The Explosion in New Data

And What it Means for Economic Development

Big Data and Algorithms and Spreadsheets, Oh My!

Introduction to GIS WebTech

- ***Technology company focused exclusively on economic development***
- ***Fastest-growing provider with the only technology built natively on Esri's ArcGIS platform***
- ***Serve economic development organizations of all sizes, in all regions of the country***
- ***Let's connect!***

Four Key Takeaways

1. ***Use of non-traditional data is exploding as costs for collecting, transmitting, analyzing and storing data collapse***
2. ***Businesses are using this data in increasingly sophisticated ways***
3. ***You must know the new data being used by the industries and businesses you are targeting…and provide it to them!***
4. ***Understanding your target industries' evolving data needs is now a permanent requirement of EDOs***

New Data Relevant to Economic Development

Demand Side: "Business-Pulled Data"

- *Businesses and site selectors, increasingly focused on a small number of critical issues like workforce, demand local data*
- *To compete and win, economic development organizations must provide data addressing these factors*
- *Leading EDOs are developing customized, local data sets in response to emerging business demand*

Supply Side: "Technology-Pushed Data"

- *Technological change essentially "pushes" new data into the market, creating new supply of data*
- *As this data becomes available, businesses find clever ways to use it*
- *These uses include location decisions*

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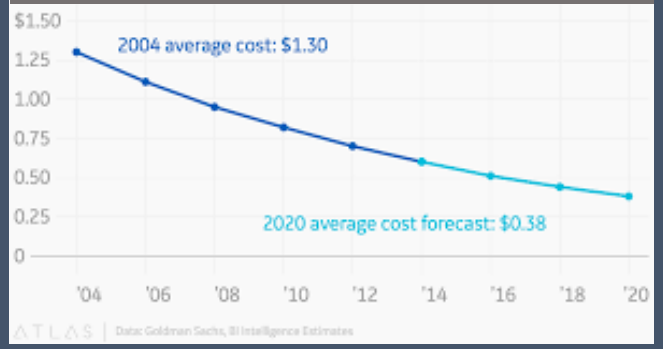
Technology-Pushed Data: a Story of Collapsing Costs…

…to Collect Data…

- *Sensors and IoT*
- *Phones*
- *Apps*
- *Personal devices*

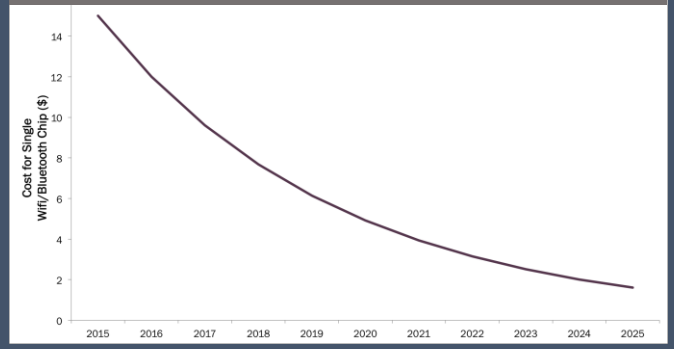
Average Cost of IoT Sensors



…to Transmit Data…

- *Cell*
- *Wifi*
- *Fiber*
- *APIs & Integration Tools*

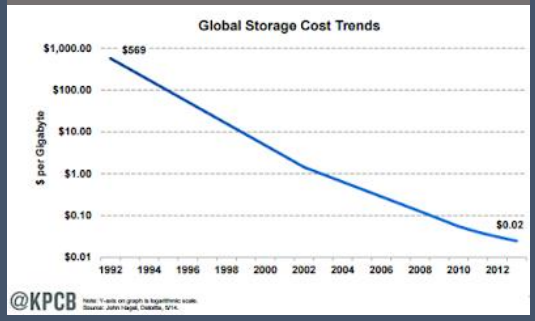
Average Cost of WiFi Chip



…and to Store & Process Data

- *Cloud storage*
- *Cloud computing*
- *Machine learning*
- *AI*

Average Storage Cost



Result: Data, Data and More Data!

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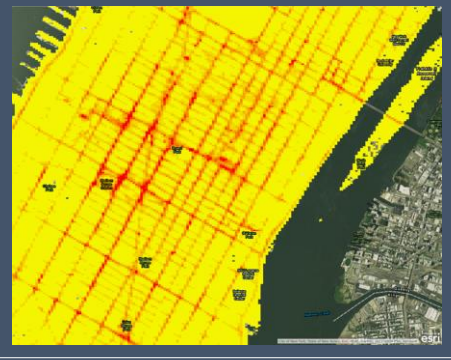
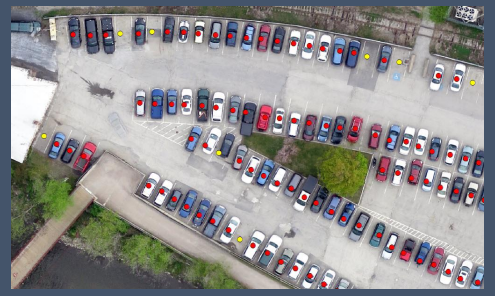
Let’s Consider Three Examples of Technology-Pushed Data

Social media data

Cell phone location data





Satellite imagery data

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Social Media Data

1. Recent Historical Data

- Huge volumes of social media data are now mined using AI and other tools
- Information on what is trending for a given area is correlated to psychographic profiles, creating a profile or sketch of the people in the area

- These can, in turn, be directly related to popular segmentation schemes like Tapestry – allowing businesses a more detailed understanding than that available from traditional demographic data.

Obvious (and Big) Implications for Location Decisions!

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Social Media Data

2. Real-Time Data

- Now being mined for real-time business decisions…
- …everything from customized special offers to price setting to utility outages
- Increasingly useful in understanding how to optimize existing locations (think retention!)

Over Time This Data Will Become Used for Location Decisions

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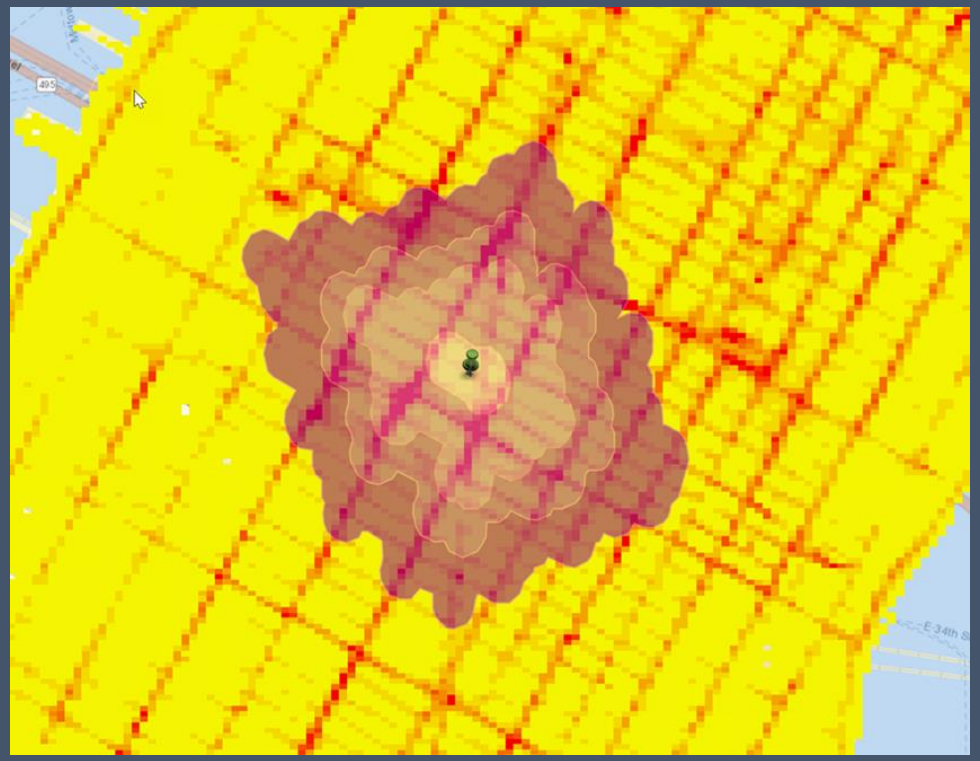
Cell Phone Location Data

- Part of broader category named “Human Weather” by Myles Sutherland, formerly of Esri
- Refers to high-volume data streams about human location—how and where people move
- Uses patterns to make predictions; hence the analogy to weather

> *“I move; therefore I am.”*
>
> Haruki Murakami,
> Japanese writer

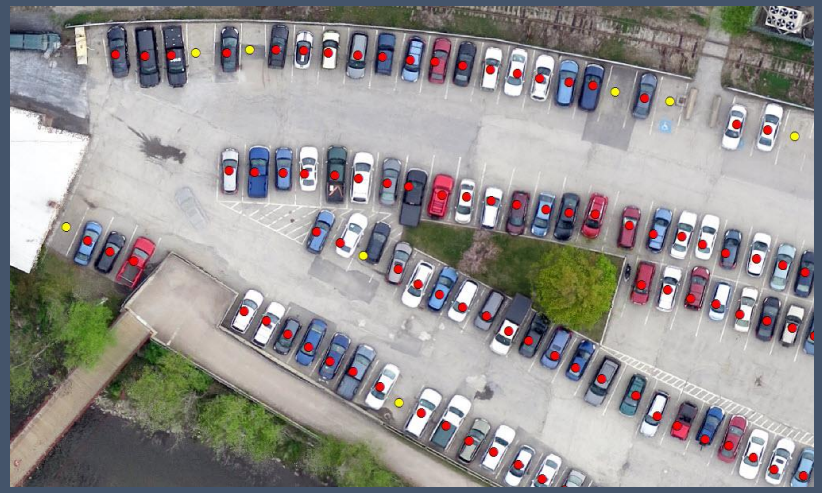
- Infinite potential applications to business location and operation decisions. Some examples:
  - Documenting where customers originate and where they go when they leave
  - Geofencing with special offers for individuals entering and/or staying inside fence
  - When combined with IoT data from a product, provides geolocational understanding of how product is used

Cell Phone Data Example: Foot Traffic



- Foot traffic density and walking times displayed from a potential retail site under consideration
- Data underlying this visualization allows predictive analytics on pedestrian traffic at site
  - How many people walk by the site during specific hours?
  - How many are within an easy walking distance that we can target via geofencing?
- When combined with demographic (e.g. income) and psychographic/segmentation data, provides input for a powerful predictive model for retail revenue

Satellite Imagery Data Example: Parked Car Counts



- AI can distinguish between a parked car and other objects in an image file
- AI takes image files and turns them into data
  - Counts of parked cars inside specific geofenced area
  - Counts with specific time stamps, etc.

- Counts are then used for business location decisions, especially in retail, and a host of other business decisions – like trading the securities of retailers!

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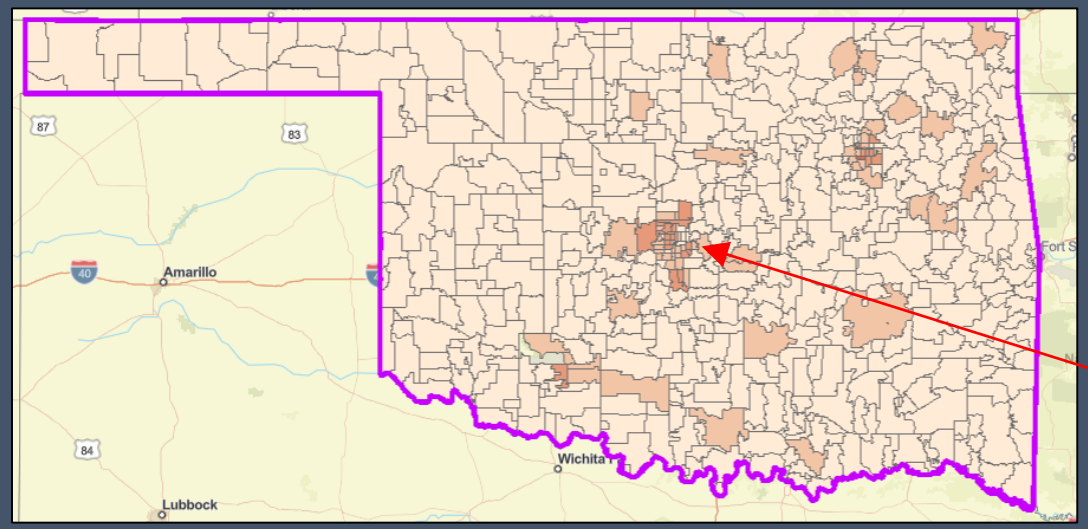
Business-Driven Data Example: Workforce

- Always a major selection criterion, workforce is now the #1 issue for location decisions for most businesses
- Leading EDOs are responding by providing access to (1) local workforce data (skill-based data and not just occupational data) and (2) analysis tools



- Example: Business considering Oklahoma for a data and computing center
- Where are workers with computer skills concentrated in the state?
- Oklahoma City stands out
- Ok, but…

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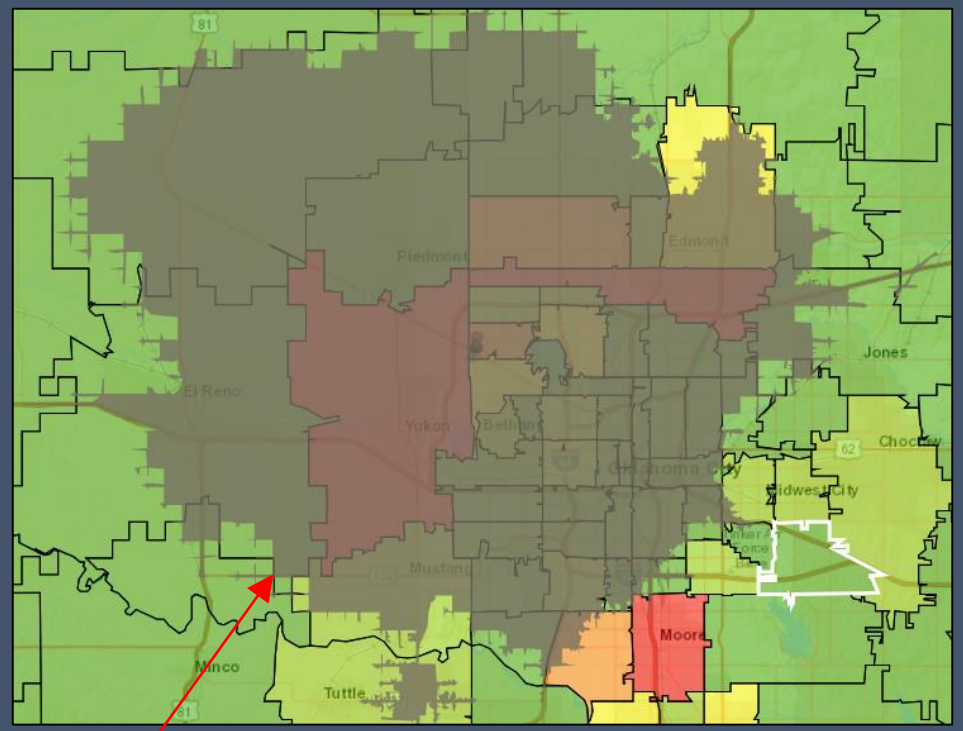
Business-Driven Data Example: Workforce, Cont'd.

- Now that I am concentrating on Oklahoma City, I want to see what the workforce looks like within a 45 minute commute time of a site I am considering



Commute Time in Brown

- The ability to visualize the intersection of commute time with areas of high workforce concentration is immensely helpful to businesses considering Oklahoma City
- And equally helpful in keeping Oklahoma City on the short list
- But…

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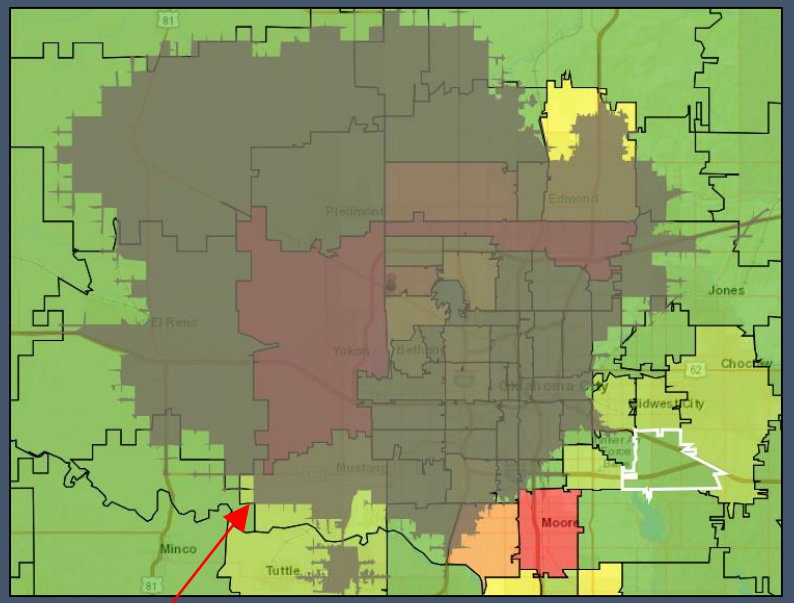
Business-Driven Data Example: Workforce, Cont'd.

- I want to get quantified workforce data using these analytical tools, to feed into my models analyzing the economics of this site, e.g. labor costs, turnover, etc.



Commute Time in Brown

- Example: report showing workforce data from within specified walking times, driving times and trucking times

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A Few Predictions

- Data and how it is changing site selection is today's trend
- Tomorrow's is technology, i.e. new ways to access and utilize the data
- A great example on the near-term horizon: Natural language query

"Put together a list of certified, undeveloped sites between 50 and 100 acres in the southeast with access to rail, a concentration of engineering professionals within a 45 minute commute time, and good quality of life ratings."

- Software uses publicly available data and proprietary functionality
- Produces a "long list" of sites sorted by best match
- Software also makes recommendations you may not have considered

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Data Science!

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Thanks From GIS WebTech!

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