Fake news about 5G in smart cities: Reasons and consequences

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Abstract
The **objectives** of this paper are to consider reasons for fake new related to the use of 5G in smart cities and their consequences on the way in which smart cities function, as well as to understand how misinformation can affect public perception, infrastructure development, and social dynamics. What makes this research relevant is is the increasing role of 5G in smart cities, in public transport, traffic patterns, parking, street lighting, e-health, monitoring air quality, and energy management. Understanding fake news about 5G shows how technological progress still inspires fear. The paper relies on **prior work** regarding technology acceptance, misinformation in digital media, public trust in science and institutions, as well as on existing research on cases of resistance to infrastructure development. The **approach** is a qualitative analysis of misinformation cases, ranging from conspiracy theories linking 5G to wildfires in Maui and West Kelowna, to health-related fears such as cancer, infertility, and COVID-19 transmission, disseminated mainly through social media. The psychological framework of analysis highlights the emotional and cognitive biases contributing to resistance to 5G. **Results** show that mistrust in institutions, poor official communication, and the emotional appeal of misinformation contribute to the spread of fake news. Consequences include infrastructure vandalism, delays in digital development, and threats to investment in smart city initiatives. **Implications** include the use of the findings, which are relevant to policymakers, urban planners, communication strategists, as well for university level researchers as they suggest the need for improved public engagement, transparent communication strategies, and interdisciplinary collaboration. The **value** of this paper lies in offering a psychological perspercive to analyze the society's reaction to 5G, showing how misinformation can hinder technological progress in smart cities. Emotional perception of 5G is related to resistance to innovation, of which one form is fear of technological progress.

Keywords: anxieties, health, conspiracies, infrastructure.

1. Introduction
Fake news is a current phenomenon, affecting us through online social media especially. Technological progress, which goes hand in hand with scientific progress is, therefore, not a guarantee that various fake beliefs will not be around. Indeed, we can see the topic dealt with regarding fake news and hate speech, the development of a smart Society and the importance of smart citizenship and the risks posed by misinformation in digital media [1]. We may wonder if it is the lack of digital literacy which can lead to spreading fake news [2].

We may expect that the Internet means mass spread of knowledge and the disappearance of various supertitions and folk beliefs which are no longer considered to be compatible with the contemporary world. Yet, false beliefs continue to be around, under different forms, in our case fake news. We need to be more and more careful about the nature of the information w ehave access to and grow more skeptical. Nowadays, with artificial intelligence, we witness the spread of the most fantasy-like theories and so-called facts from history. Online social media users, however, are quick to identify the contribution of AI based on various clues. Comments on pages with posts with made-up facts on online social media are quickly demolished.

Under these circumstances, we wonder, then, why did the fake news about 5G have such a great impact on certain persons? Why did they come to believe these pieces of news? Is it all related to the way in which we are informed, to the overall mindset of today, to the way in which we have developed our critical thinking and capacity for reasoning, or is there more to it? Do we function solely based on our capacity to reason? It is known that we also have a psychological, surface-level of awareness, as well as an unconscious dimension.

The psychological dimensions influence us in our understanding of reality. It does influence us also in our understanding of psychological reactions to conspiracy theories related to 5G. Technological progress triggers not only reactions related to our hopes for progress, but also our fears of technological progress.

1.1. Literature review

First of all, how can we define fake news? Several definitions have been proposed, each of which showing a certain particular feature of fake news: "News that contains false or inaccurate information," "News with an agenda," "News that is stretched in one way or another/tailored to a certain audience rather than raw facts," "Clickbait material created without regard for actual true content" [3]. From these definitions, in the case of 5G fake news, we can claim that the most suitable ones are the definition about the clickbait material, and the definition about these news being created to appeal to a certain audience and not to present actual facts.

In order to analyse the impact of fake news, we can consider cognitive biases so that we can understand emotional reactions, explaining why we come to believe these types of news. This is because "Although the creation of fake news is a serious issue, it is the believability of fake news and subsequent actions that produce negative outcomes that can be harmful to individuals and society" [1].

Cognitive biases appear due to the need to simplify the process of decision-making, yet this tendency to rely on them "may lead to suboptimal decisional outcomes" [4]. The process of thinking set forth by using cognitive biases can further be explained as follows: "We typically violate rules of logic and probability and resort to simple and near-optimal heuristic decision rules ('mental shortcuts') to optimize the likelihood of an acceptable outcome" [4]. In this way, cognitive biases can present us with a distorted vision of the world and of various beliefs, leading us to fall for fake news.

The confirmation bias was the factor mostly considered favouring the spread of fake news [5]. This bias refers to the idea that we tend to look for, remember, as well as interpret that particular information which confirms what we already believe and assume. As a result, we tend to ignore and simply dismiss that information contradicting our views. Cognitive biases can, therefore, make us vulnerable to being manipulated by fake news.

2. Materials and methods

Several cases of fake news regarding the use of 5G in smart cities will be analysed, based on a selection of case studies of such news. Plenty of fake news have been shared about 5G, starting from the spread of wildfires in Maui (Hawaii) and West Kelowna (Canada),

continuing with the manipulation of traffic signalling for pedestrians, and moving on to health issues. Health issues were reported related to 5G on social media, such as cancer, infertility, weakening of the immune system, spread of COVID-19. Among the causes related to these fake news spreading was the mistrust in technology institutions and companies, the lack of efficient official communication regarding 5G, and the online social media favouring emotional messages compared to scientific ones.

The qualitative method of analysis is used, based on the psychological reactions on which the fake news relied. The cognitive biases enabling believing the 5G-related fake news will be included in the analysis, as they can offer insight into the psychological mechanisms enabling the emotional reactions towards the fake news.

Among the cognitive biases which make us believe fake news we can find the following, next to the confirmation bias: availability heuristic, authority bias, negativity bias, bandwagon effect, Dunning-Kruger Effect.

The confirmation bias is present in the way un which we accept the fake news claiming that 5G causes health issues such as cancer, infertility, and COVID-19, once we feel skeptical about or afraid of the newly developed technologies. The fake news confirm our fears and doubts, even more so as we consider various psychological problems under discussion about using gadgets as they can isolate us more from the others and no longer genuinely connect. We also tend to attribute the bad consequences of our actions to an external source, and not take responsibility for them, We also tend to look to an external factor for explaining the causes of certain illnesses once we feel we do not have an explanation. That technology can be evil is a belief extended to 5G and to fake news about it.

The availability heuristic refers to how we feel that certain experiences are more common than they actually are, due to the way the information is recent, vivid, dramatic, and emotionally charged. As an example, once we see on the news plane crashes, frequently and since they impress us, we can be led to believe that plane crashes are more frequent than car crashes, when in fact plane crashes are less likely to occur, statistically speaking. Another example can be the crimes present on the news, about which we may be inclined to believe that they happen often, when in fact the crime rates may be actually lowering. The stories about 5G being the cause of wildfires is clearly a memorable one due to the emotional intensity and dramatic content attached to it.

Authority bias refers to how we are more inclined to believe someone due to his or her position of authority or power, for instance if that person is a doctor, teacher, boss or even a celebrity. With respect to fake news about 5G, we tend to believe influencers, and various pseudoscientific experts, without checking for the scientific validity of their arguments.
The negativity bias refers to the tendency we have to remember, pay more attention to and be more impressed by information presenting negative issues. As an example, headlines related to danger get more of our attention, and criticism sticks with us more than compliments. Since health and safety issues are negative information, and have a strong emotional impact related to fear and anxiety, then we tend to believe those fake news relating 5G to health and safety risks.

The bandwagon effect refers to us adopting certain behaviour and beliefs only because the others around are are adopting them, not because we believe they are right. Yet, in the end, the consequence is that we come to believe that these beliefs and behaviour are right, since everyone else adopts them. We tend to assume that the majority is right. With respect to the problems related to 5G, we will tend to adapt the same fears and anxieties we see with the persons surrounding us, in the face-to-face or virtual environment.

The Dunning-Kruger Effect refers to the way in which those people who are not very knowledgeable in a topic or domain have the tendency to overestimate their knowledge, while those with good knowledge tend to underestimate their competence in a field or topic. Fake news rely on mechanisms of these cognitive biases and manipulate certain segments of the population. With respect to 5G, we may overestimate our knowledge about it based on the fake news we read about which are widely-spread around us. With 5G it is all the more easy since we cannot be at once experts in health, natural hazards, and technology.

In relation to health, we have seen the many conspiracy theories related to the COVID-19 pandemic, and the tendency to believe fake news related to the topic. We can see 5G fake news about health risks to continue expressing our fears along the same lines.

Cognitive biases add to the distrust we have, and which is more or less justified, in the political leaders, in institutions, including the government, which makes us prone to the tendency to believe alternative theories about advanced technology such as 5G. We may feel that those in power are hiding something from us, and that the other sources of information, which represent, in fact, fake news. We tend to believe that there is another truth which is held away from us by those in power, and this mistrust in official institutions leads to us believing that there is something harmful in store for us once 5G technology is used in smart cities. We may refer back to various ideologies which have hidden parts of the truth or presented the facet that was considered to be beneficial to make citizens act in a certain way. For instance, during authoritarian regimes such as communist regimes, some parts of information were not presented in front of the public, some domains were not researched, some films and books were not available in certain countries as it was believed they could contain ideas dangerous to the regime. Even nowadays, we may hear that medicine books have changed values for cholesterol levels considered to be normal in order to sell certain medicines.

The belief in fake news further strengthened the widespread the resistance to 5G, which led to consequences such as vandalism and damage to infrastructure, delays in digital infrastructure development, and the loss of investments and partnerships related to autonomous transportation, e-health, the Internet of Things, and smart energy and security systems. Vandalism of infrastructure, followed by its damage could be observed in the UK, in April 2020, when a number of 5G towards in cities such as Birmingham, Liverpool, and Merseyside burned since they were set on fire due to the fake news claiming that they spread COVID-19. During the time of the pandemic, attacks against engineers working for phone companies and mobile masts occurred. Slower development of infrastructure occurred in the UK due to concerns related to security. The Netherlands also witnessed in April 2020 acts of vandalism related to 5G on slogans and tower sites, once again due to

news regarding spreading COVID-19. These were known as the Arson Attacks. During April 2025, in New York City, USA, a 5G tower was considered to be part of government surveillance and ur faced community backlash. In Uruguay, in June 2020, public protests took place asking for studies about the consequences of 5G, strating on social media groups. The protesters were concerned by the health risks related to 5G. In Bolivia, in June 2020, there was a series of destructions of 5G towers due to explosives, in K'ara K'ara, Cochabamba, and Yapacani, Santa Cruz. They believed it spread COVID-19, even though 5G was not at the time part of the infrastructure in Bolivia. In Paraguay, there were cell tower attacks, as 5G towers were set on fire in Concepcion, Canindeyu, and Guaira. In addition, similar attacks too at the time place in Peru, in the Huancavelica region. In Peru and Paraguay, just like in the case of Bolivia, the attacks were related to the belief that 5G spread COVID-19, although no infrastructure including 5G was present at the time. In North Madedonia, there have been, since 2019, conspiracy theories related to the connection between 5G and the spread of COVID-19, spread on social media, which have has as a consequences protests stopping the installation of 5G.

Protests against 5G technology installation leading to the vandalizing of the infrastructure made its implementation late and also costs increased.

Citizens should be made aware of the scientific facts related to 5G, in order to counteract spread of fake news. In addition, compared to 4G, 5G has clearly more advantages, as its speed is higher, it can be used on a larger number of devices, its fiability is not just good, but it is very high, for critical application, its energy consuming is not high, but optimized for Internet of Things devices, its M2M communication is not limited, but massive for machines and sensors.

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3. Results

Based on the psychological analysis, we have seen how cognitive biases are at work in taking fake news about 5G for the truth. Cognitive biases may confirm what we already presuppose as true, offer information that stirs us up emotionally, and also resonate with our fears. Cognitive biases rely on our fears and create alternative scenarios, making us be faced with the most negative hypotheses about high technology. In addition, our skepticism, not only towards technology but to the government and various public institution continue adding up to our tendency to believe the fake news about 5G. Our sense of insecurity in the current society due to various reasons is projected on 5G, and from here all the negative scenarios related to it which find a correspondent in fake news.

4. Discussion

Among the measures to be taken about 5G fake news, their spread can be reduced once there are enough well-documented and believable, scientific-based sources on 5G and the lack of its causing all the issues presented in fake news items, such as health and security

issues. It could also be helpful if books on cognitive bias or popular psychology articles on the subject could be spread more. Public engagement from the part of universities on raising awareness about fake news and the way we can identify them by checking the information is one solution. Interdisciplinary collaboration among psychologists, technology professionals, and academic researchers on medicine, security, technology and fake news themselves can be a solution.

5. Conclusions

The originality of the paper consists in considering a psychology perspective to the reaction to 5G in society. Psychoanalytic insight related to projection on external factors of our fears and amxieties, as well as the very dimension of the unconscious, are considered side-by-side with insights offered by cognitive biases. Our resistance to innovation can be traced back to the Victorian times at least, when we feared technology and science to gain control over us as they escaped beyond our control. Fake news indeed can be considered in this way, showing the vulnerability of society while science and technology continue to evolve.

References

[1] B. Zankova, "Smart Society – 'Fake Analytica' Style?," *Smart Cities and Regional Development Journal,* vol. 3, 2019.

[2] V. Baltac, "Smart cities—A view of societal aspects," *Smart Cities,* vol. 2, no. 4, 2019.

[3] C. Chapman, "Fake news: A definition," *Informal logic,* vol. 38, no. 1, pp. 84-117, 2018.

[4] J. E. Korteling, A. M. Brouwer and A. Toet, "A neural network framework for cognitive bias," *Frontiers in psychology,* no. 9, p. 1561, 2018.

[5] A. M. French, C. S. Veda and L. Wallace, "The impact of cognitive biases on the believability of fake news," *European Journal of Information Systems,* vol. 34, no. 1, pp. 72-93, 2025.