

FAKE NEWS IN THE ENERGY INDUSTRY

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Abstract

The dynamic development of technologies has changed, in the past decades, the way in which people communicate and gather their information. The traditional one-way approach of presenting news from renowned publishers and news companies has been replaced in a big amount by interactive social media networks, where each individual is free to post the messages and information they want. Also, the readers have changed from simple information receivers to co-creators of news by being able to express their opinions and comments on the posted news. In this context the phenomenon of fake news appeared, in which some users or sites post untrue, distorted or exaggerated information with the purpose of influencing the public opinion for economic or ideological gain. The objective of this research is to make a comparative analysis between the reactions generated by social media users, when they are confronted with two posts, one written in an objective manner and the other one created around fake information, both regarding the increase of prices in the energy field. The results of the research show that more social media users have interacted with the fake post in comparison to the objective one. Our research also prove that male consumers respond easier to posts related to the energy field and that elder individuals have a higher engagement rate as a response to the posts.

Keywords

Fake news, misinformation, social media networks, consumption patterns, energy.

JEL Classification

M10, M31

Introduction

In the last couple of decades, our society has evolved in an accelerated rhythm, adapting to a new and constantly changing environment. The technological progress, in all areas of modern economy, is one of the main triggers of the worldwide evolution and led, together with the informational era which facilitates the access to information, to major changes in human interactions. Practically, in the last decade, the communication process has adapted to new trends, whether if we are referring to interpersonal, B2C or B2B communication. The interaction process has gradually moved to social media platforms that slowly became true news engines and important marketing tools. Facebook is currently the most important social media platform worldwide, having more than 9.6 million active users in Romania and being followed by LinkedIn, Instagram and Twitter (Stelzner, 2016). This shift in communication can be observed in all economic fields, including specialized fields such as

the energy sector. The main companies which are active on the Romanian energy market adapted their communication to the new trends and included their presence on social media platforms, in client service and community management strategies.

In recent years, the attention of field specialists, alongside multinational companies and digital agencies, has been directed on detecting untrue reviews. These are written by so called bots and can directly influence companies' sales, and indirectly, the customers' trust by affecting the pre-acquisition research process. After the 2016 US presidency election, the main focus shifted from fake reviews towards false information spread with the help of social platforms specific instruments, giving birth to a new concept, namely "fake news". The high number of manipulative and fake news spread throughout the 2016 campaign proved the power of social media platforms in influencing the public opinion and affecting a democratic process (Jang et al. 2018; Figueira and Oliveira, 2017). This is the main reason for which an international debate regarding, the instruments offered by Facebook in spreading news and the commercial use of personal data collected by the American company was triggered.

Unfortunately, the concept of fake news appeared recently and there is not enough scientific research analyzing its effects and spreading triggers. In this context, our study focused on finding out if internet users are more likely to spread fake news rather than true information, especially when they are confronted with information regarding a complex and highly specialized economic field such as the energy sector. Moreover, the study strives to establish if a fake news, in comparison to a true information, is more likely to convince users to take a given action and if age or gender influences the spreading process.

Literature review

The spreading, influence and detection of fake news is one of the most debated topics in the nowadays information era. According to Jang et al. (2018) fake news are fabricated stories that are promoted with the help of social media platforms and have the purpose to deceive the public opinion for ideological and/or economic and financial gain. They usually take the form of distorted news or alternate facts in form of jokes, sarcasm and provocations (Figueira, and Oliveira, 2017) that have a high attraction for internet and social media users. Another form of fake news are the ones distributed by fake websites, with similar names to those of renowned news channels (Figueira and Oliveira, 2017).

The phenomenon of fake news has evolved because of several reasons. One main reason is the change in the way individuals take their information. The traditional news delivery has been on a one-way basis from the information-source or sender to the receiver. The development of modern communication technologies such as social media networks or mobile communication, have changed the way in which information is spread. Nowadays, journalists or other opinion leaders have the possibility to post information on the internet, without a previous check from the editorial office (as it was in the past) and readers have the option to comment, to post and to spread the information in the way they wish (Lee et al., 2017). Another important aspect for the development of fake news, is the fact that several studies have proved that individuals are more likely to believe false or dubious affirmations that correspond to their own beliefs or partisanships (Shin et al., 2018, Weeks, 2015). Shin et al. (2018) also prove in their research that fake information have the tendency to be reinforced by re-appearing much more often than real information or facts, suggesting that there might be an interest in spreading these false information. Besides, for an individual it is more interesting to have an information that is not publicly available and therefore there is a certain curiosity that determines the re-appearance of the fake news (Shin et al., 2018). The cognitive ability of the reader is another aspect that determines the spread of fake news. Consumers and readers have the tendency to believe and memorize the first impression of an item (De Keersmaecker and Roets, 2017; Ross et.al. 1975). If this first impression is a

fake news, it depends on the cognitive ability of the user, to change that fake idea through his thinking and value pattern (De Keersmaecker and Roets, 2017). News and information overload is another issue that affects the consumption patterns towards selective exposure to media, news avoidance and also the willingness to pay for information (Lee et al., 2017).

In order to reduce the negative effect of fake news, a big debate has focused on the means which should limit this phenomenon. Some authors suggest that finding the roots of fake news will diminish its impact on the public opinion. The research conducted by Jang et al. (2018) suggests that most fake news come from a small numbers of websites or simple user accounts on social media networks. By monitoring these websites it will be easy to limit their spreading. On the other hand, Figueira and Oliveira (2017) suggest two ways of combating fake news: the human intervention and algorithms which should detect fake news. Not less important is the increasing consumers' awareness of the existence of false information, so that they should be able to filter real from fake information.

In spite of the fact that most of the attention of fake news research was directed to politics and some election campaigns, the phenomenon is spread in other fields as well, as for instance economy, financial decisions and stock trading (Brigida and Pratt, 2017), the medical field, nutrition or the energy field. Fake news can be easily used in order to manipulate the behavior of the consumers, especially in sensitive fields which are close related to the well-being of the consumer. The consumers' pro-environmental behavior and energy consumption patterns are influenced by several factors such as demographic criteria (Raty and Carlsson-Kanyama, 2010), national culture (Pelau and Pop, 2018) and information bases or satisfaction (Marquardt, et al., 2017; Tantau, et al. 2017). Spreading information in favor or against the use of a certain type of energy, its scarcity or its increasing or decreasing price can affect the behavior of the consumer to that type of energy. In this paper we examine the reaction of social media network users to a real and fake information regarding the increase of energy prices.

Methodology

The objective of the research presented in this paper is to establish if there is a difference in the reaction of social media users to the same type of content posted in an objective and in a clickbait specific/ fake manner. We have tested our hypothesis referring to the fact that the post written in a fake news specific form will generate a higher engagement. In order to test this hypothesis, we have selected a link to an interview with the Chairman of the Romanian Industry and Services Committee in which he commented on the evolution of the natural gas prices (Buican, 2018). For this article, we have developed two different Facebook posts, which have been promoted under the same conditions.

The first copy underlined the facts presented in the interview in an objective form as follows: *"Throughout the last year, Romania recorded a 48% increase in natural gas prices. According to the statements of the Chairman of the Romanian Industries and Services Committee of the Chamber of Deputies, the radical growth is due to the liberalization process"*. The second copy included fake information which did not occurred in the mentioned interview, in the following form: *"ROMANIA on the verge of a DISASTER! Historical growth! The price of natural gas has tripled! How will our invoices changed in the coming years? How many Romanians will freeze in winter because of the lack of money?! Below all you need to know"*. As can be seen, the second copy included a call to action, namely, users were suggested to access the link to the interview.

Both copies, along with the above mentioned link, have been published at the same time on the same Facebook page. Both posts have been boosted for two days, having the same budget and the same targeted audience. Both campaigns have spent 50 RON (about 10 euro) and targeted men and women with the age of 35 or more, who are living in Romania.

Moreover, both campaigns had the same objective, namely the optimization of the post engagement.

Results and discussion

The obtained results reinforced our belief that the fake copy would generate more interactions and a better performance. The higher performance is also supported by the lower cost per engagement generated by the fake post. As observed in tabel no. 1, the objective post registered a 50% higher cost and a lower relevance score, while reaching only 8.754 people in comparison with the 15.315 reached users by the fake copy. The fake copy has generated 1.267 interactions, while the objective copy registered only 786 post engagements. More precisely, the fake copy generate 61.1% more interactions than the objective post, for the same amount of money.

Table no. 1. Fake vs objective reach and post engagement on social media networks

Ad Name	Relevance	Cost per Engagement	Reach	Post Engagement
Objective	9	0,06 RON	8.754	786
Fake	10	0,04 RON	15.315	1.267
Difference: fake/ objective	+11.1%	-33.3%	+74.9%	+61.1%

Source: Authors own research results

Figure 1 shows the different the number of users by gender reached by the objective and fake post. During the campaign, the objective copy reached 2.120 females and 6.626 males, while the fake copy reached 4.040 females and 11.264 males throughout the two days in which the campaigns has run. There can be observed that the reaction of men to energy related posts is higher than those of women.

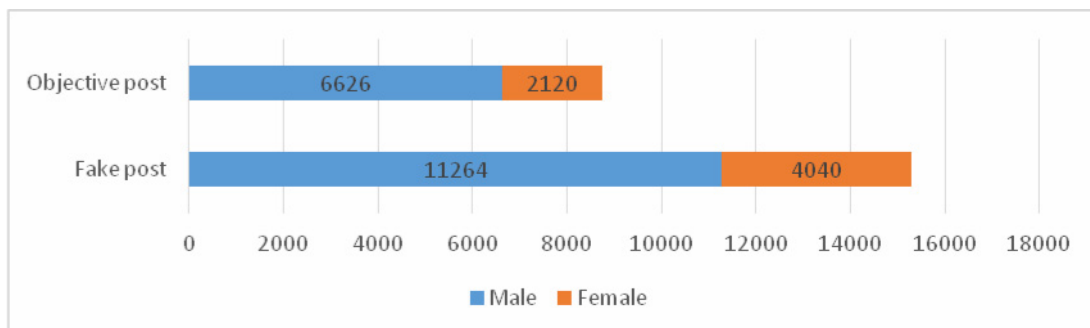


Fig. no. 1. Reach of objective vs fake post

Source: Authors own research results

The results of our research have proven that, under the same conditions, the fake copy has generated a greater impact in comparison to the objective one. Table no. 2 shows a comparison between the reactions of the users to objective and fake news depending on gender and age category. The results show that there is a big difference between the acceptance of fake news depending on gender and age.

The highest difference between the impressions and the post engagements for the objective and the fake news are for men, with ages between 35-44 and 45-54. For these consumers' categories, the users are more likely to have an impression to the fake news (with +198% for the men with ages between 35-44 years and +125% for men with ages between 45-54 years) and post engagement (+140% for men with ages between 35-44 years and +130% for men with ages between 45-54 years) to the fake news. Despite this, the engagement rate for both

age categories is lower in comparison to the older men. For the men older than 55 years, the absolute values for the impressions and post engagement are higher, but the difference between the impact of the impressions and post engagements between the objective and the fake news is lower (+49% for the men with ages between 35-44 years and +23% for men with ages between 45-54 years for the impressions and +24% for the men with ages between 35-44 years and +23% for men with ages between 45-54 years for the post engagement). The engagement rate for both age categories of men is higher in comparison to the younger ones.

The reaction of women to posts related to the energy field is definitely lower in opposition to men. There can be observed that young women with ages between 35-44 years old, have a very low engagement rate, resulting in a low probability of spreading fake news. Actually it is the only consumers category, where the post engagement for the fake news is lower (1 user) in comparison to the objective post (7 users), having a negative difference of -86% and the smallest engagement rate of 1.09. At the opposite end, there are the women with ages between 55-64 years, for which the number of users reacting to the post is the highest in absolute value and the reaction to the objective and fake post has the highest differences. For this demographic category more women have generated more impression (+94%) and a higher engagement (+158%) on the fake post. Similar to the male users, the women older than 65 years have the highest engagement rate (11.08%) in comparison to younger women.

Table no. 2. Fake vs objective impressions and post engagement on social media networks depending on demographic category

User category	Impressions			Post engagement			Engagement rate (%)	
	Objective	Fake	Diff (%)	Objective	Fake	Diff (%)	Objective	Fake
Male, age 35-44	618	1839	+198%	43	103	+140%	6.96	5.62
Male, age 45-54	1555	3496	+125%	113	260	+130%	7.74	8.15
Male, age 55-64	2684	3988	+49%	254	315	+24%	9.88	8.42
Male, age 65+	2076	2544	+23%	179	220	+23%	9.05	8.80
Female, age 35-44	60	111	+85%	7	1	-86%	12.07	1.09
Female, age 45-54	276	515	+87%	17	25	+47%	6.49	5.04
Female, age 55-64	1159	2249	+94%	80	206	+158%	7.37	9.30
Female, age 65+	839	1373	+64%	91	137	+51%	12.75	11.08

Source: Authors own research results

The results show that men are more likely to spread fake news in comparison to women and age plays a smaller role in accepting fake information, although, both genders are more likely to easier accept fake news as they age. In both cases, male and women over 65 years old, registered the highest engagement rate in relation to the other three age intervals.

Table no. 3 emphasizes the higher effect of fake news in manipulating internet users in taking a specific action. As mentioned earlier in our work, the fake post included a call to action which had the role of influencing users in clicking on the published link.

Table no. 3. Fake vs objective reach and link clicks on social media networks

Ad type	Post Engagement	Link clicks	Unique Link Clicks	CPC (RON)
Objective	786	157	151	0,32
Fake	1.267	786	780	0,06
Difference fake/objective	61.1%	400.6%	416.5%	-81.2%

Source: Authors own research results

The fake copy generated 629 more link clicks (786 link clicks for fake post in comparison to 157 link clicks for objective post) and registered a -81.2% lower cost than the objective one. This proves that fake news have an extremely high impact on internet users and can easily determine them to take a suggested action, thus increasing the chances of the fake news to spread.

Conclusions

The results of our research confirm the fact that fake news have a higher impact on the social media network users than objective ones. Fake news have the characteristic of sending shock messages, fact that catches the attention of the consumers by being in higher activation level. According to psychologists, it is a natural reaction, based on survival instincts, for humans to spread negative news in order to warn others that something bad might happen and, in this way, achieve collective protection. The reaction to the fake post on the internet has had a higher impact for all indicators, such as reach, impression, post engagement and link clicks. Moreover, the relevance of the fake post was higher than the objective ones, according to the reaction of the Facebook users. This relevance has led to lower costs for promoting the fake news in comparison to the objective one. Further on, we have observed that male users have a higher reaction both to the objective and the fake post related to the energy field. Younger male users (with ages between 35-54 years) have a higher reaction to the fake post in comparison to the objective one, while older people have a higher engagement rate. The younger women (with ages between 35-54 years) have the smallest reaction to both posts. Therefore we can conclude that the hypothesis of our research is confirmed.

Although our research was done only for one single post, that was boosted on the internet for two days, it has shown that fake news are a phenomenon and that consumer have a tendency to rather react to them. For the future we aim to re-test the reaction of consumers to different forms of fake news in order to better describe the patterns of behavior related to this type of content. Besides we will try to give an explanation to its spreading. Some authors believe that the spreading of fake news is done on an intentional basis and for this reason they re-appear in the public attention (Shin et al. 2018). On the other hand other authors believe that there is the individual's predisposition to react to rumors and only a cognitive ability of individuals will help reduce this phenomenon (De Keersmaecker and Roets, 2017).

Knowing the factors that determine the appearance and spreading of fake news will help suggesting methods and instruments for reducing this phenomenon. On one hand a better proof of the information posted on the social media networks, on the other hand algorithms that will have the ability to detect fake news in timely manner (Figueira and Oliveira, 2017), are just some examples of solutions. Unfortunately, the implementation of algorithms has shown its limits. Until now, algorithms, set to detect fake news, have interfered with the users' experience, denying them the publishing or visualization of content, which mistakenly has been labeled as fake or misleading. For this reason, it is important to increase the awareness of consumers regarding this phenomenon. Companies, from all economic fields, should realize that their brand and public perception can easily be affected

if they become the victims of fake news attacks. By financing programs dedicated to educating consumers, companies would take direct action in fighting against this complex phenomenon, decreasing the risks associated with the spreading of fake news. In conclusion, we agree on the fact that fake news is an actual challenge of our nowadays society, that has appeared with the changes in the means of communication, that need to be further researched.

References/Bibliography

- Brigida, M. and Pratt, W.R., 2017. Fake News. *North American Journal of Economics and Finance*, 42, pp. 564-573.
- De Keersmaecker and J, Roets, A., 2017. 'Fake news': Incorrect, but hard to correct. The role of cognitive ability on the impact of false information on social impressions. *Intelligence*, 65, pp.107-110.
- Figueira, A. and Oliveira, L., 2017. The current state of Fake News: Challenges and Opportunitéis. *Procedia Computer Science*, 121, pp. 817-825.
- Jang, M., Geng T., Queenie Li J.Y., Xia, R., Huang, C.T., Kim, H. and Tang, J., 2018. A computational approach for examining the roots and spreading patterns of fake news: Evolution tree analysis. *Computers in Human Behavior*, 84, pp. 103-113.
- Lee, S.K., Lindsey, N. and Kim, K.S., 2017. The effects of news consumption via social media and news information overload on perceptions of journalistic norms and practices. *Computers in Human Behavior*, 75, 254-263.
- Marquardt, K., Olaru, M. and Ceausu, I., 2017. Study on the Development of Quality Measurements Models for Steering Business Services in Relation to Customer Satisfaction. *Amfiteatru Economic*, 19(44), pp. 95-109.
- Pelau, C., Pop and N.Al., 2018, Implications for the energy policy derived from the relation between the cultural dimensions of Hofstede's model and the consumption of renewable energies. *Energy Policy*, 118, pp. 160-168.
- Raty, R and Carlsson-Kanyama, A., 2010. Energy consumption by gender in some European countries. *Energy Policy*, 38, pp. 646-649.
- Ross, L., Lepper, M. R. and Hubbard, M., 1975. Perseverance in self-perception and social perception: Biased attributional processes in the debriefing paradigm. *Journal of Personality and Social Psychology*, 32, 880-892.
- Shin, J., Jian, L., Driscoll, K. and Bar, F., 2018. The diffusion of misinformation on social media: Temporal pattern, message, and source. *Computers in Human Behavior*, 83, pp. 278-287.
- Soon, J.J. and Ahmad, S.A., 2015. Willingly or grudgingly? A meta-analysis on the willingness-to-pay for renewable energy use. *Renewable and Sustainable Energy Reviews*, 44, pp. 877-887.
- Stelzner, M.A., 2016, Social Media Marketing Industry: How Marketers Are Using Social Media to Grow Their Businesses, pp. 23-30.
- Tanțau, A.D., Chinie, A.C. and Borisov, D., 2017. Triggering events for corporate entrepreneurship leading to investments in renewable energy. *Environmental Engineering & Management Journal*, 16(12), pp. 2857-2868.
- Weeks, B.E., 2015. Emotions, partisanship, and misperceptions: How anger and anxiety moderate the effect of partisan bias on susceptibility to political misinformation. *Journal of Communication*, 65(4), 669-719.