Geospatial Analytics
How to plot data on maps and custom images

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In this session:

- OOTB Mapping Demonstration
- Mapping Options
- Advanced Mapping Demonstration
- Custom shapes
- Image Layouts
- Questions?
Out of the Box Demonstration
Demonstration Dataset

Key world measures, by country and by year

Note:
- Country automatically recognised as a geographic attribute
- The Variable attribute defines the measure stored in the Value metric. Filters must be used to properly resolve the metric.
Ready to Map
Country selected, filters in place

Note:
- Filter for the required Variable
- Filter for the required Year
- Simply switch to map mode…
Fast result
Automatic threshold

Note:
- Thresholds applied automatically
Rapid enhancement
Used as selector for added time trend

The map targets other visualisations and becomes a selector.
Mapping Options
Four mapping options

1. Out of the box, included in your MicroStrategy license (9.4.1+)
2. Alternative to ESRI, requires separate key from Google
3. Apple Maps on iOS for Mobile (Google Maps for Android)
4. High-performance plugin for intensive mapping applications
Development and deployment options

Build with

Documents

Dossiers

Deploy to

Mobile

Library

Web
## Who does what where: ESRI vs Google

<table>
<thead>
<tr>
<th>Feature</th>
<th>ESRI Cloud (OOTB)</th>
<th>ESRI on-Prem</th>
<th>Google Maps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display areas on the map</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Display bubbles as markers on the map</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Display pins as markers on the map</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Clustering</td>
<td>Yes (Visual Insight)</td>
<td>Yes (Visual Insight)</td>
<td></td>
</tr>
<tr>
<td>Display affinity lines on the map</td>
<td>Yes (documents in all view modes)</td>
<td>Yes (Visual Insight)</td>
<td></td>
</tr>
<tr>
<td>Display density maps</td>
<td>Yes</td>
<td>Yes (Visual Insight)</td>
<td>Yes</td>
</tr>
<tr>
<td>Display path</td>
<td>Yes</td>
<td></td>
<td>Yes (DHTML)</td>
</tr>
<tr>
<td>Display multiple layers</td>
<td>Yes in 10.6</td>
<td>Yes (documents in DHTML view mode)</td>
<td>Yes (documents in DHTML view mode)</td>
</tr>
</tbody>
</table>
Who does what where: Visual Crossing

1. Faster than ESRI in rendering
2. Can animate data over time (points or polygons) ([https://www.youtube.com/watch?v=c5I6PJdiQlY](https://www.youtube.com/watch?v=c5I6PJdiQlY))
3. Advanced formatting and fully customizable popup labels.
4. Data can be loaded in the Visual Crossing map directly without going through the MSTR layer (much faster for big datasets)
5. Basemap options include Google, Bing, OpenStreetMap, custom images
6. Multiple options for dataset structures, joining datasets, etc
8. Custom business regions can be generated automatically from business data.
9. Location analysis like catchment area, Voronoi distribution… ([https://www.youtube.com/watch?v=uOd7jgCeNsI](https://www.youtube.com/watch?v=uOd7jgCeNsI))
10. Drive time engine for driving distances and marketing analysis ([https://www.youtube.com/watch?v=cyjufqaJEjs](https://www.youtube.com/watch?v=cyjufqaJEjs))
11. Custom shapes, regions, and buildings can be hand drawn directly on the map ([https://www.youtube.com/watch?v=RkXkIG0fhs8](https://www.youtube.com/watch?v=RkXkIG0fhs8))
Google Maps Use Case
Affinity

This shows, on a map, a relationship between two points.

Useful for visualising supply chain, population migration, commutes…
Paths

Viewed on layered map, this visualisation shows the path of two major hurricanes on one layer, and markers representing notable places on another layer.

Useful for shipping, life and earth sciences (Ocean currents, bird and whale migration, pollution plumes)
Visual Crossing Use Case
Fast rendering at low detail level

Use for large scale analysis at detail level
Animate data over time

If your dataset contains a time element, you can play the data as an animation over time. This has interesting use cases such as IoT or epidemic tracking.
Layers
Demonstration
Getting ready to add a layer
Insight enrichment

We can already see, by country, a selected measure represented by the country’s background colour. We can add an extra layer of data to bring more depth and context to the visualisation.
The layer is added

We have now added another layer, consisting of cities in each country. To keep the map clear, the city points are clustered until close enough to resolve. The size of the slice on each cluster pie relates to the size of individual cities.
Custom Shapes
Custom geographies

• To handle non-standard geographies, you will need either or both of:
  • Attributes with the relevant longitude and latitude forms
  • Shape or KML files providing shapes that can be mapped to one of your attributes.
Custom shapes for custom geographies

• For example, in the United Kingdom, we use:
  - Postcode (demographics)
  - Local Authority (demographics and political)
  - Constituency (political)
  - LSOA (a census unit consisting of roughly 1000 people) (demographics).
Adding Custom Shapes

• We have added three custom shapes for Area mapping:
  - Postcode (demographics)
  - LAD - Local Authority (demographics and political)
  - Constituency (political)
  - LSOA - (a census unit consisting of roughly 1000 people) (demographics).
Addition of additional shapes

An administrator task

```
<layer id="6">
title="World-Admin-Divisions"
ml="http://services.arcgis.com/"
<layer id="7">
title="Constituencies"
ml="constit.shp"/>
<layer id="8">
title="LSOA"
ml="lsoa.xml"/>
<layer id="9">
title="LAD"
ml="lad.shp"/>
</layers>
```
About shape files
Size affects performance

• Small is good.
• Use shp or kml files.
• Some publicly available files are very large because they have high resolution.
• A tool such as QGIS can be used to make the file smaller.
• Location of these files changes according to releases.
Practical Example 1
Simulating the impact of the youth turnout at the 2017 General Election in the UK

• Five key constituencies are selectable.
• The constituencies are shown with LSOA detail.
• Each LSOA can be selected to show its age breakdown.
• The voting intentions are simulated based on propensities per age group.
• The turnout of the 18-34 age group is tuneable.
Practical Example 2
Viewing deprivation and crime for my local area in the UK

• The background layer shows the deprivation score (high and green is good, low and red is bad).
• The cluster pies show the number of recorded crimes and their type.
Image Layouts
Not all maps are about countries…
You can create custom shapes and delineate areas that can be used like a map.

• This example shows a floor plan, with areas coloured with a threshold to represent a metric value for a given area attribute.
• The image layout can be used as a selector to provide more in-depth information about a given area.
Image Layouts require configuration
A few administrative steps will activate the visualisation and link in the image layout.

- A plugin must be installed.
- You will need to select an image.
- You’ll need to turn it into an image map (a HTML shape file).
- You’ll need to place it on your web server, and modify a few configuration files.
Image Layouts Session
By Nick Barth, Senior Sales Engineer

• This session covers implementing image layouts in detail.
• Please check this out for a complete walkthrough of the process of adding image layouts.
Questions ?