



UTAH AGRC
Automated Geographic Reference Center

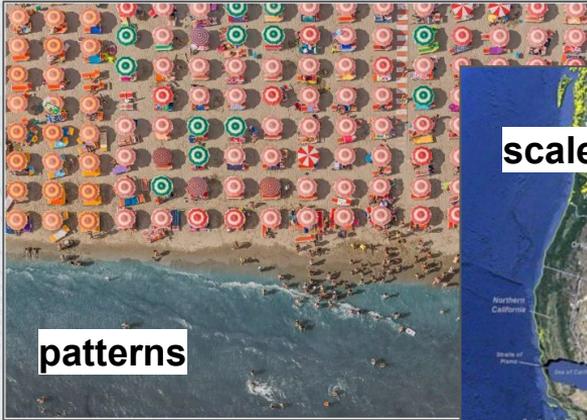
GIS Thinking Beyond the Map



Matt Peters
Greg Bunce



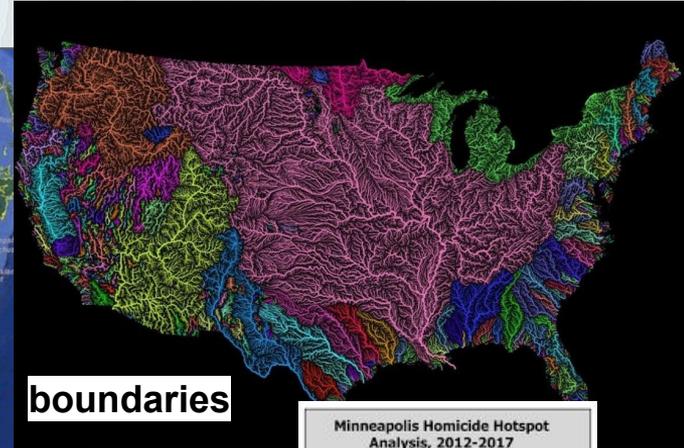
GIS: Thinking Beyond the Map



patterns



scale

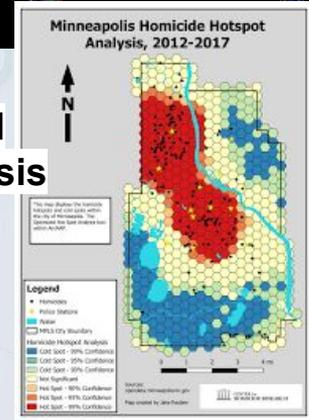


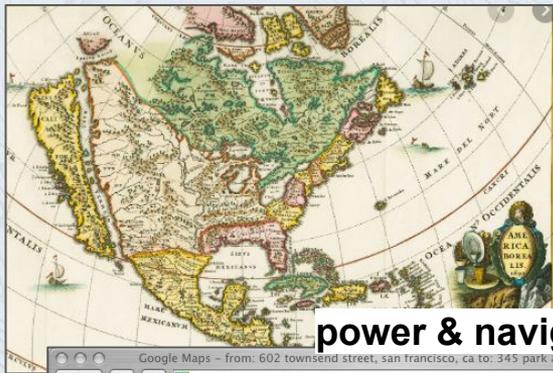
boundaries



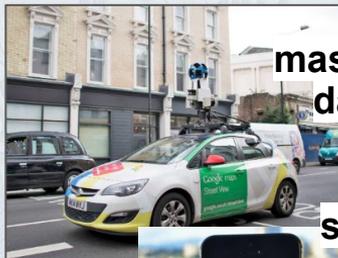
telling a narrative

visual analysis





power & navigation



massive data collection

sensors



machine learning



Google Maps - from: 602 townsend street, san francisco, ca to: 345 park avenue, san jose, ca
<http://maps.google.com/>

Google Maps Local Search Directions
 602 townsend street, san francisco, ca Start address
 345 park avenue, san jose, ca End address

Map - Satellite

Start address: 602 Townsend St San Francisco, CA 94103, USA
 End address: 345 Park Ave San Jose, CA 95110, USA
 Distance: 47 mi (about 43 mins)

Reverse directions

- Head northeast from Townsend St - go 0.0 mi
- Turn right at 7th St - go 0.5 mi
- Bear left at Mississippi St - go 0.2 mi
- Turn left at Mariposa St - go 0.1 mi
- Turn right into the I-280 S entry ramp to Daly City/San Jose - go 2.1 mi
- Take the US-101 S ramp to San Jose - go 40 mi
- Bear right onto the CA-87 ramp - go 0.3 mi

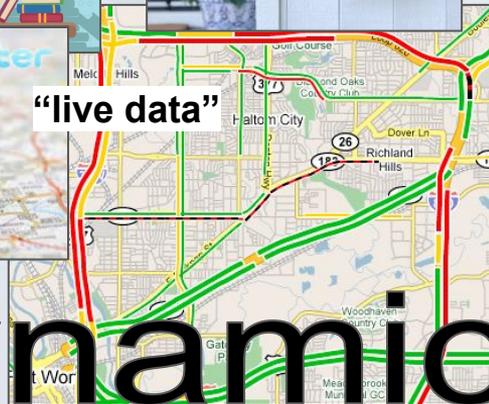
static



crowdsourcing



"live data"



dynamic



UTAH AGRC
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data drives the map

GIS: Thinking Beyond the Map



“The world’s most valuable resource is no longer oil, but data”

The Economist (2017)



geospatial data



“95% of the consumers of whatever we create will not be GIS specialists”

Ed Parsons



Today, the use of geospatial information has expanded into almost every market and institution around the globe.



Geospatial data has become an integral element in how companies and organizations conduct business throughout the world.

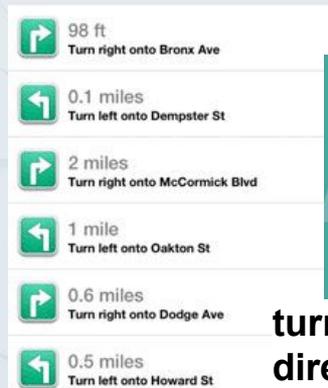




call routing



what's on my ballot?



turn-by-turn directions

GIS: Thinking Beyond the Map



online tax rates





GIS: Thinking Beyond the Map

Alexa...



What's the weather today?

Where's my order?

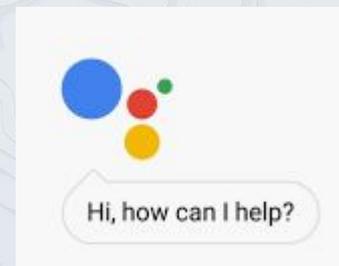
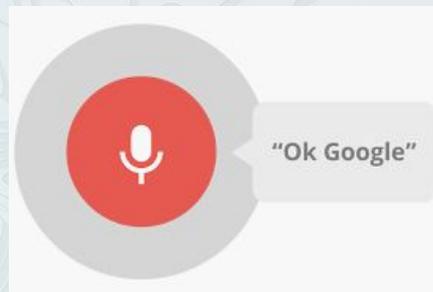
What's the air quality today?



real-time location

location-aware searches

contextual follow-up questions

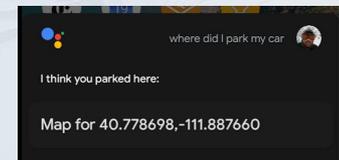


Okay, Google...

Where am I?

Where did I park my car?

Where is the closest transit stop?





more location-aware voice skills

current location
average commutes
jurisdiction boundaries
political boundaries
local services
voting information
crime data
demographics
health data
property data



“Am I in a safe area right now?”

“Describe the characteristics of current location?”

“When is the next election, and what’s on my ballot?”

“Do I have enough time to sip my coffee this morning, or do need to take it on the run?”

“What day is garbage pickup at my current location?”

“Are there any health concerns or outbreaks near me?”





GIS: Thinking Beyond the Map

Artificial Intelligence and Machine-Learning data

← **?** →
super cool **creepy**

“How should I prepare for Max’s birthday party tomorrow?”

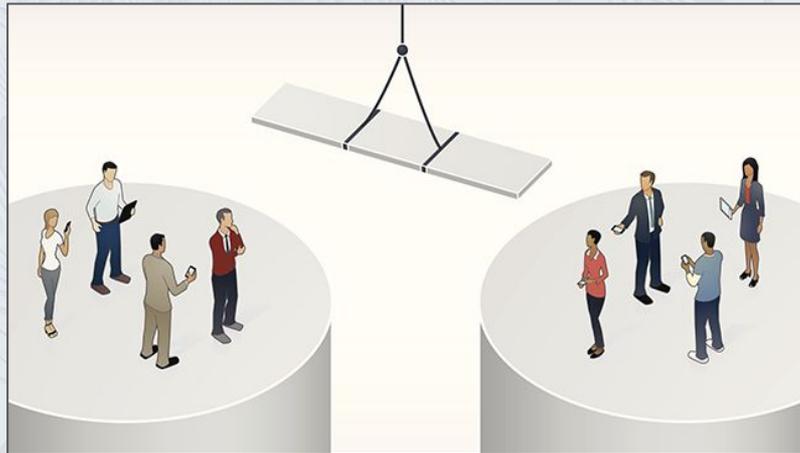
“Tomorrow at Sugarhouse Park it will be sunny in the afternoon, but there are plenty of shade trees and a pavilion. Expect rain in the morning so bring an umbrella, but there are also pavilions for shelter. The park has restrooms. There is also a half marathon scheduled, affecting that area, and it might affect your route.”

“How will you be commuting there?”





Bridging GIS and IT



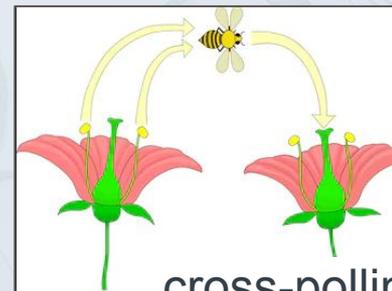
uniform web standards



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one cog in the
IT ecosystem

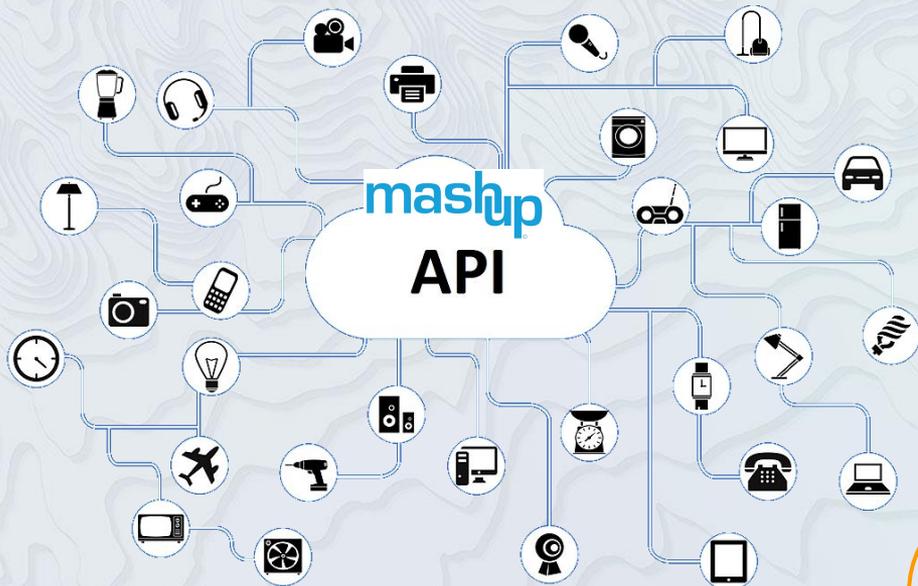


cross-pollination

cross-sector coordination



Application Programming Interfaces (APIs)



IT ecosystem

geospatial

Standardizing web services
and APIs



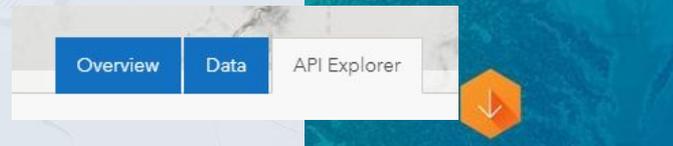
Open Data API Explorer



data accessibility

ArcGIS Open Data

Connecting Citizens and Businesses
to Your Authoritative Data





GIS: Thinking Beyond the Map

coordination and partnerships

How do we fit into the larger picture of shared resources and data?



cross-sector coordination
public-private partnerships
agency partnerships



free-ish



Sharing services and APIs



decentralized data



vulnerability of external dependencies



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