

Trends in the Spread of Fake News in Mass Media

OKSANA N. BERDUYGINA¹, TATYANA N. VLADIMIROVA², ELENA V. CHERNYAEVA³

¹Tyumen Industrial University, Russian Federation

²Moscow Pedagogical State University, Russian Federation

³Moscow State Technical University of Civil Aviation, Russian Federation

The paper looks at the phenomenon of fake news in the modern media. Attempts have been made to provide the theoretical background of the phenomenon of fabricating information and clarify the signs of false messages. The empirical review deals with the trends in spreading fake news in the media landscape. We rank fake news topics by popularity; examine the issues of changing public trust in various news media as a source of information; structure the sources of misinformation and identify the major motives behind them; and discuss positive and negative outcomes of posting fake news. The study shows that propaganda is effective if society receives customized information that triggers the expected emotional response of the target audience. For these purposes, the article establishes the fundamental mechanisms for using fake news. The research presents the criteria for identifying fake news and develops its classification according to the degree of falsity. The generalization conducted makes it possible to conceptualize the phenomenon of fake news. The research results aim to resolve the problem of recognizing and controlling fake news in the mass media.

Keywords: Fake news, false information, mass media, social network, media landscape, public opinion

In the context of globalization, the mass media are undergoing fundamental changes in terms of the structure, form and content. Within today's media landscape, theorists and practitioners of journalism are increasingly often confronted with the phenomenon of fake news, i.e. false, in most cases sensational, information spreading under the guise of news. A number of researchers (Baym & Jones, 2013; Kooijman, 2008; Becker, 2018) claim that satire and parody, as a form of digital art, can also be categorized as fake. The definition can embrace a huge variety of forms of misinformation for commercial, political or entertainment purposes. In any case, the main objectives of fake stories are to manage public opinion, control the social situation, form a specified impression or justify someone's policy and actions.

The phenomenon of fake news has become increasingly popular in recent years (Ehrenberg, 2012). Such an intense interest is due to the fact that the dissemination and the use of false information is so widespread today that, according to a number of public figures, can represent a serious threat. The elimination of technical barriers to disseminating information increases the importance of other aspects of this process.

Corresponding Author: Oksana N. Berduygina, Tyumen Industrial University, 38, Volodarskogo Str., Tyumen, 625000, Russian Federation.

In our view, reliability of the facts collected by the mass media is the main issue when building up trust of the potential audience to the published materials. It exerts a direct influence on the quality of information. A growing interest in historical events makes it urgent to identify the criteria for evaluating the accuracy of data, evidence and information that are made public – in short, the totality of facts that become available to a broad public through the efforts of experts and specialists (Ilchenko, 2017). Conceptual debates over several problematic fields of the historical process comes into focus of the mass media. Ilchenko (2017) distinguishes between two trends. The first one is attributed to marginalization of historical knowledge that is imparted directly through the content of printed media, as well as the network resources gravitating towards them. The second trend – perhaps more radical and fraught with irreversible social consequences – is linked with political radicalization of the assessments of specific individuals and events. This trend is characterized by an inclination to distort facts, publish unverified information and express subjective ideas.

In this regard, reliability of information is one of the critical issues in the media landscape. It remains dialectically and inseparably connected with the aspects of the impact of information on the audience. It is obvious that audiovisual mass media, such as television and the Internet, have the most massive and profound effect. The growth of social networks has destroyed many barriers that in the past prevented fake news from spreading. Nowadays, anyone can create and disseminate information. Facebook, Twitter and other platforms facilitate dissemination of information more than ever before. This poses a threat of unfair use of the data and application of technical capabilities of social networks (Limba & Šidlauskas, 2018b; Šišulák, 2017; Geary, 2017; Ringelheim, 2011).

To prevent the consequences of fake news, it is necessary to develop a clear definition of the concept, establish the reasons behind publishing false data and identify who benefits from this. The purpose of the study is to analyze the trends and mechanisms for using the phenomenon of fake news in the mass media. To accomplish this goal, we should perform the following tasks: to define the criteria for recognizing fake news among media reports; to determine the possible consequences of a growing share of fake news on public opinion (audience) and its reaction; to justify a number of methods for combating fake news.

Literature Review

Researchers repeatedly encounter the problem of ambiguity when defining fake news, the difficulty in identifying them and the scarcity of statistical data to carry out a detailed analysis of the phenomenon. However, the attempts aimed at theoretical systematization in this field were rather productive. Sukhodolov and Bychkova (2017a, b) clarify the term “fake” and suggest a classification of fake news providing a detailed description of its purpose and counteraction methods. Willingham (2016) develops her own scientific approach to distinguish real from fake news. Borden and Tew (2007) investigate the role of journalists in the creation of fake news, their goals, motives and benefits, as well as the influence of fake news on the reputation and popularity of online media.

Ilchenko (2015, 2016a, 2016b) looks at the trend towards applying the concept of fake by modern online media and explores the issue of the audience’s trust for those media sources publishing mainly fake news. The author puts a special emphasis on the term “show civilization”. The paradox of the modern stage of show civilization lies in the fact that such a way of reality perception interferes in other spheres of life. This negative tendency needs to be described, researched and analyzed in order to develop mechanisms

for counteracting the phenomenon of fake news.

The block of essays collected by Amarasingham (2011) presents both positive and negative effects of fake news and the events they resulted in. McBeth and Clemons (2011) deal with the goals of fake news, namely, its impact on culture, politics and public opinion. Having conducted a survey, they demonstrate how difficult it was to distinguish real from fake news. Gu, Kropotov and Yarochkin (2017) associate fake news with propaganda. They discuss the purposes for creating such messages, their consequences and effect on readers' opinion, as well as establish the ways of manipulating public opinion through publishing false information or distorting facts. McEvers (2016) studies the reaction of young people to the spreading of untruthful content and demonstrate the general public's vulnerability to fakes.

By employing modern technology, countries focus their efforts on involving their citizens in the process of management and direct participation in various political processes within the state. In this regard, Internet voting, in which the impact of disinformation is especially obvious, has become one of the most common tools for encouraging participation in political processes (Limba et al., 2017). Allcott and Gentzkow (2017) analyze the influence of false stories on the results of the United States presidential election 2016. They provide statistical data on the extent to which people are confident about information from the media (starting from 1975) and attempt to identify the sources that published the largest amount of fake news.

Vosoughi, Roy and Aral (2018) explore the rate at which fake news diffuse and scrutinize the recipients' reaction to such stories. The researchers also analyze the number of retweets and topics of false messages. Dizikes (2018) find that misleading information spreads more rapidly on social networks than real news does. Using the case of Twitter, the author establishes that fake news is more likely to be retweeted than true stories are. Given the availability of the information source that provides an unlimited number of users and hypertextuality of online communication with constant citing and sharing links, inaccurate news items quite predictably cause an information explosion on the Internet. These trends are more apparent on the websites publishing anonymous comments (Limba and Šidlauskas, 2018a). False news items are massively diffused in blogs, social networks and even the media. At that, they are communicated as trustworthy information (Panchenko, 2013). The interest in the fake news genre is due to the sensational character of the message that affects its importance and novelty. Information reliability gives way to stir and entertainment. In fact, information is transformed from a news item into the feuilleton genre focused on the issues topical to the general public (Panchenko, 2013).

In our opinion, the study by Shu et al. (2017) is of special interest. They examine the prospects for collecting the data on fake news, which makes it possible to monitor the situation and prevent a massive spread of misleading information.

Methods

Prior to studying the phenomenon of fake news, we should first clarify the identification criteria. Due to the fact that fake is such a widespread occurrence, in order to develop the criteria, we need to provide a classification of fake news. Sukhodolov (2017) categorizes false stories by the following classifying criteria: ratio of true to false information; authenticity of circumstances, time and place characteristics of the event; persons featured in the news; motives behind creation and diffusion; and perception of the news authenticity (Table 1).

Table 1. Fake news classification

Classifying criterion	Description
Ratio of true to false information	Absolute lie Mostly lie with elements of truth A real event with individual fragments distorted
Authenticity of circumstances, time and place characteristics of the event	Outdated information disguised as up-to-the-minute news Scene of the event changed
Persons featured in the news	Quoting or writing about a public figure using a fake account A minor figure comes to the fore
News is based on uncorroborated testimony	
Motives behind creation and diffusion	Entertainment Political advantage Discrimination Internet traffic increase Fraud Damaging information stored on a PC Capturing attention to a particular person Market manipulation
Perception of the news authenticity	Obvious fake News causing doubts Convincingly falsified

The first classifying criterion is the ratio of true to false information. It is worth noting that fake news cannot be one hundred per cent lying and unreliable (a distortion or incomplete facts are also considered to be a fake). To make a false message more convincing and increase the number of people believing in it, the following technique is used: a real situation supplemented is with false details. In addition, fake news is categorized according to the authenticity of circumstances, time and place characteristics of the event. All these elements can be distorted to make information misleading.

Another classifying criterion is a group of persons featured in the news. Sometimes, the mass media shift newsmakers’ roles and a minor figure hogs the limelight. Often news is based on uncorroborated testimony, which misrepresents the information, makes it lop-sided and expresses only one viewpoint.

To establish the mechanisms for using fake news, it is necessary to identify the initiators of posting inaccurate stories and main beneficiaries. It is of great importance to understand whether the news was initially fake or it was misreported due to an unintended error (Figure 1).

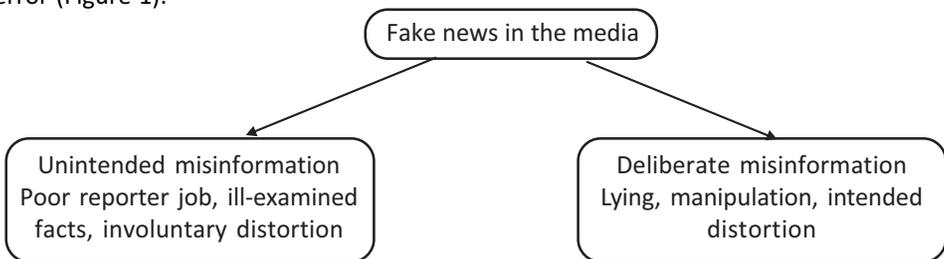


Figure1. Intended and unintended misinformation in the media

The review conducted allows identifying the actors posting or initiating false stories, as well as establishing their motives (Figure 2). Each party, responsible for releasing fake news, pursues its own goals. By reporting false stories, journalists seek to boost the popularity of the media resource, attract new audience and evoke a strong response. According to Dizikes (2018), false news travels faster than true stories. A screaming headline is the easiest way to boost the ratings of a newspaper, magazine or TV show. Their main objective is to generate user traffic to the resource website. This may cause an increase in advertising rates. In this case, the media resource can tarnish its reputation.

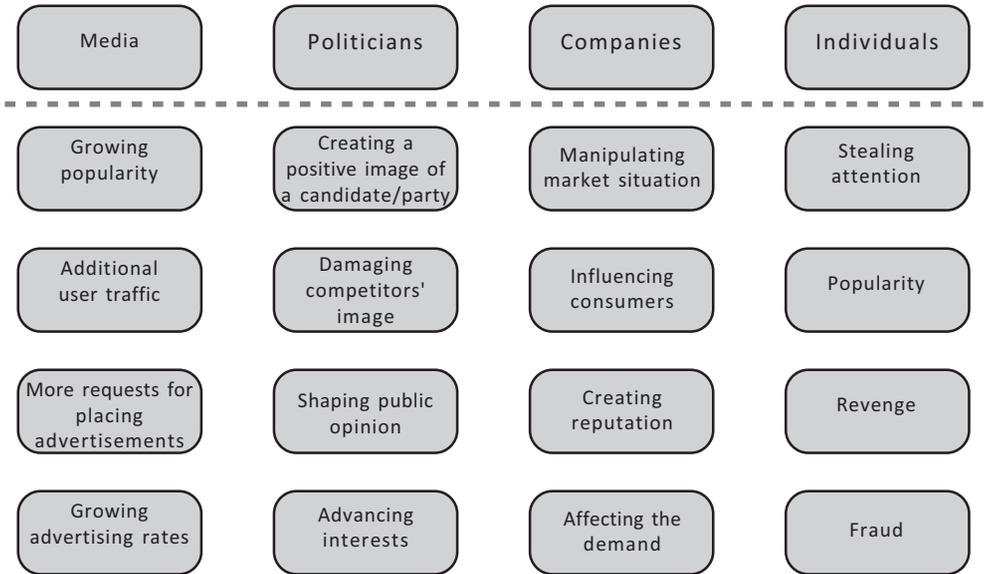


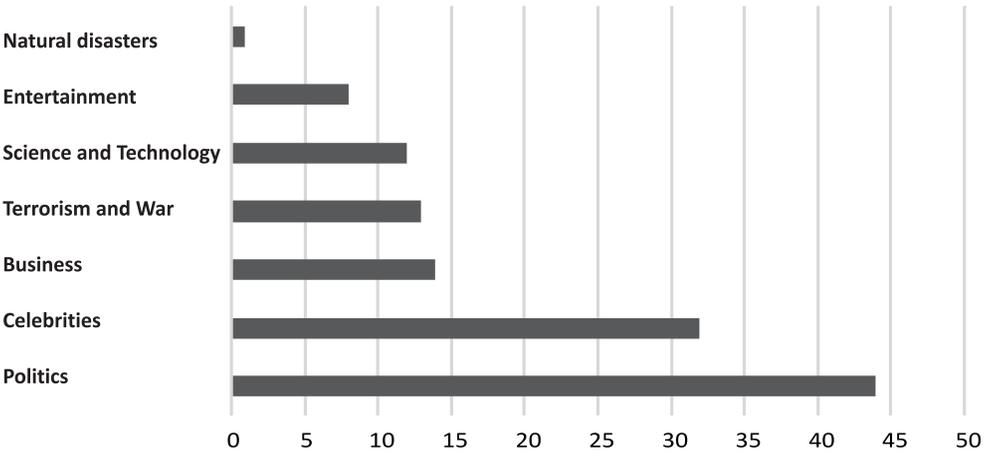
Figure 2. Goals and motives of various parties for placing fake messages

Trend analysis (the spread of fakes news, their growing popularity, main topics and society response) is of high importance when studying the phenomenon of falsehood in the media.

Results

The phenomenon of fake news has always existed, but with the widespread use of the Internet, the consequences of unconfirmed information became increasingly profound. Fake news diffusion time is steadily decreasing. According to Dizikes's estimates, false stories are 70 per cent more likely to be retweeted than true stories are. Moreover, it takes true stories around six times as long to reach the target audience if compared to false stories and ill-examined facts (Dizikes, 2018).

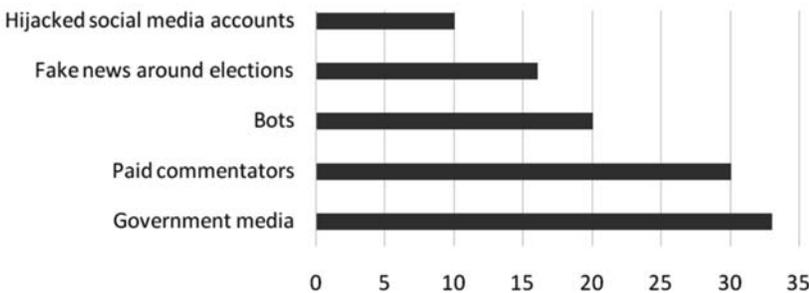
Introducing fake news into the mass media practice is particularly evident in the context of the aggravating political situation. Nevertheless, false stories are typical of not only the political environment. Figure 3 presents the findings of the research on the most popular topics of false messages.



Source: Vosoughi, Roy & Aral, 2018
Figure 3. Fake news topics

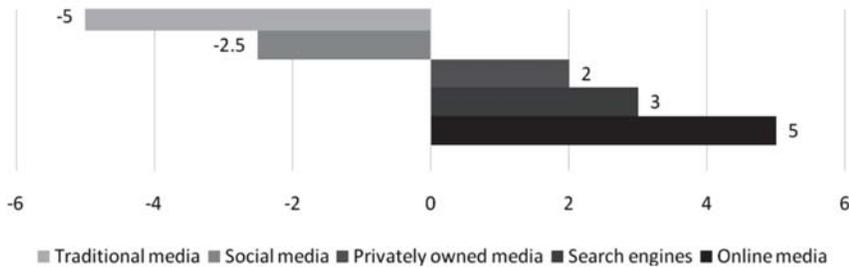
Analysis of rumor cascades in Tweeter from 2006 to 2017 revealed that politics was the most popular topic for spreading false information. Such tweets were retweeted 40 thousand times (Vosoughi, Roy, & Aral, 2018). The second popular topic is celebrities; followed by business, terrorism and war, science and technology (such stories were retweeted about 20 thousand times).

Escalation of political tensions over the past few years has caused organized and systematic disinformation campaigns to unfold which are often aimed at national governments and able to influence democracy and social powers. As a rule, when leading a political struggle, fake news are diffused through the government media. According to Freedom House report, at least 33 out of 65 countries under review were found to spread fabricated news articles; governments in 30 countries employed "opinion shapers" to promote government opinions (Freedom House, 2017; Titcomb, 2017). Such an approach is among the most effective ones, since it is often difficult for readers to realize that comments are paid, and they treat these messages as other people's real views. This results in the effect of seeming support or disapproval of particular events. There are also other ways to interfere in politics, e.g., by employing bots, posting fake news around elections, hijacking celebrities' social media accounts, etc. (Figure 4).



Source: (Freedom House, 2017)
Figure 4. Number of countries employing various methods of political interference in 2017 (out of the sampling of 65 nations)

Consequently, we can note a predictable and significant decline in confidence in the traditional media. Many people, especially the younger generation, pay attention to the fact that newspapers, radio and television broadcast only lop-sided information and apply psychological manipulation techniques. This led to a drop in confidence in these information sources by more than 5% over the past five years (Figure 5).



Source: (Edelman, 2017)

Figure 5. Change in 2017 confidence level as compared to 2012 confidence level (per cent)

Despite the fact that the Internet is the major information source for the younger generation, the general public confidence in social networks in recent years has fallen by more than 2.5%. At the same time, Internet users became more confident in search engines demonstrating an increase by more than 2.5%. In the context of a growing number of fabricated news, privately owned (independent) media are gaining popularity.

Society is becoming increasingly selective in consuming information. Many Internet users are aware of the possibility of stumbling across fake news. In his research, Dizikes (2018) presents the results of a survey of the population on the fake news impact on their lives and ways to deal with misinformation (Figure 6).

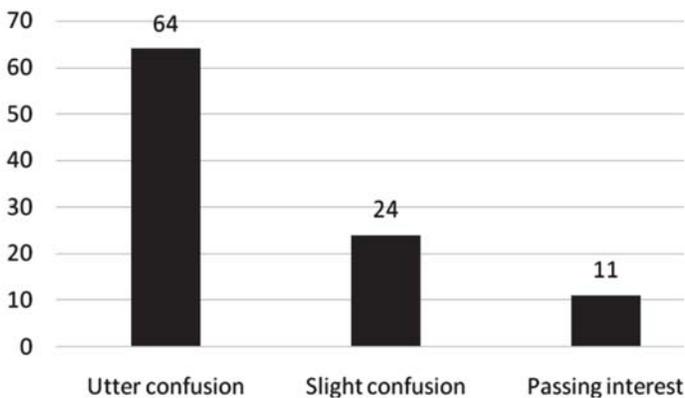


Figure 6. Readers' reaction to fake stories, Dizikes (2018)

The survey showed that 64% of readers were utterly confused by fake news and expressed deep dissatisfaction with their widespread presence; 24% of respondents were only slightly confused believing it was not a big problem; 11% of respondents evinced a passing interest in fake news and did not bother about it.

The majority of respondents (42-45%) believe that everyone- the audience, the state and the media, should be responsible for spreading false information; 24% of respondents suppose that neither the audience, nor politicians, nor the media are able and should counter fake news. Perhaps, a quarter of the population realizes that it is virtually impossible to combat fake news due to the extremely high speed of spreading and massive popularity.

Discussions

The literature review and the results obtained reveal a lack of a clear concept of fake news. The trends in fake news spread allow proposing a clear definition of the phenomenon. Fake news is information fabrication or deliberate dissemination of misinformation in social and traditional media with a view to confusing the audience for reaping financial or political gains (Hunt, 2016).

The main mechanisms for using fake are: (i) fake news published by the mass media helps to attract wide audience, forge the media source's reputation, increase advertising rates and get more requests for placing ads; (ii) fake news posted by politicians aims to create a good image for a candidate/party, damage competitors' image, shape public opinion and advance programs, ideas, ideology; (iii) fake news placed by companies is designed to manipulate market situation, influence consumers, acquire reputation and affect the demand; and (iv) fake news initiated by individuals is intended to catch attention, win popularity, introduce a fraud scheme and achieve personal goals. The revealed motives of each fake news initiator allow us to establish positive and negative consequences of fabricated stories (Table 2).

Table 2. Consequences of fake news

Positive	Negative
Entertainment	Customer disinformation
Internet traffic increase	Reputational risks
Increase in popularity	Moral damage
Increase in profit	Material damage
Healthy competition	Market manipulation
	Risk of litigation

Customer disinformation and dissemination of hoaxes are the central negative consequences of fake news. This entails reputational risks for companies and individuals, as well as moral and material damage in case of fraud or unfair competition. Moreover, fake news can bring about a rise in prices, shortage of goods and lead to other consequences of manipulating the market. Lately, posting fake news can be legally punishable and the initiator can be engaged in litigation.

The wide spread of fake news underlies the necessity to seek ways to verify the correctness of information. A number of authors (Buchko, 2018; Adamowski, 2017; Prover 2018) argue that blockchain technology has the potential to limit the spread of fabricated information through utilizing digital identities and a verifiable reputation system. Blockchain can help to fix the situation, especially if, while evaluating the quality of a news article, one can concentrate on examining its source and disseminators instead of trying to validate every piece of information. The blockchain structure and ideology obviate the need for intermediaries, supervisors and auditors in resolving various issues. When

implementing block-chain technology in the context of fake news, many tasks need to be tackled, for example, the scaling task. After all, a situation where different stories can relate to the same fake event (news hook) is quite real.

The trend analysis allows us to find that the phenomenon of fake news is a global problem. Misinformation is now spreading quicker than ever before. Geography and even language are no longer of high importance. Consequently, joint efforts are required to stop the dissemination of fabricated stories that can have a negative effect on election results, companies and individuals.

Conclusion

The phenomenon of fake news is a global problem for modern society. With the spread of the Internet and digital technology, the consequences of unconfirmed information have become increasingly significant. The huge popularity of social networks has eliminated numerous barriers preventing fake news from rapid spreading. Social platforms encourage users to exchange and share information more intensively than before. As that, false stories spread quicker and reach a wider audience than the truth. Given the availability of the information source and its probable anonymity that provide an unlimited number of users and hypertextuality of online communication with unlimited citing and sharing links, inaccurate news items quite predictably cause an information explosion on the web. Confidence in information gives way to capturing attention and the content's entertainment characteristics.

The main objectives of fake news are to manage public opinion, control the social situation, form a particular impression or justify someone's policy and actions. Fabricated stories can be initiated by politicians, companies or individuals. Attention to fake news is due to the sensational nature of the message that enhances its importance and novelty. There are no tools for verifying information published by users on social networks, which results in the emergence of a huge amount of fabrications and a growing number of fake news authors.

Escalation of political tensions over the past few years has caused organized and systematic disinformation campaigns to unfold. Typically, when leading a political struggle, fake news are disseminated through the mass media. To make sure that a propaganda campaign is effective, it is necessary to inject customized information that triggers the expected emotional response of the target audience (Smith, 2017). This creates the effect of seeming support or disapproval of particular events. Consequently, we can notice a predictable and significant decline in confidence in the traditional media. Society is gradually becoming more selective about information, which raises the popularity and demand for independent media sources.

References

- Adamowski, J. (2017). *Blockchain vs Fake News? Startup Userfeeds Takes Up Fight*. Retrieved from <https://www.coindesk.com/blockchain-fake-news-startup-userfeeds-take-fight/>.
- Allcott, H., & Gentzkow, M. (2017). Social media and fake news in the 2016 election. *The Journal of Economic Perspectives* 31(2), 211-235. <https://doi.org/10.1257/jep.31.2.211>
- Amarasingam, A. (Ed.). (2011). *The Stewart/Colbert effect: Essays on the real impacts of fake news*. NC: McFarland.
- Baym, G., & Jones, J. P. (Eds). (2013). *News parody and political satire across the globe*. London: Routledge.

- Becker, D. (2018). Desiring Fakes: AI, Avatars, and the Body of Fake Information in Digital Art. In: Becker, D., Fischer, A., & Schmitz Y. (Eds.). *Faking, forging, counterfeiting: Discredited practices at the margins of mimesis* (pp. 199-222). Bielefeld: Transcript Verlag. <https://doi.org/10.14361/9783839437629>
- Borden, S. L., & Tew, C. (2007). The role of journalist and the performance of journalism: Ethical lessons from «fake» news (seriously). *Journal of Mass Media Ethics* 22(4), 300-314. <https://doi.org/10.1080/08900520701583586>
- Buchko, S. (2018). *Blockchain's Fight Against Fake News*. Retrieved from <https://coincentral.com/blockchains-fight-against-fake-news/>.
- Dizikes, P. (2018). *Study: On Twitter, false news travels faster than true stories*. Retrieved from <http://news.mit.edu/2018/study-twitter-false-news-travels-faster-true-stories-0308>.
- Edelman. *2017 Edelman Trust Barometer*. Retrieved from <https://www.edelman.com/trust2017>.
- Ehrenberg, R. (2012). Social media sway: Worries over political misinformation on Twitter attract scientists' attention. *Science News* 182(8), 22-25. <https://doi.org/10.1002/scin.5591810217>
- Freedom House*. (2017). Retrieved from <https://freedomhouse.org/report/freedom-net/freedom-net-2017>.
- Geary, L. (2017). *Spread of false news stories on Facebook: An assessment of credibility cues and personality* (Thesis). Reed College of Media at West Virginia University.
- Gu, L., Kropotov, V., & Yarochkin, F. (2017). *The fake news machine. How propagandists abuse the Internet and manipulate the public*. Retrieved from https://documents.trendmicro.com/assets/white_papers/wp-fakenews-machine-how-propagandists-abuse-the-internet.pdf?_ga=2.117063430.1073547711.1497355570-1028938869.1495462143.
- Hunt, E. (2016). *What is fake news? How to spot it and what you can do to stop it*. (2016). Retrieved from <https://www.theguardian.com/media/2016/dec/18/what-is-fake-news-pizzagate>.
- Ilchenko, S. I. (2017). Historical fact in journalism: How to detect a fake. In: *Modern mass media in the context of informational technology*: Proc. of the 3rd All-Russia sci.-pract. conf. Pp. 154-158.
- Ilchenko, S. N. (2015). Fake as a political format in the modern media environment. *Gumanitarny vector. Ser. Istoriya, politologiya – Humanitarian Vector. Ser.: History, Political Science* 3(43), 98-101.
- Ilchenko, S. N. (2016a). Fake news in the practice of online media: Reliability criteria. *Mediascope – Mediascope* 4, 24.
- Ilchenko, S. N. (2016b). Screen Chronicle as an element of fake journalism. *Gumanitarny vector. Ser. Istoriya, politologiya – Humanitarian Vector. Ser.: History, Political Science* 11(4), 124-127.
- Kooijman, J. (2008). *Fabricating the absolute fake: America in contemporary pop culture*. Amsterdam: Amsterdam University Press. <https://doi.org/10.5117/9789053564929>
- Limba, T., & Šidlauskas, A. (2018a). Peculiarities of anonymous comments' management: A case study of Lithuanian news portals. *Entrepreneurship and Sustainability* 5(4), 875-889. [https://doi.org/10.9770/jesi.2018.5.4\(12\)](https://doi.org/10.9770/jesi.2018.5.4(12))
- Limba, T., & Šidlauskas, A. (2018b). Secure personal data administration in the social networks: The case of voluntary sharing of personal data on the Facebook. *Entrepreneurship and Sustainability* 5(3), 528-541. [https://doi.org/10.9770/jesi.2018.5.3\(9\)](https://doi.org/10.9770/jesi.2018.5.3(9))
- Limba, T., Agafonov, K., Paukštē, L., Damkus, M., & Plēta, T. (2017). Peculiarities of cyber security management in the process of internet voting implementation. *Entrepreneurship and Sustainability* 5(2), 368-402. [https://doi.org/10.9770/jesi.2017.5.2\(15\)](https://doi.org/10.9770/jesi.2017.5.2(15))

- McBeth, M. K., & Clemons, R. S. (2011). *Is the fake news the real news? The significance of Stewart and Colbert on democratic discourse, politics, and policy*. Retrieved from https://works.bepress.com/mark_mcbeth/37/.
- McEvers, K. (2016). *Stanford study finds most students vulnerable to fake news*. Retrieved from <http://www.npr.org/2016/11/22/503052574/stanford-study-finds-moststudents-vulnerable-to-fake-news>.
- Panchenko, N. N. (2013). Fake news in the context of reliability. *Teoreticheskie i prikladnye aspekty izucheniya rechevoy deyatelnosti – Theoretical and Applied Aspects of the Study of Speech Activity*8(1), 164-169.
- Prover (2018). Retrieved from <https://mvp.prover.io>.
- Ringelheim, J. (2011). *Falsebook: False self-manifestations in modern online socialization* (Dissertation). Chicago: Faculty of the Chicago School of Professional Psychology.
- Shu, K., Sliva, A., Wang, S., Tang, J., & Liu, H. (2017). Fake news detection on social media: A data mining perspective. *SIGKDD Explorations Newsletter* 19(1), 22-36. <https://doi.org/10.1145/3137597.3137600>
- Šišulák, S. (2017). Userfocus - tool for criminality control of social networks at both the local and international level. *Entrepreneurship and Sustainability* 5(2), 297-314. [https://doi.org/10.9770/jesi.2017.5.2\(10\)](https://doi.org/10.9770/jesi.2017.5.2(10))
- Smith, G. (2017). *Modern day propaganda: characteristics of fake news and psychological effects on the public. A Capstone Project*. N.Y.: Faculty of Utica College.
- Sukhodolov, A. P. (2017). The phenomenon of “fake news” in the modern media space. *Evroaziatskoe sotrudnichestvo: gumanitarnye aspekty – Euro-Asian Cooperation: Humanitarian Aspects* 1, 87-106.
- Sukhodolov, A. P., & Bychkova, A. M. (2017). Fake news as a modern media phenomenon: Definition, types, role of fake news and ways of taking measures against it. *Voprosy teorii i praktiki zhurnalistiki – Theoretical and Practical Issues of Journalism* 6(2), 143-169. [https://doi.org/10.17150/2308-6203.2017.6\(2\).143-169](https://doi.org/10.17150/2308-6203.2017.6(2).143-169)
- Titcomb, J. (2017). *Governments in 30 countries are paying ‘keyboard armies’ to spread propaganda, report says*. Retrieved from <https://www.telegraph.co.uk/technology/2017/11/14/governments-30-countries-pay-keyboard-armies-spread-propaganda/>.
- Vosoughi, S., Roy, D., & Aral, S. (2018). The spread of true and false news online. *Science*, 359(6380), 1146-1151. <https://doi.org/10.1126/science.aap9559>
- Willingham, E. A. (2016). Scientific approach to distinguishing real from fake news. *Forbes magazine*, November 28.

Oksana N. Berduygina is an Assistant Professor in the Department of Business Informatics and Mathematics at Tyumen Industrial University (Tyumen, Russian Federation). Her research interests are mathematical methods in economics, forecasting processes, statistical methods of information processing, institutional economy, public-private partnership, and sustainability.

Tatyana N. Vladimirova is a Professor and Director of the Institute of Journalism, Vice-Rector for Public Relations, Moscow Pedagogical State University (Moscow, Russian Federation). Her research interests are journalism, professional education, information technologies, modern educational technologies, innovations in the field of management, and psychological portrait of a person.

Elena V. Chernyaeva is an Assistant Professor in the Department of Special Language Training at Moscow State Technical University of Civil Aviation (Moscow, Russian Federation). Her research interests are foreign language, professional aviation language, and information technology.