of the big data and gradually adopting the reporting form of news to develop visual news[8]. This is a very good direction for transformation and upgrading of media.

3 The access to media transformation and upgrading in the era of big data

Through the above analysis, we reviewed the characteristics, challenges and potential opportunities brought by the era of big data. The following part will analyze the access to media transformation and upgrading in the era of big data from the dimensions of news production and news distribution.

3.1 Content of news production

From the perspective of the process of news production, in the traditional era, the process of news production is roughly as follows: the reporter found the clue, went to the face-to-face interview or remotely contacted the witness, and finally wrote a manuscript or edited the broadcast[9]. In the era of big data, we can obtain news more diversely, analyze more data, and interpret news and transmit values in a more efficient processing form.

Taking the news of data and visual news mentioned above as an example, the reporter Mirko Lorenz once proposed four steps of producing news of data, namely, mining data---filtering data---visualizing data---reporting news; The production process of The Times is: selecting topics---mining data---editing data---drawing---drafting[3]. These are the directions and ideas for the transformation of traditional news production.

The empowerment of artificial intelligence for news production is reflected in the replace of humans, such as writing by robots, AI anchors, etc.. Artificial intelligence based on technology, data and algorithms has been introduced into news production and has played a significant role. On March 18, 2014, an earthquake reported on the website of the Los Angeles Times in the United States was made by robot reporters. On September 10, 2015, Dream Writer, a writing robot developed by Tencent, completed "the CPI rising by 2% in August hit the peak in 12 months in a few seconds". In 2018, Xinhua News Agency and Sogou released the worldwide first synthetic news anchor --- AI synthetic anchor, which created a condition for real-time audio and video and AI real-life image synthesis.

3.2 Distribution of news

After the traditional news production is completed, the method of mass propagation helps achieve coverage of indiscriminate mass news. The so-called distribution is actually serving. On the one hand, through the rapid acquisition of clues, the efficient organization of news and the improvement of news content can realize the intelligent production of news through big data technology. On the other hand, realize the automation of communicating channels through distribution of intelligent news and the integration of news content and channels (that is, the carrier is merged into the channel, from traditional media to carrier-based news production, and transform into Internet media)[10] [11].

From the broader perspective of news service, the promotion of media news including all kinds of news applications is a very typical form of news distribution. Taking today's headline as an example, it will be targeted, personalized, and precise based on users' personalities, interests, and scenarios. In other words, using the same news applications in the era of big data may also finish different news products and services.

From the experience abroad, many chatting robots helped to distribute news products. Skype, Line, Facebook and Messenger have introduced chatting robot programs. BBC, New York Times, Forbes,

Guardian and other traditional media agencies also began to present news to the audience in the form of robotic dialogue[12]. It can be said that in the era of big data, there are more options for news distribution, and even the news production is only the starting point.

Through the above analysis, it is not difficult to conclude that in the era of big data, the news production and consumption process has undergone significant changes based on the empowerment of variables such as big data and technology. For the new changes and new trends, on the one hand, we must accurately grasp the dynamics of different periods of news production and distribution. On the other hand, we must also be good at applying data and technology, empower the media through big data, master core technologies, and improve accuracy and timeliness of news. Only in this way can we promote supply-side reforms to improve quality of the news, accumulate news resources to achieve accurate propagation, optimize algorithms to filter the news, and achieve better transformation and upgrading of the media industry.

References

[1] Huang XR. Semantics, characteristics and nature of big data[J]. Journal of Changsha University of Science and Technology (Social Science Edition), 2015, (6): 5-11.

[2] Wu HM. The Proposition of the theory of cold winter in newspaper industry and the future of Jinghua Times[J]. China Newspaper, 2018, (15): 50-53.

[3] Paul C Z, Chris E, Dirk de R. Understanding of Big Data[M]. New York: McGraw Hill, 2012: 5.

[4] Su T, Peng L. Ablation and reshaping of the era of intelligent media——A Review of New Media in 2017[J]. International Press, 40(2), 79 (1): 40-60.

[5] Xu ZQ, Wang JF, Liu SM. Internet of things with big data: Reflect on transformation and evolution of digital media[J]. Television Research, 2017, (11): 43-46.

[6] Chang J. Montage, visualization and virtual reality: the change of visual logic in news production[J]. Journalism University, 2017, (01): 60-66 + 153.

[7] Huang XR. Ethical reflection on big data technology[J]. Journal of Xinjiang Normal University (Philosophy and Social Science Edition), 2015, 36(03): 46-53 + 2.

[8] Li TT. The characteristics and reporting strategies of media news in the era of big data[J]. Media, 2017, (12): 87-90.

[9] Liu YK. Data News production in the era of big data: Status quo, influence and reflection[J]. Modern Communication (Journal of Communication University of China), 2014, 36(11): 103-106.

[10] Xu XD. New model of news production in the era of big data: the concept, practice and reflect on sensor news[J]. International Press, 2015, 37(10): 107-116.

[11] [11]Xinhuanet. The world's first "AI synthesizing anchor" in Xinhua News Agency [EB / OL]. Available from: URL: Http://www.xinhuanet.com/politics/2018-11/07/c_1123678126.htm

[12] [12]Chen JJ, Wang R, Zhu SL. Transformation of intelligent media under the background of big data and artificial intelligence——How does Zhejiang Newspaper Group transform the content of news production[J]. Media Review, 2017, (07): 9- 12.