



Harnessing the power of GIS

Geospatial World Forum

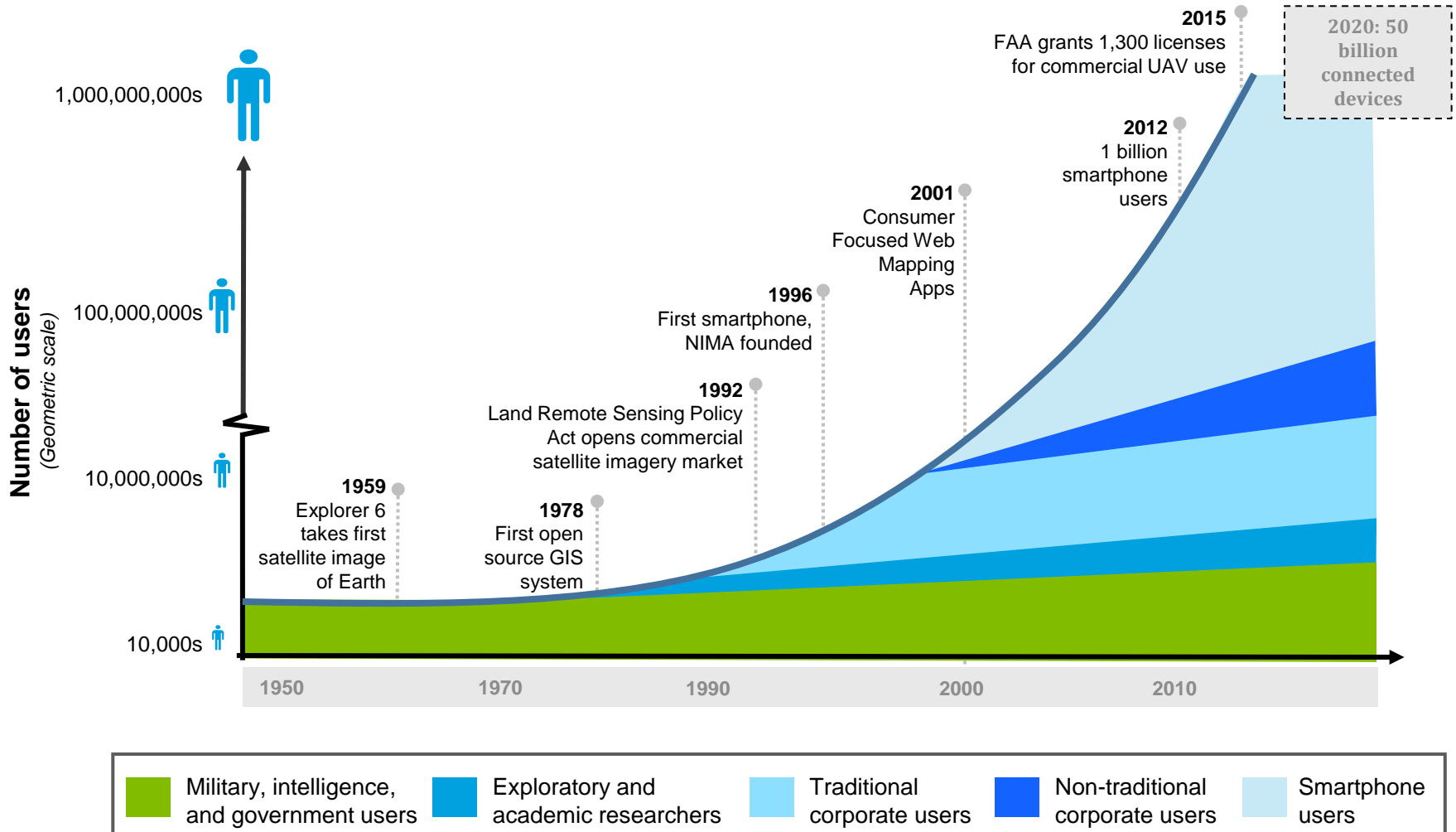
May 25, 2016

The changing geospatial landscape

Historical perspective

The evolution of geospatial

The use of geospatial information is growing across sectors, industries, and users



Note: This graph approximates relative user group size and growth patterns over time based on various qualitative reports and case studies

The changing geospatial landscape

The geospatial landscape is experiencing a “Tsunami of Changes” as defined by the National Geospatial Advisory Committee (NGAC) ¹

- Technology Issues ⁽¹⁾
 - ✓ Remotely Sensed Information - Satellites, Part 1: Imagery
 - ✓ Remotely Sensed Information - Satellites, Part 2: Location
 - ✓ Remotely Sensed Data - Unmanned Aerial Systems (UAS)
 - ✓ Mobile Device Applications
 - ✓ Indoor Positioning
 - ✓ Platform Evolution
 - ✓ Storage In The Cloud
 - ✓ Crowdsourced Data
 - ✓ Communications
- Social, Economic, And Policy Issues ⁽¹⁾
 - ✓ Rural - Urban Dichotomy
 - ✓ Workforce Development
 - ✓ Data Analytics
 - ✓ Standards
 - ✓ Privacy Issues
 - ✓ Health Issues
 - ✓ Public Safety
 - ✓ Public-Private Partnerships
 - ✓ Remotely Sensed Information - Satellites, Part 3: Data Access
 - ✓ Geospatial Identity Crisis

¹ Source: THE CHANGING GEOSPATIAL LANDSCAPE (A Second Look), 2015
<https://www.fgdc.gov/ngac/NGAC%20Report%20-20The%20Changing%20Geospatial%20Landscape.pdf>

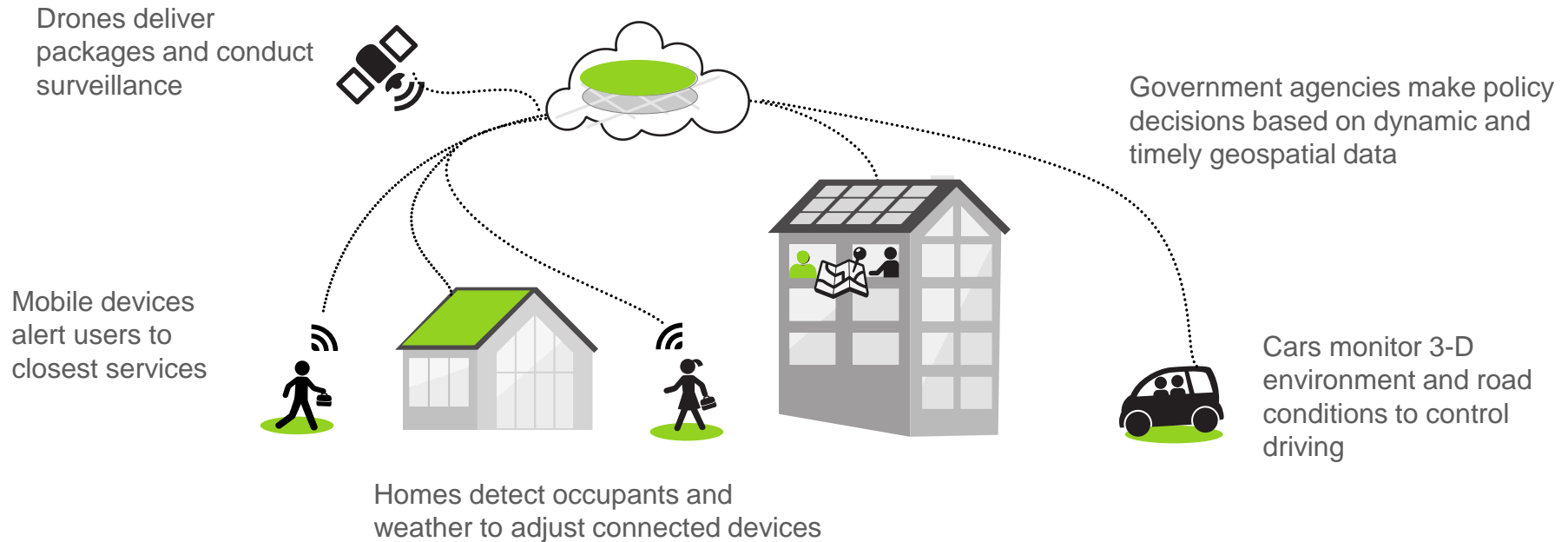
Future trends

Location matters

Finding your way with geospatial

With the proliferation of new technologies, location matters more than ever.

Information from mobile sensors will be aggregated and enhanced to power location-based decisions



The number of devices connected to the internet already *exceeds* the number of people on Earth, and estimates predict there will be *50 billion* connected devices by 2020⁽²⁾

²Source: <http://trajectorymagazine.com/education/item/2077-the-geoint-revolution.html>

Location-enabled “digital exhaust”

Smart devices and physical sensors generate exponentially increasing volumes of location data, “digital exhaust”, which can be harnessed to analyze consumer trends and behavior.

CONSUMER USE OF MOBILE LOCATION



30%

TAG POSTS IN SOCIAL MEDIA⁽³⁾



74%

USE MOBILE LOCATION TO GET INFORMATION⁽³⁾



12%

USE A GEOSOCIAL SERVICE TO “CHECK IN” TO CERTAIN LOCATIONS⁽³⁾



77%

WOULD SHARE THEIR LOCATION FOR VALUABLE, RELEVANT OFFERS⁽⁴⁾

INSIGHTS FROM DIGITAL EXHAUST LOCATION

- Third-party data aggregators are compiling this information from mobile apps and wireless networks
- By anonymizing and aggregating this data, organizations can leverage this “digital exhaust” to enhance location-based analytics:
 - Historical travel patterns
 - Minute-by-minute population distributions
 - Real-time locations
 - Real-time traffic and travel
 - Combine with demographics to provide a rich profile of individual types and where they are traveling

“The ubiquity of sensors...reveals that social data stretches beyond individuals’ online lives to encompass the geography, if not the content, of their interactions. This opens the door to looking beyond content to the patterns of behavior and interactions that occur.”⁽⁵⁾

³ Source: <http://www.pewinternet.org/2013/09/12/location-based-services/>

⁴ Source: <http://www.swirl.com/pr-12-13-13.html>

⁵ Source: <http://allthingsd.com/20120928/making-visible-the-invisible-meaning-not-content-matters-in-social-data/?mod=tech>

Economic impact

Markets and industries

Geospatial market impact

The geospatial industry has seen significant growth over the past decade, maturing to a large industry that is poised for further growth in emerging geographies and industries.

A LARGE AND MATURE EXISTING MARKET...

Geospatial technology has grown mature in support of government, logistics, utility, environmental, and engineering

\$270
BILLION
GLOBAL
INDUSTRY ⁽⁹⁾

\$73
BILLION
US MARKET ⁽⁹⁾

\$2.5
BILLION IN
GEOSPATIAL
SERVICES ⁽⁶⁾

...WITH SIGNIFICANT GROWTH POTENTIAL

Consumer devices, sales/ marketing, IoT, and business intelligence uses are driving significant increase in needs for location technology

\$5
BILLION FOR
INDOOR LOCATION
BY 2017 ⁽⁷⁾

30%
GROWTH IN
EMERGING
MARKETS ⁽⁹⁾

2X
GROWTH IN LOCATION
ANALYTICS MARKET, TO
\$9B BY 2020 ⁽⁸⁾

⁶ Source: Boston Consulting Group - Dec, 2012 <http://www.ncge.org/files/documents/US-FullReport.pdf>

⁷ Source: ABI Research, "Indoor Location in Retail: Where Is the Money?"

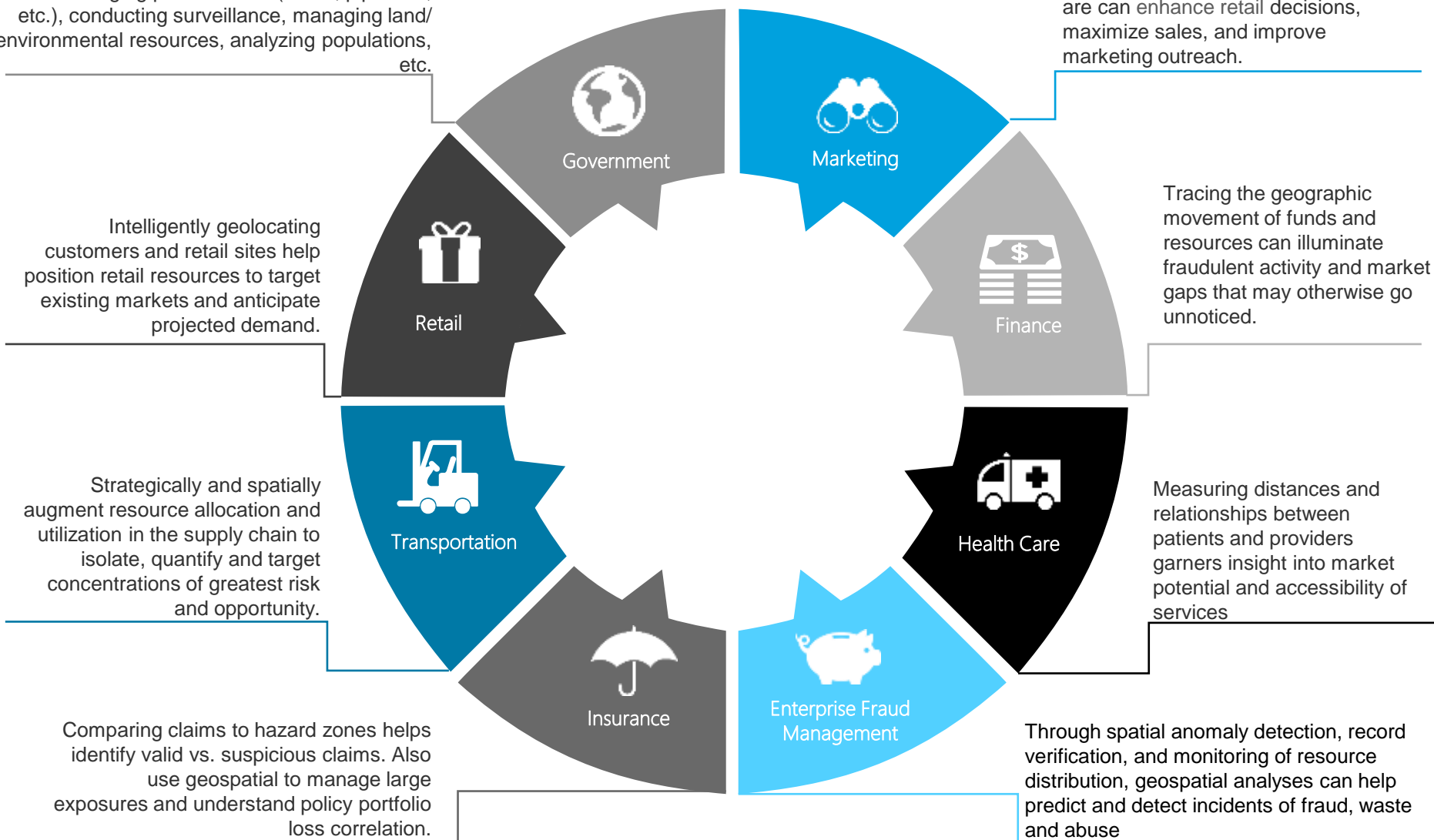
⁸ LOCATION ANALYTICS MARKET - GLOBAL FORECAST TO 2020

⁹ Geospatial World- Dec, 2013

Geospatial industry impact

Used for managing public assets (roads, pipelines, etc.), conducting surveillance, managing land/environmental resources, analyzing populations, etc.

Knowing where clients and suppliers are can enhance retail decisions, maximize sales, and improve marketing outreach.



Featured use case

Data USA project

PROFILES

Locations

Industries

Occupations

Education

STORIES

MAPS

DATA

ABOUT

DATA USA

THE MOST COMPREHENSIVE
VISUALIZATION OF U.S. PUBLIC DATA



Computer Science

All



Search

www.datausa.io

CREATED IN COLLABORATION

Deloitte.



Datawheel

 PROFILE

 ECONOMY

STATE

GENDER WAGE GAP IN
CALIFORNIA

CALIFORNIA

 PROFILE


 ECONOMY

PLACE

RACIAL BREAKDOWN OF
POVERTY IN FLINT,
MICHIGAN

FLINT, MI

 PROFILE

 EMPLOYMENT

DETAILED
OCCUPATION

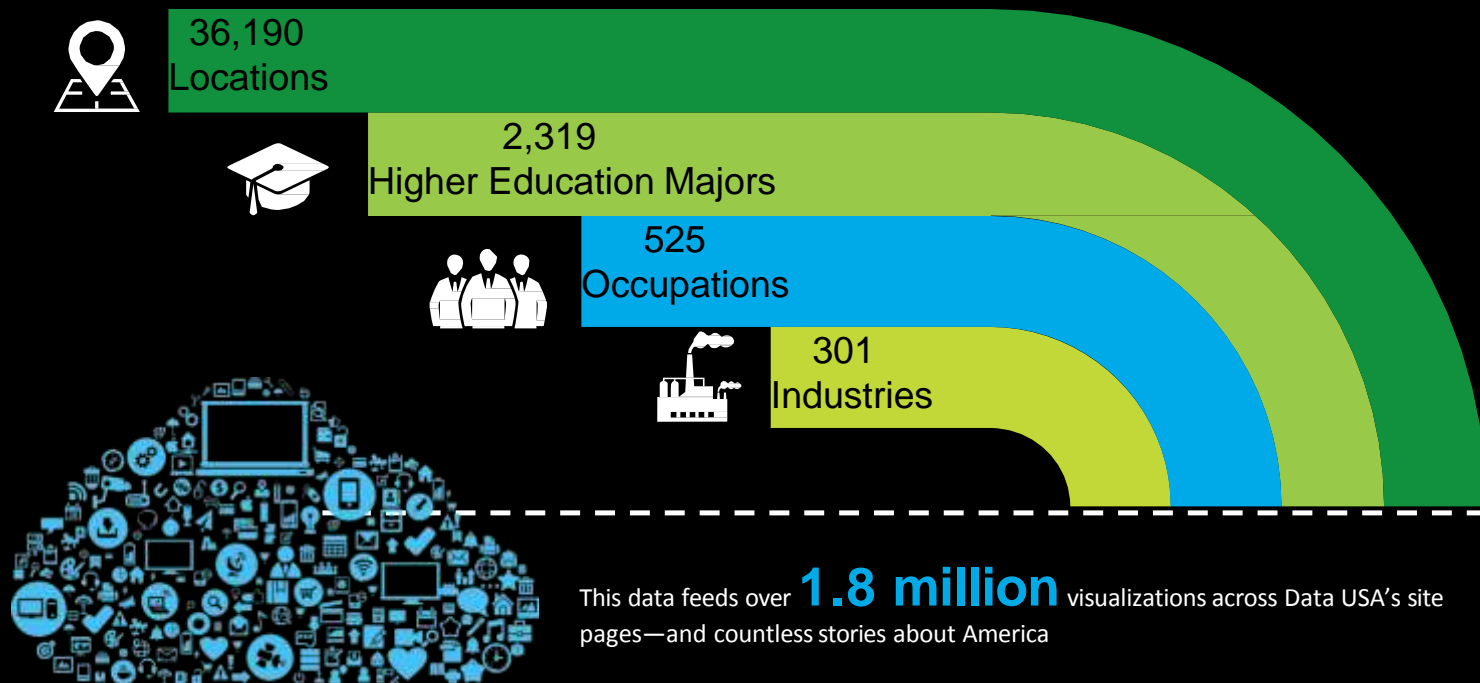
PHYSICIANS & SURGEONS
INCOME BY LOCATION

PHYSICIANS & SURGEONS

Tell a new story

- Public data holds insights that can inform choices, direct action, and create impact. The US government collects, stores, and makes available enormous amounts of data which is too often siloed, difficult to access, and hard to understand
- To help deliver those insights in a visual, interactive way, specialists from Deloitte, MIT Media Lab's Micro Connections Group, and Datawheel jointly created Data USA -- a destination and visualization engine that retrieves data from various US government data sources, organizes and analyzes it, and helps you visualize the answers you're looking for in seconds.
- Data USA presents consolidated views of useful data on a wide range of topics, including:
 - ✓ Labor and Job Markets
 - ✓ Higher Education
 - ✓ Regional Demographics
 - ✓ Health Care
 - ✓ Transportation

Building visual narratives using public data



Data USA users can browse the data using filters (locations, industries, occupations, education) or target their view using search tools.

Data USA also delivers narratives on topics of interest and issues that matter to government and business leaders.

The code is open source, and the platform is scalable, allowing for new data to be added.

Questions?



Bagrat Bayburtian
Deloitte Advisory Director
Deloitte Transactions and Business Analytics LLP

Email: bbayburtian@Deloitte.com



This presentation contains general information only and Deloitte Advisory is not, by means of this presentation, rendering accounting, business, financial, investment, legal, tax, or other professional advice or services. This presentation is not a substitute for such professional advice or services, nor should it be used as a basis for any decision or action that may affect your business. Before making any decision or taking any action that may affect your business, you should consult a qualified professional advisor. Deloitte Advisory shall not be responsible for any loss sustained by any person who relies on this presentation.

As used in this document, "Deloitte Advisory" means Deloitte & Touche LLP, which provides audit and enterprise risk services; Deloitte Financial Advisory Services LLP, which provides forensic, dispute, and other consulting services; and its affiliate, Deloitte Transactions and Business Analytics LLP, which provides a wide range of advisory and analytics services. Deloitte Transactions and Business Analytics LLP is not a certified public accounting firm. These entities are separate subsidiaries of Deloitte LLP. Please see www.deloitte.com/us/about for a detailed description of the legal structure of Deloitte LLP and its subsidiaries. Certain services may not be available to attest clients under the rules and regulations of public accounting.