

Panel 7

The Role of Social Media in Understanding and Managing Complex Catastrophic Events

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Panel concept

- This panel explored **existing use of new social media (Web 2.0)** in the wake of a catastrophe and
- discussed the potential benefits and shortcomings of relying on Web 2.0 for **high-value information**.
- considered **four dimensions** of social media use for **emergency management purposes**:
 - **Passive use by agencies** and research institutions, analyzing citizen communication that runs through them;
 - **Active use by citizens** to make meaning of events;
 - **Active use by agencies** to communicate warnings to citizens or link up first responders in the field;
 - Potential for **wrong use/misuse**.
- Derived **recommendations** for research and policy from the academic point of view.

Presentations (1/3)

- *Hayley Watson*, University of Kent:

“Social Media, Transport Chaos and a Volcanic Ash Cloud”

Building on media analyses in the European Union-funded Security Research project CPSI: “Changing Perceptions of Security and Interventions”,

<http://www.cpsi-fp7.eu>

Presentations (2/3)

- ***John Preston***, Cass School of Education, University of East London

“Multiple Attacks on Transport Infrastructure: an Interdisciplinary Exploration of Social Networking Technologies upon Real-Time Information Sharing, Response, and Recovery”

Project funded by the (UK) Engineering and Physical Sciences Research Council (EPSRC)

Presentations (3/3)

- ***Eduard Hovy***, University of Southern California, Command, Control, and Interoperability Center for Advanced Data Analysis (CCICADA), a DHS Center of Excellence

“Continuous Geospatial Monitoring of Catastrophic Natural Disasters Using Twitter”

Key contents of the presentations

Hayley Watson
University of Kent

- Following the rise of numbers of people using the Internet, much illustrative evidence of citizen journalism and individuals use of social media during emergencies has become available.
- Social media engaged the public in difficult times and enhance communication.
- Citizen journalism poses the problem of inaccurate information and spread of rumors.

John Preston
Cass School of Education,
University of East London

- Sensitivity to space / time in intervention in social networking.
- Inter-disciplinary and not technology led approach.
- Mathematical modelling of scenarios / intervention strategies.
- Transmedia is underexplored (social networking interacts with old media).

Eduard Hovy
University of Southern
California, CCICADA

- When using social media, people in catastrophe zones are like a 'sensor network'.
- Can we monitor the Twitter stream to detect events, to provide info useful for first response management?
- Have built software for geospatial monitoring and display, to detect crises on campuses and human trafficking.

Main points (1/4)

- **Passive use by agencies and research institutions, analyzing citizen communication:**
- Build a daily broadsheet that lists all recent activity from various sources, based on a filtering tool that uses topic signatures derived from statistical analyses.
- Gain empirical insight into people's self-organizing in the face of anomalies.
- Combine results of technology-supported media monitoring with case studies and mathematical modelling in order to develop scenarios:
How will people use the media in certain classes of catastrophic events?

Main points (2/4)

- **Active use by citizens to make meaning of events:**
- Recent analyses indicate that C2C Web 2.0 communication about a catastrophic events over time shifts in focus from *information-seeking and sharing* to *emotion* (assessment of personal consequences), and then to the projection of *opinion*.
- The evacuation paradigm is also shifting: new differentiated approach of citizens considering information from various technology-based, virtual and real-life networks.

Main points (3/4)

- **Active use by agencies (to communicate warnings etc.):**
- Authorities should not only monitor Web 2.0 C2C communication but involve themselves, disseminating and correcting information on the basis of credibility.
- To do so, authorities will need to build on their involvement in citizen communication during the pre-emergency stage (e.g. informing and educating the public about risk) on various channels.
- Regional and cultural contexts of Web 2.0 user cultures need to be appreciated and further studied.
- Moreover, a broad network approach with a transmedia focus is needed.

Main points (4/4)

- **Potential for wrong use/misuse:**
- New social media are no sanctuaries but may also be hit by catastrophic events and bounces-back in systems of informational exchange.
- Risk of spreading panic due to false/inaccurate information.
- However, Web 2.0 communication about catastrophic events so far has appeared to be self-correcting to a large extent.

Selected Q&As

- How to bring together projects from different disciplines, maximizing effects and minimizing duplication?
- Upcoming European Union 7th Framework Programme Call on the Security theme.
- Need for building public systems for valuable information.
- Rumor control.
- Advice for policy on how to actively use social media in different contexts and scenarios.
- Web 2.0 broadcasting guidelines for authorities, including proper identification and addressing of legal requirements for data protection and privacy.

Policy recommendations

- Official responders to disasters need to enhance their communication abilities so as to **engage** with social media and the public in a disaster situation.
- Establish sustainable **communal dialogues** in support of a disaster risk reduction culture in **everyday life**, rather than exclusively focusing on ongoing emergencies.
- Follow a **broad network, trans-media** approach.
- Identify, share and figure linking-up **different policy initiatives and projects**.

John Preston

- The importance of pace and location in time concerning social networks
- “Simple attacks”: 7/7 attacks – failure of several mobile phone networks, leading to auto-poetic responses, disorganization of the police, BBC, Bank of England, bounce-back in systems of informational exchange,
- The authorities are just one voice in the huge information market place
- The State of the Art of View – used i.e. in discourse analysis, picking-up signals of how people are reacting
- Game theory and adaptive networks for smart evacuations – shift in time
- Changing dynamics of evacuations
- Should I share the detailed (evacuation) information
- Baseline model – humanity social sciences and based information in order to figure out what is important
- Model construction – is it better to inform people first in case of a catastrophe?

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- Sensitivity to regional conditions – the importance of the NSNT
- Differences in social media/ citizen orientation – lack of coordination, social media is not really there, the best practice in Birmingham
- Regional differences are visible there
- Social networks over time and how it is changing social awareness
- The importance of annotating the dataset (conversation type):
1. perception, 2. comprehension, 3. projection
- Open, Directed, retweeted
- Situational awareness: perception (simple gaining + sharing of information), comprehension (positive/negative sentiment of an event; i.e. “call me”), projection (reflecting of what is going to happen next)
- Info-seeking and info-sharing kind of behavior, then emotional-seeking, and then projecting opinion

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- Information sharing and seeking – „self correcting“ (I about number of casualties and the detail fo the accident varies...)
- 4. Stage – opinion/insight/suggestions – movement to bloggs / TRANSMEDIA: moving from medium to medium...
- Transmedia storytelling in a crisis? SM moves to broad custom media – i
- High potential

CONCLUSION

- Sensitivity to space / time in intervention in social networking – Being sensitive is important
- Inter-disciplinary and not technology led approach – not inventing new technology
- Mathematical modelling of scenarios – how will people use the media
- Transmedia is underexplored – social media interacts with old media

Edward Hovy

- „We like data... there is no data like more data“ 😊
- What do you need to get the right information?
- Self-considering the dynamic network – people are everywhere and observe their environment
- Tracking the information flow – i.e. situation monitoring and response planning
- Using Twitter information – how can you find out the information of a particular event / or the signal?
- Burst of words – approach: analyzing Twitter stream, finding a way of characterizing bursts of words
- Counting the most popular words (about 3 Mio words in GB)

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- Using technics – what is the best signature for every topic event?
- Replying technics – this is the right shape / word distribution (i.E. VIPs, flood, tornado, shooting ...)
- Mathematics – measuring the ‘burstiness’, how do often do words occur?
- Event evolution – topic change, shape of different topics
- What can we do with all the information? – you can learn ist topic signature (pulling usage, pushing usage), „being able to notice warning signals in right time“
- Exploration (you can go and search for what other events reliably occur together with it)
- Other Sources (you can apply the techniques to websites, i.e. FB)

CONCLUSION

- Building a 'daily broadsheet' that lists all recent activity from various sources
- Figuring out all the different levels
- Looking for people's self-organizing in the face of anomalies (how can we know our signature?)
- Strategic behavior of the information flow

DISCUSSION

- Burstiness: We do include retreats, the importance of size of the event;
- Building gain theoretical models; building crisis camps
- Preliminary announcement (Astrid): „Problems concerning security in EU and USA are the same one“ (Astrid), providing founding announcements on Facebook
- Appreciation of the continuing the new technologies, thinking about research that is replicable, building public systems for valuable information
- Problem of SM: people can read them, and therefore spread lightly panic
- The rules of social media have just to be figured out
- The importance of the correct ‘broadcasting’: authorities have to learn to have the right influence

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- Growing value of social media – communications are huge challenges, and rumor control as well
- Information forms – ultimately first responders should have the right forms in order to react properly in crisis management
- Comment by John Williams: Avoiding the duplication of services and products, the importance of collaboration in future
- The correct integration of information
- What are the strengths weaknesses of a danger situation concerning privacy rules of use
- Such systems are self-correcting, more robustness
- Network community and resilience?
- The generation discrepancy of using social media