

NVOAD Conference

Nashville, Tennessee

May 6th , 2019

Breakthroughs in Open Aid

Presentation coordinated by **Devin Balkind**
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With Additional Presenters:
Aaron Titus - Founder, Crisis Cleanup
Matthew Marchetti - Crowd Source Rescue

Additional Slides Contributed by:
Jeff Reichman - Sketch City
Willow Brugh - Geeks Without Bounds
Javier Teran - UNOCHA

Find the presentation online : sahanafoundation.org/nvoad

Hi, We're Your Hosts



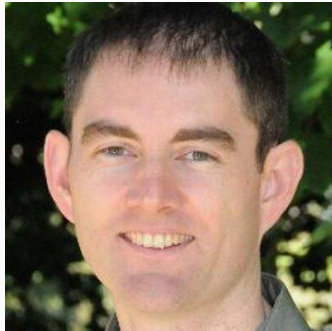
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Outline

- Things Could Work Better
- “Openness” Can Help
- Openness is Impacting Aid
- How to Get Involved

Trust in Institutions is Low

Public trust in government: 1958-2015

Trust the federal government to do what is right just about always the time ...

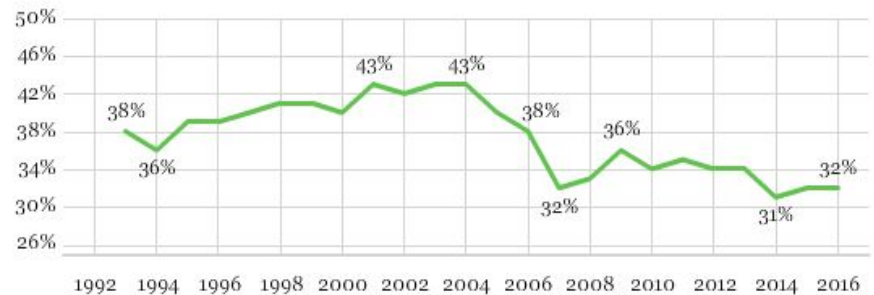


Survey conducted Aug. 27-Oct. 4, 2015. Q15. Trend sources: Pew Research Center, National Election Studies, Gallup, ABC/Washington Post, CBS/New York Times, and CNN Polls. From 1976-2014 the trend line represents a three-survey moving average.

PEW RESEARCH CENTER

Average Confidence Rating for All Institutions, 1993-2016

Average percentage of Americans who have "a great deal" or "quite a lot" of confidence across 14 institutions



Average is based on 14 institutions asked about annually since 1993

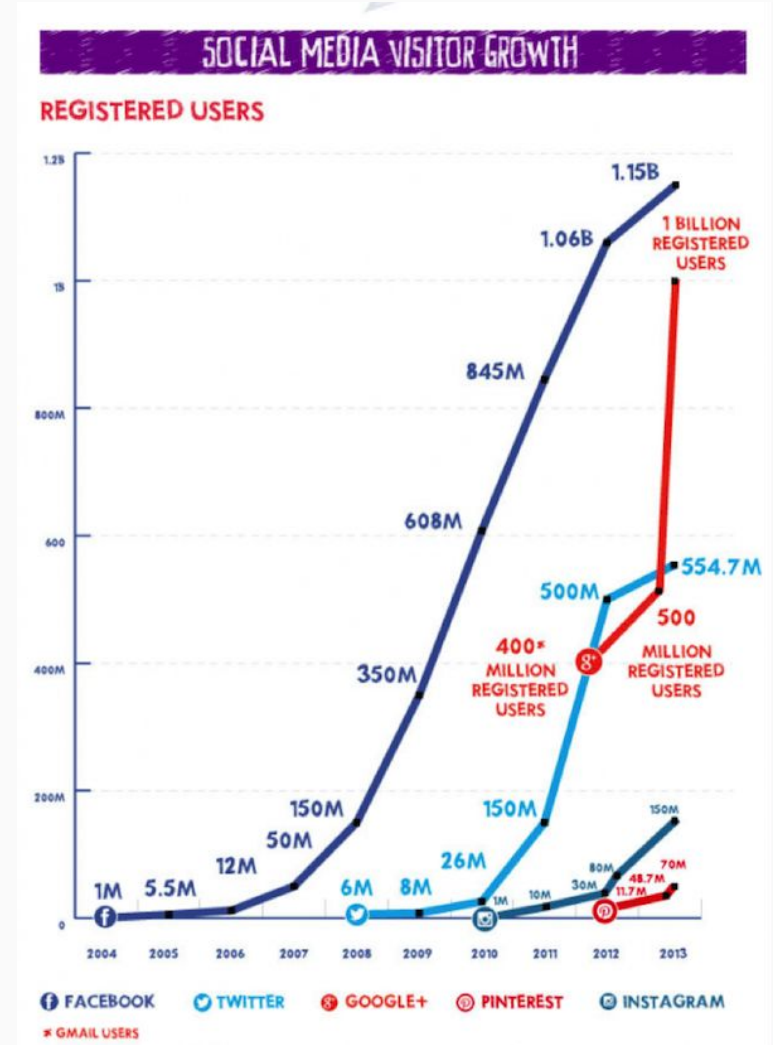
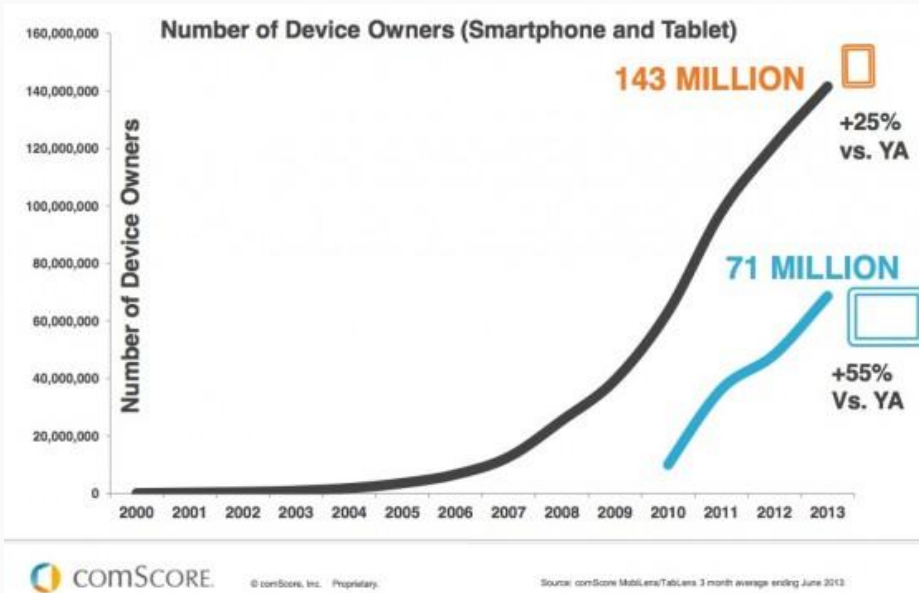
GALLUP

<http://www.people-press.org/2015/11/23/1-trust-in-government-1958-2015/>

<http://www.gallup.com/poll/192581/americans-confidence-institutions-stays-low.aspx>

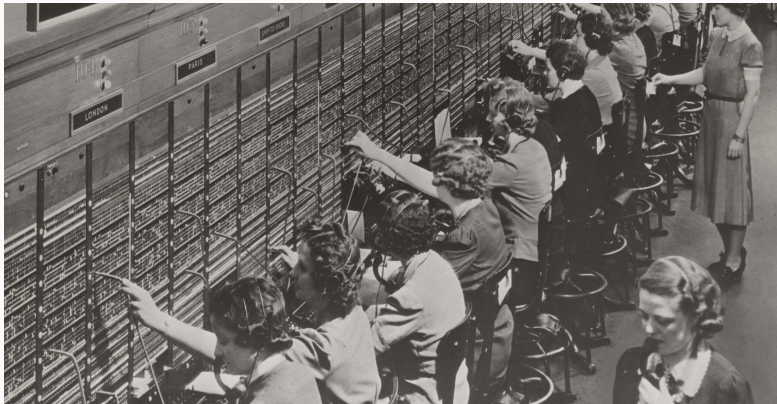
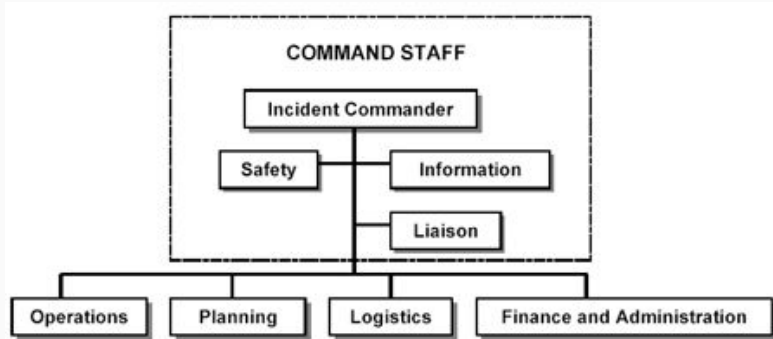
Technology Access is High

- Smartphones
- Social media
- Collaborative documents
- Advanced open source software



Organizing Capabilities are Changing

From Incident Command to Networked Response



https://www.osha.gov/SLTC/etools/ics/what_is_ics.html

<http://www.chinakaper.com/en/introduce.html?introID=3293>

https://upload.wikimedia.org/wikipedia/commons/9/9b/Social_Network_Analysis_Visualization.png

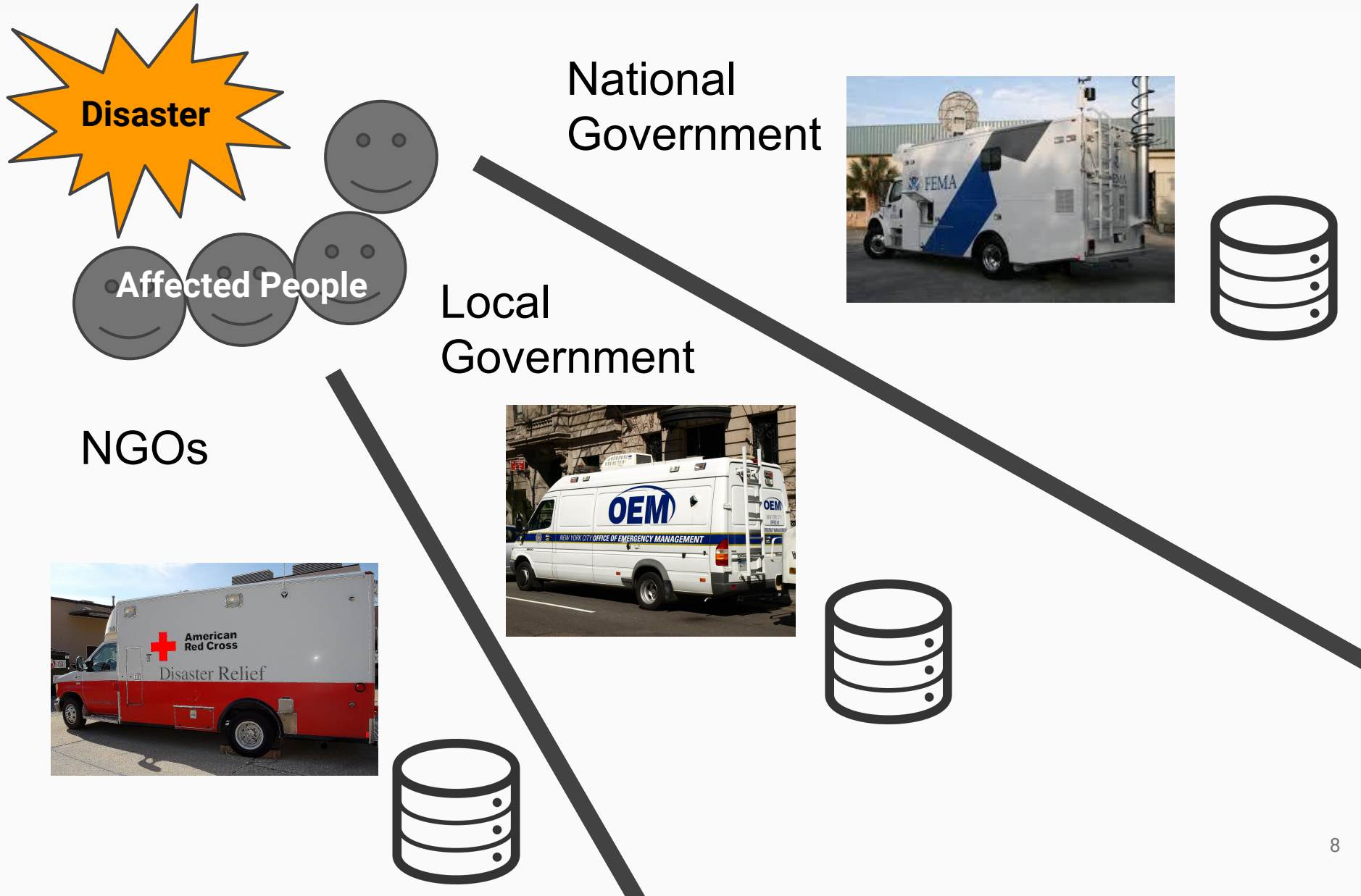
<http://www.nydailynews.com/news/world/check-contrasting-pics-st-peter-square-article-1.1288700>

No One Wins Without Information Sharing

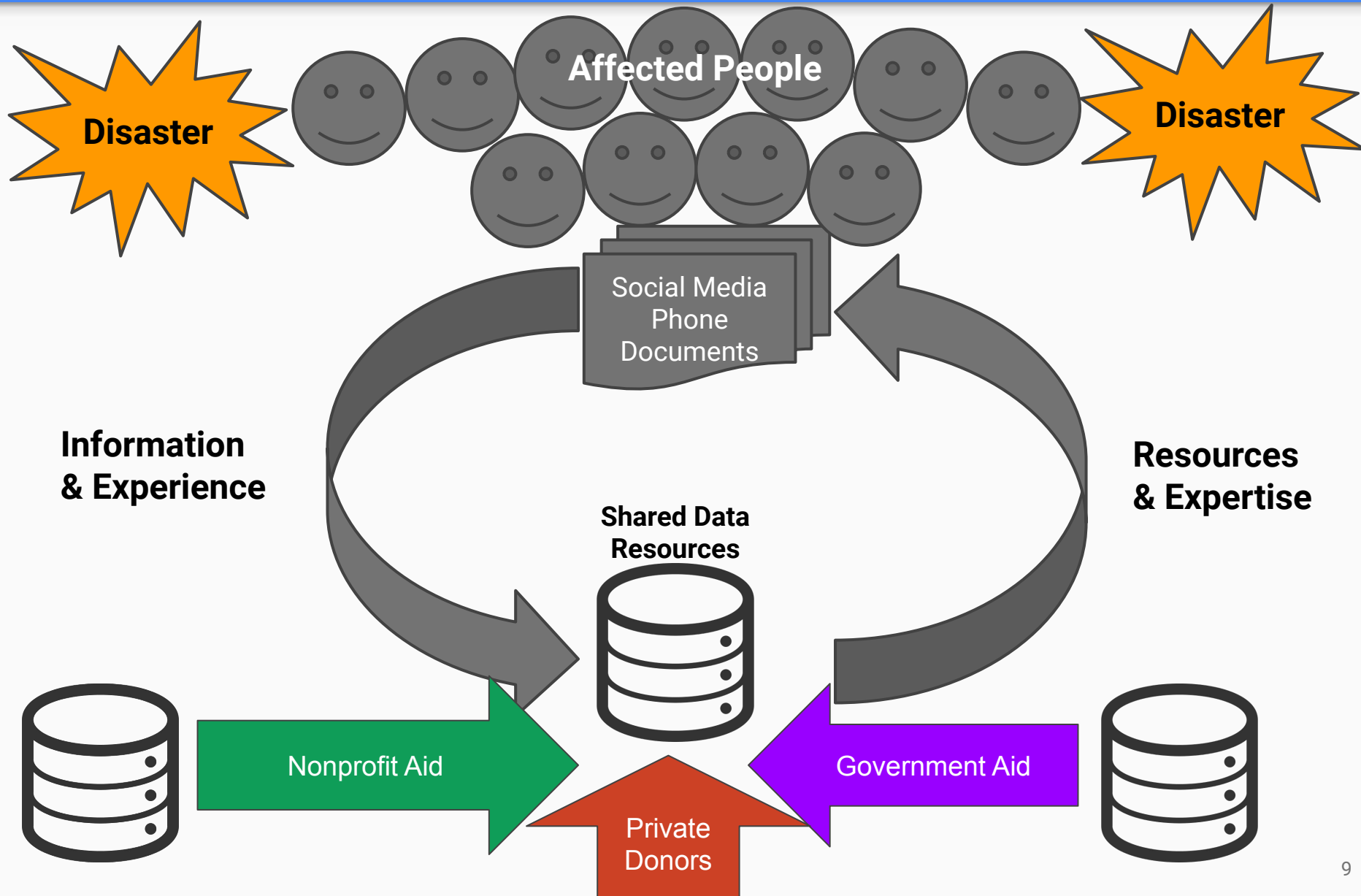


Image by Aaron Titus of Crisis Cleanup

Problem: Barrier between & within Organizations



Solutions: Share Local and Global Information



What is Open?

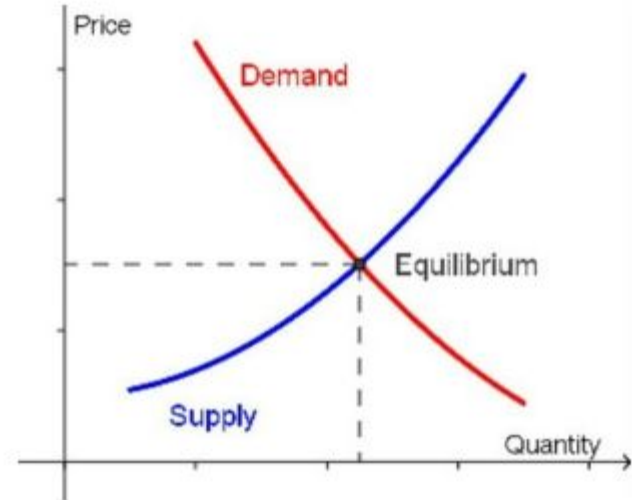
Disaster is a Dysfunctional Market

Functioning Market:

User/Beneficiary is Customer

Broken Markets: Beneficiary
can't/won't pay.

So that means: interested third
parties (government and
philanthropy) must work & pay
on their behalf.



Universal Laws of Communities / Disasters



“Our respective interests intersect, but never align. Like a pot of spaghetti.”

1. “Voluntary” means “You’re not the Boss of Me”
2. There is no pyramid, and you are not on top
3. We’re competitors so we can’t tell each other what to do.
4. Government speaks in “Command and Control.”
Communities speak in “Collaboration and Compassion.”

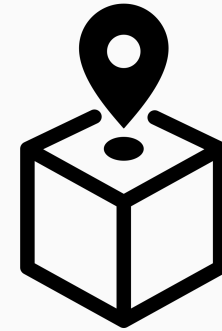
Communities are “Open Aid” Groups

- Often consist of “**ordinary people**”
- **Flexible, mostly horizontal** structures
- Form into larger **collaborative networks**
- Largely **volunteer-powered** with limited fundraising
- Heavy use of **social media for recruitment**
- Leverage **free and open source** software and data
- Can't operate without **open information flows**
- Sometimes become **nonprofits** but often don't

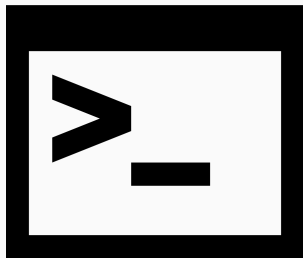
Types of Open Groups



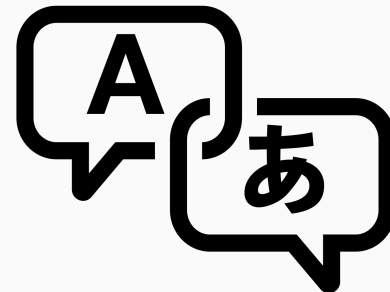
Grassroots Disaster Relief
Networks (GDRNs)



Volunteer & Technical
Communities (VTCs)



Open Technology



Open Data

What is a GDRN



Grassroots Disaster Relief
Networks were explain by DHS* as:

- Network of individuals organized into **affinity groups**
- **Strong social media presence.**
- **Shared anarchist methodology**
 - direct action
 - horizontalism
 - mutual aid.



Anarchy isn't chaos. It's
order without power.

*United States Department of Homeland Security

<http://homelandsecurity.org/Docs/The%20Resilient%20Social%20Network.pdf>

<http://benjaminheimshepard.blogspot.com/2012/11/of-tropical-storms-and-tempests-fossil.html>

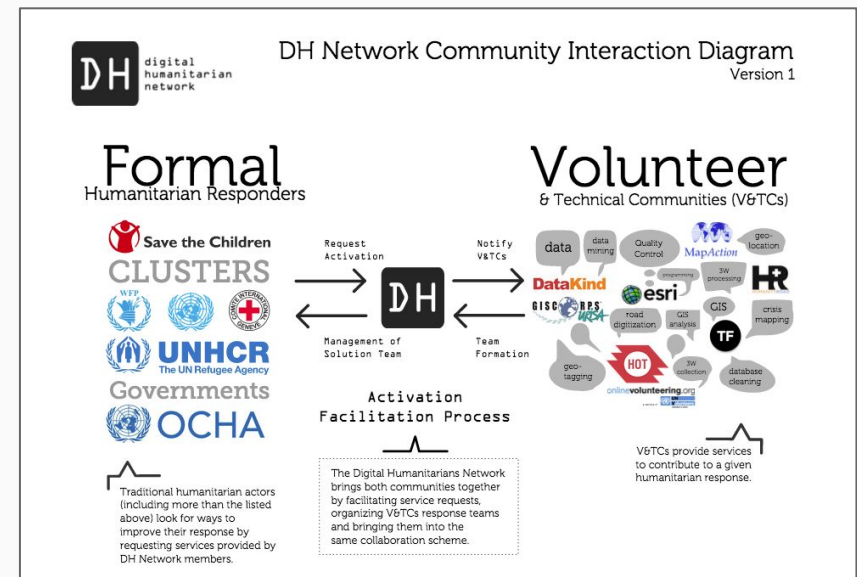
** [https://en.wikipedia.org/wiki/Mutual_aid_\(organization_theory\)](https://en.wikipedia.org/wiki/Mutual_aid_(organization_theory))

What is a Volunteer Technical Community



Groups of online volunteers, usually organized by core competency, who want to help respond to disasters.

- GIS and Mapping
- Statistical Research
- Social Media
- Network Analysis
- Meeting Facilitation and Networking
- Unmet Need Documentation
- Drone Flying and Imagery Analysis



What is Open Data?

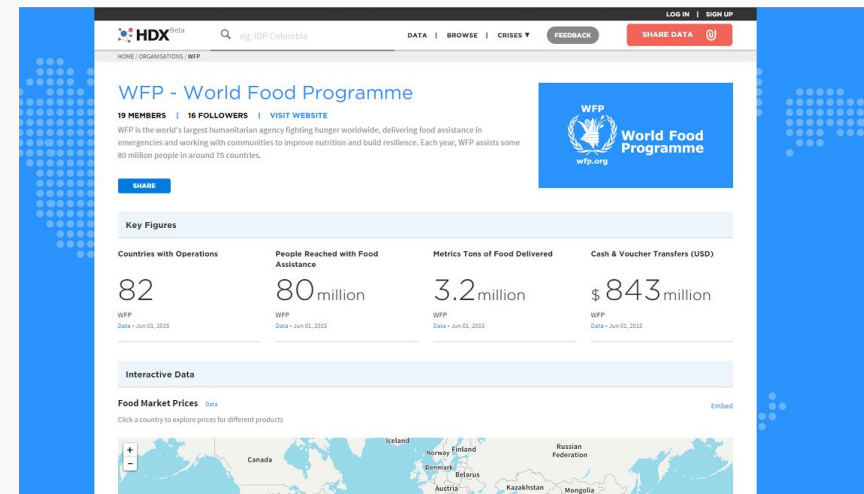


“Open data and content can be freely used, modified, and shared by anyone for any purpose”

- Global Open Data Initiative

Why?

- increases **transparency** and common understanding
- frees communities, networks, practitioners and government to **exchange and build** on common data
- promotes **accountability** and best practices



World Food Program HDX Organizational Page

Humdata.org

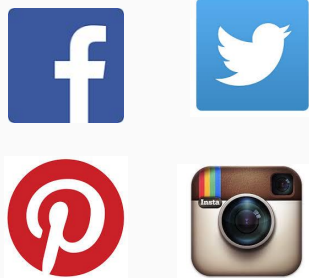
- Launched in 2014
- Currently with:
 - 360 organizations
 - 6500+ datasets
 - 25,000 unique visitors/month
- Created #HLX Data Model

What is Open Technology?



Free to Use

Social
Media



tumblr.



Open Data Friendly
Productivity Tools

Open Source Software



GIS & Mapping



AIDR
ARTIFICIAL INTELLIGENCE
FOR DISASTER RESPONSE



Social
Media
Verification



SAHANA
SOFTWARE FOUNDATION



Work Flows Supp



Websites
Operating
System



Data Mgt

Open is Advancing All Over the World



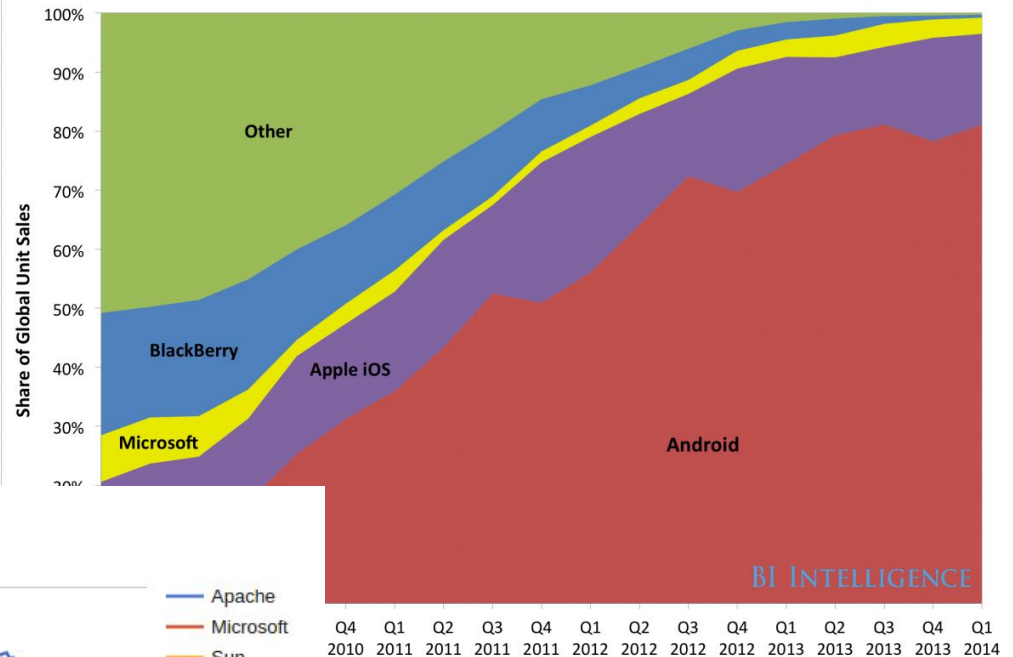
THE WORLD BANK



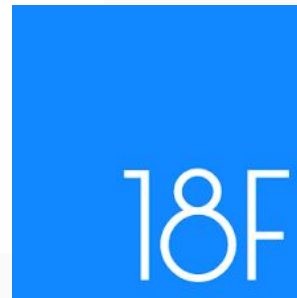
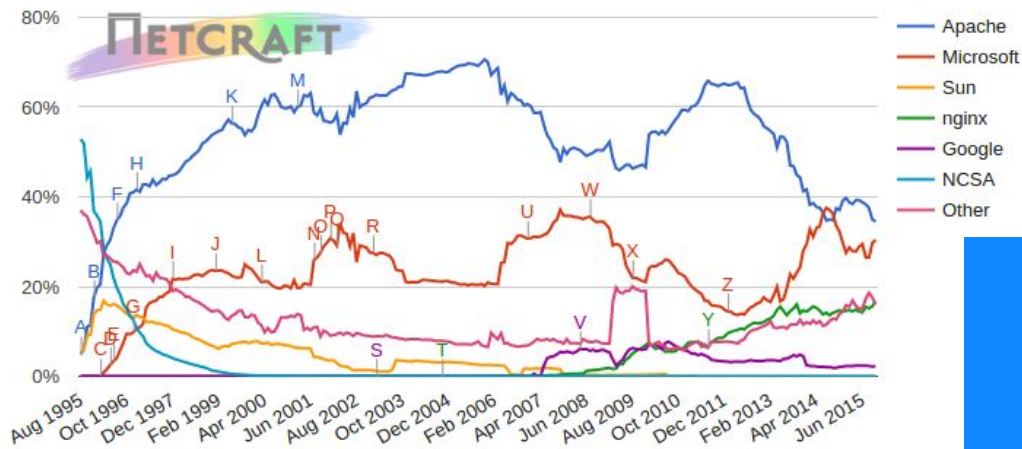
DATA.GOV



Global Smartphone Market Share By Platform



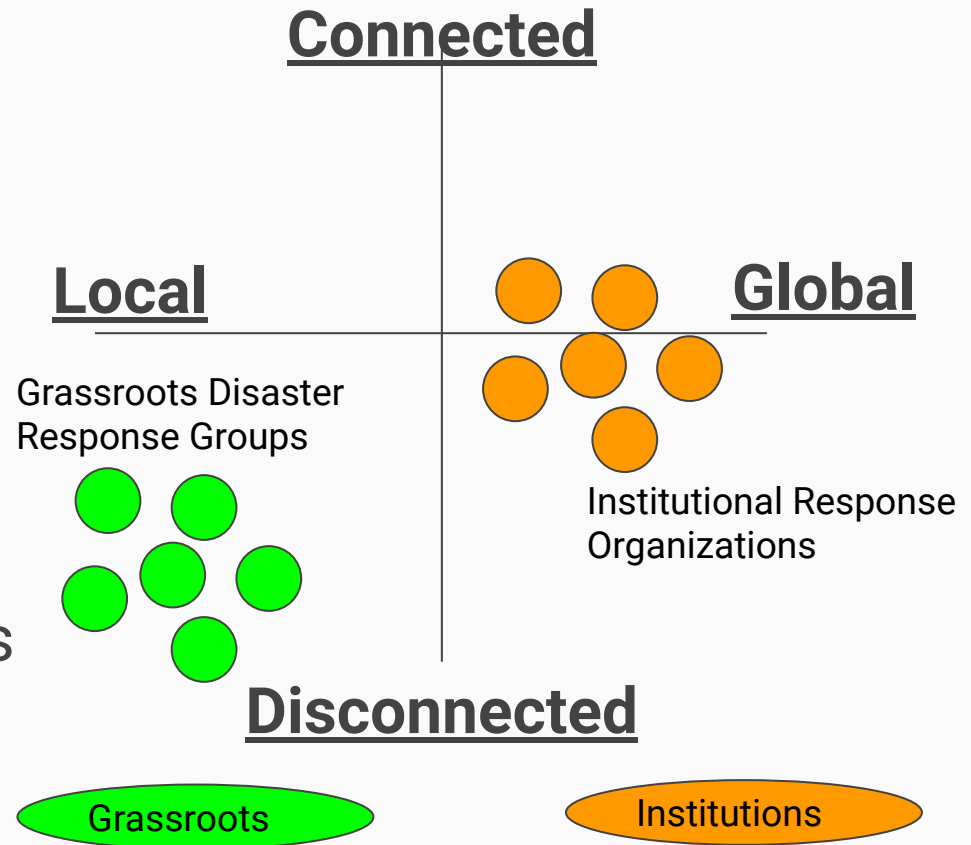
Web server developers: Market share of all sites



A Brief History

Before the iPhone

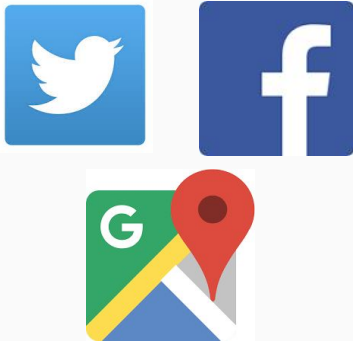
- Big institutions had exclusive access to network communications technology.
- Grassroots response was local and disconnected.
- There was no way for locals to efficiently access global resources outside institutional channels.



2010 Example: Haiti Earthquake



Public Data



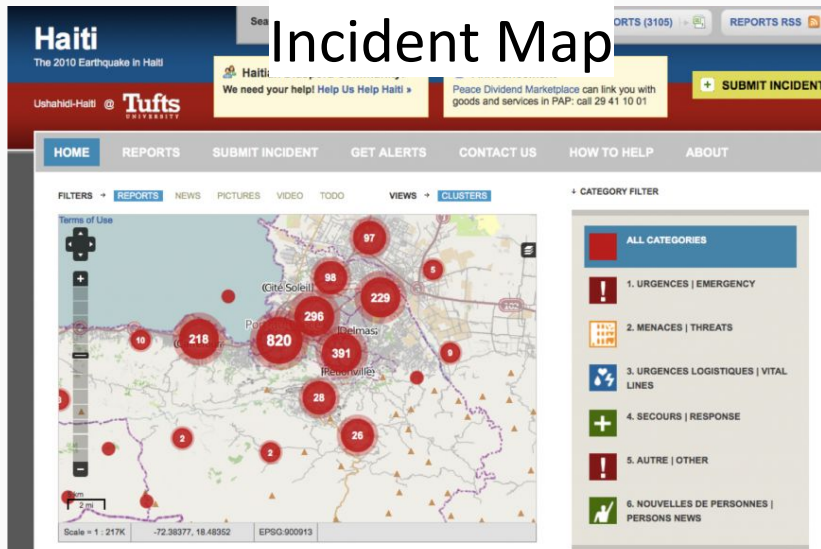
Human Action



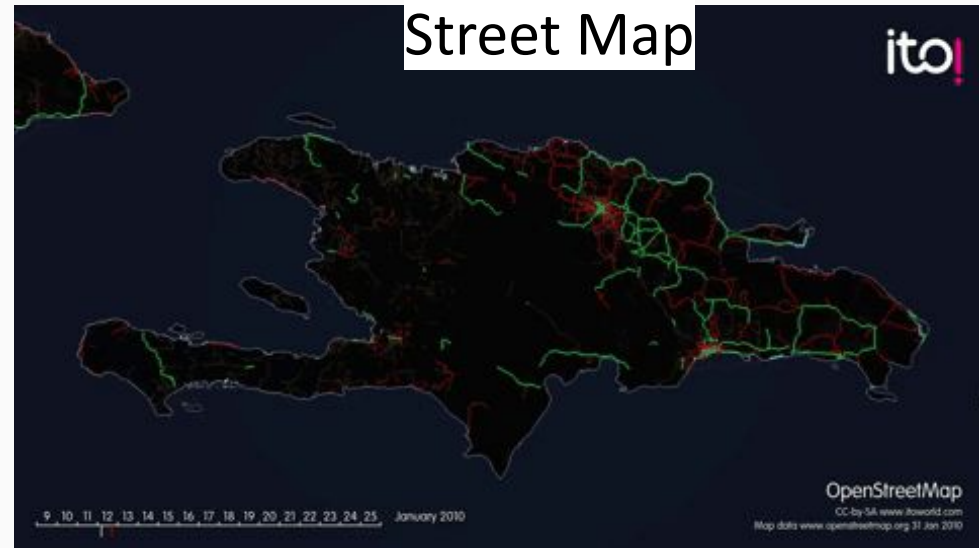
Open Source Software



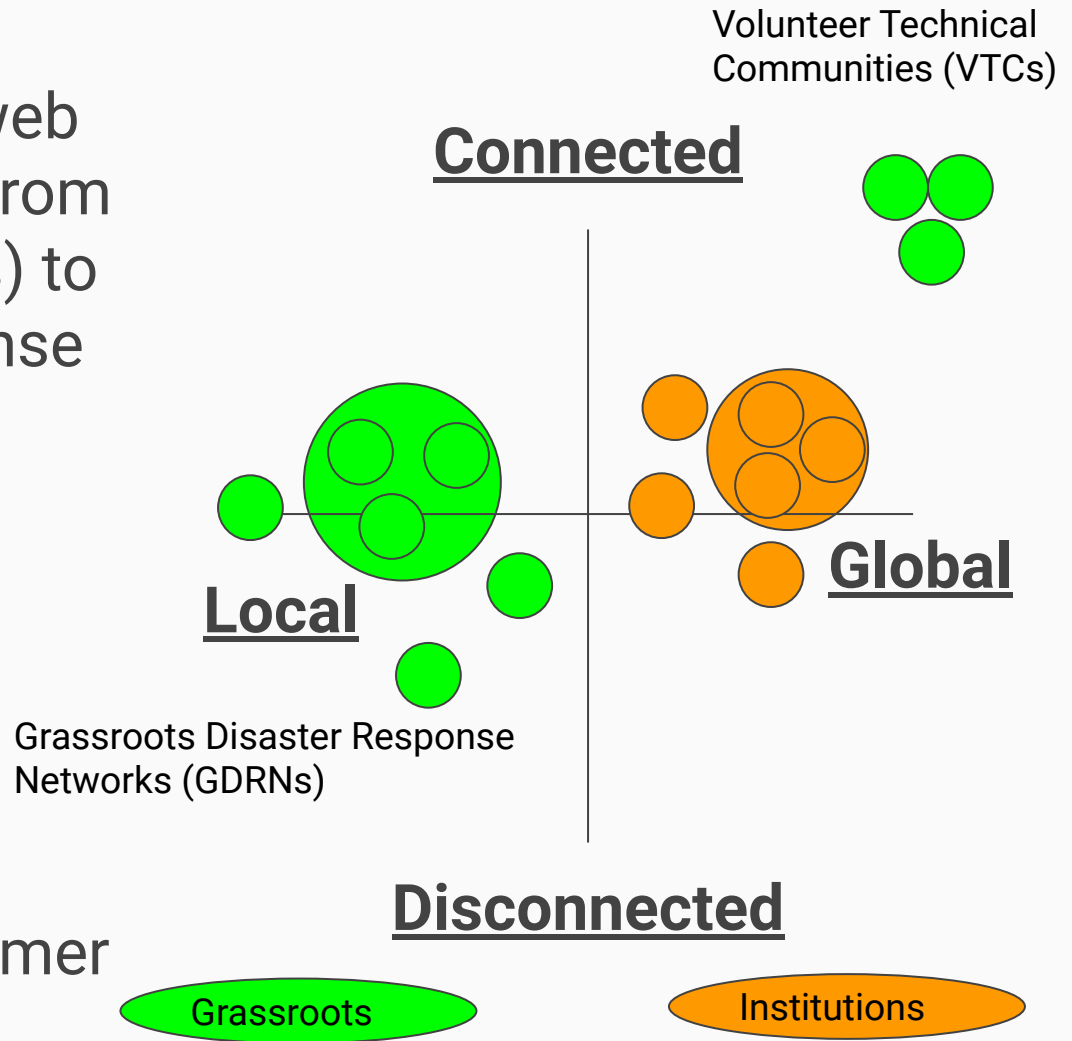
Incident Map



Street Map



- Free and open source web tools enable volunteer from around the world (VTCs) to process disaster response information.
- Cheap communication technology enables grassroots groups to coordinate and form networks (GDRNs).
- Big institutions are outperformed as consumer technologies outpace institutional ones.



2012 Example: Sandy in NYC

Within 48 hours

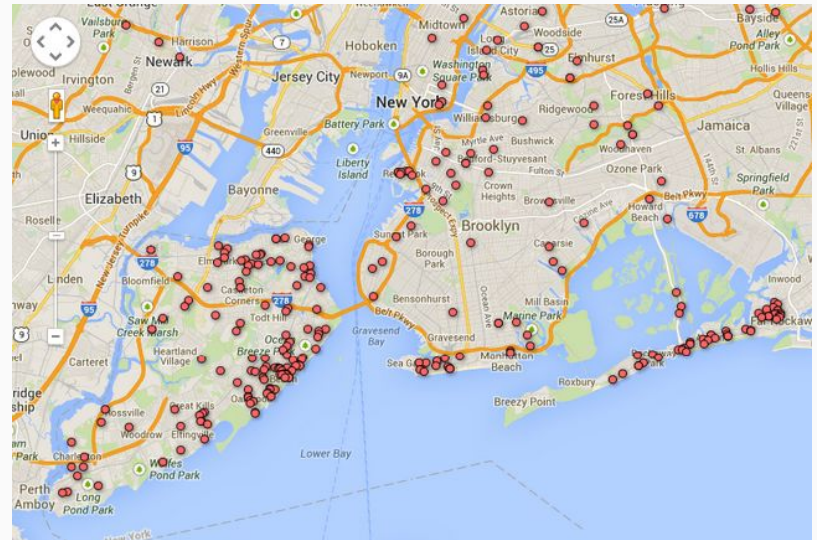
- Social network profiles
- Website and volunteer database
- First base of operations
- SMS communications

Within two weeks

- 3 main hubs producing 10k-20k meals/day
- Supplying approximately 20 relief sites

Within 30 days

- Contact with 360 locations.



Phase

Time

Scouting

48 hours

Networking

2 weeks

Relationships

6 months

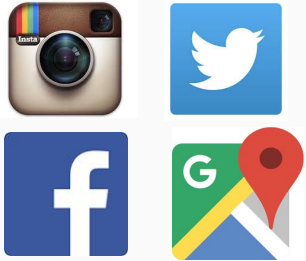
Projects

3 years

2015 Example - Nepal Earthquake



Public Data



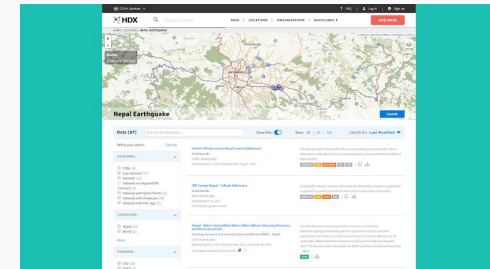
Open Aid Community



Big NGOs



DataRepo



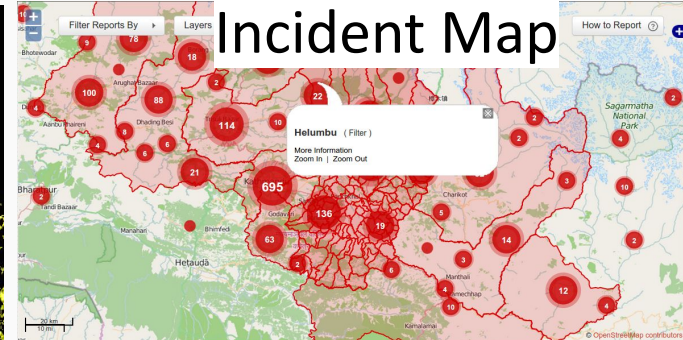
Local & Digital



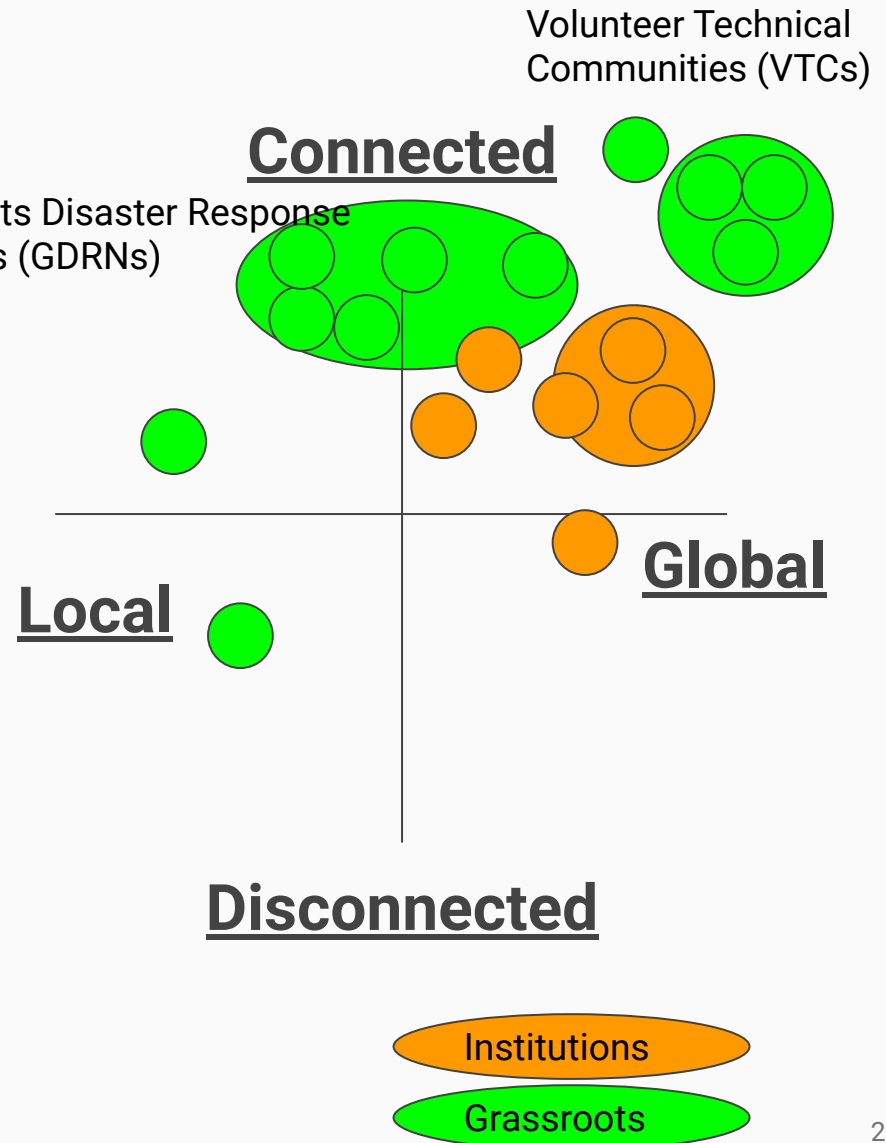
Street Map



Incident Map

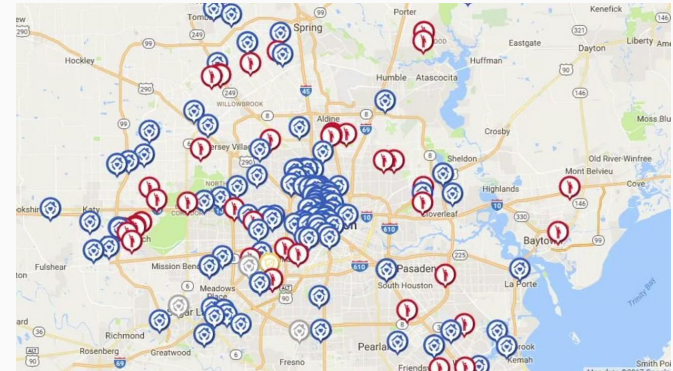


- Ubiquitous smartphones make real-time civilian location-aware coordination possible.
- Optimized crowdsourced tools enable global volunteers to feed local responders quality information.
- Institutional mechanisms exist to bring grassroots and institutional data sources together.

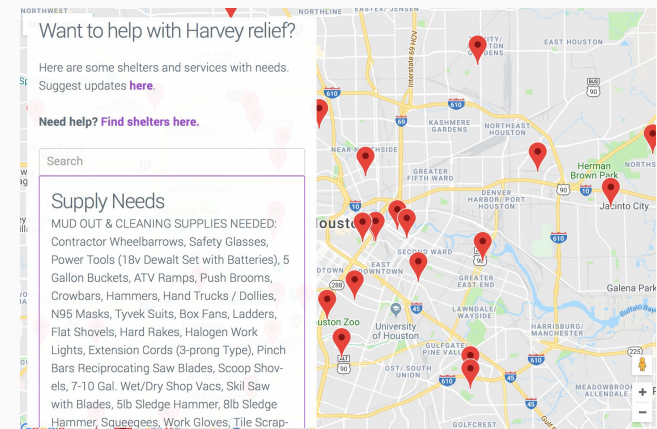


2017 Example: Hurricane Harvey in Texas

- SketchCity, Houston's 3000 person civic tech community mobilizes.
- An API to manage shelter locations and needs with info offered via text bot
- A service to coordinate rescues
- A service to help individuals find and mucking out homes
- A website to report your volunteer hours to the city.
- 16,073 people used the text bot to find the closest shelter
- 18,562 people accessed the website HarveyNeeds.org
- ~23,000 people used the muck map
- ~6,600 people used the shelter map
- 539,537 volunteer hours reported on reportyourhours.com
- **Everything is open source and ready for redeployment.**



The Texas Muck Map was used during the weekend following Harvey.



The shelter map helped coordinate people to shelters, but also needs across multiple shelters.



CROWD SOURCE RESCUE

Neighbors Helping Neighbors





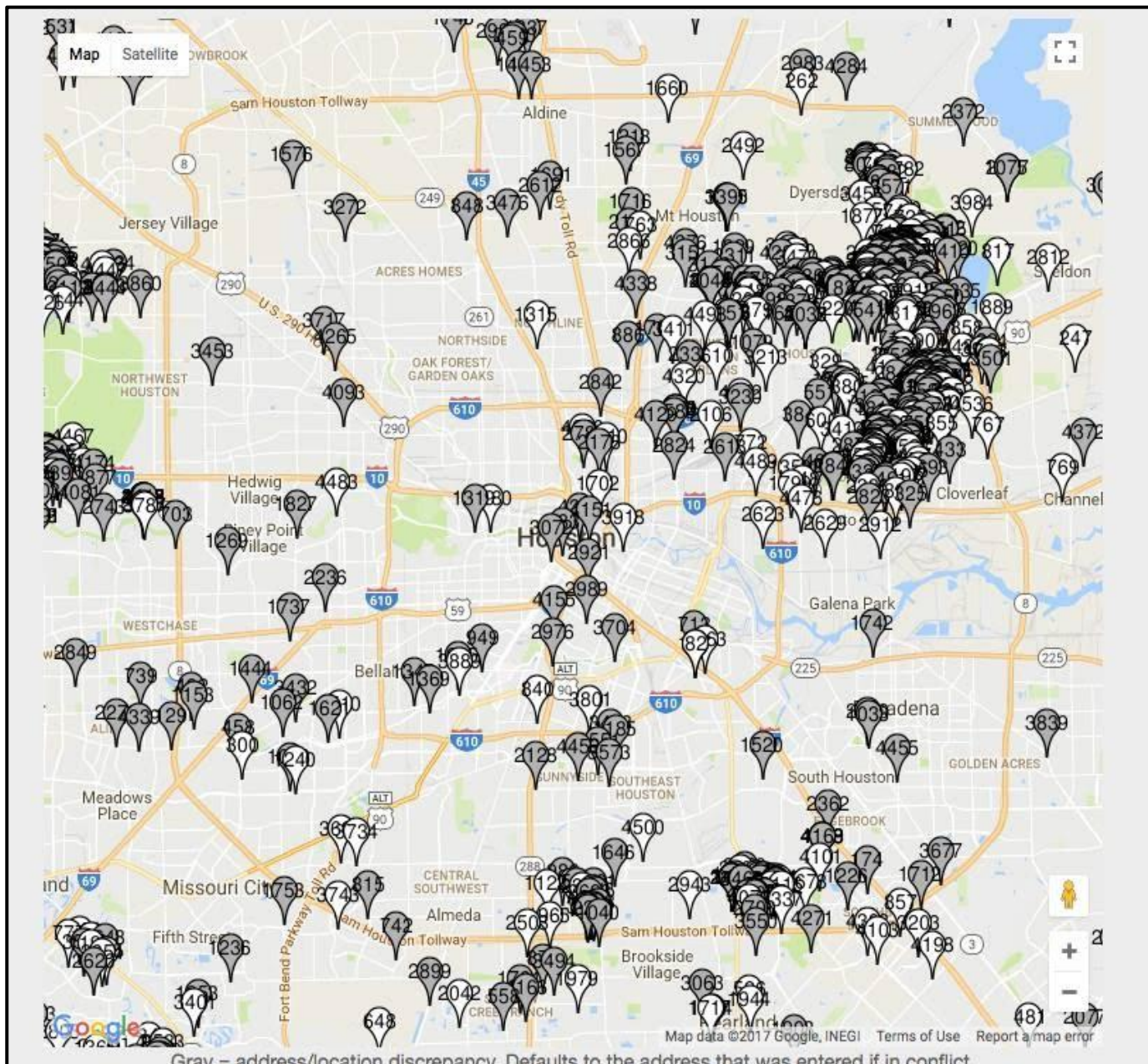
CROWDSOURCE RESCUE

CrowdSource Rescue is a 100% volunteer organization that helps connect neighbors with neighbors and has helped rescue close to 42,000 people. If you have not been able to contact your family member or know of somebody who needs help, please click the red button below. We will work with local officials and volunteer organization to get them help. Help is not guaranteed and you should always call 911 during an emergency.

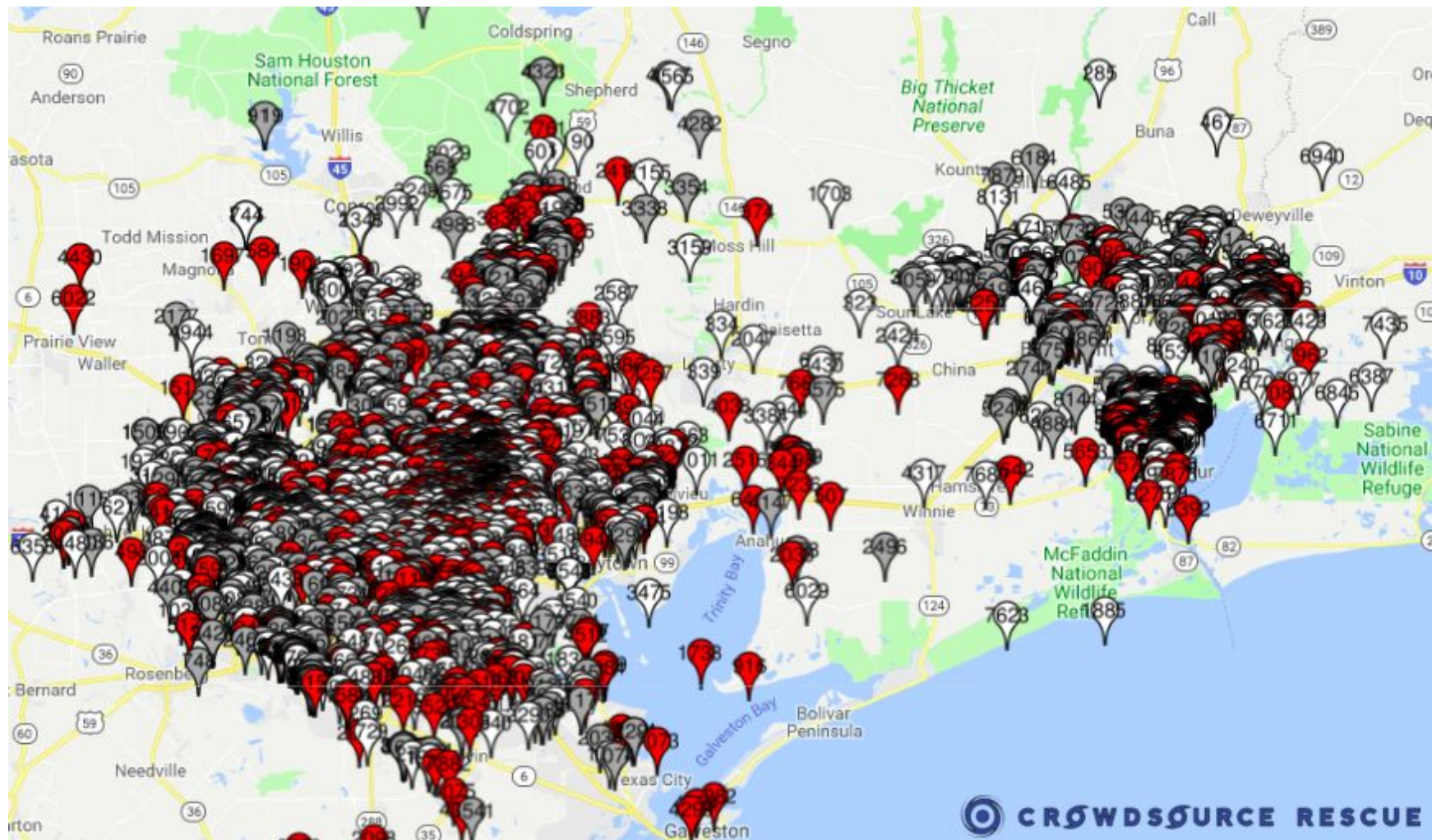
[I Need Help](#)

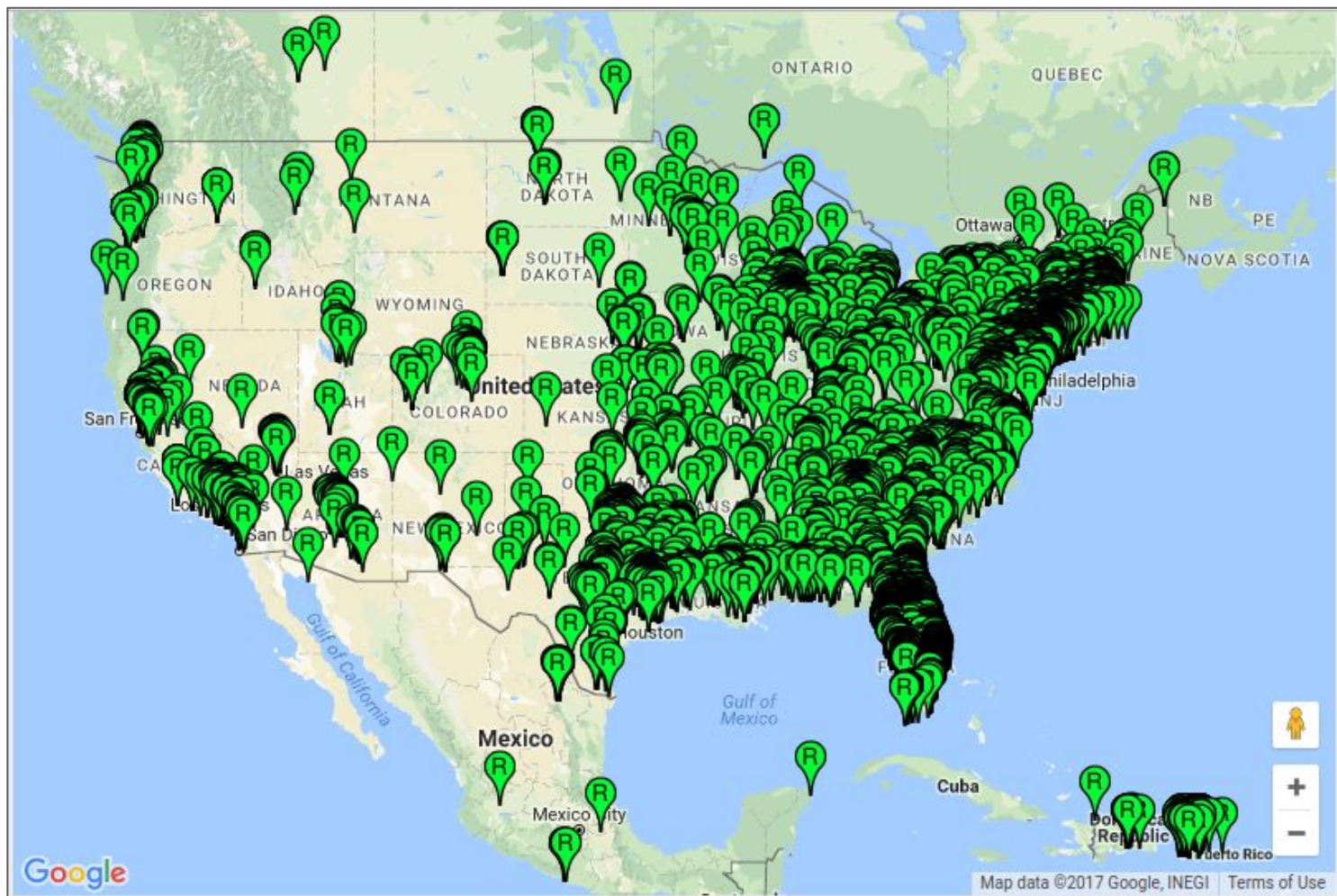
[I Can Help / Volunteer](#)

[Rescue Map](#)

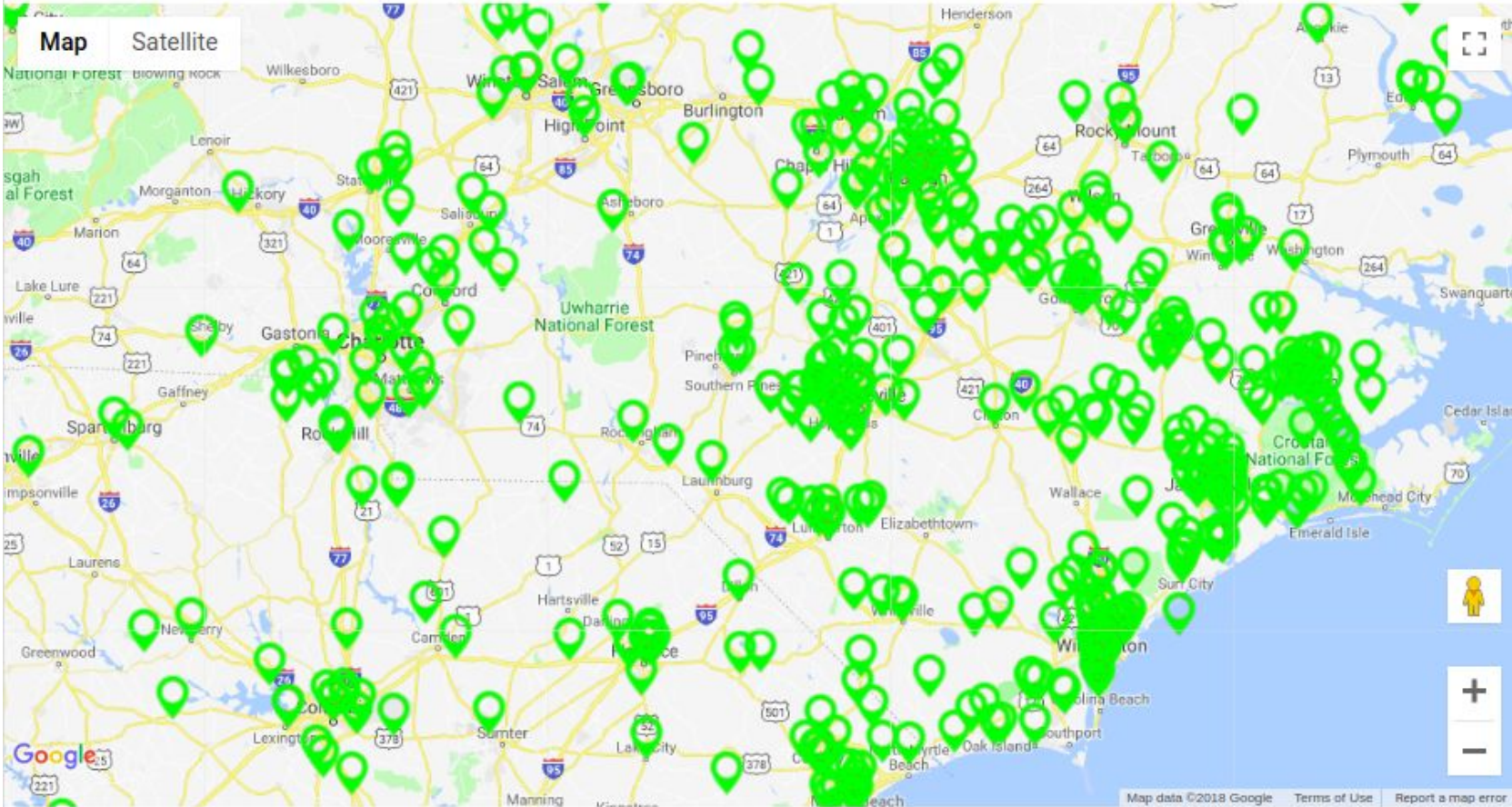


Monday Morning





CSR: Hurricane Florence



Thanks to you, 2343 people have been helped!

219

Active Tickets

Front Page

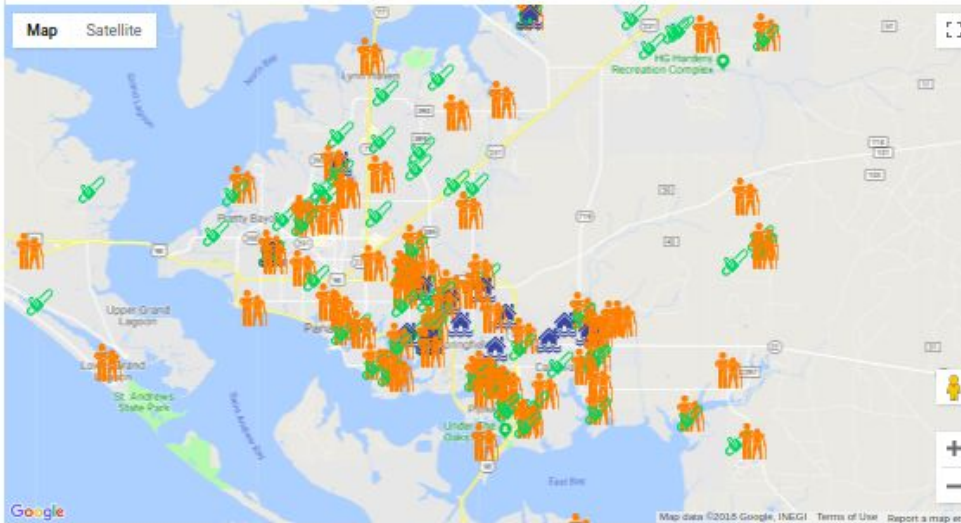
Admin

716

Rescued Tickets

Map

CSR: Hurricane Michael



Layers

Toggle Locations

Toggle Rescuers

Toggle Tickets

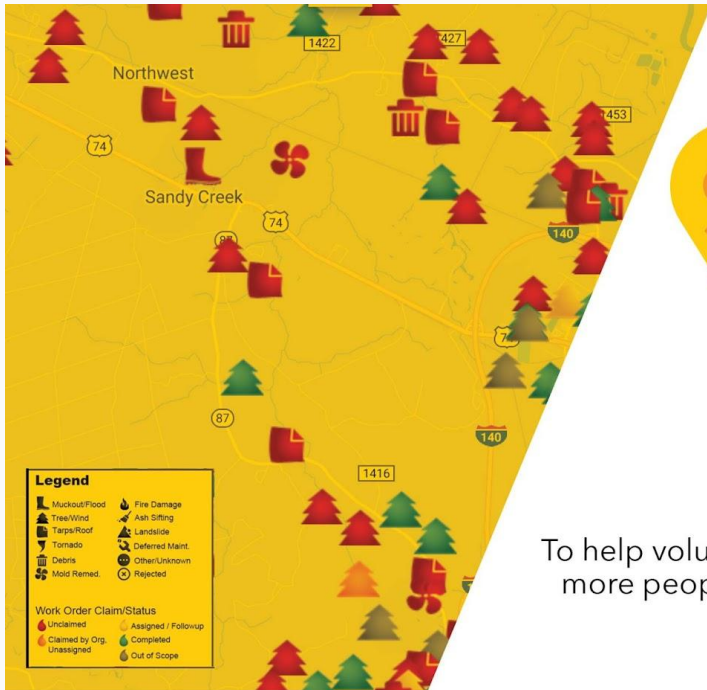
- ☐ All Locations
- ☒ Animal Tickets
- ☒ Water Rescue Tickets

- ☐ Rescuers
- ☒ Debris Removal Tickets
- ☐ All Tickets

- ☐ All Users
- ☒ Wellness Check Tickets







CRISIS CLEANUP

www.crisiscleanup.org

Our Mission:

To help voluntary relief organizations help more people by enabling collaborative disaster recovery.



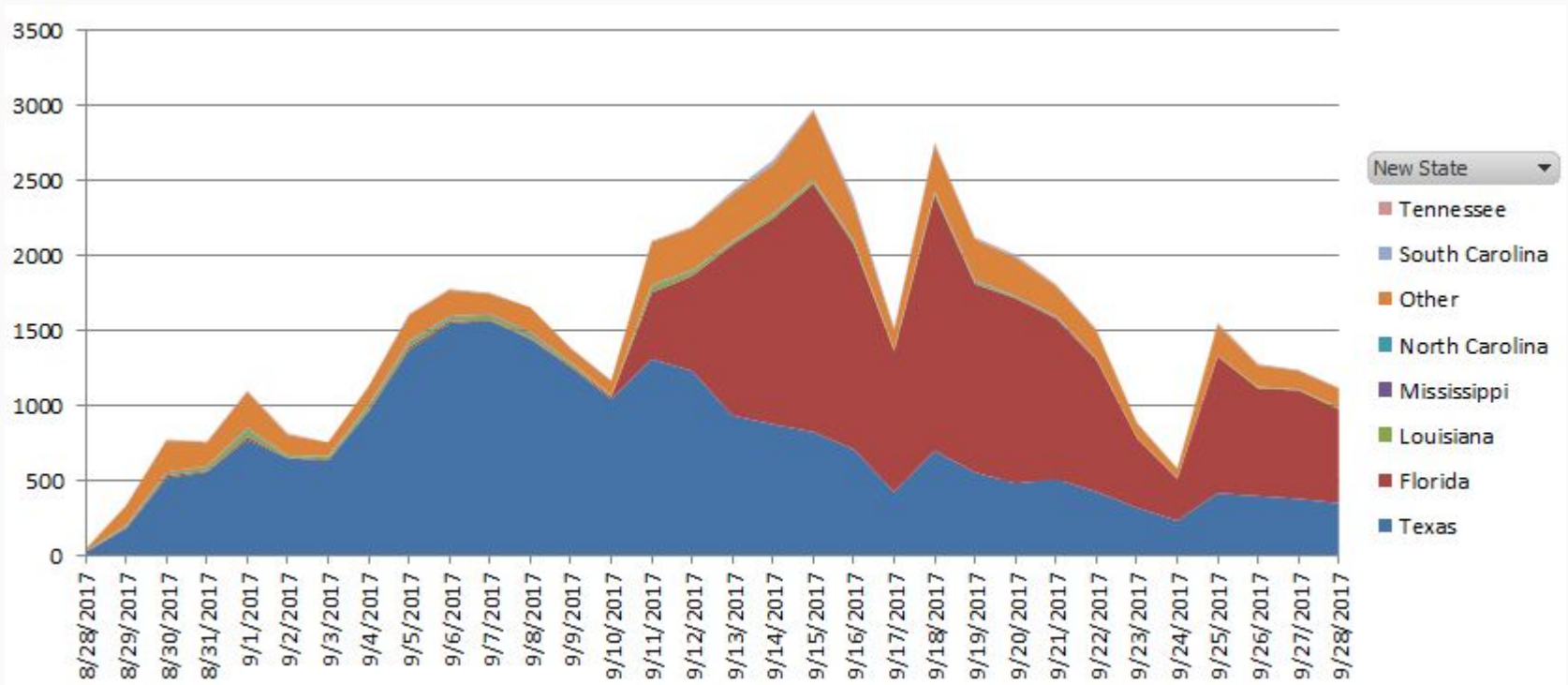
Case Study: Crisis Cleanup

- **Mission:** Crisis Cleanup helps relief organizations help more people through transparent collaboration.
- **Open Source.** Version 3.0 is under development.
- **Open (but not Public) Data.** Participating orgs must:
 - Be on the ground.
 - Interact with survivors.
 - Perform cleanup.
 - Be reputable.
- **Public Hotline.** Answered by local volunteers.
- **Privacy:** About property, not people. No sensitive PII.

Case Study: Crisis Cleanup

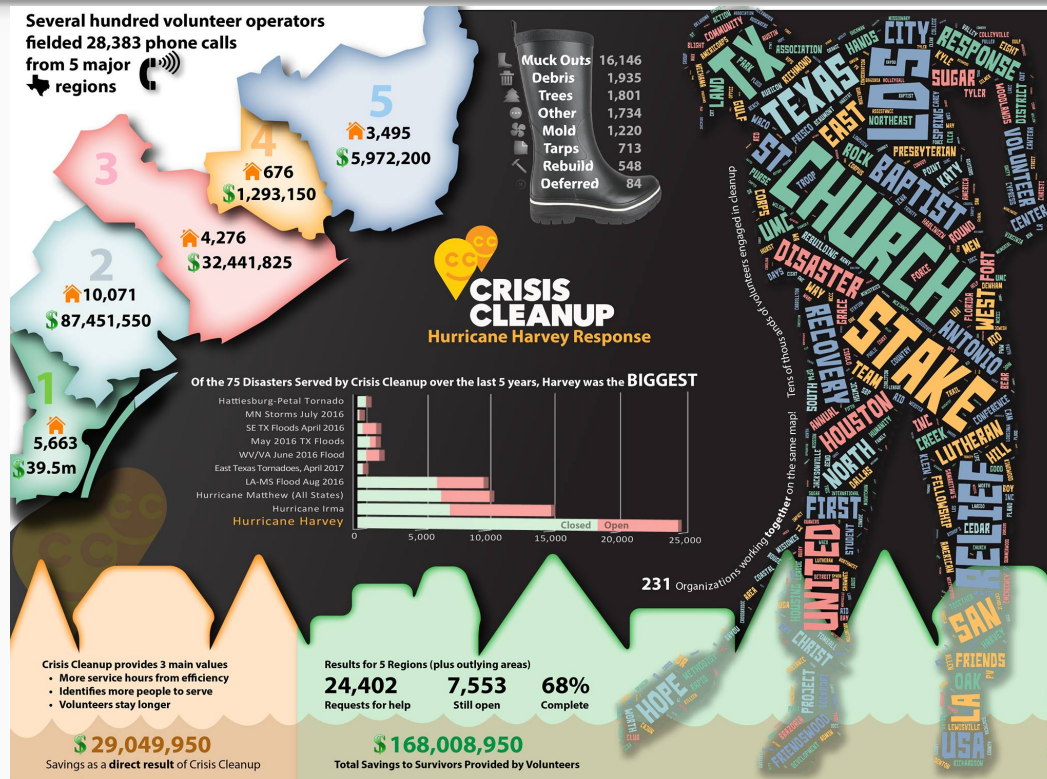
- **Collaborative.** No single organization is “in charge.” Any org may enter a work order. Any org may claim.
- **Transparent.** Every org can see the whole picture.
- **Available.** Any reputable relief organization may activate Crisis Cleanup upon request.
- **Craigslist Philosophy:** Local community is responsible for their data. Data stays with local LTRGs after disaster.
- **114 Disasters, 40 states, 1,500 relief organizations.** A new disaster every 2 weeks.
- **Nearly \$1bn** of service documented.

Crisis Cleanup: Harvey and Irma



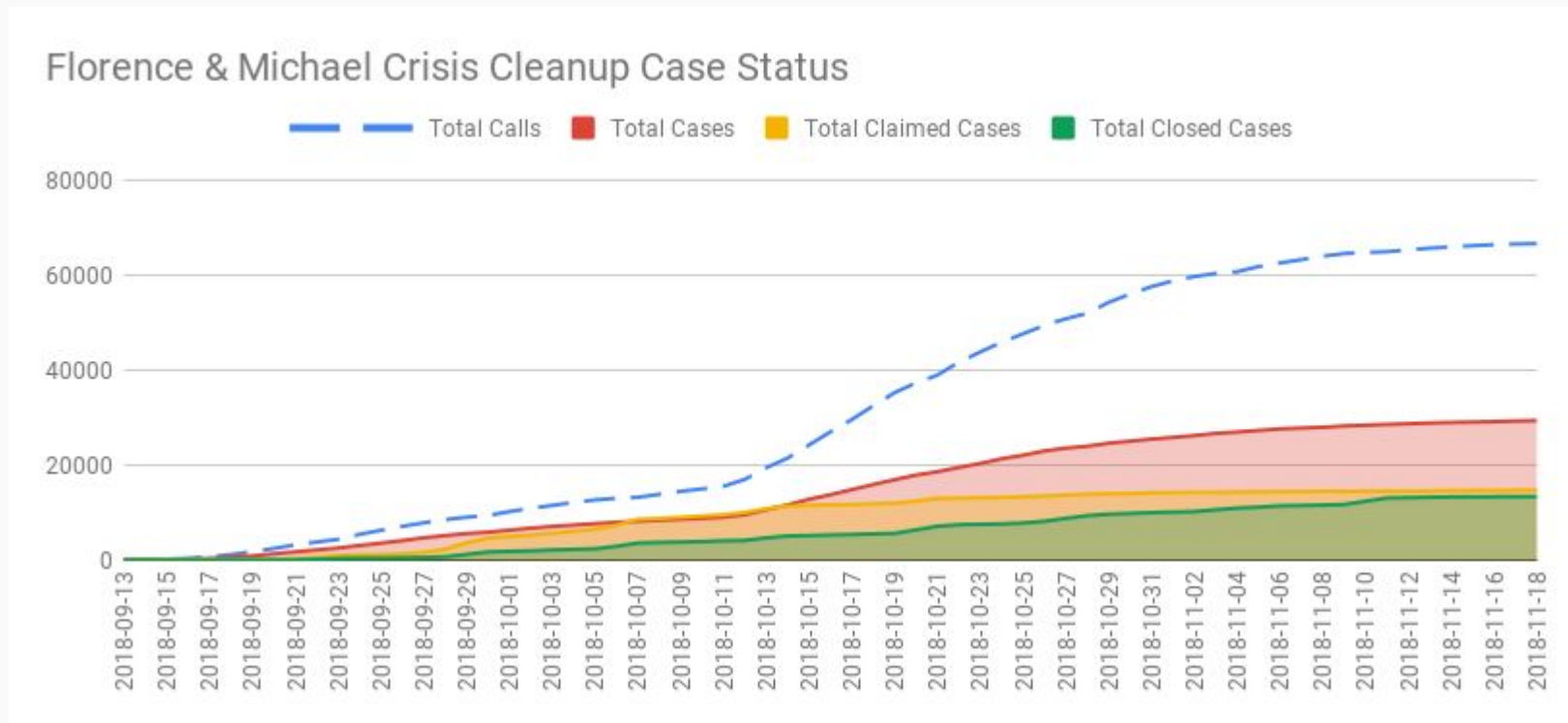
- **60,000 calls.** Answered by volunteers in 5+ states.
- **40,000 cases.** 70% Reported Completion.
- **3,000 peak calls.** Blue= TX. Red= FL. Orange= Cell.

Crisis Cleanup: Harvey and Irma



- \$283 M. Saved survivors.
- 29,073 homes. Reported cleaned up (minimum).
- 500 Agencies. 50,000+ volunteers.

Crisis Cleanup: Michael and Florence



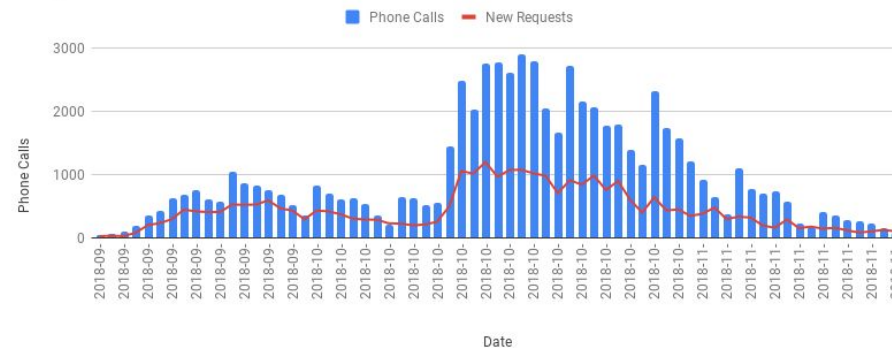
- **65,000 calls.** Answered by volunteers in 5+ states.
- **33,000 cases.**
- **2,800 peak calls.**

Crisis Cleanup: Michael and Florence

Florence & Michael Cleanup Velocity: New & Closed Cases Per Day



Daily Phone Calls and New Cases



Crisis Cleanup: Michael and Florence



- If we continued to work at the current rate, how many weeks until the *current* case load is complete
- We can now quantify when the cleanup phase ends, and LTR begins.

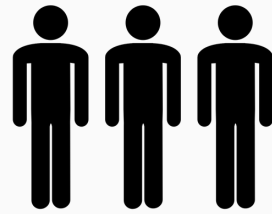
Crisis Cleanup: Over-all Statistics

- **+25%.** Volunteer efficiency → Community savings.
- **75,000:** Total Households Assisted. (30 per day, 7 years)
- **4.5 Million:** Volunteer hours facilitated.
- **\$705.9 Million.** Total recorded market value of services.
- **\$958.** Value of each cleanup volunteer to community.
- **\$119.6 Million.** Value of services that would have otherwise been wasted in travel, management, lines.
- **\$49,197.** Saved survivors every day since July 18, 2012.
- **\$248.** Return on investment to survivors, for every \$1 invested in Crisis Cleanup.

Now What?

Does the VOAD community
care about open innovation?

Let us know:
sahanafoundation.org/nvoad



“If you want to go fast, go
alone. If you want to go far,
go together.”

African Proverb

Thank You

Case Study: Hurricane Harvey in Texas

- Founder of data science firm January Advisors
- Founder of Sketch City, Houston's civic hacking community of 3,000+
- Board member of the League of Women Voters of the Houston Area
- Builds tools using R, Shiny, Python, and Javascript
- Passionate about data, design, and democracy



Jeff Reichman

Case Studies: Kathmandu Living Labs & NetHope Ebola Response Project

- Facilitates events & project manages for govtech consultancy Truss
- Founder of Geeks Without Bounds, an accelerator for disaster & humanitarian projects
- Twice a Coordinator for the Digital Humanitarian Network
- Board member of Do No Digital Harm
- Fixated on formal/informal coordination, especially in response.



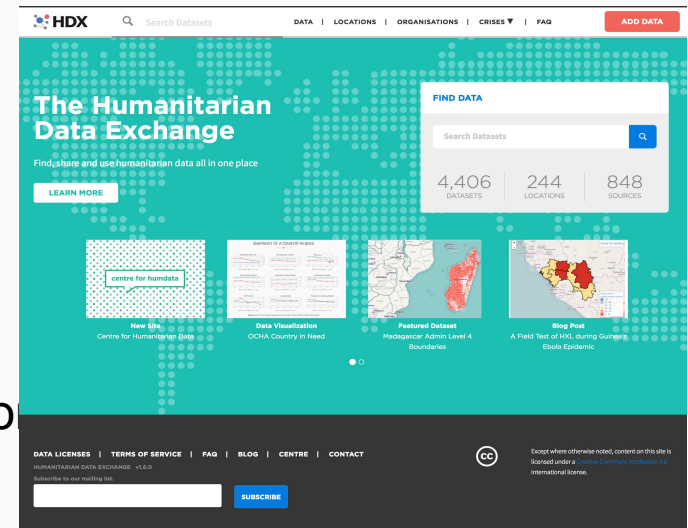
Willow Brugh

Additional Content

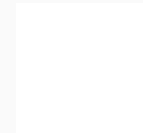
Humdata.org Case Study

Case Study: Humanitarian Data Exchange

- “Humanitarian Data Exchange”
- UN open-source **data repository**
- Contains international datasets such as:
 - Baseline/development data (population statistics, mortality rates, socio-economic indicators, Food prices)
 - Reference data (Boundaries, transportation network, hydrology, elevation, populated places, logistics)
 - Situational data (needs assessments, IDPs, DTMs, deaths, affected people)
 - Response data (Who’s doing What Where, Care facilities, Priority index, funding, HNOs)



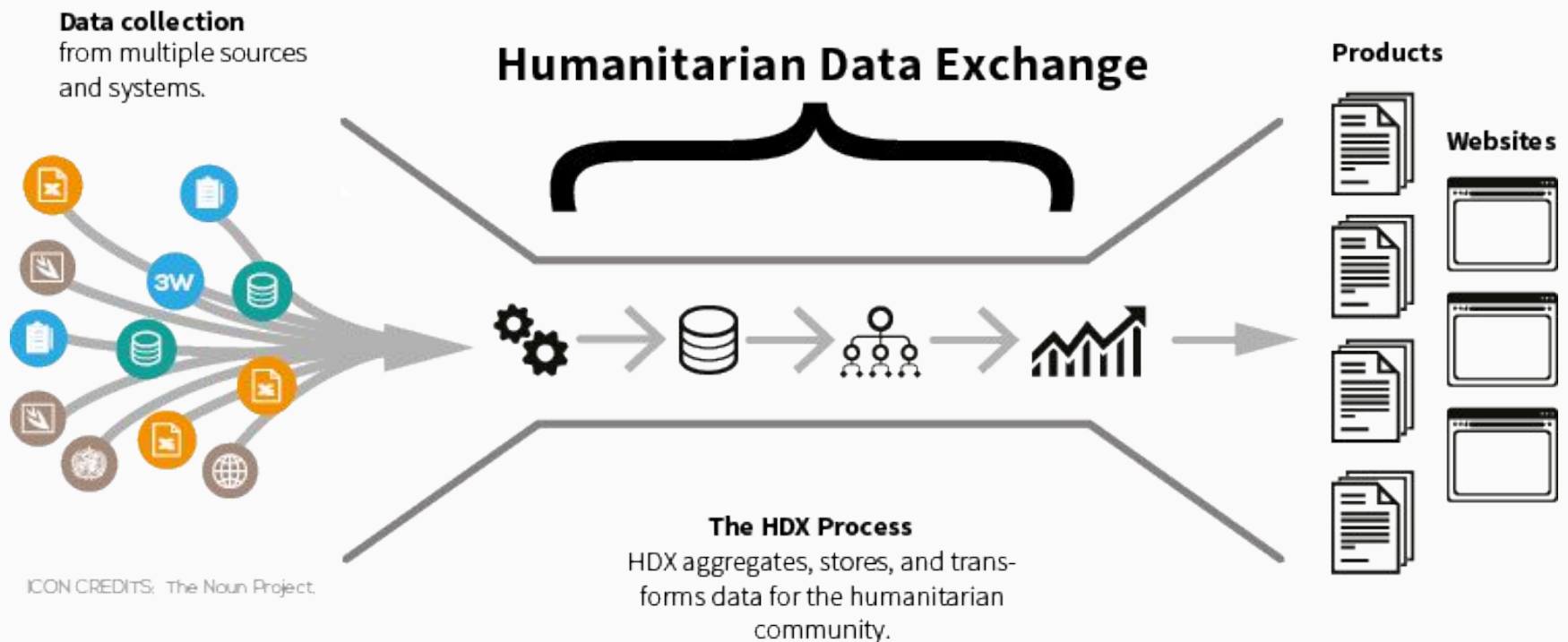
World Food Program HDX Organizational Page



source: UN-HDX

Least Common Denominator Approach

Allows participants to upload data in the most accessible file formats (ex. CSV) and then produces information products with it.



Democratizing Data Standard Discussion

“Can our issue be solved by agreeing on the top row of a shared spreadsheet?”

Qui?	Quoi?			Où?	
Organisation	Secteur	Code du secteur	Activité	District	P-code du district
#org	#sector	#sector +code	#activity	#adm1	#adm1 +code
UNICEF	Alimentation	NUT	Distribution de rations	Côte	D001
Croix rouge	Logement	SHL	Distribution de tentes	Côte	D001
OMS	Santé	HEA	Vaccinations antirougeoleuses	Montagnes	D005

Advice

Leveraging Open Technology

- **Conduct trainings** for staff interfacing with communities in freely accessible software solutions such as Google Drive & Docs.
- **Write a list of values** for your technology systems that can guide software procurement decisions.
- **Evaluate your expenditures** of software licenses and explore whether open source solutions would be more cost effective.
- Read about the difference between “monolithic” and “iterative” software procurement.*

*<https://18f.gsa.gov/2017/10/11/pulling-back-the-curtain-on-it-procurement/>

How to Leverage GDRNs

- **Create a Directory** of local mutual aid groups using a spreadsheet or database.
- Publish a **process for GDRNs** to submit needs information to your organization and frame their expectation.
- Create places **where groups can convene** 24/7 virtually (like Slack) and physically (i.e. in or around the emergency operations center)

How to Leverage VTCs

- Get familiar with the **directory** of VTCs at recola.org
- Offer your **skills** to existing VTCs
- After a global disaster, **reach out** to VTCs for actions you know them to be capable of
- **Publish data** about community assets and vulnerabilities to your local open data portal. If there isn't one (ex. humdata.org) create one using CKAN or a file sharing service like Dropbox

Leveraging Open Data

- **Publish an open data policy for your organization** outlining what information should be accessible to the public.
- **Maintain information sharing templates** (data models) that people can use to make data accessible to your agency.
- **Work with local civic tech groups** to organize events that bring together “techies” and emergency management personnel together around specific shared data sets.