**Crowdsourcing Geospatial Data for Search and Rescue, Disasters,**

**Emergency Operations, and Social Objectives: *Tomnod.com***

1. Volunteers risk their lives to help in search and rescue, emergencies, and disasters.
   1. Brief but dramatic examples
   2. Tomnod.com presents an opportunity for the ordinary netizen to be a part of that activity by allowing them to search geospatial maps for objects and conditions of interest to clients seeking the information.
   3. The importance of the task and the lack of qualifications for the volunteers presents a tension between needing to achieve important goals without known, trained, and experienced users attending to the basic work.
2. Research approach
   1. Limited statistical information available on the public-facing side of the site other than numbers of participants.
      1. Users get information about the areas they have covered, objects detected, and coinciding with other users’ identifications, but aggregated information is limited
      2. Some information about decisions made is available on Facebook pages of clients and the company, but information about how the results of volunteer work is analyzed is minimal and inferential from second hand reports.
      3. Detailed analysis is behind the scenes and but might be inferred from general information about the resources
      4. Selection/rejection of projects is discretionary and methodology is not public
   2. Observe the campaigns and related Facebook and Twitter activity with a view to understanding the processes at work, the effects on the community (good and not).
   3. Participate in campaigns to see the inner workings of the controls’ limitations and advantages.
   4. Identify risks and rewards.
   5. Make comparisons with related websites and services and extend the findings to future contingencies.
   6. Possible research questions.
      1. How are the architectural, administrative and peer controls such as unregistered use, automated user feedback, and user encouragement employed to manage the users/crowds that process publicly available geospatial imagery?
      2. How are risks and liabilities such as failing to find lost mariners, or invasions of privacy from the imagery managed?
      3. What privacy concerns arise from using geospatial imagery and intelligence?
      4. What legal implications exist pertaining to surveillance in the US and globally?
      5. Does outsourcing social aspects of the site to Facebook and Twitter abdicate some responsibility for control of the community? Is the inevitable use of these media reason to leave the community to those sites?
      6. What antisocial uses might result from wide public review of geospatial imagery and publication of results?
3. Nature and implications of controls on the community
   1. Architecture, admin, and peer controls
      1. Not required to register or give personal information to participate – impact on users vs. risks of unknowns
      2. Implications of such off-site communications
         1. Clustering of search activity as false positives
         2. Revelation of areas of concern to affected populations (hunters, looters, salvagers)
         3. Loss of anonymity at odds with not requiring registration
      3. Using of gaming to encourage use
      4. Use of automatic messaging to encourage users to continue searching
   2. Privacy and Surveillance
      1. Sources and selection of imagery
      2. Considerations in and impact of selection and exclusion of campaigns and imagery
      3. Privacy concerns about things visible in the imagery
      4. Use of Facebook, Twitter for social participation
      5. Jurisdiction and other legal implications of global crowds
         1. The place where the website is hosted
            1. US laws related to geospatial imagery and intelligence
         2. Location of the servers, event, crowd participants, imagery
         3. Owner of the intelligence/knowledge gathered
         4. Control of the uses to which it may be put
      6. Expansion of campaigns and use of recognition tools to other less welcome fields
4. Preliminary Sources
   1. Cukier, Kenneth Neil and Mayer-Schoenberger, Viktor. “The Rise of Big Data: How It’s Changing the Way We Think About the World.*”* Foreign Affairs. May-Jun 2013. <<http://www.foreignaffairs.com/articles/139104/kenneth-neil-cukier-and-viktor-mayer-schoenberger/the-rise-of-big-data>>. Accessed 29 Mar 2015.
   2. Faris, Robert and O’Brien, David R. “Data and Privacy.” Internet Monitor. 2014
   3. “Geospatial Intelligence.”Wikipedia. (2105) n. pag. <<http://en.wikipedia.org/wiki/Geospatial_intelligence>>. Accessed 30 Mar 2015.
   4. Kawasaki, Akiyuki, Merrick Berman, and Wendy Guan. “The Growing Role of Web‐based Geospatial Technology in Disaster Response and Support.” Disasters 37.2 (2013): 201–221.
   5. Schneier, Bruce. “Why ‘Anonymous’ Data Isn’t.” (2007) n. pag. <<https://www.schneier.com/essays/archives/2007/12/why_anonymous_data_s.html>>.
   6. Solove, DJ. “Understanding Privacy.” (2008) : n. pag. . <http://papers.ssrn.com/sol3/Papers.cfm?abstract\_id=1127888>.