Geovisualizations for Public Opinion in Smart Cities

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Coded Engagement
Data-Driven Engagement With Big-Data in the Smart City

• Search for common ground: Social Signals and proxy measures:
  - Interactions between people and place
  - Salient Topics and Collective Opinions
  - Spheres of Influential Actors and Community Information Flows

• “The Image of the Public”: produced and collected through big data derived from social media
  - Technologies (e.g., smart phones and personal computers) as a form of civic engagement

• Passive form of public participation to fuel data-driven policy formation

• Combines social networks, natural language processing, and spatial analysis to explore the intersection of CODE/SPACE and lived geographies
Decades of Overall Decline

Increasing Trends in Unequal Group Representation
- Greater Toronto Area:
  - Over 9 million people and most ethnically/demographically diverse city in the world
  - Less than 35% eligible voter turnout in local elections
  - Open town halls and public hearings at most 300-400 ppl
  - City-wide survey response rate less than 4% on avg

Vast majority of attendees white, male, property owners, age 55+, geographically concentrated in urban core
- Not just “one reason”:
  - Lack of public trust
  - Apathy
  - Less Time and Resources
  - Not aware and/or Feel Well-enough Informed
SMATER SMART CITIES

The “smart cities” agenda is mainly focused on top down technological initiatives (embedded sensors, data integration and analytics). The real smart cities of the future will mobilise human intelligence as well as artificial intelligence, bottom up creativity as well as top down control.

1. TOP DOWN SMART CITIES
City planners and corporations use IT infrastructure to optimise the flows of people and goods and deliver public services more efficiently.

- Barcelona: Has embedded sensors in the city’s infrastructure to monitor and manage water use.
- IBM: Has designed a centralised Intelligent Operations Centre to coordinate and manage all of a city’s services.
- PlanIT’s Urban Operating System is marketed as a way to manage the entire urban landscape.

2. CONNECTING TOP AND BOTTOM
People use open data released by local authorities and companies to create services, and local authorities collect data from citizens to improve their services.

- FixMyStreet: Allows citizens to map local issues from potholes to confusing signage and bring it to the attention of local authorities.
- Streetbump: An app that identifies potholes by recording “bump” data, providing the city with real-time data on road conditions.
- Betri Reykjavik: A platform which crowdsources opinions on city legislation, with the most popular ideas debated by the council.

3. BOTTOM UP SMART CITIES
Citizens generate and share data to improve the way their city works, they act collectively and connect with each other to share resources.

- Smart Citizen Kit: The Smart Citizen project uses low cost sensors and a web platform to enable citizens to capture, share and make sense of environmental data about their city.
- Changebyus: A place for citizens to put ideas into action to make their city a better place to live.
- Blindsquare: Uses crowdsourced information and GPS to help blind people navigate the city.
- Peerby: Promotes collaborative consumption by allowing neighbours to share or rent their possessions.
Communities of Practice: connecting by activities, areas, and time

Communities of Interest: Connecting by Topic and Opinion

Step 1: Corpora
- Geo-located Tweets
- Individual Wikipedia Article
- Semantic Access Geo-located Wikipedia Articles

Step 2: Topic Extraction
- Unsupervised topical n-gram discovery

Step 3: Thematic Classification
- Search entire Wikipedia corpus
- Pointwise mutual information
- High-level category classification

Step 4: Evaluation
- Spatial Alignment
- Thematic Alignment
Geocollective

ArcGIS Javascript 4.x – Web Scenes, Geosocial Data, and Data Science
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A pair of lovebirds and white sneakers. Nothing sweeter. Can't wait to share this adventure... https://t.co/5YYwHfl3s

Zoom to
Questions?

Github.com/terratenney/geocollective