Crowdsourcing for Disasters

How government can provide structure to people's natural inclination to share information

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Disasters and Data

1. People want to share information.
2. The government doesn’t have all the information people need.
3. People want to help fix their community after a disaster.
4. The government can’t fix a community on its own.
The Virtuous Circle

Public volunteers crowdsourced data

Gov’t opens crowdsourced data

Gov’t provides structure, makes data more actionable, complete, & accurate
Case Study from Katrina (long-term recovery)
Lower Ninth Ward Neighborhood: Housing & Housing Costs

Data Tables: People & Household Characteristics, Housing & Housing Costs, Income & Poverty, Transportation, Employment, Educational Attainment, Immigration & Language, Disabilities, Neighborhood Characteristics

Housing characteristics

### Definitions and source links

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Total housing units (full count)</td>
<td>5,601</td>
<td>215,091</td>
<td>1,847,181</td>
<td>115,904,641</td>
</tr>
<tr>
<td>Occupied housing units</td>
<td>86.1%</td>
<td>87.5%</td>
<td>89.7%</td>
<td>91.0%</td>
</tr>
<tr>
<td>Vacant housing units</td>
<td>13.9%</td>
<td>12.5%</td>
<td>10.3%</td>
<td>9.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Renters and owners (2000)</th>
<th>Lower Ninth Ward</th>
<th>Orleans Parish</th>
<th>Louisiana</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total occupied housing units</td>
<td>4,820</td>
<td>188,251</td>
<td>1,656,053</td>
<td>105,480,101</td>
</tr>
<tr>
<td>Owner occupied</td>
<td>59.0%</td>
<td>46.5%</td>
<td>67.9%</td>
<td>66.2%</td>
</tr>
<tr>
<td>Renter occupied</td>
<td>41.0%</td>
<td>53.5%</td>
<td>32.1%</td>
<td>33.8%</td>
</tr>
</tbody>
</table>

The Lower Ninth Ward has a higher rate of homeownership than the city as a whole. Why is that, and what does it mean for the neighborhood? Read these insights from Lower Ninth Ward residents...

Source Citation: U.S. Census Bureau. Census 2000 Full-count Characteristics (SF1). From a compilation by the GNO Community Data Center. <http://www.gnocdc.org>
Hurricane Katrina
August 27, 2005
10 AM CDT Saturday
NWS TPC/National Hurricane Center
Advisory 17
Current Center Location 24.5 N 85.0 W
Max Sustained Wind 115 mph
Current Movement W at 7 mph

- Current Center Location
- Forecast Center Positions
  - H Sustained wind > 73 mph
  - S Sustained wind 39-73 mph
- Potential Day 1-3 Track Area
  - Hurricane Watch
  - Tropical Storm Warning

True at 30.00N
SM 125 250 10 AM Sat 00
Approx. Distance Scale (Statute Miles)
… Matt Fellowes of the Brookings Institution in Washington, which will soon begin publishing a Katrina Index on the rebuilding effort, said it had been *easier gathering data for Iraq than for New Orleans.*
Crowdsourcing scoring of property condition

DESIGN CHALLENGES
- Large scale (149,000 parcels)
- Cost-effective enough to repeat
- Limit boots-on-ground collecting data
- Reduce scoring bias between nbhds

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>Vacant/Built</td>
<td>Building</td>
</tr>
<tr>
<td>Overgrown</td>
<td>False</td>
</tr>
<tr>
<td>Bldg Use</td>
<td>Residential</td>
</tr>
<tr>
<td>Bldg Condition</td>
<td>Good</td>
</tr>
<tr>
<td>Occupancy</td>
<td>Occupied</td>
</tr>
<tr>
<td>Elevation Type</td>
<td>Elevated – crawl space</td>
</tr>
</tbody>
</table>
“Operation Tropic Thunder”

DESIGN CHALLENGES

1. Large scale (149,000 parcels)

2. Cost-effective enough to repeat

3. Limit boots-on-ground collecting data

4. Reduce scoring bias
Randomized parcels across city reduce bias, generate statistically meaningful data

Sequential parcels along street **VS.** Random parcels across city
Operation Tropic Thunder – Where is it now?

Property Survey

Is there a structure on the property?

Yes  No  Not sure

Is the lot overgrown?

Yes  No  Not sure
Case Study from Sandy (immediate aftermath)
“We started this up last night, we just wanted to help... I personally needed gas, we all needed gas. So we started out with five points and just had more friends and high school students get involved.”

- Dayana Bustamante, Franklin High student
Lantern Live DESIGN CHALLENGES

1. Apply crowdsourced open/closed status to specific gas stations

2. Critical mass of users to keep gas station status current throughout event

3. Provide users with enough detail so they trust the data and can act on it
Biggest challenge: Getting enough users

1. Publicize standardized hashtags of #gotfuel, #nofuel and encourage people in impacted areas to enable location services on social media

2. Create an open read/write API so 3rd party apps could both consume status of gas stations, and also allow their users to tag status within their app
Second Biggest challenge: Personally Identifiable Information (PII)

• How to allow users to drill down to see the info behind the colored dots?

• Solution? Non-governmental entity owns the crowdsourcing API

• Drafting RFI to collect ideas
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Be ready!