Technology Trend: Using Geo-spatial Business Analytics to Visualize Performance

FALL NEARC 2017

Darren Mackiewicz, GISP
Jayson Brennen, GISP

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It’s Been All About The……

Data
Like it Or Not... We Are Now a Technology-Driven Society

- It’s a Mobile World
- Immediate Access Required
- Predict Problems & Visualize Results
It’s Also… The Rise of the Data-Driven Organization

Decisions Based on Data

Big Data & Internet of Things
The Data Lifecycle

1. Data Collection & Asset Inventory
2. Data Access and Visualization
3. Business and Operational Intelligence
The Data Lifecycle

- **Business Intelligence**: Analyzing what has happened to date and looking for efficiencies to optimize the business in the future.

- **Operational Intelligence**: Driving the operations of a business through a live real time visualization fed by Internet of Things (IoT) sensors, mobile devices, vehicles and real-time feeds like traffic conditions, weather and flooding.
Data Collection & Asset Inventory
ArcGIS Online or Portal - Leveraging to Support Asset Inventory and Assessment

Esri’s Cloud-Based Offering

- **Collect/Publish** Data to the Cloud
- **Consume** via Desktop, Web, and Mobile Apps
- **Visualize** results to support Decision Making
ArcGIS Online or Portal
Cloud GIS Environment

- ArcGIS.com
- Explorer App
- Collector App
- Survey 123 App
- Dashboard
- Workforce
- Insights
ArcGIS Online or Portal
Cloud GIS Environment

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Case Study

Execution of a Hydrant Asset Inventory and Flushing Program With ArcGIS Online
Hydrant Inspection and Flushing Program
* Prepared Data Back at the Office
Hydrant Inspection and Flushing Program
* Pushed/Referenced Data to ArcGIS Online
Hydrant Inspection and Flushing Program
* Prepared Mobile Apps for the Field
Hydrant Inspection and Flushing Program
* Sent Crews into the Field
Collector – What the Person in the Field Sees
Hydrant Inspection and Flushing Program

* Tracked Progress Back at the Office
Hydrant Inspection and Flushing Program

* Implemented Repair Program

<table>
<thead>
<tr>
<th>HYDRANT_ID</th>
<th>Date Flushed</th>
<th>Hydrant Issues</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>H054-012</td>
<td>4/6/2016</td>
<td>Hydrant Broken</td>
<td>Out of service</td>
</tr>
<tr>
<td>H034-034</td>
<td>4/11/2016</td>
<td>Hydrant Broken</td>
<td>Shut off deep won’t close</td>
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<tr>
<td>H035-017</td>
<td>4/9/2016</td>
<td>Hydrant Broken</td>
<td>Hydrant won’t shut down. Turned off deep.</td>
</tr>
<tr>
<td>H044-018</td>
<td>4/14/2016</td>
<td>Hydrant Broken</td>
<td>No water</td>
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<tr>
<td>H064-015</td>
<td>4/30/2016</td>
<td>Hydrant Broken</td>
<td>Not working</td>
</tr>
<tr>
<td>H058-020</td>
<td>4/26/2016</td>
<td>Hydrant Broken</td>
<td>Water coming up from base of hydrant.</td>
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<tr>
<td>H007-003</td>
<td>3/31/2016</td>
<td>Hydrant Broken</td>
<td>Blue hydrant is either off or broken.</td>
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<tr>
<td>H030-009</td>
<td>3/28/2016</td>
<td>Hydrant Broken</td>
<td>Shut off at gate shaft broken</td>
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<tr>
<td>H064-043</td>
<td>4/29/2016</td>
<td>Hydrant Broken</td>
<td>Shut off deep</td>
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<td>H048-028</td>
<td>4/11/2016</td>
<td>Hydrant Broken</td>
<td></td>
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<tr>
<td>H062-026</td>
<td>4/25/2016</td>
<td>Hydrant Broken</td>
<td>Would not even turn open</td>
</tr>
</tbody>
</table>
One Quick Example…
Summary of Results

1,600 Hydrants Inspected & Flushed

5 Weeks Timeframe

30%* Estimated Reduction in Time

“big savings in logistics and program execution”
ArcGIS Online or Portal Summary

- Simple
- Practical
- Can Add Higher Accuracy GPS
There Are Other Options
* US Navy Asset Management Program
Data Access & Visualization
Several Practical ArcGIS Online or Custom Apps Available Today
Count of Hydrants Flushed: 1576

Flushing - Percent Complete: 94%
Coming Soon…. Mixed & Augmented Reality
Coming Soon…. Mixed & Augmented Reality
Business Intelligence

Latest & Upcoming Technology Trends
Business Intelligence is a technology-driven process for analyzing data and presenting actionable information to help organizations make more informed decisions.
Where do we as GIS professionals come in?

Data

Technology & Analysis

Location Intelligence

Decision Support
Data is Data ....

- Becomes **information** when you add a process to it.
But....... 

- Data + Widget = Business Analytics?

= BEER.
Let’s Go Back To School....
Let's Go Back To School....

THE SCIENTIFIC METHOD

ASK A QUESTION
OR
ADDRESS A PROBLEM

RESEARCH

HYPOTHESIS

CONCLUSION
(AND WIN THE SCIENCE FAIR)

ANALYSIS

EXPERIMENT
How Do You Measure Performance?

- Mandated to inspect all pipes every 5 years
- Replace highest risk assets within 2 years
- Flush all hydrants every year
- Keep catch basins from becoming surcharged
- ((Things Change))
YEEEEAAAAAHH

I'M GONNA NEED YOU TO BRING MORE DATA
Many Good Business Intelligence Software Platforms

Maximize Your Investment in Data

Blend Data from 345+ Sources

Enrich and Manipulate the Data

Load Data Into Tableau
(One-Time or Scheduled)
Many Good Business Intelligence Software Platforms

Maximize Your Investment in Data

Blend Data from 345+ Sources

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Qlik

Microsoft | Power BI

Tableau

Esri Insights
The Next Trend…. Business Analytics

Track Progress

Compliance Reporting

Assess Risk

Project Tracking
This Is Not Rocket Science, but it’s not ART either!

Bad Chart

Good Chart

Better Chart
Comments and Opinions

- Many have the software and may not realize it
- The technology is there to greatly support utility management
- Maximize your investment in data by applying the right technology
- Don’t get caught in the default pattern
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Questions

Darren Mackiewicz, GISP
mackiewiczdm@cdmsmith.com