Written evidence submitted by the Royal Statistical Society (FNW0084)

Summary

1. The Royal Statistical Society (RSS) is a learned society and professional body for statisticians and data analysts, and a charity which promotes statistics for the public good. One of our key strategic goals is to support statistics in the public interest, and we respond to this inquiry in particular to address the integrity of data, statistics and information in the public domain.

2. We draw a distinction between the following types of 'fake news'. The last type (d) is not addressed in our submission.
    a. Entirely made up news resulting from the desire to make money, or from disinformation campaigns.
    b. Hyper-partisan news which may have some basis in fact but paints a distortive picture
    c. News which is so poor in its use of statistics and information that it is factually incorrect
    d. A term of insult against news sources that one does not agree with.

3. Fake news, and the attention gathered by it, presents an impediment to truthful and trustworthy debate. Our evidence to this inquiry includes the following key points:

- Social media companies need to accept they do have an implicit editorial function given the algorithms and other approaches they use to select the news that we see. They therefore need to rise to the challenge of giving less credence to untrustworthy sources.
- This Select Committee ought also to consider the fact that the extent of targeted political advertising online and on social media is, at present, hidden, and how this can be made transparent and published.
- We need independent statistical authorities and fact-checkers to reputably challenge inaccurate claims, from 'fake' sources or otherwise, and we need tools to improve the speed, circulation and effectiveness of corrections. More sustained funding will be needed from philanthropists and grant-making foundations, who could be convened by the Association for Charitable Foundations to explore avenues for supporting fact-checking.
- Far closer coordination will be needed by the UK Statistics Authority and the Office for National Statistics to anticipate the information that the public will want in the run up to an event (e.g. an election or referendum), in advance of the heat of political campaigns. They will need to ensure that the data are available, and can be put together in a coherent way so that basic facts are clear.
- Prominent media voices such as the BBC should lead the way on editorial standards. News organisations must ensure that training and support is accessible for journalists for whom handling data is not their primary role, but understanding it is still pivotal.
- Our education system needs to support critical understanding of statistics, to drive better use of data for the future. The RSS is in favour of increasing participation in mathematics and statistics education that is appropriate to people's present and future choices. As part of a broader collaboration with the Global Learning Programme, we also work with a range of subject associations to support teaching and learning about development and global issues, and we believe that a similar funded collaboration to support teaching and learning about critical thinking in relation to the news could be a good approach.

Written evidence in full

Q1. What is 'fake news'?

1.1. This inquiry is particularly interested in the spread by social media of purely fabricated stories from new online sites, and considering how to combat this particular source of misinformation [1]. However, the term 'fake news' is being used in many different ways, and it is worth making some distinctions between:

- Entirely made up news resulting from the desire to make money, or from disinformation campaigns.
- Hyper-partisan news which may have some basis in fact but paints a distortive picture
- News which is so poor in its use of statistics and information that it is factually incorrect
- A term of insult against news sources that one does not agree with.

As a result, the term 'fake news' is not particularly helpful as people can be talking about very different phenomena. In our submission we consider ways in which the first three problems can be mitigated.

1.2. It is clear that statistics and numbers are being fabricated or falsely attributed as a basis for some fake stories or memes. As Kalev Leetaru, for example, has written at *Forbes*, 'Bad Statistics Are Feeding Fake News'.

> "Some memes I come across are easy to discard as outright fabrications, citing non-existent datasets, non-existent authors, non-existent journals or citing real (typically very prominent) researchers and institutes in the field, but who when contacted say they've never heard of the research they are claimed to be the author of. Textual memes are the most common in this category, since it requires so little effort to send out a tweet along the lines of "A recent Gallup poll states that 80% of Americans believe that climate change is false." "

1.3. However, fabrication of statistics and stories is not the only threat to statistical integrity. As Leetaru goes on to write, in a US context:

> "The greatest single contributor to data-driven "fake news" are the myriad statistical fallacies […] Beyond the obvious candidates like suggestions of correlation implying causation and improper use of statistical techniques, perhaps one of the greatest enablers of fake news in the memes I come across is sampling bias and selective definitions. […] One national poll I saw during the presidential campaign season made bold claims about national support for Clinton, but in its methodology revealed that more than 80% of its sample size were Democrats and Independents. This raises the critical question – would we label these as "fake news," as "factually accurate but misleading" or as "absolutely true?" […] Adding to this volatile mix, social media ensures that even the most skewed factoid can be extracted from a dataset and go viral, quickly losing connection to the myriad definitional caveats that enabled it to cling to truthfulness."

1.4. Problems in the reporting of facts and statistics are nothing new, but this inquiry is important for addressing new circumstances. The speed with which news is now shared through social media, often internationally and across jurisdictions, means that tools are needed to challenge false or inaccurate claims more widely and more quickly. The model of social media advertising has also created a small industry of people who are creating fake news purely to make money.

1.5. Personalisation and the use of algorithms to filter social media also limits what people see. We can't say whether these social media 'echo chambers' increase people's personal bias and credulity with regard to fake news, as we make no comparison to those who rely on other media or who read no news at all. What is clear to us, however, is that made-up, hyper-partisan or inaccurate stories do spread, and that peer-to-peer sharing through social media plays an important part in this. For example, analysis by *BuzzFeed News* of US election stories on Facebook found that in the last three months of campaigning, the 20 top-performing false election stories from hoax sites and hyperpartisan blogs generated 8,711,000 shares, reactions, and comments on Facebook, outperforming the 20 best-performing election stories from 19 major news websites (which generated a total of 7,367,000 shares, reactions, and comments)[3]. The spread of more sophisticated misinformation (such as a misleading map of 'refugee crime'[4]) is a present concern during the ongoing 2017 election campaigns in Germany. Concern about misinformation on social media prior to elections is such that Facebook and Google are collaborating with the French media to create a new fact-checking service [5].

Q1 References

[1] Waterson, J. (2017) 'Campaigners Keep Flooding The Fake News Inquiry With Complaints About Right-Wing Tabloids' *BuzzFeed news*, 16 February 2017. Available at: https://www.buzzfeed.com/jimwaterson/campaigners-keep-flooding-the-fake-news-inquiry-with-complai?utm_term=.amaw8NV51#.yydYd7gWa

[2] Leetaru, K. (2017) 'Bad Statistics Are Feeding Fake News', *Forbes*, 2 February 2017. Available at: http://www.forbes.com/sites/kalevleetaru/2017/02/02/lies-damned-lies-and-statistics-how-bad-statistics-are-feeding-fake-news/#79e29dab173f

[3] Silverman, C. (2016) 'This Analysis Shows How Viral Fake Election News Stories Outperformed Real News on Facebook', *BuzzFeed News*, 16 November 2016. Available at: https://www.buzzfeed.com/craigsilverman/viral-fake-election-news-outperformed-real-news-on-facebook?utm_term=.qd5mq7Zlr#.crdgEvXAQ

[4] Fielding-Smith, A. & Black, C. (2017) 'The future of 'Fake News'? A misleading map of 'refugee crime' in Germany distorts reality in a slick and sophisticated way', *The Bureau of Investigative Journalism*, 27 February 2017. Available at: https://www.thebureauinvestigates.com/stories/2017-02-27/the-future-of-fake-news

BBC News (2017) 'Fake news: Facebook and Google team up with French media', 6 February 2017. Available at: http://www.bbc.co.uk/news/world-europe-38882236

Q2. What responsibilities do search engines and social media platforms have? Is it viable to use computer-generated algorithms to root out 'fake news' from genuine reporting?

2.1. Social media platforms have thus far argued they are merely publishers, but with no editorial function. Given their prevalence and power, and given the algorithms they use do in fact curate what we read, we think this position cannot hold. Social media companies need to accept they are already playing an editorial role and so must consider how they do this well.

2.2. Consideration should also be given by this Committee to the fact that the extent of targeted political advertising through online and social media, is at present, hidden, and how this can be made transparent and published. Placing paid-for political adverts and campaign videos on social media is not regulated by the broadcast regulator Ofcom, or by the Advertising Standards Agency [6]; however, at the very least, the placement of such ads should be made transparent. If fact-checkers cannot see the ads being placed, they cannot respond to them.

2.3. It is possible, and we think desirable, to develop automated fact-checking tools that trawl websites and flag-up claims for which fact-checks are available. These efforts have attracted some welcome funding, recognition and support, and so it will be increasingly viable to deploy, test and improve these tools. As we add at 2.7 below, more sustained funding will be needed from philanthropists and grant-making foundations to support comprehensive fact-checks.

2.4. Without wider engagement to promote factual content and campaigning, including from social media platforms themselves, it is complicated for fact-checkers (automated or otherwise) to 'root out' fake news. The interaction of fact-checks with social media can also have contradictory results. For example, MIT's media lab has published an experiment which looked at what happened when Reddit users were encouraged to check news stories before they shared them. The researcher's preliminary findings include that although fact-checking can reduce the spread of unreliable news, 'it can also do the opposite' [7]. This contradictory result was partly because fact-checking increased people's level of attention to certain articles, and Reddit's algorithms responded to this, automatically boosting the most-read stories. We are pleased that some collaborations between online platforms and fact-checkers are already taking place, but alongside this, platforms will need to consider the effects of their own programming.

2.5. In addition to promoting fact-checks, a further important action that needs to be enabled is addressing the problem at source, by contacting the editor of a news source and pushing for corrections to the text or its headline. For inaccurate stories on mainstream media outlets, there is more that can be done to push for corrections and raise their profile. But as acknowledged by this Committee, the sources of fully fake stories published on 'fly by night' publications can't always be identified. Fake propagators of news, for example Twitter bots and automatically constructed websites, can also give a 'fake' story undue prominence. Social media and search engine companies have a responsibility to work on identifying egregious fake sources and propagators, in the same way that they work to address the burden of spam emails for example.

2.6. We note that Germany is currently looking into developing legislation to impose fines on social media for distributing fake news. We would be wary of this model on the basis that defining 'fake news' in legislation would be difficult. But this Committee should keep an eye on the German model and seek to learn lessons from it.

2.7. A major problem for independent fact-checkers is limited funding. They face a free rider problem: most people want better quality information, but they do not wish to pay for it. Therefore we encourage independent philanthropists and grant-making foundations to prioritise funding this agenda. We recommend that the Association for Charitable Foundations convenes its members (the major UK grant making foundations) to explore how they can support fact-checking.

Q2 references

[6] Advertising Standards Authority / Committees of Advertising Practice (2016) 'Political advertising and the CAP Code' [online], 30 June 2016. Available at: https://www.asa.org.uk/news/political-advertising-and-the-cap-code.html

[7] Mathias, N.J. (2017) 'Persuading algorithms with an AI nudge: Fact-Checking Can Reduce the Spread of Unreliable News. It Can Also Do the Opposite'. *MIT Media Lab*, 1 February 2017. Available at: https://medium.com/mit-media-lab/persuading-algorithms-with-an-ai-nudge-25c92293df1d#.4rfxr9ytq

Q3. How can we educate people in how to assess and use different sources of news?

3.1. Evidence suggests that when isolated fact-checks are the only intervention, public misperceptions may remain unchanged. To change public perceptions of migrants and migration for example, seeing several relevant statistics on the consequences of migration is more influential than presenting an isolated fact such as the share of migrants in the overall population.

3.2. Within professions, we need to promote basic training for those for whom handling data is not their primary role, but understanding it is still pivotal. Journalists are a clear example of this, and major news organisations need to support staff development and include editorial support for data and fact-checking in their staffing, as is happening at the BBC for example. For the individual journalists involved, problems in how evidence is presented are quite often present before a story reaches them. A study in the *British Medical Journal* found that around 40% of press releases about health stories contained exaggerations, and that these were directly transmitted into media coverage. For less biased coverage, journalists need to be able to quickly assess press releases' claims. They also need to know where to look for expertise: there are many sources of statistical guidance in the UK, including RSS's 'statistical ambassadors' scheme by which we have trained statisticians and data analysts to provide advice or other input to the media on statistical facts and figures. To reward and develop good practice, we run an annual RSS Award for Statistical Excellence in Journalism, and with government support we developed open online training in the basics of statistics for journalists. We encourage journalism schools to embed basic statistics into their curricula and for all new journalists to take our simple online course. To close the loop, however, the importance of all of these sources, and of using and improving statistical training in-house, needs to be recognised by more news organisations.

3.3. In the aftermath of the EU referendum campaigns in the UK, a widespread complaint was that the factual information available to the public was fractured and uncoordinated. To address issues like this for the future, far closer coordination will be needed by the UK Statistics Authority and the Office for National Statistics to anticipate the information that the public will want in the run up to an event (e.g. an election or referendum) in advance of the heat of political campaigns. They will need to ensure that the data are available, and can be put together in a coherent way so that basic facts are clear.

3.4. Although there are things that can be done to reduce the incidence of untrustworthy information in the news, ultimately it also rests on the public to be critical consumers of news. Critical thinking in relation to the news should be developed in all young people, including critical assessment of statistical and quantitative statements in the media. As set out in our *Data manifesto*, the RSS is in favour of increasing participation in the mathematics and statistics education that is appropriate to people's present and future choices. This can be delivered through statistics and mathematics qualifications, in which the UK has a low rate of participation post-16 compared to other countries, and in subjects where data and quantitative skills can and should be developed (such as citizenship, geography, history, and the other scientific, creative and technical subjects that students choose). Teachers need support to ensure they are confident and competent to discuss the role of evidence in the context of 'fake news', and to pick up problems with numeracy and statistical literacy across all subjects. The RSS works with a range of subject associations to develop resources for 'global learning' in schools, and we believe that a similar

funded collaboration to support the teaching of critical thinking in relation to the news could be a suitable approach.

Q3 references

[8] Grigorieff, A. Roth, C. & Ubfal, D. (2016) *Does Information Change Attitudes Towards Immigrants? Representative Evidence from Survey Experiments* [PDF], IZA Discussion Paper no. 10419. Available from: http://ftp.iza.org/dp10419.pdf

[9] Sumner, P. *et al.* (2014) 'The association between exaggeration in health related science news and academic press releases: retrospective observational study', *BMJ* 349: g7015. Available at: https://doi.org/10.1136/bmj.g7015

[10] RSS (2016) *Written evidence from the Royal Statistical Society to Public Administration and Constitutional Affairs Committee: Lessons Learned from the EU Referendum inquiry* [PDF]. Available from: http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/public-administration-and-constitutional-affairs-committee/lessons-learned-from-the-eu-referendum/written/37210.pdf

[11] RSS (n.d.) 'Global learning programme for schools' [online]. Available at: http://www.rss.org.uk/RSS/Influencing_Change/Education/Supporting_teaching/Global_Learning_programme/RSS/Influencing_Change/Education_sub/Teaching_resources_sub/Global_learning_programme.aspx

Q4. Are there differences between the UK and other countries in the degree to which people accept 'fake news', given our tradition of public service broadcasting and newspaper readership?

4.1. It does seem to us that having a strong and trusted public service broadcaster is helpful in setting the bar in terms of news quality, and also ensuring there is some shared national conversation. We contributed to the BBC's Trust's Impartiality Review on the corporation's reporting of statistics[12], and to the BBC's subsequent development of its editorial policy. We think that the BBC's forthcoming *Editorial Policy Guidance notes on Reporting Statistics* could serve as a good practice guide for all UK media. We are also pleased that after the Impartiality Review (chaired by Dame Jil Matheson), the BBC has hired a head of Data Journalism, is investing in its own fact checking service Reality Check, and is in the process of hiring a Head of Statistics.

4.2. For UK audiences and readers, investigations suggest that skewed or misread statistics are much more prevalent than completely fabricated figures. Analysts at *BuzzFeed News*, for example, have looked into the hundred most shared news stories on social media for a variety of topics relating to British politics over the last 12 months, and found that 'certain patterns emerge across every major UK political topic: The more slanted the headline, the more the story was shared online. But completely fake material tended to flounder' [13]. They conclude from this that 'any regulatory attempt to crack down on "fake news' would in reality require making editorial judgments against substantial British media outlets rather than simply shutting down opportunistic fly-by-night fake news sites.'

Q4 references

[12] *BBC Trust Impartiality Review: Making Sense of Statistics* [PDF], August 2016. Available from: http://downloads.bbc.co.uk/bbctrust/assets/files/pdf/our_work/stats_impartiality/report.pdf

[13] Waterson, J. (2017) 'Britain Has No Fake News Industry Because Our Partisan Newspapers Already Do That Job', *BuzzFeed News*, 24 January 2017 https://www.buzzfeed.com/jimwaterson/fake-news-sites-cant-compete-with-britains-partisan-newspape?utm_term=.ysgRdzkVA#.jt69rKmNv

Q5. How have other governments responded to fake news?

5.1. We recommend the LSE Media Policy Project's commentary [14], which provides insight into other countries' approaches to fake news.

Q5 reference

[14] Goodman, E. 'How has media policy responded to fake news?', *LSE Media Policy Project Blog*, 7 February 2017. Available at: http://blogs.lse.ac.uk/mediapolicyproject/2017/02/07/how-has-media-policy-responded-to-fake-news/

Q6. Anything else?

6.1. We note that there have been accusations that some fake news has been propagated by other states as part of a so called 'information war'. The tools that we have suggested above are probably not robust enough to tackle such a problem, and we would suggest that it is for GCHQ to play a leading role in considering how this should be tackled.

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