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Social Media and Emergency Management

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Module 1

Social Media Background

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A few points to consider...

- The internet is on the verge of being ubiquitous.
  - 85% of American adults use the internet daily.
  - 93% of American teens use the internet daily.
- "Mobile web" will become the norm in the near future (**some will argue that time is now**).
  - 56% of American adults own a smartphone, with higher income adults and those under 35 leading the way.
  - 47% of American teens own a smartphone.
  - One third of American adults own a tablet computer. 23% of teens own one.
  - Outside the U.S., mobile web and SMS play a larger proportional role in communications infrastructure.
- "Web 2.0" has been beaten to death for a decade... it's just the web, now. ***User created content is the new normal.***

What is Social Media?

- Social Media is a set of technologies, concepts, and methods that allow for the creation of massive community based collaboration.
- The core principals of social media are:
  - Participation
  - Community
  - Transparency
  - Asynchronous
  - Persistence

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Social Networks as Information Channels

- Social Network Sites can serve as the 'C' in the classic **SMCR Model**:

Source → Message → Channel → Recipient

- This has led to social networks being leveraged as methods of communication and advertisement by organizations as well as tools for individuals to define social interaction.
  - In this context, social network relationships are one-way. (organization to individual).

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Sample Social Network Platforms

- **Facebook**
  - Over 1.1 Billion users… 665 Million of which are **active** each day.
  - 70% of users are outside the U.S.
- **Twitter**
  - Over 290 million **active** users creating 400 million tweets per day.
  - Mobile friendly, even without a 'smartphone'.
- **Instagram**
  - 90 million users. Does not release active user stats.

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Growth and Future

- Demographics matter!
- In general… social media usage is more prevalent in younger people.
- However, the **brand** of social media changes constantly, and usage patterns are not steady across age groups.
- Usage is likely to become more prevalent in older people.
- Some recent examples show teenagers are leaving ‘social media’ for simple chat applications.

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Current Demographic Sample

	All internet users (n=1,895)	**72%**
a	**Men** (n=874)	70
b	**Women** (n=1,021)	74
	Race/ethnicity	
a	**White, Non-Hispanic** (n=1,331)	70
b	**Black, Non-Hispanic** (n=207)	75
c	**Hispanic** (n=196)	80[a]
	Age	

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Current Demographic Sample

	[illegible]	
c	**Hispanic** (n=196)	80[a]
	Age	
a	**18-29** (n=395)	89[bcd]
b	**30-49** (n=542)	78[cd]
c	**50-64** (n=553)	60[d]
d	**65+** (n=356)	43
	Education level	
a	**No high school diploma** (n=99)	67

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Current Demographic Sample

d	65+ (n=356)	43
	Education level	
a	No high school diploma (n=99)	67
b	High school grad (n=473)	72
c	Some College (n=517)	73
d	College + (n=790)	72
	Annual household income	
a	Less than $30,000/yr (n=417)	75

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Current Demographic Sample

	Annual household income	
a	Less than $30,000/yr (n=417)	75
b	$30,000-$49,999 (n=320)	72
c	$50,000-$74,999 (n=279)	74
d	$75,000+ (n=559)	71
	Urbanity	
a	Urban (n=649)	74
b	Suburban (n=893)	71
c	Rural (n=351)	69

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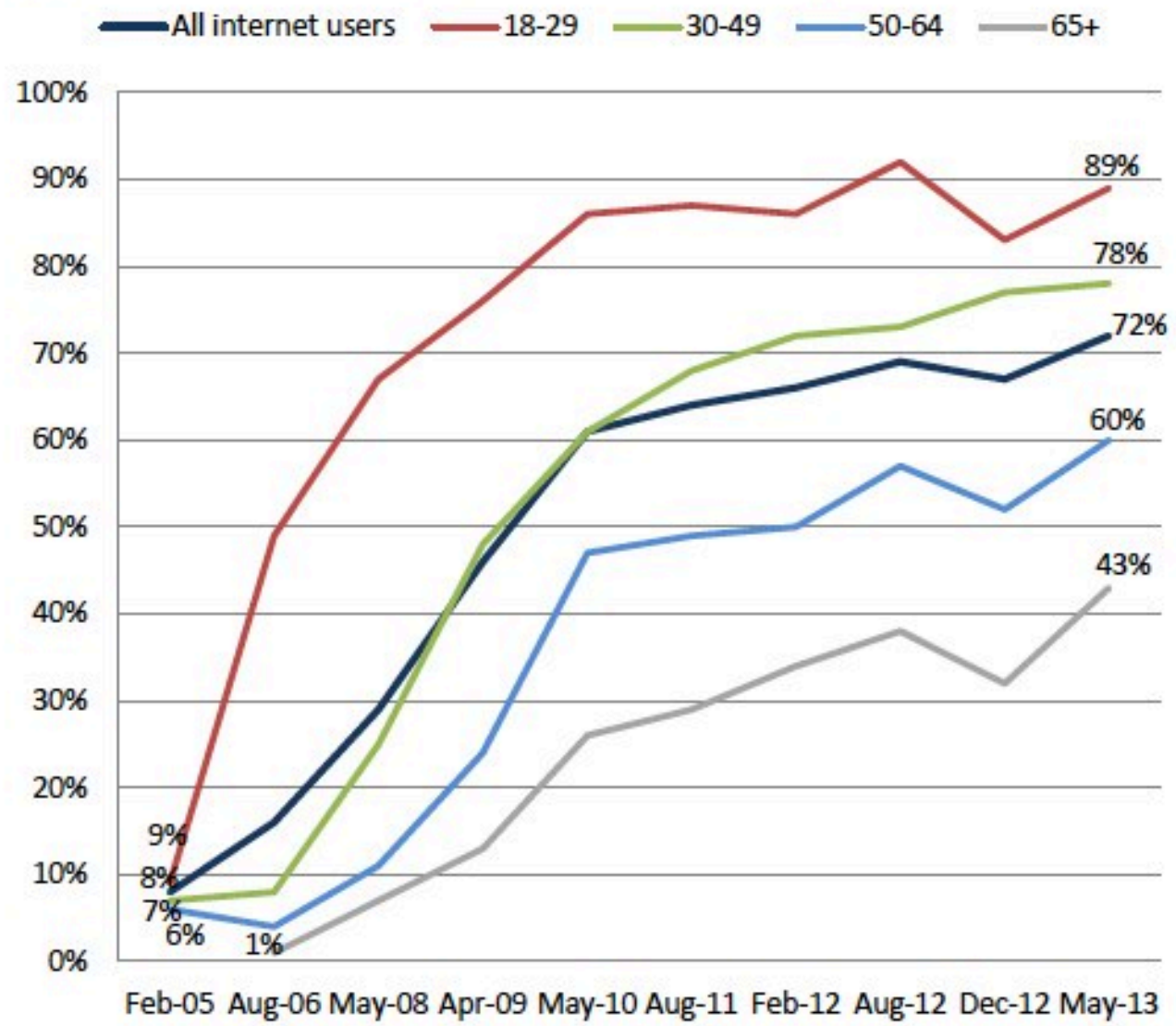
Why Do We Care?

- As with all communications channels, we have to be aware of the audience we are reaching (and hearing) through social media.

Social networking site use by age group, 2005-2012

% of internet users in each age group who use social networking sites



Source: Pew Research Center's Internet & American Life Project tracking surveys 2005-2013. Spring Tracking Survey, April 17 – May 19, 2013. N=1,895 adult internet users ages 18+. Interviews were conducted in English and Spanish and on landline and cell phones. The margin of error for results based on all internet users is +/- 2.5 percentage points.

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Social Media in EM

Advantages

- Familiarity
- Massive user base
- Viral spread of information
- Easy to use/integrate
- Inexpensive to implement
- Mobile web friendly
- Intelligence Gathering
- Measure Public Sentiment
- Ongoing Contact can improve preparedness prior to a crisis

Disadvantages

- Volume and/or specificity of data
  - How does the user sort what is important/relevant from what isn't?
- Privacy and/or security
- Limited reliability
- Limited authority
- Distrusted by some information technology departments
- Messages can be manipulated upon release
- Possibility of incomplete information (140 Characters)

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Effective SNS/Social Media Usage

- EM must **utilize social media as part of a comprehensive communication strategy**.
  - EM must utilize social media channels and methods prior to a crisis.
  - Information should be appropriate to the channel.
  - Information should not be simply duplicated across all channels – messages should be managed and appropriate.
- EM must **recognize the collaborative, community aspects of SNS and social media**.
  - These features are useless if the EM community or organization isn't listening to users comments and feedback.
    - Passive listening – occurs during 'peacetime'. Can be used to enhance outreach and risk communication.
    - Active listening – occurs during crisis. Active monitoring of social media channels for incoming information.

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Usage of Social Media in a Crisis

- When asked, "In an area-wide emergency, how likely would you be to use social media channels to connect with friends and family and let them know you are safe?"
  - Definitely would..... 28%
  - Probably would..... 21%
  - Might or might not..... 22%
  - Probably would not..... 13%
  - Definitely would not..... 16%

71% of respondents indicated they may use social media in family reunification.

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Usage of Social Media in a Crisis

- **69%** believe that emergency response agencies should regularly monitor websites and social media sites so they can respond promptly

- Would people request help using social media in an emergency? How?
  - 52% send a text message to response agency
  - 44% ask others to help you reach a response agency through social network
  - 35% post request for help on Facebook
  - 28% send a direct tweet to a response agency

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Social Media as a Force Multiplier

- Social media, when used in an **Integrated** way…..
  - Enhances coordination and cooperation among all the actors
  - Provides depth to the communications capabilities of the EOC
    - Example: Boulder Colorado Four Mile Fire
  - Enables citizens to participate in disaster management in their communities
    - Example: Queensland, Australia Floods in 2011
  - Acts as a 'force multiplier' for all of these actors – enables better, more efficient response, recovery, mitigation and preparedness
  - Can create ad-hoc response entities in places and locations where no "official" response is possible
    - Example: 2010 Haiti Earthquake

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Defining Situational Awareness

- **Situational awareness** is defined as:
  - Knowing and understanding what is happening around you
  - Understanding and predicting how what is happening will change over time
  - Understanding the dynamic nature of the environment
- Emergency and disaster managers must have excellent situational awareness as they make decisions in all phases of emergency management.
- Good decisions require **quality information** and **intelligence**.
  - This intelligence must be constantly updated.

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Data -> Information -> Intelligence

- **Data** is a single chunk or piece of information/knowledge.
  - **Data** lacks context and can be difficult to understand
- **Information** is data after it has been analyzed and refined.
  - **Information** provides insight and understanding.
- **Intelligence** is the final layer. Information that has been further refined, to include contextual information about the environment and situation.
- **Information and intelligence** drives situational awareness.

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Data Quality

Data quality is a combination of four dimensions:

Accuracy

- Measure of how well the data reflects the real world.

Timeliness

- Measurement of how current the data is. Particularly in disaster management, old data can be dangerous.

Completeness

- Reflection of how complete the data is. Are all pertinent data points included?

Consistency

- Measurement of how consistent the data is in describing real world conditions. Often a matter of semantics or vocabulary.

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Traditional SA Data Sources

Traditional data sources feeding situational awareness include:

- Reconnaissance and damage assessments
- Weather reports and forecasts
- Geographical information
- Population information
- Partner organization reports
- Private sector reports

- **Strengths in regards to data quality (perceived)**
  - Accuracy, Consistency

- **Weaknesses in regards to data quality (perceived)**
  - Timeliness, Completeness

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Community Volunteered Data

Community volunteered data (CVD) is obtained through a variety of open sources.

- Social media platforms (Twitter, Facebook, etc.)
- Media sharing platforms (Flickr, YouTube, Picasa, etc.)
- Media web sites (CNN, CNN iReport, Fox News, local media sites, etc.)

- CVD typically has a **high volume** in a disaster, but much of the information **is not applicable** for situational awareness.

- **Strengths in regards to data quality (perceived)**
  - Timeliness

- **Weaknesses in regards to data quality (perceived)**
  - Accuracy, Consistency, Completeness

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CVD -> Community Volunteered Information

- Traditional situational awareness data sources are purpose built – they are immediately applicable to disaster management.
- Community volunteered data (CVD) is a massive pool of data points, most of which has no bearing or applicability to disaster management.
- As such, CVD must be analyzed and processed into **Community Volunteered Information (CVI)**.
  - This task requires human intervention and analysis
  - While CVD contains too much 'noise' to be useful in situational awareness, **CVI is processed, filtered, and applicable to disaster management**.

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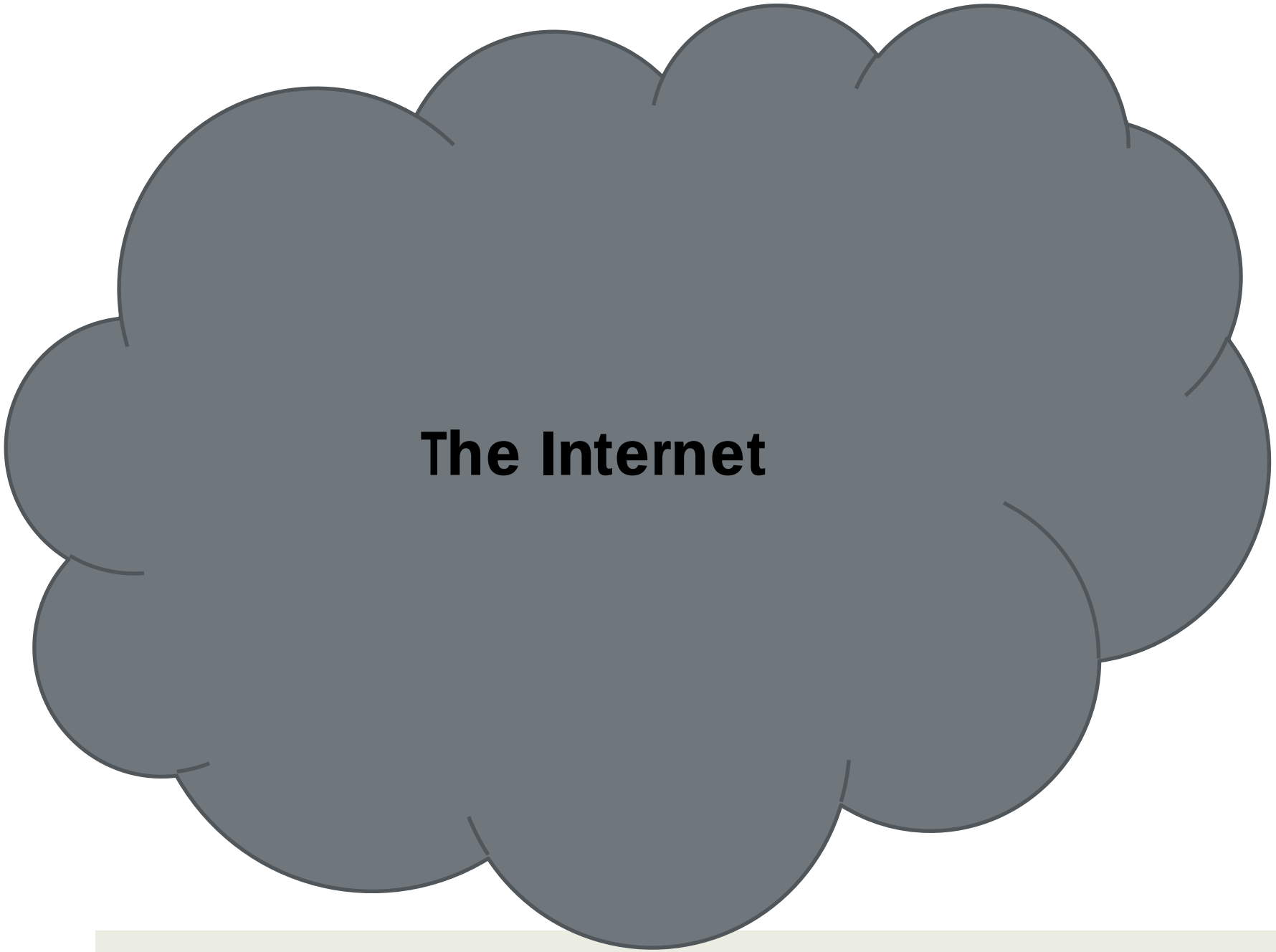
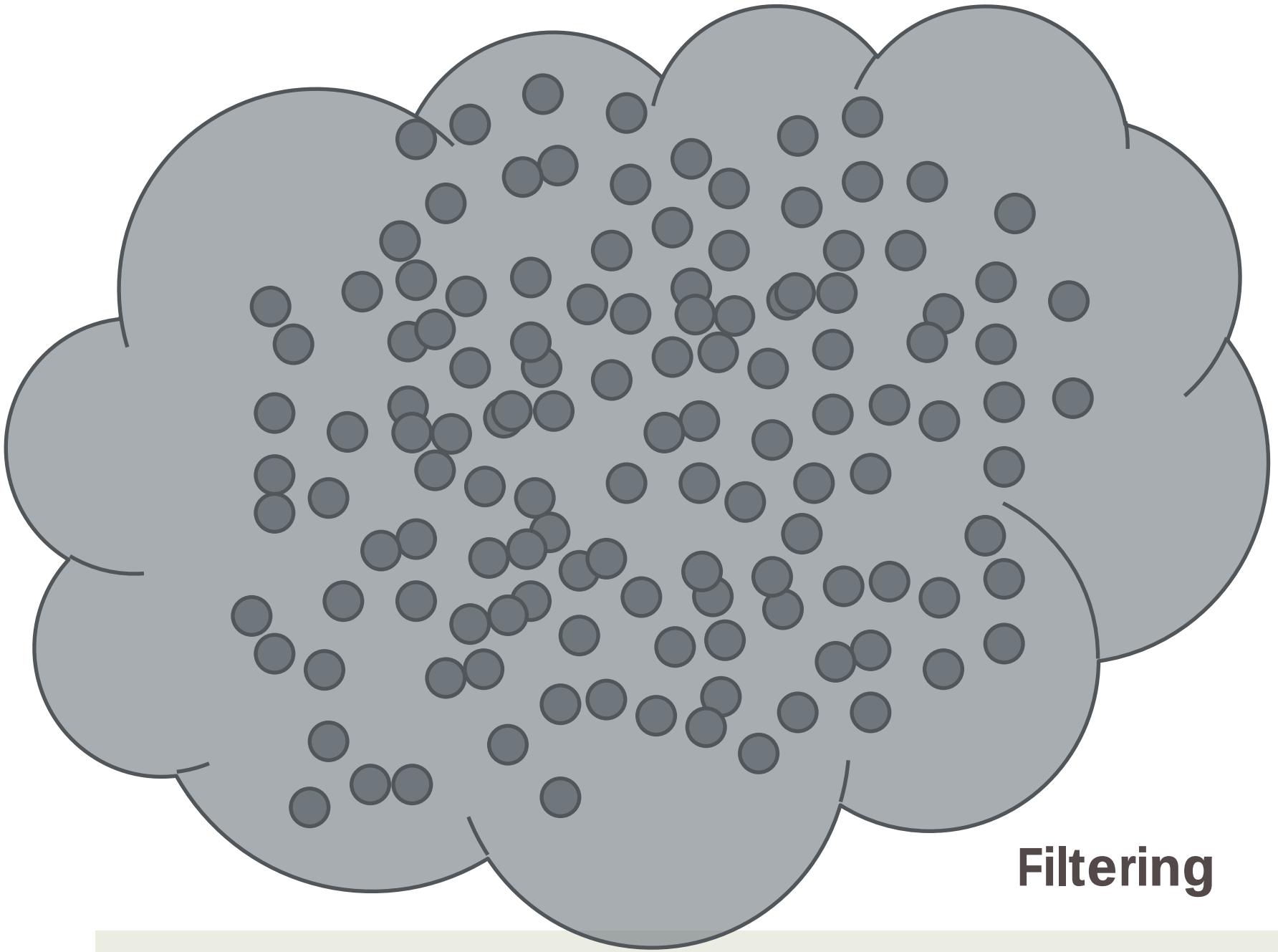
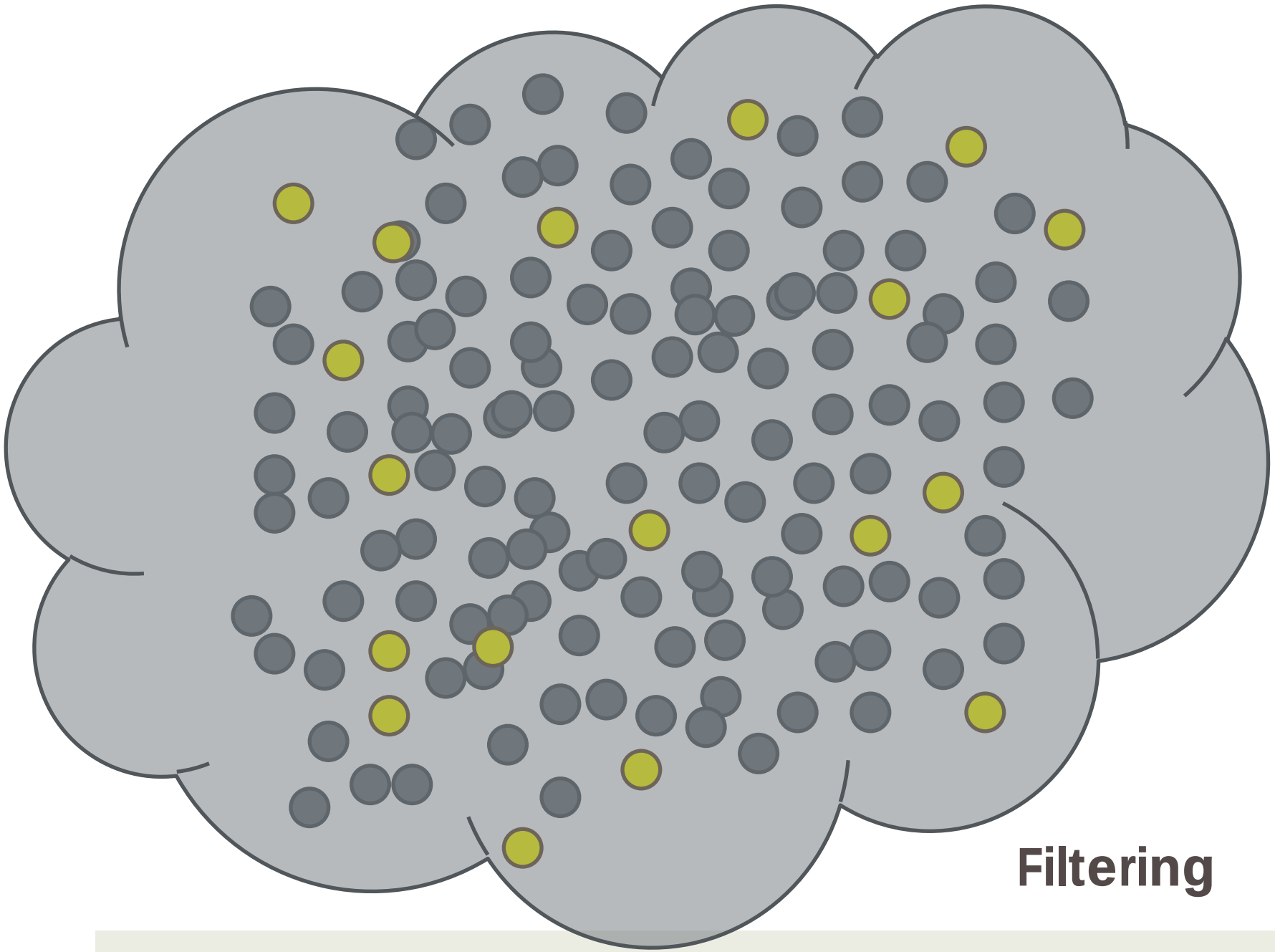
Community Volunteered Information

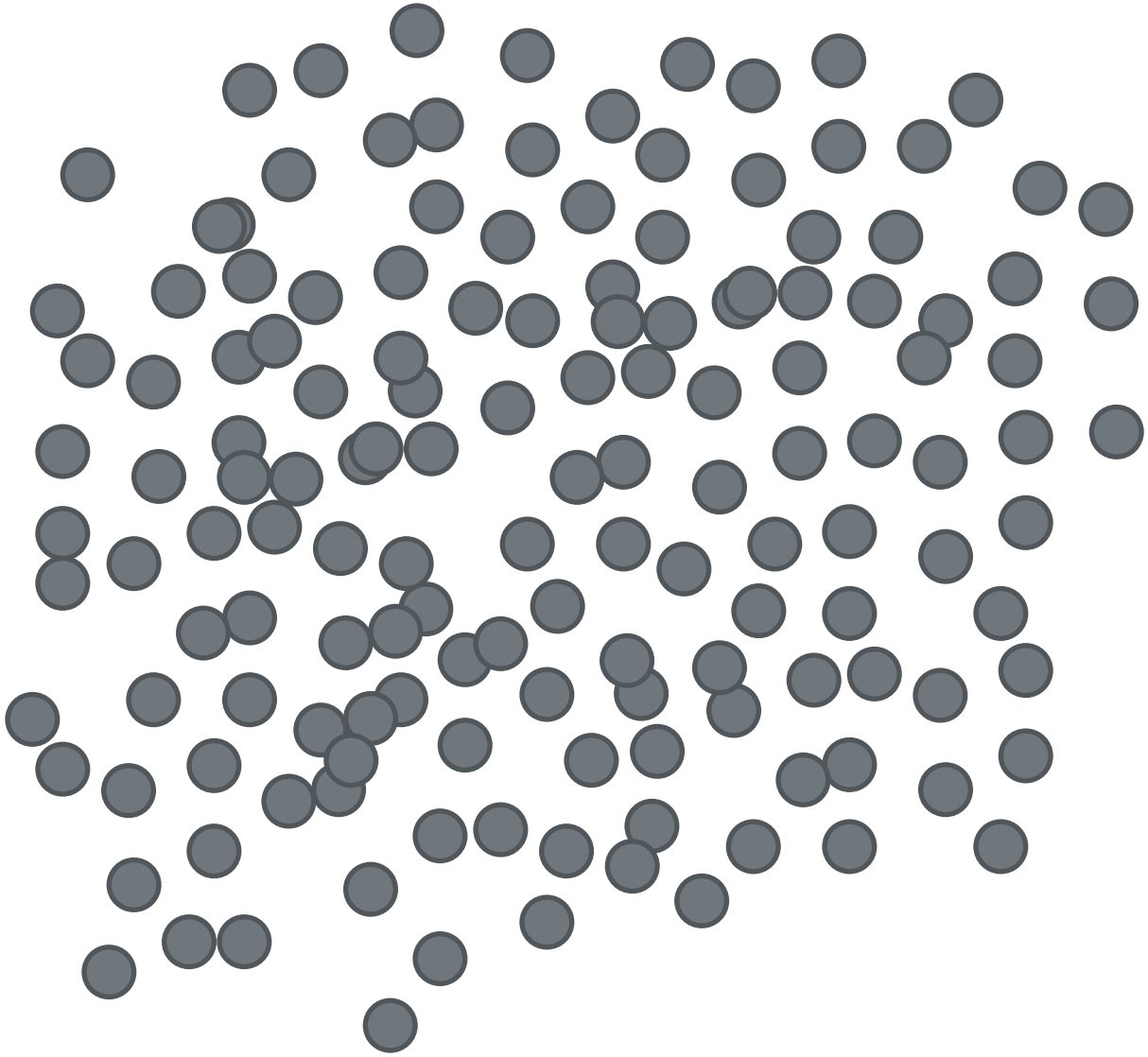
Community Volunteered Data (CVI) is obtained by processing and analysis of gathered CVD.

- CVI is a subset of applicable CVD, analyzed and processed into a useable format.
  - CVI is **not** a raw list of sources and data.
  - Patterns, trends, and real world issues are identified and highlighted.
- **Strengths in regards to data quality (perceived)**
  - Timeliness, Accuracy, Consistency
- **Weaknesses in regards to data quality (perceived)**
  - Completeness
- Through processing and analysis, CVI increases both **Accuracy** and **Consistency**

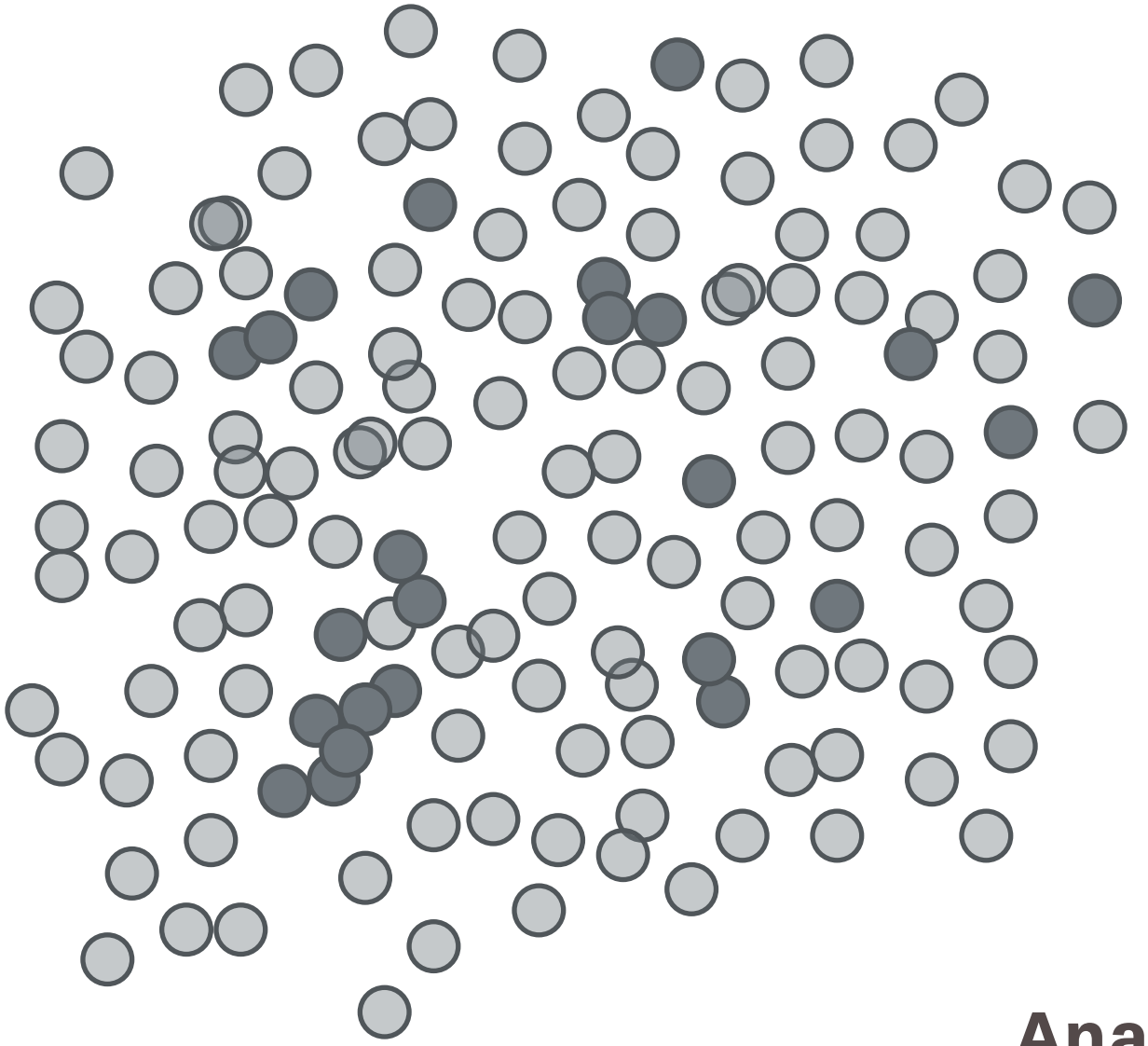

The Internet


Filtering

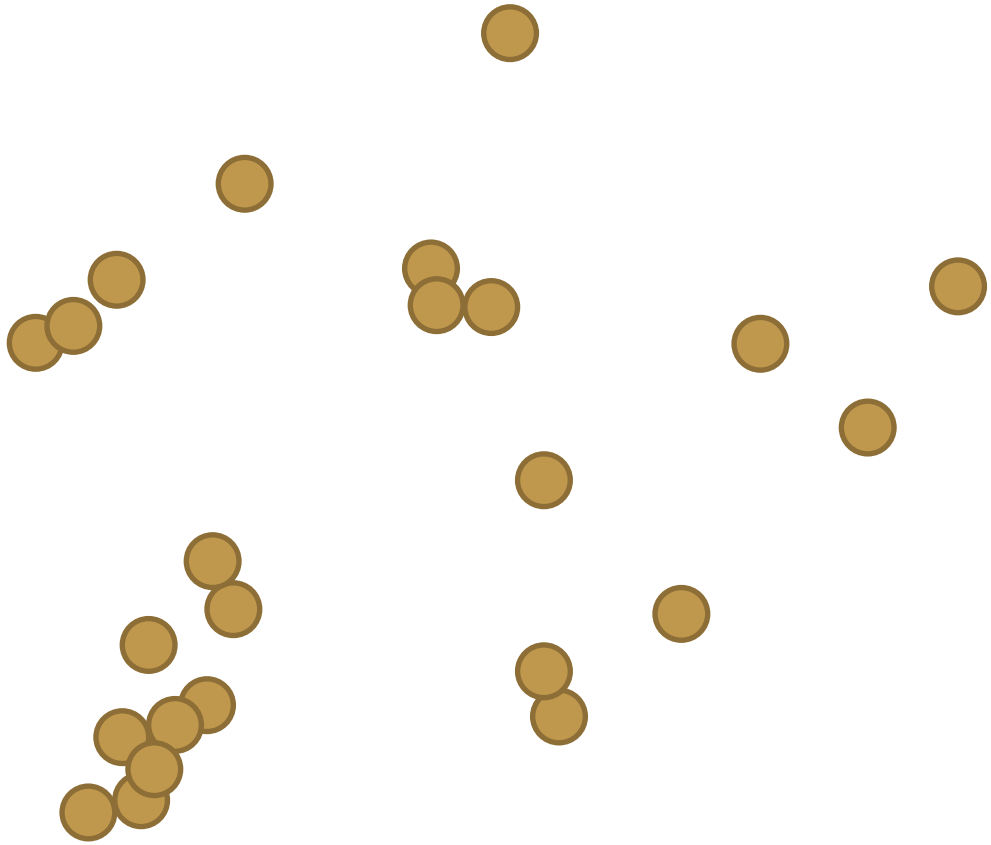

Filtering



CVD



Analysis



CVI

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Advantages of CVI

Community Volunteered Information offers numerous advantages in situational awareness.

- **Timely data**
  - CVI can be fed into situational awareness processes in near real time. The largest delay is the CVD->CVI processing time. The speed and refresh rate of CVI far exceeds traditional SA methods.
- **Variety of sources**
  - The list of sources for CVD and CVI is almost limitless, and the variety of sources can serve as a method of data validation.
- **Synergy with public information and risk communication efforts.**
  - Through monitoring of sources and gathering CVD and CVI, disaster managers are poised to leverage these methods for risk communication, public outreach, and other needs.

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Barriers to Adoption

There are significant barriers to adoption of CVI into situational awareness processes and workflows.

- **Lack of authenticity and trust**
  - Emergency and disaster managers swear by 'ground truth', and they understand how difficult this can be to achieve. How can an average Twitter use be trusted?
- **Time intensive**
  - Emergency and disaster managers already have limited personnel resources to accomplish life safety and life sustainment. Resources to process CVD into useful CVI is very limited.
- **No existing models or tools**
  - Existing tools and models for working with CVD (primarily the social media aspect) are aimed at commercial use.

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Overcoming Barriers

- **Lack of trust in CVD/CVI stems from a perception of poor accuracy.**
  - Increasing trust in CVD/CVI requires overcoming these perceptions through research and case studies.
  - Further, the perception of poor accuracy stems from CVD and a misconception of the CVI process.
- FSU EMHS/CDRP has established ongoing research examining CVD and CVI.
  - Initial deployment to New Orleans after Hurricane Isaac revealed several important points.
    - CVD with media (pictures) was more reliable.
    - The public is inconsistent with terminology and reports of severity (data consistency)

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Accuracy (Severity and Applicability)

Issues with CVD

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Accuracy (Severity and Applicability)

Issues with CVD

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Consistency (Semantics)

Issues with CVD

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Consistency (Semantics)

Issues with CVD

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Public Outreach and Trusted Sources

Overcoming Barriers

- The processing of CVD to CVI is time consuming. If the quality of incoming CVD was improved, less processing would be required.
- "Tweak the Tweet"
  - Twitter format and application designed to improve damage and disaster reporting.
- "Spotter" Training and Public Outreach
  - The National Weather Service offers free weather spotter training. Could we develop a similar model for social media disaster reports?
- Trusted source identification
  - Trained first responders, social media spotters, and local media can be pre-identified as 'trusted', allowing them to skip the CVD->CVI processing.

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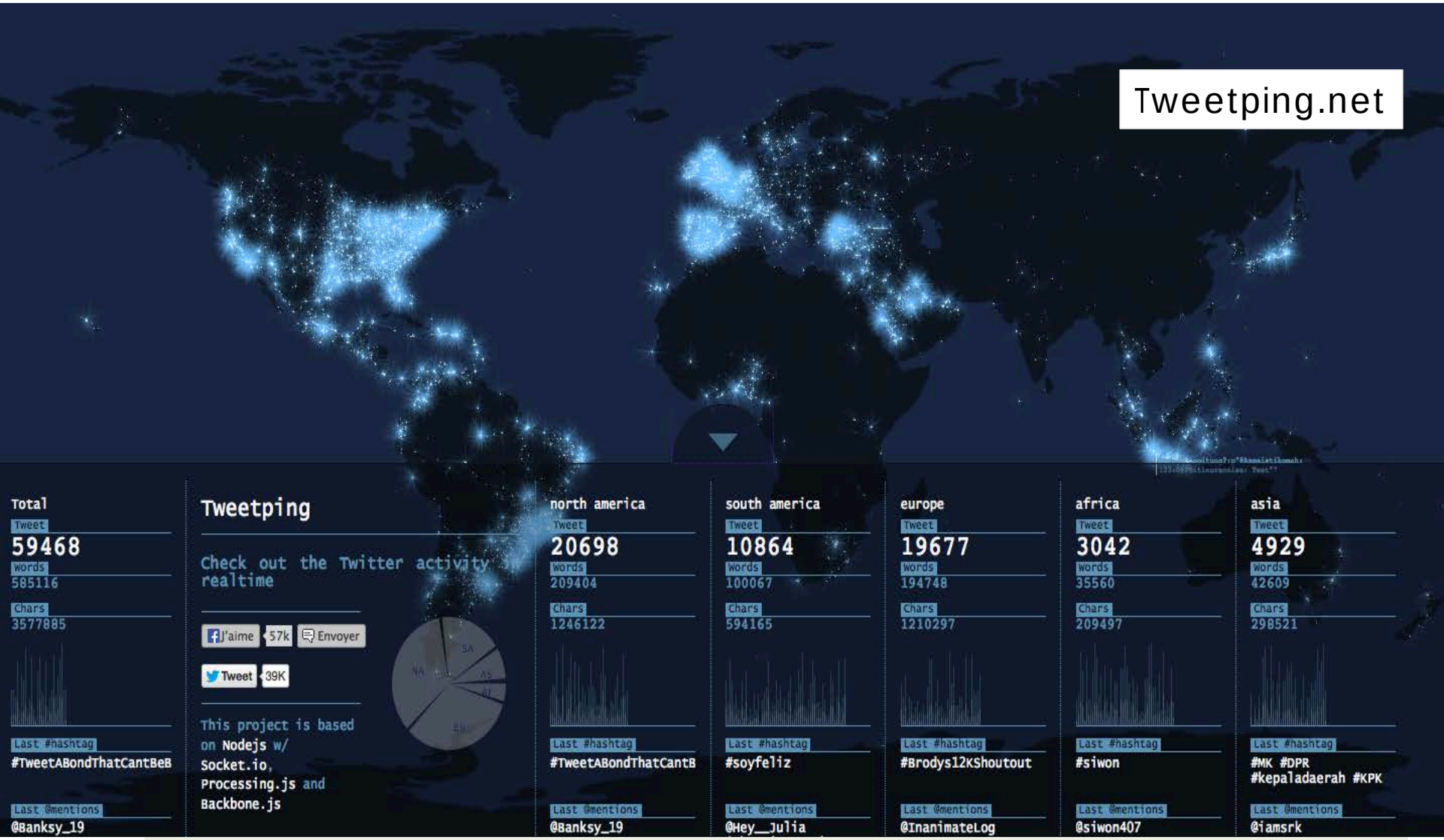
Verifying Information

- False information or no information can cost lives
- Correct information that is late is useless…
  - ***Information is perishable***
- Social media can provide a constant stream of CVD and CVI, but how do we determine what is valid?

We'll discuss this more in a little while….

Geo Located Tweets (30m sample)



Pensacola Example

https://www.youtube.com/watch?v=D4rshuTD2Mk

https://www.google.com/maps/@30.4559329,-87.3153367,18z

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Module 2

Social Media in EM Operations. VOST, SMEM, and more

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Virtual Operations Support Teams

- An effort to understand, use and manipulate the "**virtual space emergency**" (Schniederman & Preece).
- Employ a **trusted** team of **digital volunteers**.
- Making use of **publically volunteered information**.
- Workloads are increasing, and budgets are stagnant – how do we deal with a deluge of social media data using existing resources?

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Virtual Operations Support Teams

- Virtual Operations Support Teams (VOST) are a new concept, first conceived in 2011 in the western United States in response to wildfires.
- These virtual teams consist of vetted and qualified volunteers coordinating with response agencies and the Incident Command System (ICS) structure.
  - Primary contact is typically the Public Information Officer (PIO)

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Virtual Operations Support Teams

- VOSTs produce periodic situational updates to the PIO, as well as respond to specific taskings.
- By monitoring raw social media (CVD), and producing situation reports (CVI) to official agencies, **the VOST is performing the CVD->CVI processing**.
- VOSTs are ad hoc, depending on tools such as commercial social media mentoring (Hootsuite, etc.), document sharing services (Google Docs, Dropbox), voice over IP tools (Skype), email, and blogging platforms (Wordpress.com) for publishing information.
  - There is no definitive, emergency management focused, VOST platform.
  - **Despite this, these teams are creative and effective.**

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Potential VOST Missions

All VOST activity revolves around social media and the internet, but it can be broken into three distinct missions:

1. **Enhancing Situational Awareness**
2. **Rumor Identification**
3. **Official Message Amplification**

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3. Official Message Amplification

- VOST takes official EM messages (press releases, warnings and alerts, etc.) and rebroadcasts them on all social media channels, using a variety of accounts.
- VOST utilizes #hashtags to ensure that official messages are seen by the maximum number of people.
- This is one of the rare instances where a VOST broadcasts information.

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2. Rumor Identification

- Social Media has become a natural breeding ground of misinformation – this is not an inherent problem with social media, but a reflection of natural human behavior in the digital space.
- VOST is in a unique position to identify rumors in social media and bring those to the attention of the partner or client organization.
- With approval and guidance of the partner or client organization VOST can assist in countering developing rumors.

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2. Rumor Identification

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1. Enhance Situational Awareness

- VOST can enhance situational awareness in emergency management organizations.
- **Situational awareness** is defined as:
  - Knowing and understanding what is happening around you
  - Understanding and predicting how what is happening will change over time
  - Understanding the dynamic nature of the environment

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1. Enhance Situational Awareness

Traditional data sources feeding situational awareness include:

- Reconnaissance and damage assessments
- Weather reports and forecasts
- Geographical information
- Population information
- Partner organization reports
- Private sector reports

- **Strengths in regards to data quality (perceived)**
  - Accuracy, Consistency

- **Weaknesses in regards to data quality (perceived)**
  - Timeliness, Completeness

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1. Enhance Situational Awareness

Social media data typically has a **high volume** in a disaster, but much of the information **is not applicable** for situational awareness.

- **Strengths in regards to data quality (perceived)**
  - Timeliness
- **Weaknesses in regards to data quality (perceived)**
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1. Enhance Situational Awareness

- Traditional situational awareness data sources are purpose built – they are immediately applicable to disaster management.
- Social media is a massive pool of data points, most of which has no bearing or applicability to disaster management.
- As such, social media data must be processed to be usable.
  - This task requires human intervention and analysis
  - While raw social media data contains too much 'noise' to be useful in situational awareness, **processed and filtered data is applicable to disaster management**.

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1. Enhance Situational Awareness

- VOST monitors, filters, and processes social media data with the intent of creating or enhancing situational awareness.
- VOST cannot replace traditional reconnaissance assets, law enforcement, etc. but it can help fill in details quickly.
  - Think 'big rocks' and 'little rocks'

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Aggregation Tools

- RSS Readers (Rich Site Summary or Really Simple Syndication)
- Reddit
- Google News

U.S. edition ▾ Compact ▾

Tallahassee, Florida

Renovations planned at 13 schools in Leon County
Tallahassee.com - 8 hours ago

The Leon County School board this evening is set to lay the groundwork for renovations at 13 local schools. The board is taking up the initial plannin
$14 million in renovations - an early round of ...

FAMU students upset by start times
Tallahassee.com - 11 hours ago

Survivor takes charge after diagnosis
Tallahassee.com - 8 hours ago

Remembering The Missing In Tallahassee
WCTV - 1 hour ago

The Shelter hosts public meeting about relocation
WTXL ABC 27 - 2 minutes ago

Dick Howser Center voices concerns for The Shelter relocation
Tallahassee.com - 13 hours ago

Killearn Lakes Elementary program focuses on bicycle safety
Tallahassee.com - 12 hours ago

Escobar commits to Ole Miss
Tallahassee.com - 13 hours ago

Project On Blair Stone Road Nearing Completion
WCTV - 12 hours ago

Leon County Booking Report: October 8, 2013
WCTV - 15 hours ago

The Shelter plans public meeting about relocation
WTXL ABC 27 - 9 hours ago

Law school students ace Bar exams
Famuan - 3 hours ago

Media Sources

- National News
  - Can be slow
- Local News
- Comment Streams
  - Difficult to mine

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Module 3

Filtering, Monitoring, and Other Operations

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Filtering and Monitoring

- Social Media produces a huge quantity of data points
  - How do we filter it?
  - How do we organize it?
- Social media platforms allow us **keywords** and **hashtags**
  - Filter data points that contain given term.
- Social media platforms also allow some **Location** Filtering.

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#Hashtags

- **Hashtags** – are a way that people can self organize or categorize their content.
  - E.g, people who want to contribute information about tropical storm Karen would add the #TSKaren hashtag
- Hashtags can be organic or pre-defined
- **Organic** hashtags are a phenomenon of the wisdom of crowds.
  - i.e. some one uses that hashtag and gradually the crowd adopts it and its use diffuses through the system.
- **Pre-defined** hashtags
  - Requires education / advertisement

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Key Terms

- Terms that are representative/characteristic of the domain/problem.
- Selecting key terms to search can be difficult.
  - Too Generic i.e. Flooding
  - Too Specific i.e. Flooding Generic St
- Trade off between finding new data and getting swamped.
- Reduce Noise!

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Domain Evolution

- Key terms and Hashtags are not static.
  - They evolve as the event evolves.
- Keeping track of the evolution of the event's keyterms and hashtags is one of the tasks central to the VOST.
- A central repository of these filters is useful.
  - VOST command can split up a delegate data searching by sub-event or location.

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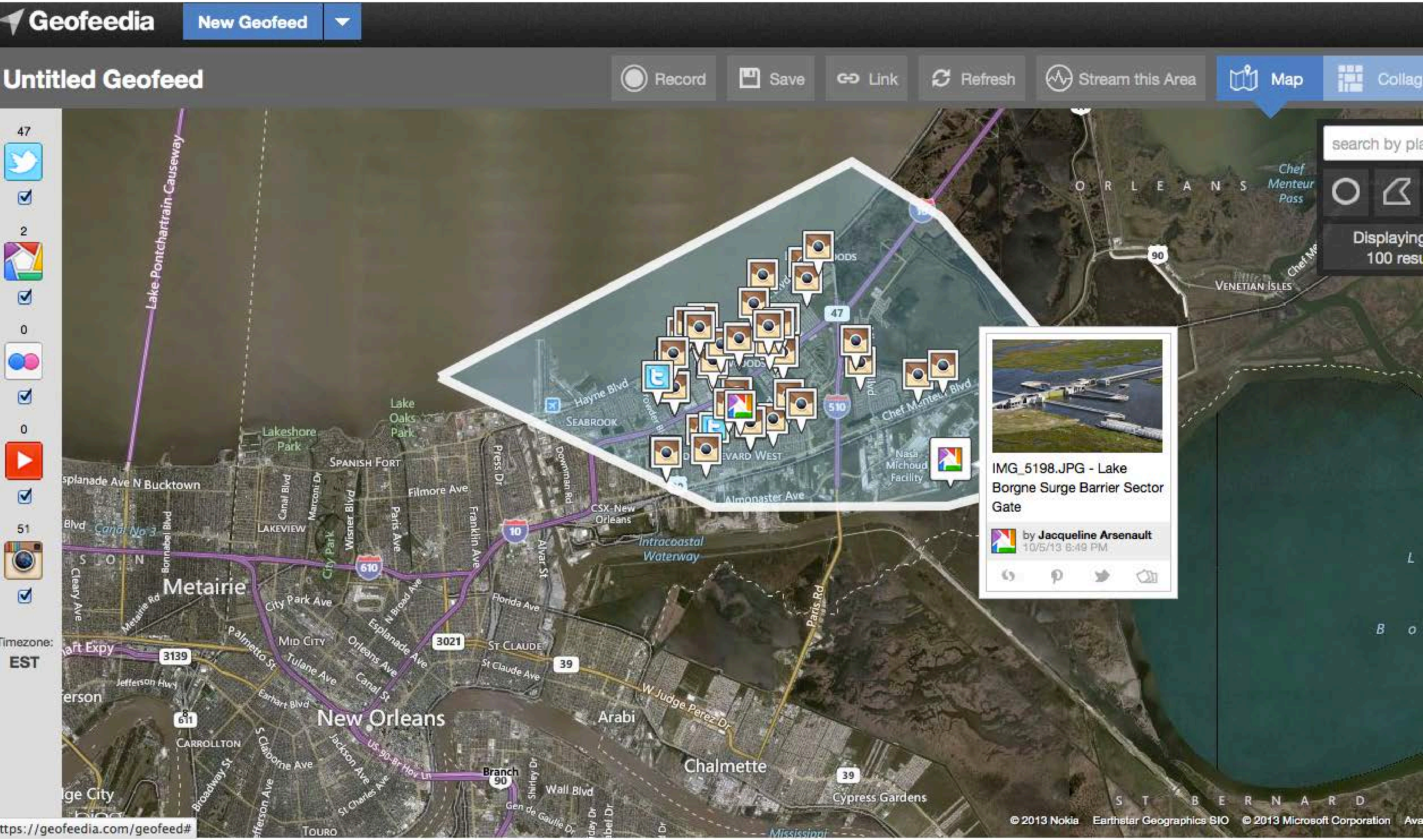
Location Based Filtering

- Filter by Latitude and Longitude of an uploaded tweet
- Very few people (≈ 1-2%) have location services enabled.
- Data may require additional filtering.
- Geofeedia provides this functionality.
- Educate the crowd – community outreach.
  - Turn on your location services during an event.


Geofeedia
New Geofeed
Untitled Geofeed
Record
Save
Link
Refresh
Stream this Area
Map
47
2
0
0
51
Timezone:
EST
IMG_5198.JPG - Lake Borgne Surge Barrier Sector Gate
by Jacqueline Arsenault
10/5/13 6:49 PM
Metairie
New Orleans
Chalmette
Arabi
© 2013 Nokia
Earthstar Geographics SIO
© 2013 Microsoft Corporation

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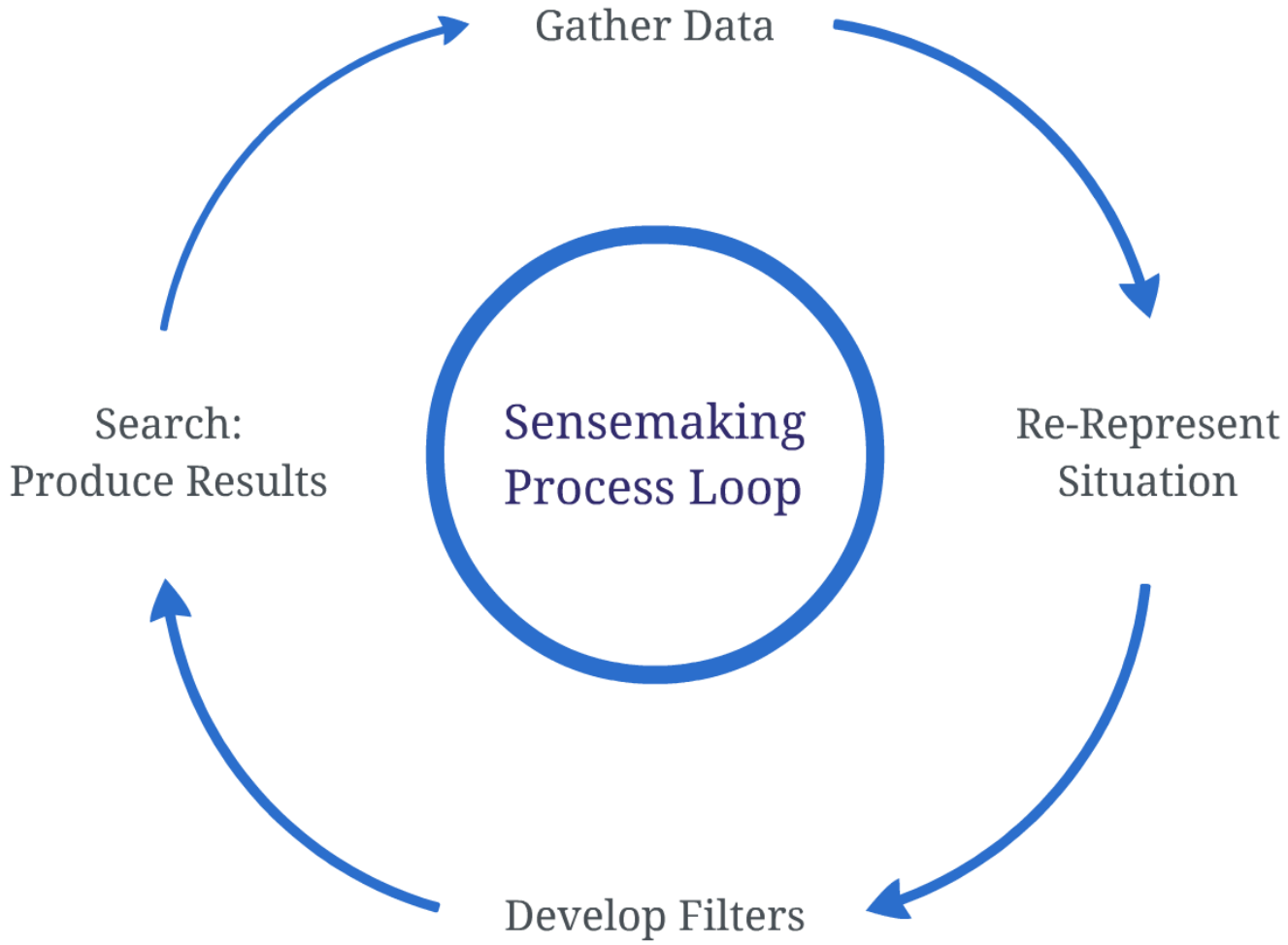
The Search Sensemaking Loop



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Gather Data

- Collect posts from social media platforms.
  - Tweets, Facebook posts etc
- Look for data that:
  - Confirms previous SA
  - Provides new SA
  - Verifies sources

Re-Represent Situation

- Transform the data into usable information.
- Update situation maps.
- Report:
  - Flash Report.
  - Add to next scheduled update.

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Develop Filters

- Reassess the key terms and hashtags being used to filter data.
- Discard redundant filters.
- Encorporate feedback from partners.
  - i.e. What are the information needs of the EOC?

Search:

Produce Results

- Input filters (keyterms & hashtags) into monitoring & aggregation tools (tweet deck, crisistracker etc).
- Update VOST members of new search priorities.

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Search Sensemaking Loop

- Gather Data
  - Select appropriate data points from your search results.
- Re-represent Situation
  - Parse the data retrieved and see what information adds to your current situation awareness
  - Report
- Develop Filters
  - Remove out of date filters.
  - Integrate terms found in last search.
- Search: Produce Results
  - Employ new filters in available technologies.

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Search Sensemaking Loop

- Where to start?
  - Filter creation activity.
  - Have generic categories of filters.
- Experience is important.
  - Technology can't do everything.
  - Team member with EM experience is vital.
  - Look at event from essential perspectives.

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Filter Creation

- Look at incident from different perspectives:
  - Consequences/impacts.
    - Casualties
    - Damage
  - Location (event & proximity to critical facilities).
  - Evidence.
- Then brainstorm keywords to use on first parse.

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Filter Creation Example

- Example: Incident/hazard = Fire/Hospital
  - Fire
  - Flames
  - Clinic
  - Blaze
  - Emergency Room
  - Inferno
  - Nursing home
- Consequences/impacts
  - Injuries
  - Evacuation
  - Trauma
  - Burns
    - However…

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Filter Creation Example

- However, those key terms on their own are too generic.
  - On twitter the term “fire” would match thousands of irrelevant tweets.
- Combine and refine your key terms to the event.
  - i.e.
    - Hospital fire
    - Hospital inferno
    - Hospital fire evacuation
    - Emergency Room blaze

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Filter Creation Example

- Need to think about:
  - Who is tweeting? Facebooking? Etc
  - What are the key terms specific to that event?

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Monitoring

- Rate of information is fast… real fast!
  - Impossible for 1 person to monitor
- Monitoring tools
  - Require a team member to be actively checking the system.
- Aggregation Tools
  - Able to collect and organize data.

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Monitoring Tools

- Hootsuite
- Monittor
  - Currently not functional
- Tweet Deck
- Twitter.com
  - Lists and favorites.
- There are others!

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Aggregation Tools

- Crisis Tracker
  - Can process hundreds of thousands tweets per hour
  - Binds tweets with similar stories into stories/themes.
    - Very powerful.
      - Sophisticated clustering algorithm.
    - But difficult to set filters.
- http://www.ozcrisistracker.com.au/about.php

CRISIS TRACKER

READ STORIES | TAG STORIES | PERFORMANCE | ABOUT | STUDY

WHAT

- Civillian involvement
- Military involvement
- Crime
- Violence
- Deaths
- Missing people
- Damaged infrastructure
- Natural hazard
- Political event
- Summary report
- Available resource
- Request/Need
- Warning/Risk/Danger
- High impact event

Enter keyword

WHO

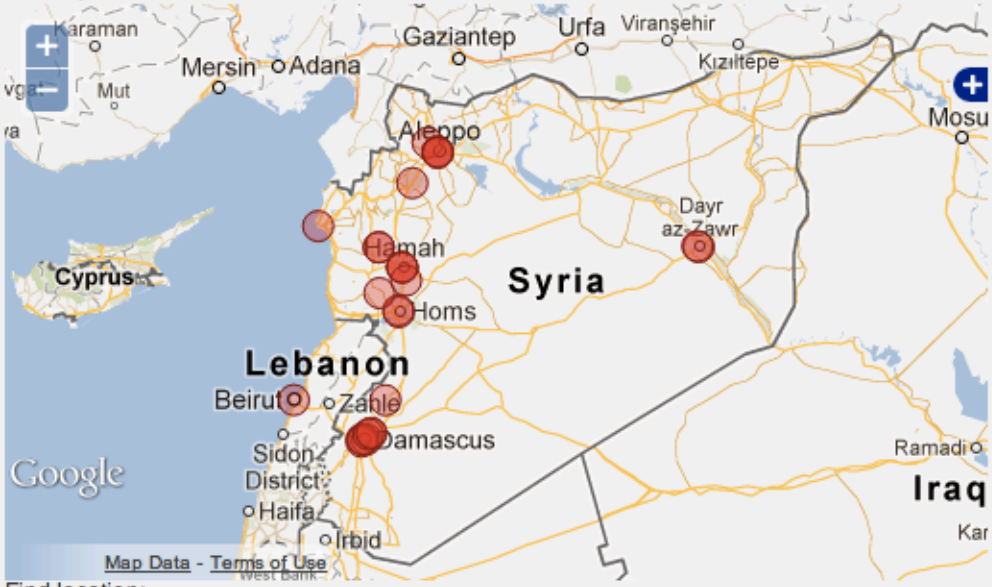
Enter name

WHEN

From to

WHERE

Only show stories within map bounds



Find location:

SEARCH NOW

Sort order: **Most active** | Trending | Largest | Timeline

Size	Time	Title	Tags
4235	5 May 08:26	Reuters: Explosion reported in suburb of Syrian city of Aleppo.	2 0
755	4 May 09:28	Opposition activists: Syrian forces attack towns, killing 10 http://t.co/y1uiBrzP	3 0
625	4 Jul 17:56	Syria pummels rebels as battered city collects bodies http://t.co/xcpq0Tut #Bashar_Al_Assad #Breaking_News	1 0
713	30 Jun 17:06	In Syria, at least 85 killed by car bombing at funeral - Los Angeles Times: In Syria, at least 85 killed ... http://t.co/6c5bOel3 #Syria	1 0

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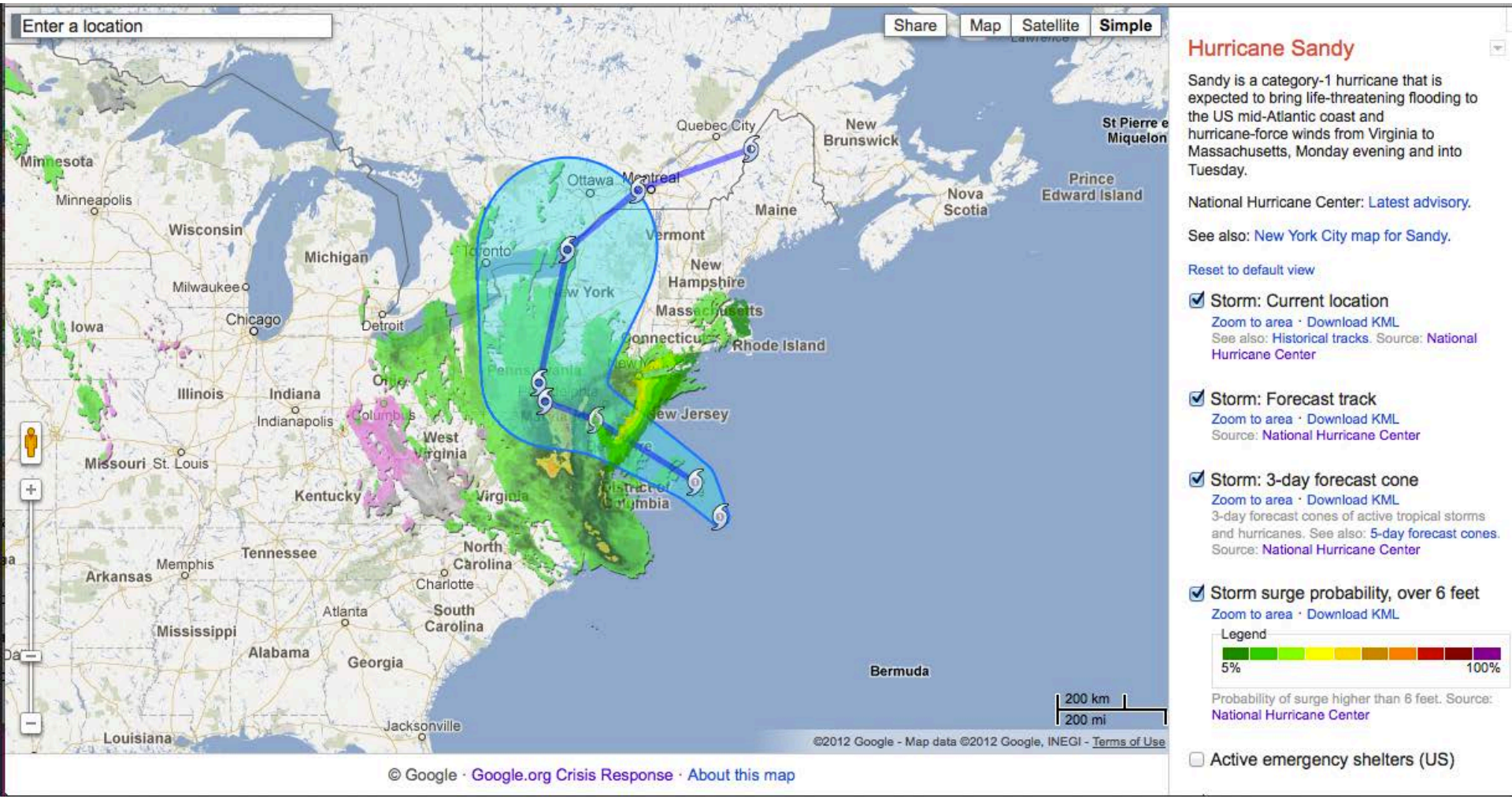
Visualize

- Google Maps
- Ushahidi
- Others might be available.

Google Crisis Maps



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Reporting:

Who are your audience?

- VOST => EOC
  - What information do they want?
  - Build a relationship.
  - Give them impartial facts.
- EOC => VOST
  - Feedback from reports.
    - New leads for investigation.
    - Further info required in certain locations.

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Summary

- Filters: Keyterms & hashtags
  - Location filtering not great at the moment.
- Be aware of the process:
  - Find data that adds or reinforces SA.
  - Think about what needs to be thought about.
- Reporting:
  - Build a relationship with your stakeholders.
  - Report facts!

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Too Many Maps?

- While tools like Google Maps and Ushahidi are wonderful 'grassroots' tools, but how do they interact with other EMIS?
  - Short answer… not very well.
- If the public is using one set of crowdsourced data and information, and EM officials are using another, what does that do to the Common Operating Picture?
  - How can this be overcome?
  - The answer is… there is no single answer. ***Careful collaboration before a disaster occurs is critical.***

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Module 4

Integrating SMEM and the EOC

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Recruiting VOST Participants

- VOST Participants can come from a variety of sources, including:
  - Community volunteer groups
  - Civic clubs or organizations
  - Colleges and universities
  - Agency/organization employees
  - The greater community
- VOST can appeal to many as a way to 'get involved' in the community response to disasters.
- VOST is 'virtual' – there is no assigned work location.

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Recruiting VOST Participants

- VOST is virtual – no assigned work location, office, etc.
- Requirements for working VOST:
  - Laptop or desktop computer
  - Internet connection
  - Social media accounts (as specified by the partner organization)
  - Skype account
  - Positive, helpful attitude
  - Team oriented
  - Ability to follow directions

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Recruiting VOST Participants

Three levels of VOST Participation:

1. **VOST Volunteer**
2. **VOST Analyst**
3. **VOST Team Leader / Manager**

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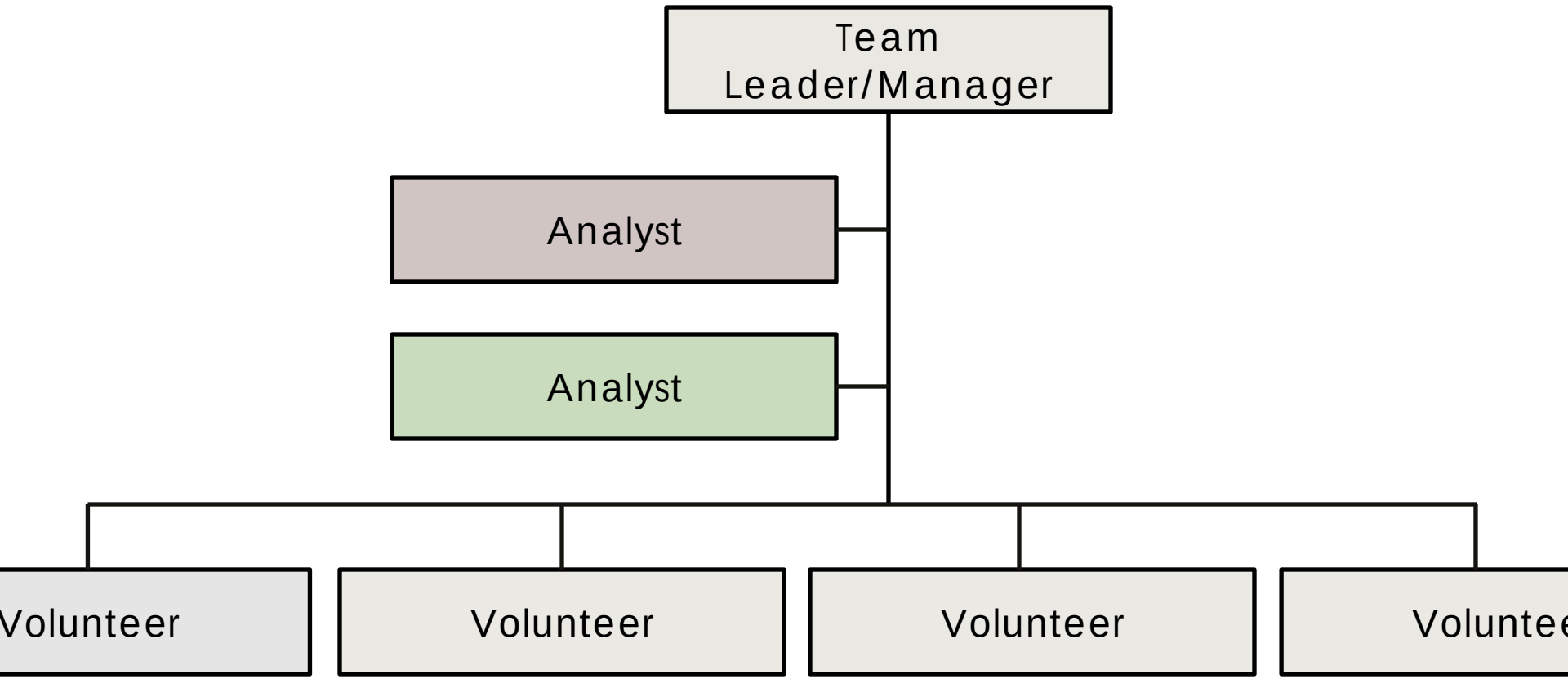
VOST Organization Chart



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VOST Volunteers

VOST Volunteers make up the majority of the VOST team.

They…

- Are recruited from the local community
- May not have extensive EM or social media experience
- Perform the majority of monitoring and data collection in social media
  - Monitoring is based on defined keywords and phrases as well as specific sources
- Pass collected data 'up' VOST Analysts for review
  - The mechanism for this can vary, and will be discussed shortly

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VOST Analysts

VOST Analysts work with data provided by VOST Volunteers and determine trends, verify information, and provide input to reports.

They…

- Have some experience in EM and with social media
- Provide feedback to volunteers on data being provided
- Assign work to volunteers as needed (follow up, verification, etc.)
- May work in teams or alone.

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VOST Team Leader

VOST Team Leaders run the VOST and serve as the primary contact with the partner/client organization.

They…

- Author and distribute reports to the partner/client organization
- Determine objectives and priorities for the VOST
- Assign work to VOST Analysts and Volunteers
- Should have solid understanding of EM practices and how VOST integrates into the system

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VOST and the EOC

- **VOST doesn't operate independently**, it supports an emergency management or response organization.
- The information created by the VOST can be used by a variety of entities inside the EOC or organization.
- Examples:
  - ESF-14 (Public Information)
  - ESF-5 (Planning)
  - ESF-6 (Mass Care)
  - ESF-8 (Public Health)
    - "Infodemiology"
  - State Warning Point / County Warning Point

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Activation of the VOST

- Activation of the VOST is done at the request of the partner or client organization.
- VOST is voluntary and 'at will'. Flexibility will be required in scheduling volunteers.
  - Understand the shift requirements up front and communicate these to Volunteers and Analysts.
  - Do you need 4 hour shifts? 8 hour? Will VOST need to operate 24/7?

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Activation of the VOST

- VOST Volunteers and Analysts are contacted via email, phone or Skype by VOST Team Leader or Manager.
- Maintain a roster of available volunteers in a easy to access location.
- Remember, a Volunteer is not considered 'contacted' until they reply to the initial communication.
- Log the VOST activation date and time.

Coordination

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Coordination of VOST Efforts

- There are several tools critical to **coordination** of the VOST.
- Generally, these include:
  - VOST Communications Channel
  - Information Portal
  - Activity Log
  - Situational Awareness Tool

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VOST Communication Channel

- The VOST Communications Channel is the primary method that team members talk to one another.
- VOST is virtual! This link is critical.
- This can be a combination of email, phone and chat, but one of the best tools for the job is Skype.
  - Skype allows group chats which are **persistent**. If a user logs off and then back on, they can see all the chats that have been sent in their absence. This is critical for continuity.

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Information Portal

- The tool puts all team information about the activation in one place for all members to access.
- This can be accomplished with a wiki, a blog engine or even a Facebook group.
- It is important that some parts of the Information Portal be protected by a password. Some information may not be appropriate for wide public distribution.

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Activity Log

- The Activity Log tracks all major events in the VOST, including:
  - Activation
  - Major incidents
  - Reports issued
  - Requests from the client organization
  - Deactivation
- The Log can be created using a blog, wiki, or social media site. Again, much of this information should be password protected.

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Situational Awareness Tool

- All of the data collected to support situational awareness must be collected somewhere… that somewhere is the Situational Awareness (SA) tool.
- The best suited platform for this job is Ushahidi, a free application for mapping information during a crisis.
- The Situational Awareness Portal is updated continuously, and provides a view of events as reported through the media and social media. Through this tool, VOST members and the client organization have a searchable, scalable, and categorized list of reports and data.

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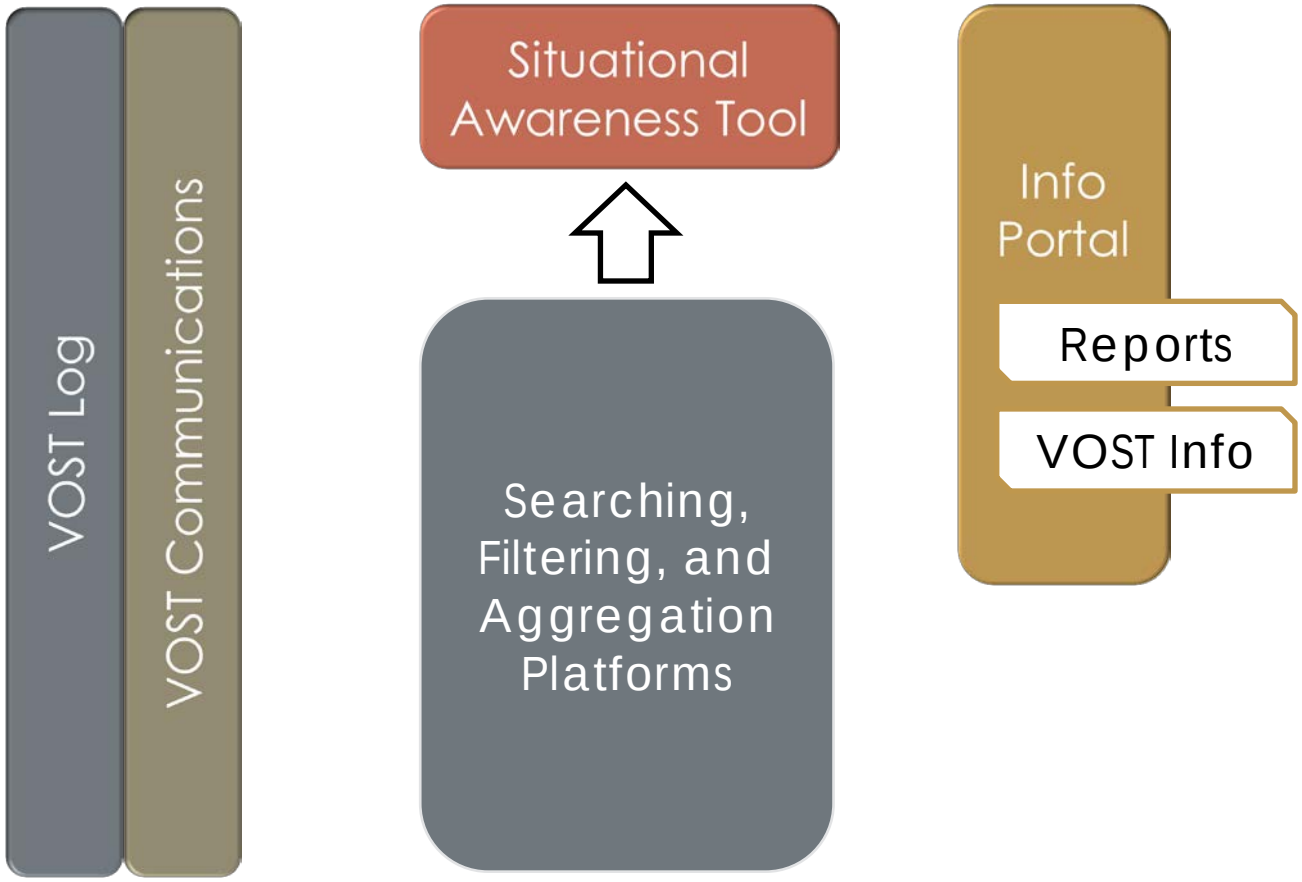
"Tracking the Maybe"

- The SA tool provides a collection point of data that VOST volunteers feel is "possibly" or "**maybe**" of value.
- The VOST Analyst will work with this possible data and make a final determination of validity/value. Only at this point will this data or information be included in the the reports to the client organization.


VOST Log
VOST Communications
Situational Awareness Tool
Searching, Filtering, and Aggregation Platforms
Info Portal
Reports
VOST Info

What's True?

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Data Verification

- How do we know what we are seeing is valid?
- Once VOST Volunteers save or submit data, the VOST Analyst must determine if the data is **accurate** as well as **pertinent**.
- How do we accomplish this?

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Data Verification

Method: ***Ask for Verification***

Andy Carvin, a reporter for NPR, covered the Arab Spring in Tunisia in 2011.

- He received information from a variety of Twitter sources about events in the country.
  - He had no personal knowledge of these sources or events.
- He simply responded to Tweets with specific questions, including, "Can you verify this?" or "Source?"
- Further, he asked for photos or videos.
- Became wary of tweets with journalistic terms such as "Breaking News"

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Data Verification

Method: ***Triangulation***

- Given a specific event or report…
  - Are other other unconnected sources reporting the same event?
    - NOT re-tweets
  - Is the report coming from a primary source?
  - In the case of video or photos, is the scene depicted in line with what is being reported?
    - Background signs, terrain, time zones, languages, etc.

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Data Verification

Method: ***Message Analysis***

- Assess the data presented in the report
  - Does the report align with what is expected to be occurring?
    - Event, severity, timing, etc?
  - Does the info appear to be sensational or exaggerated?
  - Are there links to expanded information? What kind?
  - Are there pictures or video attached?
    - The presence of pictures greatly increases the odds of a factual report.

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Data Verification

Method: ***Source Analysis***

- Assess the source, not the information
  - Can the source be authenticated? Is the source personally known?
  - Examine available public profiles.
    - Is there a real name? A location? Is there a complete bio? A picture?
  - Account history
    - Is the account new? How many followers/subscribers?
  - Who are the followers?
  - When does the account post content?
    - May indicate rough time zone information

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Data Verification

Method: ***Trusted Sources***

- Use known or trusted agencies for verifiable content.
  - News agencies
    - Individual reporters and meteorologists
  - Personal and professional contacts
  - Government agencies
    - NWS, NOAA, EM, Law Enforcements, Local/county government, Fire, EMS.
- ***Create a list of these sources before a disaster.***

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Data Verification

- Successful verification typically requires a **combination** of these methods.
- VOST Analysts and Team Leaders (who perform verification) must have a solid understanding of the disaster, what has happened in the past, and what is happening now.

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Data Verification

Grading the Data

- Some VOSTs simply use an 'good or bad' grading scale – either the data is **good** (and is included in analysis) or the data is **bad** (and is discarded).
  - Often referred to as "Verified" and "Unverified"
- Some VOSTs choose to rate data on a simple scale of 1 through 5 or "low", "medium" and "high" confidence.
- The method is actually irrelevant, as long as a standard process for the VOST is created and followed.

Analysis and Reporting

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Analysis

- Once data is graded, the VOST Analysts and Team Leader can analyze the data for patterns, etc.
- **Analysis only occurs on data that has been deemed "valid".**
- Analysis must focus on the following:
  - Life Safety and Critical Issues
  - Situational Awareness
  - Rumors

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Analysis – Critical Issues

- If a VOST Volunteer or VOST Analyst becomes aware of a potential **life safety, casualty/fatality** or **infrastructure** issue, it should be reported immediately to the VOST Team Leader.
- Rapid verification should occur (using any and all methods) and the information should be passed to the partner or client organization as quickly as possible.
- **Do NOT wait** for a scheduled report to alert the organization of the possible critical issue.
- ***When in doubt, report the information.***

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Reporting

Two types of reports are generated by the VOST:

- **Situation Reports**
  - Produced on a set schedule (typically twice per day or once per operational period) and contains (at a minimum):
    - Goals and objectives of the VOST
    - Definition of the operational period
    - VOST Team Leader contact information
    - Summary of Situational Awareness information
    - Summary of Trends and Data being collected
    - Summary of Critical Events collected and reported
  - Situation Reports will be distributed to the entire VOST and the client agency.

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Reporting

Two types of reports are generated by the VOST:

- **Interim Reports**
  - The Team Leader may, at their discretion, publish interim reports during the operational period. These interim reports may include critical items or other information.
  - Interim reports will be distributed to the entire VOST and the client agency.

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Reporting

- All reports are posted on the VOST Information Portal.
- Reports are created for the use of the partner or client organization. They are not intended for public release.

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Deactivation

- Once the partner organization decides the services of the VOST are not longer required, the VOST can stand down or deactivate.
- Deactivation is done simply by notifying all VOST members that the activation has ended. This can be done via email, Skype, phone or all of the above.
- The Deactivation date and time should be logged.

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After Action Review

- Once the VOST is deactivated for the incident, the Team Leader or Manager should initiate an after action process.
- A simple process is recommended, such as 'Three Ups and Three Downs' – this encourages participation.
- The Team Leader should compile all after action information and compile an After Action Report for the activation. This document should be made available to the entire VOST via the Information Portal.

Training and Exercises

- Once the VOST is formed, it is critical to train and exercise volunteers.
- Standards of training will vary, but may include FEMA Independent Study (IS) courses, a version of this workshop or other material.
- Periodic refresher training should occur.
- At a minimum, activation exercises should occur periodically.