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TO SCIENCE AND TECHNOLOGY COMMITTEE (COMMONS)  
FOR THE SOCIAL MEDIA AND REAL TIME ANALYTICS INQUIRY**

**EXECUTIVE SUMMARY**

- This submission addresses the representational and ethical limitations of using social media data to establish facts
- Social media data is not directly representative of facts offline because it is subject to a variety of distortions, including those arising from:
  - The commercial nature of social media platforms
  - The fragmented nature of social media data and the difficulty in definitively establishing the source, place, and time of production as a result of the lack of cues and context for the reader
  - The emergence of social media platforms as important sites where social and political conflicts play out
- In order to use social media data to establish a fact, it must undergo a verification process
  - This verification process requires time, triangulation (cross-referencing using a variety of sources and methods) and human expertise
  - Verification is thus incompatible with real-time analytics of social media data
- Furthermore, because verifying social media data may involve identifying its source, this approach raises ethical concerns related to accessing data, informed consent, and anonymization
- Social media may be used to create an ‘awareness system’ ([Hermida, 2009](#)), which could indicate areas of interest for directing further research and investigations. However, such an approach must, we believe, minimize the collection of personal data and requires the triangulation of research methods and sources before any actionable claims are made as to the representativeness of social media data
- We arrive at these recommendations based on our experience conducting research on social media use in times of conflict

**INTRODUCTION**

1. We submitting this evidence in a personal capacity, based on our research into the use of social media. Dr McPherson’s research is on the use of social media in human rights reporting, and Dr Alexander’s research investigates the use of social media by political activists and labour movement organizers in the Arab world. As such, our expertise relates

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particularly to social media data generated during times of crisis and conflict when the pressure to establish facts is high, as is the likelihood of inadvertent or deliberate distortions. This is the type of data we address in this evidence. We believe that the points raised in our evidence are of direct relevance to crisis situations in the UK – for example, during widespread social unrest, such as the 2011 riots, or major terrorist incidents, such as the 7/7 bombings. We have no conflict of interest in submitting this evidence.

#### **THE COMMERCIAL NATURE OF SOCIAL MEDIA PLATFORMS**

2. Social media platforms such as Twitter, Facebook, Instagram, and Flickr provide services to users in exchange for access to data generated through their interactions with each other and the platform. Selling access to these users and their data for the purposes of targeted advertising and informing marketing strategies forms the core of these companies' business model. Personal data (such as location, age, gender, sexuality, health, family and marital status) forms a particularly important subset of the data generated by social media users, as this data has previously been costly and time-consuming for companies to obtain. A key aspect of many major social media platforms is the underlying tension between their presentation to users as intimate or private spaces (populated by their friends, family or professional networks) and the fact that these are actually public communication systems.
3. As such, the content of social media data is shaped by commercial interests, which create personalized online content for individual users according to their assumed gender, social status, nationality and personal tastes based on their social media profiles and online behaviour ([ITU, 2010](#)). The commercial design of social media platforms also has ethical implications, which we return to below.

#### **SOCIAL MEDIA'S REDUCTION OF CUES AND CONTEXT**

4. Compared to other methods for researching social processes, such as interviews and surveys, social media data are relatively devoid of context and cues. This is especially the case because social media is fragmentary, allowing the disembodiment of the message from its source, time, and place of production. The omission of this metadata provides an opportunity for its falsification; both omission and falsification potentially complicate the verification of social media data, which we explain below.

#### **SOCIAL MEDIA'S EMBEDDEDNESS IN POLITICS AND POWER RELATIONS**

5. One reason for the distortion between social media data and offline events is the correlation between individuals' social media use and their access to resources. Despite the pervasive use of social media in some contexts, social media data cannot be taken as representative of any particular population. For example, [OFCOM's 2013](#) survey of adults' media use in the UK found that significant groups remain who do not use social media or go online at all, even if the gaps between users and non-users are narrowing. Furthermore, patterns of social media use differ according to

age, gender and social class, with the young and affluent most likely to be social media users.

6. Another source of distortion is the influence of broader social processes on the production of social media data, particular at times of acute political or social conflict. State institutions, media organisations, companies, NGOs, activist groups, and political parties are all present as collective entities on social media platforms. Their purposes can include influencing what other users do and say.
7. For example, Case Study 1 illustrates how social media data and user behaviour is affected by a range of factors, including changes in the wider political environment and deliberate intervention by state institutions through social media. These changes affected the number of users, the intensity with which they engaged with the platform and the ways in which they expressed themselves.

### **Case Study 1: Facebook use in Egypt and Bahrain since 2011**

In Egypt overall usage of Facebook increased significantly in the wake of the uprising against Mubarak, with [2 million new user accounts](#) opened between February and mid-April 2011. In the first months of the revolution, with the old security services on the defensive, Facebook became an important platform for activists such as labour organizers and dissident army officers, who had previously not been visible users of social media.

The use of Facebook in Bahrain in support of the violent crackdown on protesters in March 2011 illustrates, however, the ease with which the platform could be used for counter-revolutionary ends. Bahraini doctors who treated injured protesters during the security forces' assault on demonstrators at Pearl Square found themselves named and pictured on Facebook pages inciting citizens to report them to the authorities, at a time when dozens of medical staff had been arrested, tortured and sentenced to long jail terms.

Similar pages appeared in Egypt as the conflict between the ruling Military Council and revolutionary activists deepened. In the run-up to expected protests on 11 February 2012, marking a year since the fall of Mubarak, a Facebook fan page in the name of the admin of the main Facebook page of the Supreme Council of the Armed Forces (SCAF) accused two academics at the American University in Cairo of being foreign agents and fomenting sedition. One of the academics was attacked by a mob in the street the following day and badly beaten before being arrested by military police.

SCAF's own fan page provides a good illustration of how social media data is affected by changes in the broader political environment. The page was created within the first few days of Mubarak's fall and quickly garnered over 1 million 'likes'. It functioned initially as a news agency, sharing only official statements. As public disillusion with SCAF's performance grew, the 'comment' function under each statement was used increasingly by Facebook users to vent their anger at the military, while supporters of SCAF countered

with positive messages. In some cases, thousands of comments alternating pro and anti-military slogans were observed.

#### **VERIFYING SOCIAL MEDIA DATA REQUIRES TIME, TRIANGULATION, AND HUMAN EXPERTISE**

8. Given the distortions outlined above, it is clear that using social media data to establish facts requires a verification process. Though technological advancements are being made towards the acceleration and automation of verification, at this stage, no real-time method exists ([Meier 2014](#)). According to preliminary findings from Dr McPherson's research on social media verification practices at human rights organizations, verification can be a lengthy and complicated process that centres on human expertise. It requires an expert researcher to triangulate the information's content and metadata, such as source, place, and time, with other sources of evidence (see Case Study 2). These can include eyewitnesses, experts who can interpret digital photo and video evidence (such as signs of torture in [this Amnesty International investigation](#)), and other digital information such as satellite images and weather records.
9. Technological innovations, such as the [Informacam](#) app, which embeds metadata securely into video files, can speed up verification of social media information, as can evolving practices such as [crowdsourcing verification](#) over social media or organising [verification corps](#). But these innovations still require human effort; it is unlikely that verification will ever be fully automated. Social media companies do build verification into their platforms, such as Twitter's blue checkmark badge on user profiles, which indicates that Twitter has verified that user's identity. But these verification shortcuts are themselves problematic. As Twitter's [FAQs](#) states, the company selects users for verification because they are 'highly sought users in music, acting, fashion, government, politics, religion, journalism, media, sports, business, and other key interest areas.' 'We don't accept verification requests from the general public,' the website goes on to state. As a result, relying on Twitter's blue verified badge as an indication of veracity in competing versions of an event would privilege the version of the already powerful, an ethically questionable outcome.
10. Wardle, in Silverman's (2014) recently published [Verification Handbook](#) for journalists, outlines similar best practices for journalists. She states that, given the facility with which fake content can be created on social media, ['journalists and humanitarian professionals should always start from a position that the content is incorrect.'](#) Human rights organizations and news outlets engage in these verification practices because of the importance of credibility to their reputations, and the importance of their reputations for their work; it is no different for the government. But this verification process is a bottleneck between the availability of social media information pertaining to an event and the usability of this social media information; it is thus incompatible with real-time analytics.

#### **Case Study 2: Verifying YouTube videos in the Syrian conflict**

The ongoing conflict in Syria has been called the [first 'YouTube War'](#) due to the volume of information about the conflict streaming off this social media platform. On the one hand, this conduit of information circumnavigating official institutions means, as Amnesty International USA Emergency Response Manager Christoph Koettl [points out](#), that 'more than ever... reporting on human rights abuses [is] beyond the control of governments.'

On the other hand, the disembodied nature of this information, facilitated by YouTube's ability to divorce content from its source and the time and place of its production, means that falsification is also more possible than ever. The falsification of videos about the conflict in Syria posted to YouTube is, indeed, a problem. The careful – and time intensive – work done to expose these false videos reminds us of the importance of human expertise (such as the expertise of journalists and human rights workers) and of methods and source triangulation in social media verification.

For example, Malachy Brown describes the process undertaken at [Storyful](#), a leading social media news organization, for establishing '[serious grounds for doubt about \[the\] authenticity](#)' of a video ostensibly showing members of the Syrian military burying a civilian alive. This included contacting the administrator of a Facebook page where the video was posted to ask where it originated, calling on Syrian sources to listen to and place the accents of the voices in the video, monitoring what fellow journalists are saying about the video on social media, and looking over an audio analysis of the video.

#### **ADDITIONAL ETHICAL CONCERNS IN USING SOCIAL MEDIA FOR RESEARCH**

11. In addition to limitations with respect to the representation of facts, social media has limitations with respect to its ethical use in research. Gaining access to social media data, obtaining informed consent, and anonymizing social media data are of particular concern.
12. **Access to social media data:** Social media data is a valuable commodity, and researchers will frequently need to negotiate with social media platforms in order to gain access. However, in such cases researchers cannot independently verify the data collection process, a factor which may significantly affect their conclusions ([Morstatter, Pfeffer, Liu, and Carley, 2013](#)). Researchers who 'scrape' published social media data as an alternative method to collect research data run the risk of violating social media platforms' terms of service and infringing users' privacy. In both cases, researchers may contravene users' expectations of how their data should be treated, which is why informed consent and anonymization are so important.
13. **Obtaining informed consent:** Whether or not producing information in an open social media platform such as Twitter consists of consent to this information being used by others for other purposes, such as research, continues to be debated. Signing social media platforms' terms and conditions does not necessarily correlate to informed consent, as research has shown that users sign these complicated documents without reading

them in order to open their accounts ([Beninger, Fry, Jago, Lepps, Nass, and Silvester, 2014](#)).

**14. Difficulty in anonymizing data:** This process requires extreme care and may not ever be devoid of risk for the subjects of the research. This is because the information must be future-proofed against digital innovations in data analysis; for example, the technology around automatic facial recognition, increasingly standard in software and social media platforms that manage images, is becoming ever more sophisticated ([Acquisti, Gross, Stutzman, 2011](#)). The burgeoning contribution of individuals to digital content and the permanence of digital traces make it possible to easily identify anonymized users through cross-referencing online information. Social media quotes can be attributed to users simply by Googling them ([Beninger, Fry, Jago, Lepps, Nass, and Silvester 2014](#)); anonymized social media networks can be identified using only publicly available information, as Zimmer ([2010](#)) demonstrated, while Narayanan's research shows that '[you only need 33 bits \(more precisely, 32.6 bits\) of information about a person to determine who they are.](#)'

#### **AN ALTERNATIVE APPROACH TO SOCIAL MEDIA RESEARCH: SOCIAL MEDIA DATA AS AN 'AWARENESS SYSTEM'**

15. Research on humanitarian organizations ([Tapia, Moore, and Johnson 2013](#)) and on news organisations ([Hermida 2010](#)) indicate that there is another way of thinking about social media information besides as facts to be verified. As Hermida ([2010: 301](#)) explains, 'In an awareness system, value is defined less by each individual fragment of information that may be insignificant on its own or of limited validity, but rather by the combined effect of the communication.' As such, the volume of user activity on social media should be the focus of analysis, with scale building around particular topics used as an indication that this topic is worth investigating further. For example, Dr McPherson's preliminary research has shown that advocacy organizations can look at volume in social media information as an indication of engagement in a cause, which can then usefully be harnessed for advocacy. Social media data about the cause itself, however, would only be used in advocacy following its verification. Correspondingly, analysts would be well advised to triangulate evidence of engagement drawn from social media with information from other sources, particularly as research investigating 'viral' advocacy campaigns has highlighted their unstable and transient nature ([Beckett, 2012](#)).

16. Using social media data as a way to become aware of public interest in a topic is thus a method of researching social media real-time. This approach avoids some of the ethical concerns outlined above because it does not – in the first instance – require verification and thus does not necessitate knowing the identity of the information's source.

#### **RECOMMENDATIONS**

**17. Triangulate with other methods and sources:** Using social media information as an 'awareness system' implies that researchers are acting on the results of their analysis in order to deploy other methods to explore

anomalies or test hypotheses. Social media information is not, in other words, a standalone source for analysis, but a jumping-off point for investigations using other sources and methods. These additional methods include the surveys and interviews referenced in the call for evidence, methods which outweigh social media analysis in their provision of cues and context helpful for verification.

**18. Avoid collection of personal data:** While analysing social media information for verification does require the analysis of its metadata such as source, time, and place of production, analysing social media information as an awareness system does not. Of course, individual pieces of metadata may be useful in order to identify sources to speak with as part of future research, but the wholesale collection of metadata is not necessary in order to gauge volume or patterns of user activity around topics. Research platforms (such as Horizon's [Dataware](#) project) are in development which allow participants in internet behaviour experiments to share the results of analysis of their personal data with researchers, rather than the data itself, which means that researchers never have access to the data they do not need. When personal data are collected for verification purposes, researchers should ensure that thorough anonymisation methods are employed and/or should seek informed consent.

**19. Set in place transparent and ethically-robust research processes:** In line with Beninger, Fry, Jago, Lepps, Nass, and Silvester ([2014](#)), we urge for transparency throughout the government's analysis of social media information, both with respect to its collection and with respect to its triangulation with other methods. This will build the public's confidence in the results of this research and with respect to privacy concerns related to social media use.