

WG1.A: Role of Social Media in Nonproliferation and Nuclear Security

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Social Media is a broad definition for a large range of web applications “that enable users to create and share content or to participate in social networking”¹. Social media applications can be categorized in various families, including but not limited to social networks, blogs, wikis, photo sharing, collaboration and social bookmarks sites². Possible applications to nuclear safeguards and arms control have been discussed at several occasions, including an INMM workshop in 2014.³

In order to assess the role of social media for verifying nuclear security and non-proliferation, the discussion can be structured along the different areas of *Societal Verification*, namely *Observing*, *Prompting* and *Mobilizing*⁴:

Observing

Observing refers to *data monitoring* and *mining* in social media platforms, mainly in social networks, (micro-) blogs, photo-sharing sites and forums.

Social *data monitoring* aims at finding single pieces of information of interest (posts, photos, tweets, etc.). Increasingly, governments, companies and NGOs have official social media channels where they disseminate information faster or different from their web sites. Furthermore, individual persons might post relevant information, which they obtain either by coincidence or by expert/insider knowledge. Therefore, social media monitoring should be an integral part of general open source and media monitoring. In practice, the main challenges are the low signal-to-noise ratio, the lack of suitable tools that allow an integrated, efficient collection and analysis of the information, and the potential for disinformation.⁵

Social *data mining* (or social data analytics) aims at detecting trends, networks, sentiments and events by statistically analyzing large datasets. It has been shown to be very powerful in areas such public security, public health, marketing and disaster response. However, the secretive nature of the subject limits the applicability of social data mining for nuclear security and non-proliferation to a few specific cases (e.g. analysis of professional networks in the context of illicit procurements).

Prompting Expert Communities

Online expert communities that are collaboratively collecting and analyzing information using social media tools can provide significant added value to monitoring and verification activities. Examples include the discussions on armscontrolwonk.com, where the posts of the blog authors often initiate the collaborative analysis by non-proliferation experts. Although the discussions are sometimes indirectly prompted by verification authorities (e.g.

¹ <http://www.oxforddictionaries.com/definition/english/social-media>

² <http://www.conversationprism.com>

³ Information Analysis Technologies, Techniques and Methods for Safeguards, Nonproliferation and Arms Control Verification Workshop Workshop Proceedings, May 12-14, 2014.

⁴ <http://www.nti.org/analysis/reports/innovating-verification-redefining-societal-verification/>

⁵ Michail Tsikerdekis, and Sherali Zeadally. “Online Deception in Social Media.” Library and Information Science Faculty Publications. University of Kentucky, September 2014.; “Open Source Indicators and Asymmetric Advantage in Security Planning.” *International Relations and Security Network*.

the discussion might analyze a document released by IAEA), the open communities are typically organized bottom-up and the issues discussed might or might not be relevant to a specific verification needs.⁶

In a more structured approach, the expert communities could be organized top-down, i.e. verification authorities might reach out to domain experts or communities for specific issues of concern. However, this would raise problems of information security and confidentiality. Therefore, the feasibility of a social-media-based expert community should to be discussed in the context of a specific scope and agreement.

Mobilizing the Public

Mobilizing, or crowd-sourcing, refers to engaging the general public for specific tasks. Social media tools, in particular collaboration platforms and mobile applications, play a fundamental role in crowd-sourcing projects. Many examples demonstrate the power of crowd-sourcing for different application areas⁷ including inter alia disaster relief⁸ and Search and Rescue (SAR) missions.⁹ However, in the area of non-proliferation and nuclear security several questions need to be answered: i) what could be the specific tasks that could be carried out by the crowd? Many of the activities to be verified are not observable from the open domain or require expert knowledge to be assessed; ii) what would be the incentives for the public to contribute? Although many volunteers are willing contribute, there are also an equally large number of projects that compete for the crowd. The importance of obtaining critical mass is, for example, illustrated in OpenNuclearIran¹⁰; iii) what are the legal and ethical implications? Is crowd-sourced verification compatible with the specific treaty or agreement and would a citizen break national law by reporting treaty violations?

Summary

The role of social media for monitoring nuclear security and non-proliferation agreements can be summarized along the different areas of societal verification:

- *Social data monitoring* provides added-value in many aspects and should be integral part of open source and media monitoring. More advanced and integrated tools are required for efficient data collection and analysis.
- *Social data mining* can have some specific applications, in particular network analysis, but will likely remain a niche area.
- *Open expert communities* play an important role in open source analysis. A top-down organization of expert communities might further improve the added value for specific verification tasks. However, this would raise confidentiality and information security issues that need to be addressed on a case-by-case basis.
- *Mobilization or crowd-sourcing* has a limited applicability to current treaties and agreements. However, it could be integrated in future agreements, for specific use cases where the crowd could contribute to the verification task.

In order to discuss the role of social media in more detail, it is necessary to put the discussion in the context of the specific agreement or treaty, as the usefulness and feasibility depend on the respective verification and monitoring task.

⁶ For example: mapping of Iranian tunnels on Google Earth (<http://tinyurl.com/ov9fya7>)

⁷ <https://wiki.ushahidi.com/display/WIKI/Types+of+Maps>

⁸ Independent Evaluation of the Ushahidi Haiti Project, <http://tinyurl.com/ndg4y8x>

⁹ http://archive.wired.com/software/webservices/news/2007/09/distributed_search

¹⁰ <https://opennucleariran.crowdmap.com/>