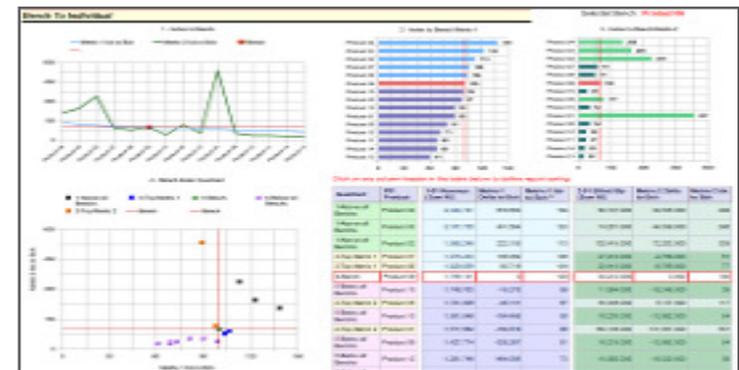


Business Intelligence and Map Visualization with Oracle Spatial

Siva Ravada
Senior Director of Development
Oracle Spatial and MapViewer

Business Intelligence

- Effective interactive visualization and analysis are key to insight
- Oracle offers numerous choices ...



Spatial Analytics Give a Real World Perspective

Most business data has a location

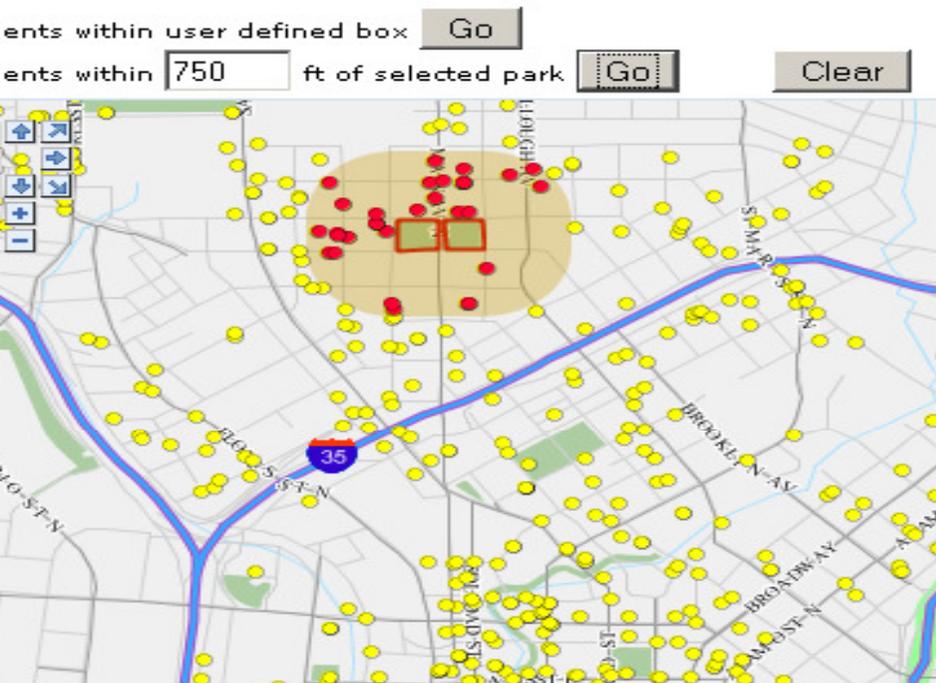
Find all competitors **within 2 miles** of **Northport Branch**

```
SELECT c.holding_company, c.location
FROM competitor c,
     bank b
WHERE b.site_id = 1604
     AND SDO_WITHIN_DISTANCE(c.location,
                              b.location, 'distance=2 unit=mile') = 'TRUE'
```



Map driven filters, or prompts, in BI dashboards

Why Possible With Spatial Analytics



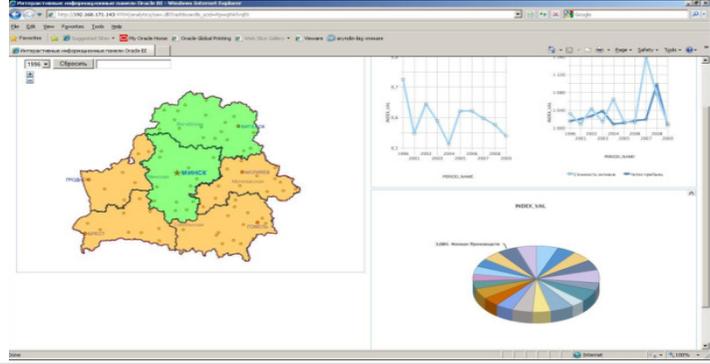
Incidents within 750 ft
of selected park

Complaint Detail

Offense Desc	PD Desc	Date Key	Complaint Key	Service Area	R
CRIMINAL MISCHIEF & RELATED OF	MISCHIEF, CRIMINAL 4, OF MOTOR	18-Feb-03	1026	28	C
DANGEROUS DRUGS	CONTROLLED SUBSTANCE, POSSESSI	10-Nov-02	30099	28	C
		10-Mar-03	40099	28	C
HARRASSMENT 2	HARRASSMENT, SUBD 1, CIVILIAN HARRASSMENT, SUBD 3,4,5	02-Aug-03	1064	32	C
		04-Mar-03	1027	28	C
		04-May-03	31027	28	C
		04-Sep-03	41027	28	C
		19-Sep-03	41028	28	C
ROBBERY	ROBBERY, UNCLASSIFIED, OPEN AREA	09-Jan-04	41032	28	C

Every Application is location-aware, not just GIS applications

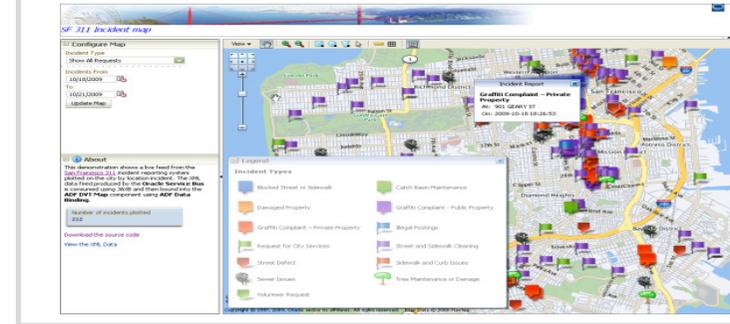
Sales Territory Management



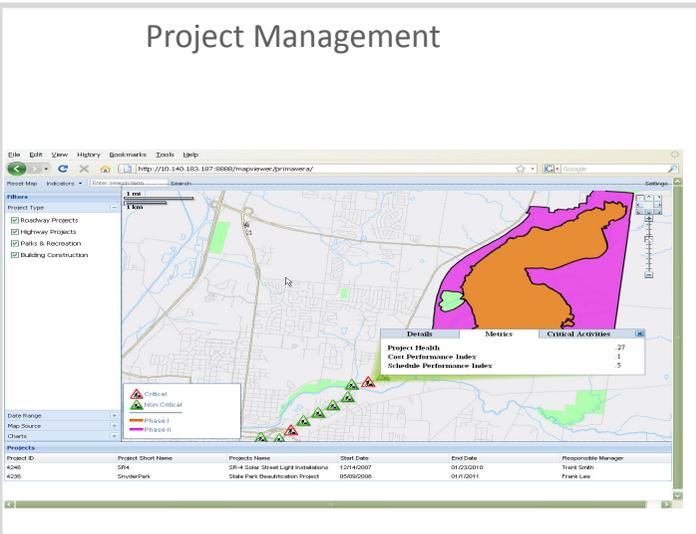
Transportation Management



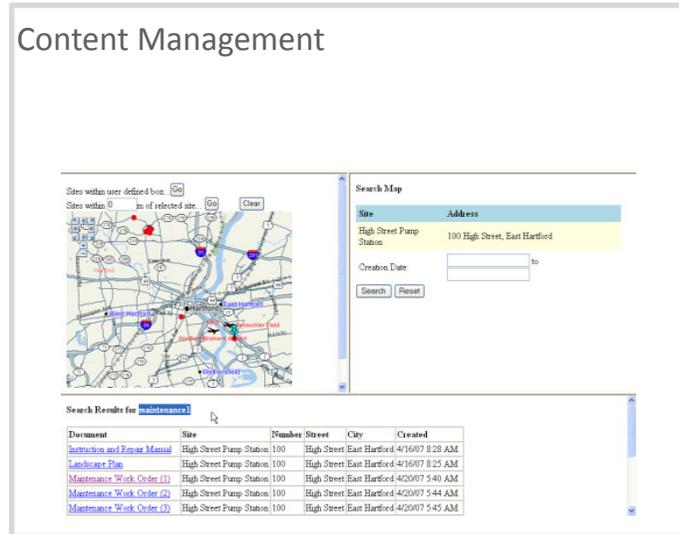
Citizen Services



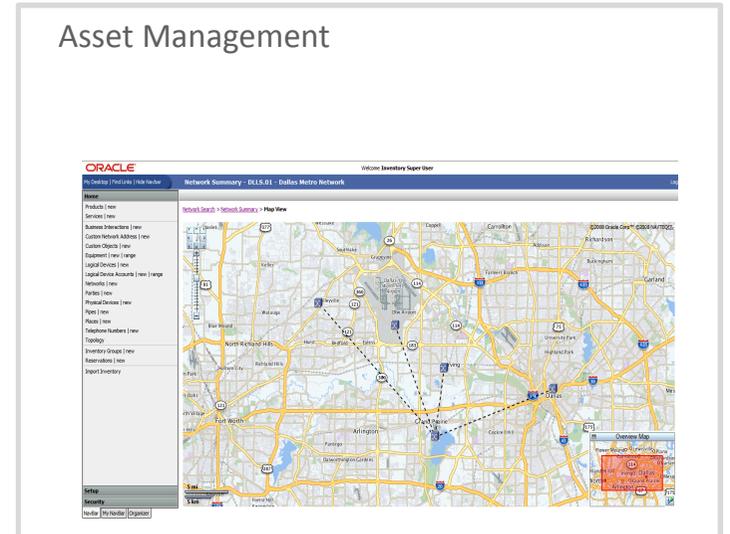
Project Management



Content Management



Asset Management



When are Map views useful

Visualizing data related to geographic locations

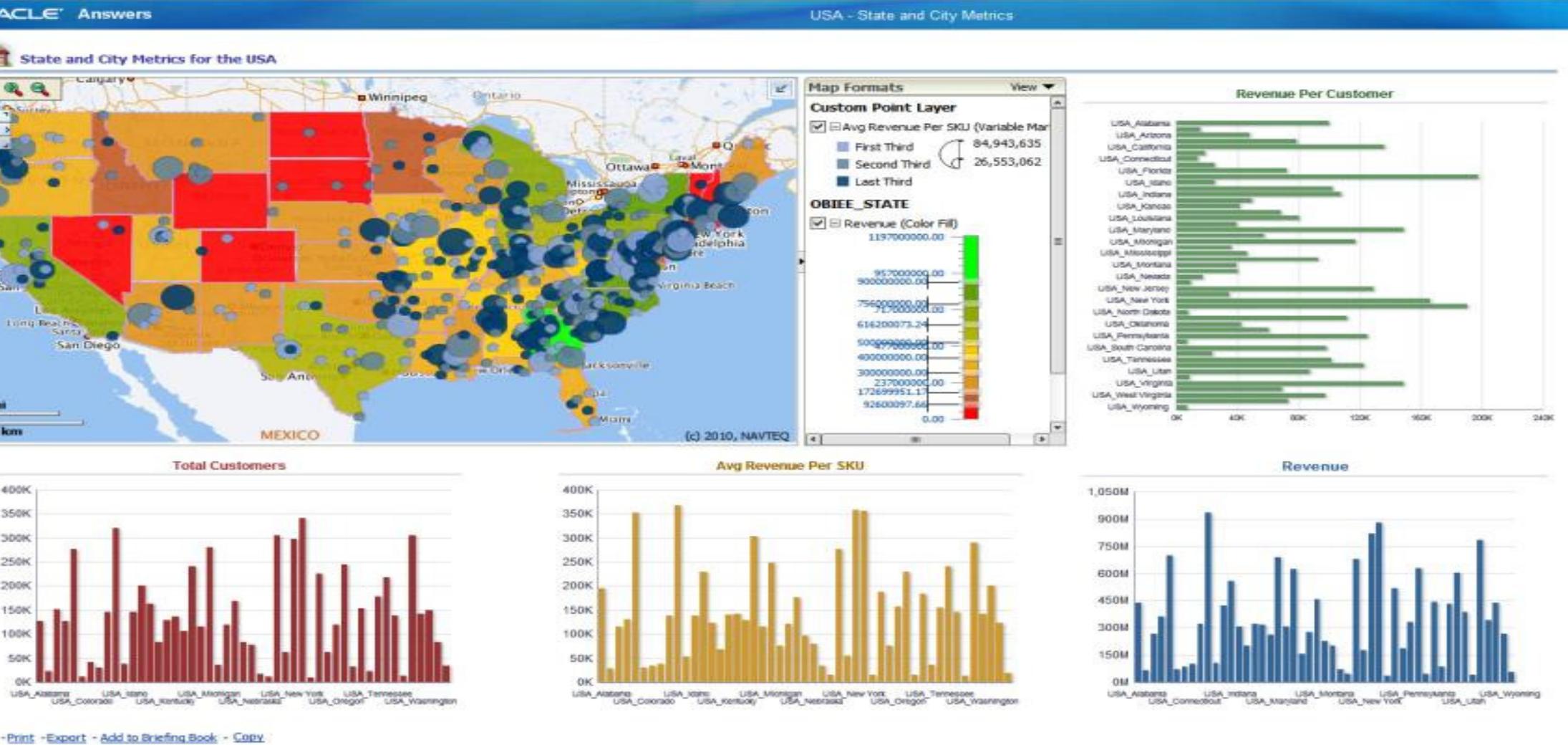
Showing or detecting spatial relationships and patterns

Showing lots of data in a relatively small area

Drilling down from a (map) overview to a detailed report, chart, or graph

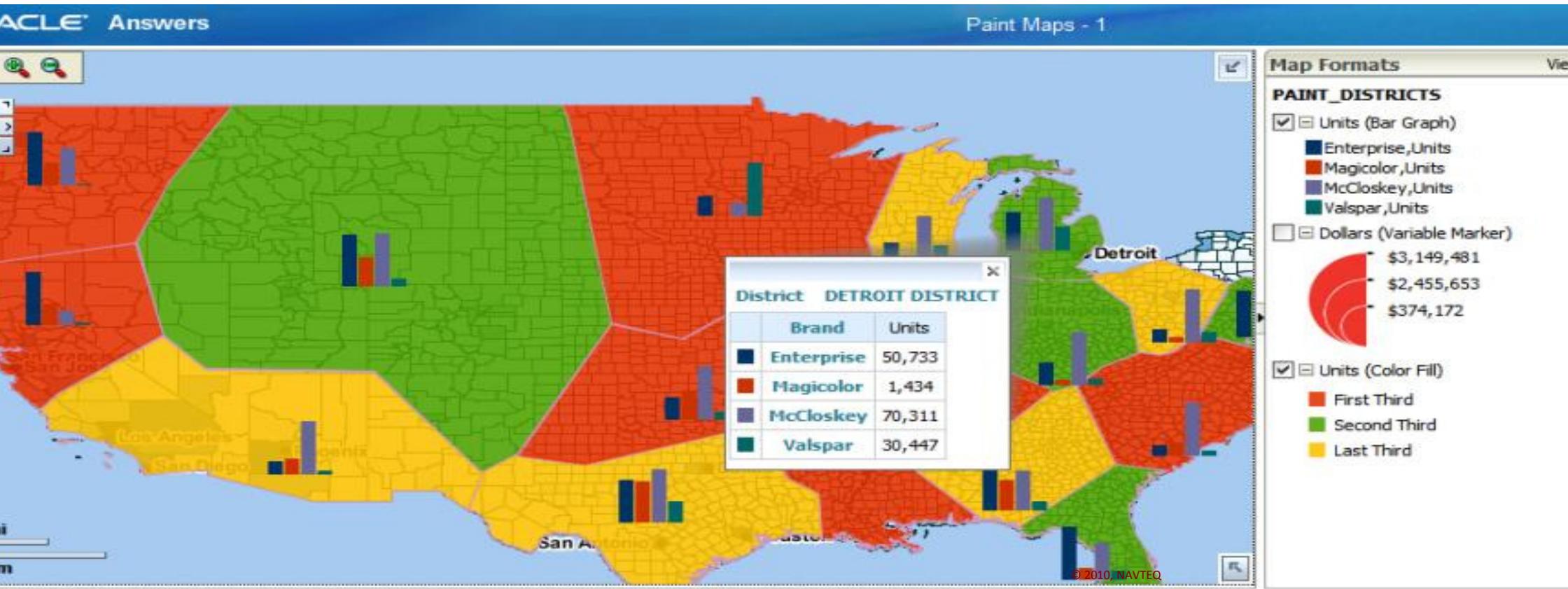
Why Spatial Map Visualizations?

Original High-Density Visualization



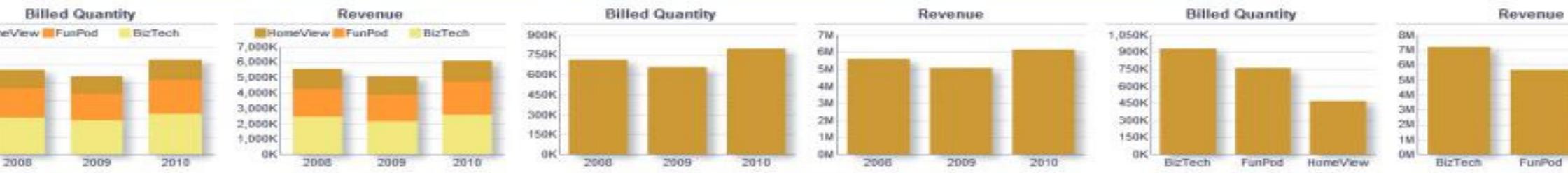
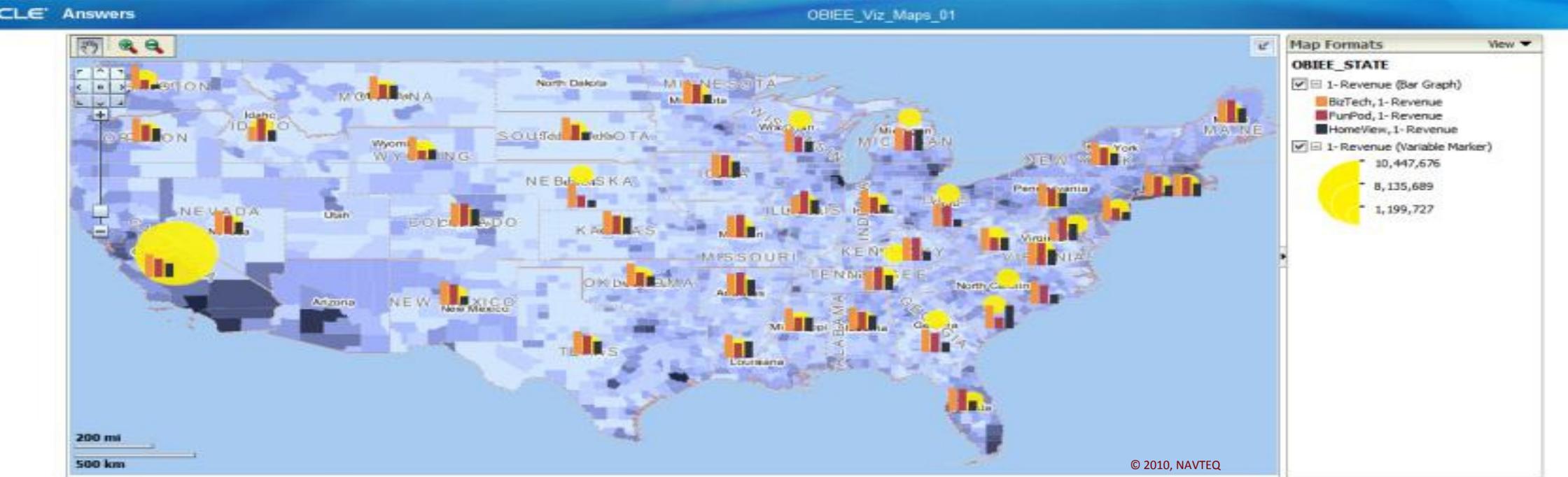
Why Spatial Map Visualizations?

Custom Territories



Why Spatial Map Visualizations?

Good For Master-Detail Analysis



Print - Export - Add to Briefing Book - Copy



New Interactive Visualizations

in Insight Quicker with Greater Visibility

Rich interactive visualizations

Animated transitions

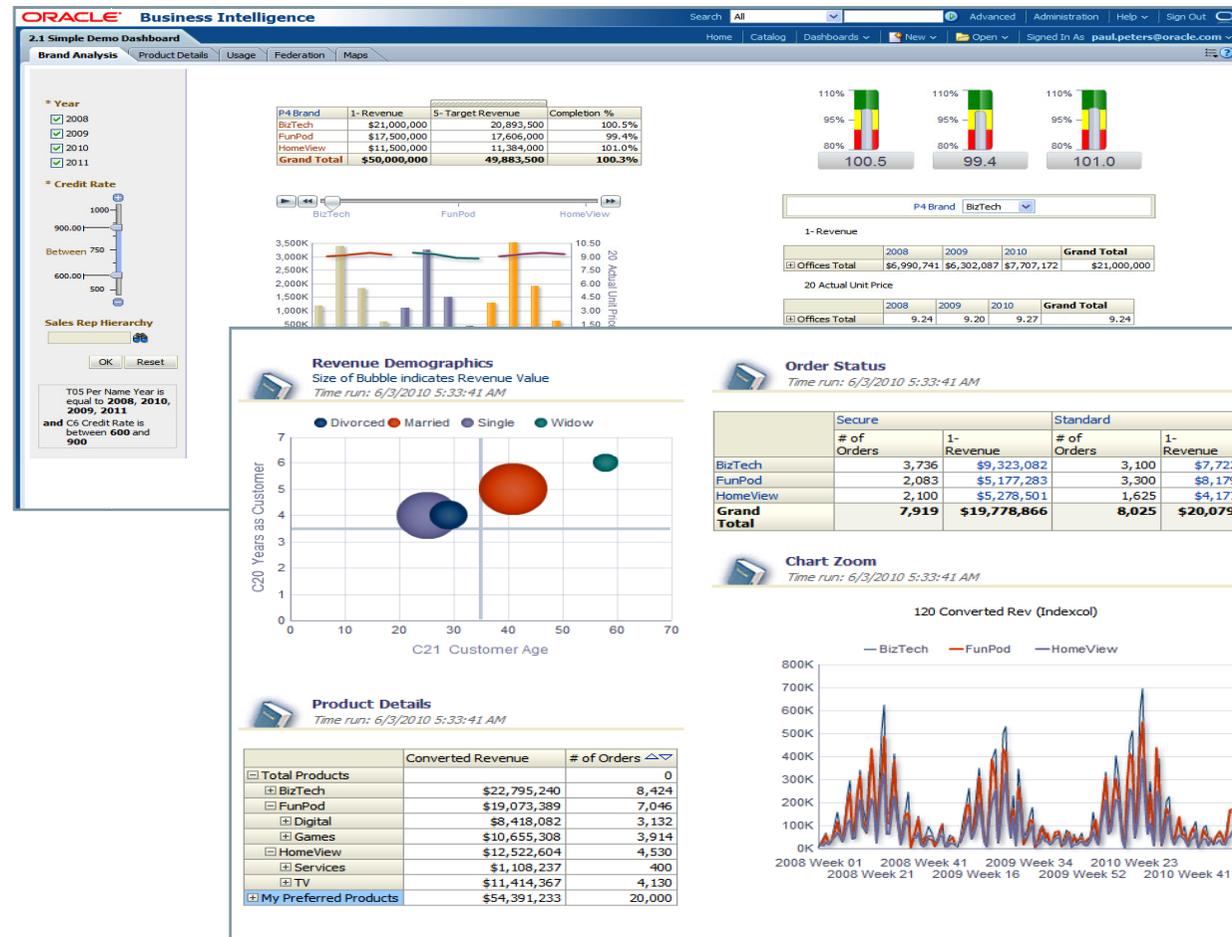
Range sliders

Paging sliders

Master-Detail linking

Extensive and extended set of chart types

Consistent, hi-fidelity charting across Oracle product line





Interactive Visualizations

Year	Plant Location Country	Plant Location State	Spend Type	Spend	# of Suppliers	# of Buyers	Invoiced Quantity	
2007	BE	Unspecified	ITEM	8,451,585	11	4	11,746	
			TAX	288,325	8	4		
	BR	SP	ITEM	706,542	2	3	848	
	FR	Unspecified	ITEM	36,058,468	10	8	51,139	
			TAX	958,229	9	8		
	GB	Unspecified	ITEM	22,308,436	14	15	45,025	
			TAX	464,114	9	4		
	IT	Unspecified	ITEM	8,406,679	11	4	14,435	
			TAX	309,027	8	4		
	JP	Unspecified	ITEM	9,606	3	1	25	
	NL	Unspecified	ITEM	28,937,424	10	4	44,364	
			TAX	461,415	8	2		
	US		AZ	ITEM	136,853	2	1	18,904
			CA	ITEM	37,732,046	42	11	1,884,123
			CO	ITEM	1,080	1	1	90
			DC	ITEM	17,771,255	9	4	74,600
			GA	ITEM	88,411	11	3	59,332
			IL	ITEM	44,876	1	1	2,508
			LA	ITEM	132,583	1	1	17,704
			MA	ITEM	68,870,319	6	1	472,984
			MI	ITEM	31	3	2	545
			NC	ITEM	8,546,510	7	1	5,362
			NY	ITEM	50,640,285	21	5	17,139,790
				TAX	29	2	2	
			OH	ITEM	129,588	3	1	970
			OR	ITEM	84	2	1	28
			TX	ITEM	38,843,715	6	1	575,742
			WA	ITEM	115,436,145	14	5	6,463,985
BE			Unspecified	ITEM	13,333,269	11	4	22,325
				TAX	58,493	6	3	
BR	SP	ITEM	870,357	2	3	1,061		
FR	Unspecified	ITEM	41,952,960	10	9	56,607		
		TAX	136,779	4	7			
GB	Unspecified	ITEM	22,465,922	14	15	43,092		
		TAX	63,570	8	3			
IT	Unspecified	ITEM	16,737,493	11	4	25,791		
		TAX	47,759	6	4			
NL	Unspecified	ITEM	33,260,624	10	1	50,108		
		TAX	76,018	7	1			
2008		AZ	ITEM	33,430	1	1	3,643	
		CA	ITEM	60,694,355	40	8	3,106,348	
		DC	ITEM	25,200,385	10	2	1,485,750	

Year
 Plant Location Country
 Plant Location State
 Spending Type
 Spend
 Suppliers
 Buyers
 Invoiced Quantity

And Resulting Analysis

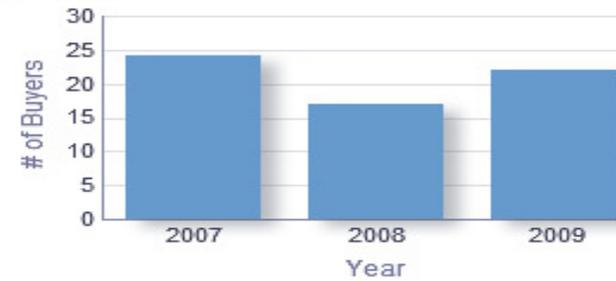
Spend Country

Buyers
Year

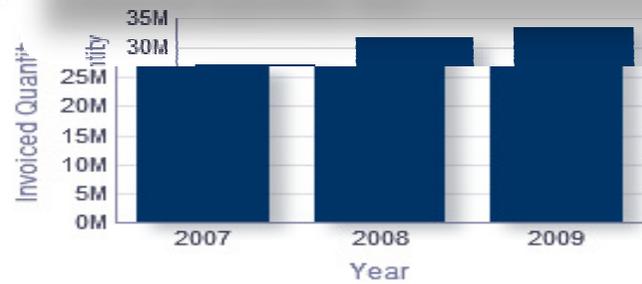
Interactive Visualizations



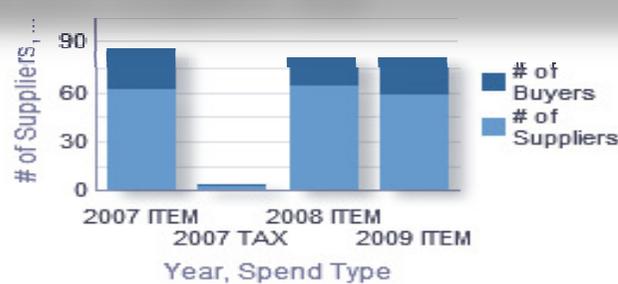
of Buyers



Invoiced Quantity Year



Buyers, Suppliers Year



Buyers, Suppliers
Spending Type



Map View Formats

Color Fill (choropleth)

- Percentile, Value, Continuous binning
- Dashboard user run-time slider

Graphs – Bar, Pie

- Adjustable graph size
- Series by second dimension

Bubble (variable sized)

- Min-Max size specification
- Color specification

- Variable Shape

- Circle, Triangle, Diamond
- Customizable

- Image

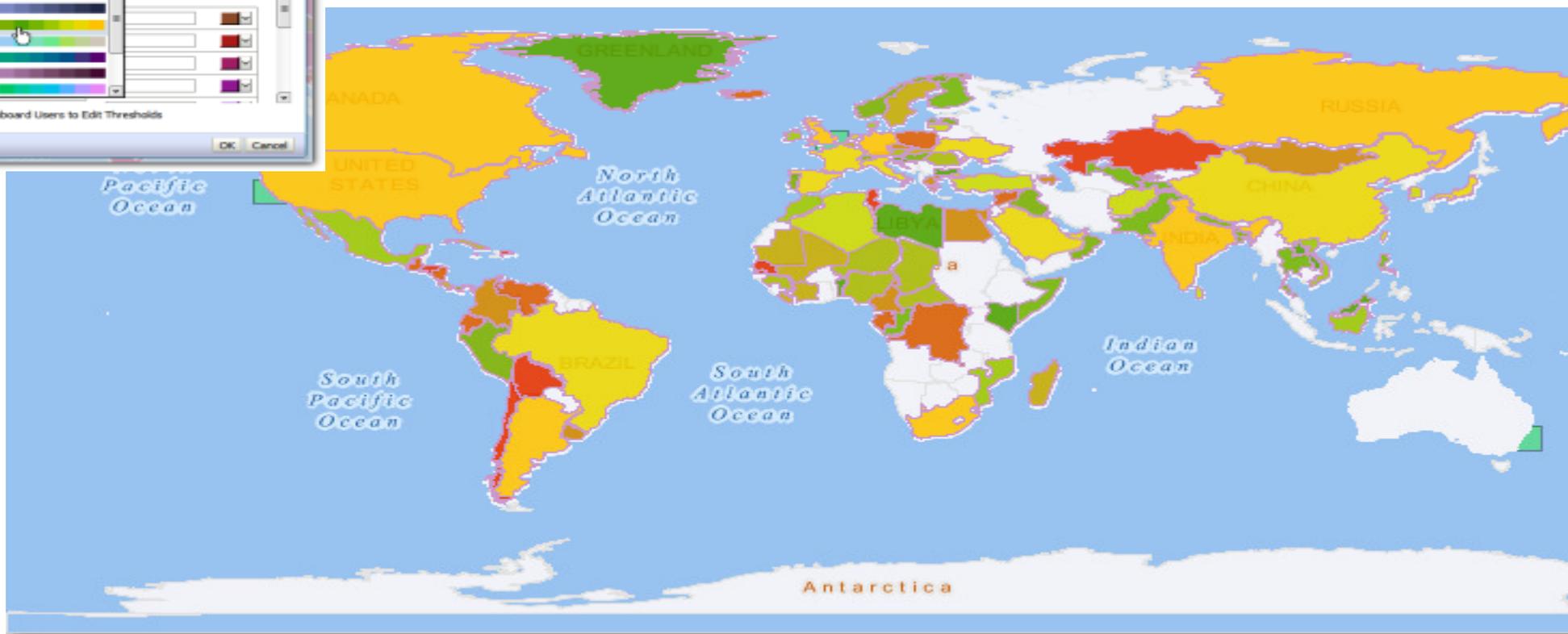
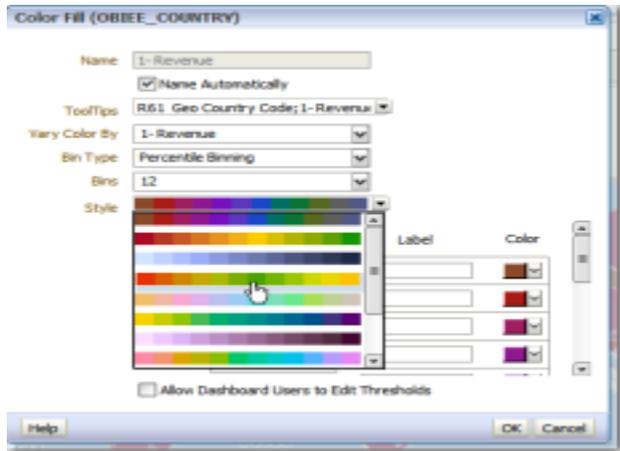
- Imported via MapViewer
- More can be added from MapBuilder

- Custom Point Layer

- Uses Lat / Long
- Does not require a Layer Def

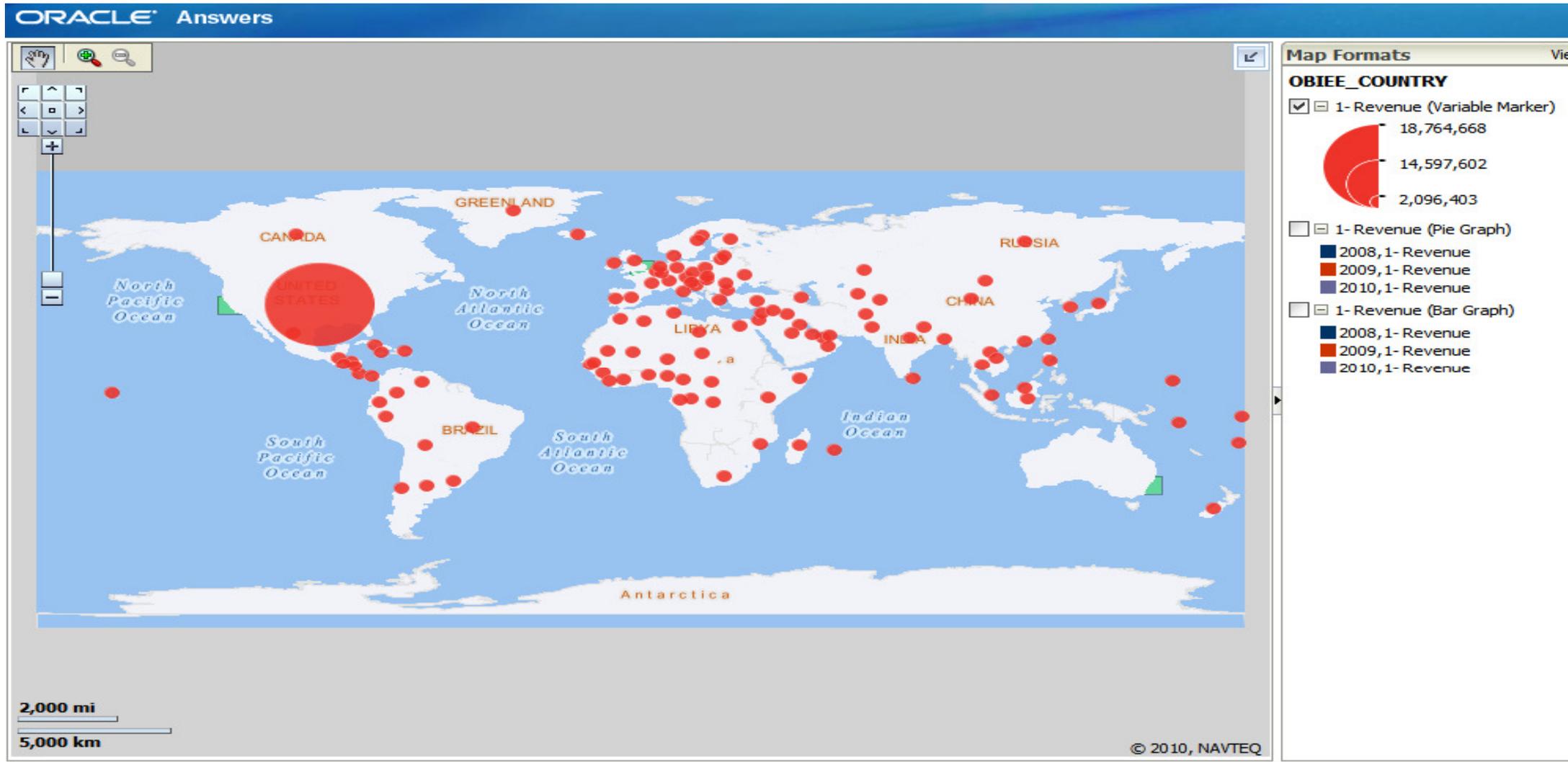
Map Formats

or



Map Formats

Variable Shape (Bubble)



Map Formats

Custom

ORACLE Answers

The map displays revenue data for various countries, color-coded into three categories: First Third (red), Second Third (green), and Last Third (yellow). The United States is highlighted with a large yellow diamond. Other countries shown include Canada, Greenland, Russia, China, India, Brazil, and Antarctica. The map includes a scale bar (2,000 mi / 5,000 km) and a copyright notice (© 2010, NAVTEQ).

Map Formats

OBIEE_COUNTRY

- 2- Billed Quantity, 1- Revenue (Color Fill)
 - First Third
 - Second Third
 - Last Third
- 1- Revenue (Color Fill)
- 1- Revenue (Variable Marker)
 - 18,764,668
 - 14,597,602
 - 2,096,403
- 1- Revenue (Pie Graph)
 - 2008, 1- Revenue
 - 2009, 1- Revenue
 - 2010, 1- Revenue
- 1- Revenue (Bar Graph)
 - 2008, 1- Revenue
 - 2009, 1- Revenue
 - 2010, 1- Revenue

Map Formats

Page

ORACLE Answers

The map displays revenue performance across various countries. Each country is marked with a variable marker consisting of three colored segments: red for 'Unacceptable', yellow for 'OK', and green for 'Good'. The map includes labels for major countries like Canada, United States, Brazil, Russia, and China, as well as oceans and continents. A scale bar at the bottom left shows 2,000 miles and 5,000 kilometers. The bottom right corner contains the copyright notice '© 2010, NAVTEQ'.

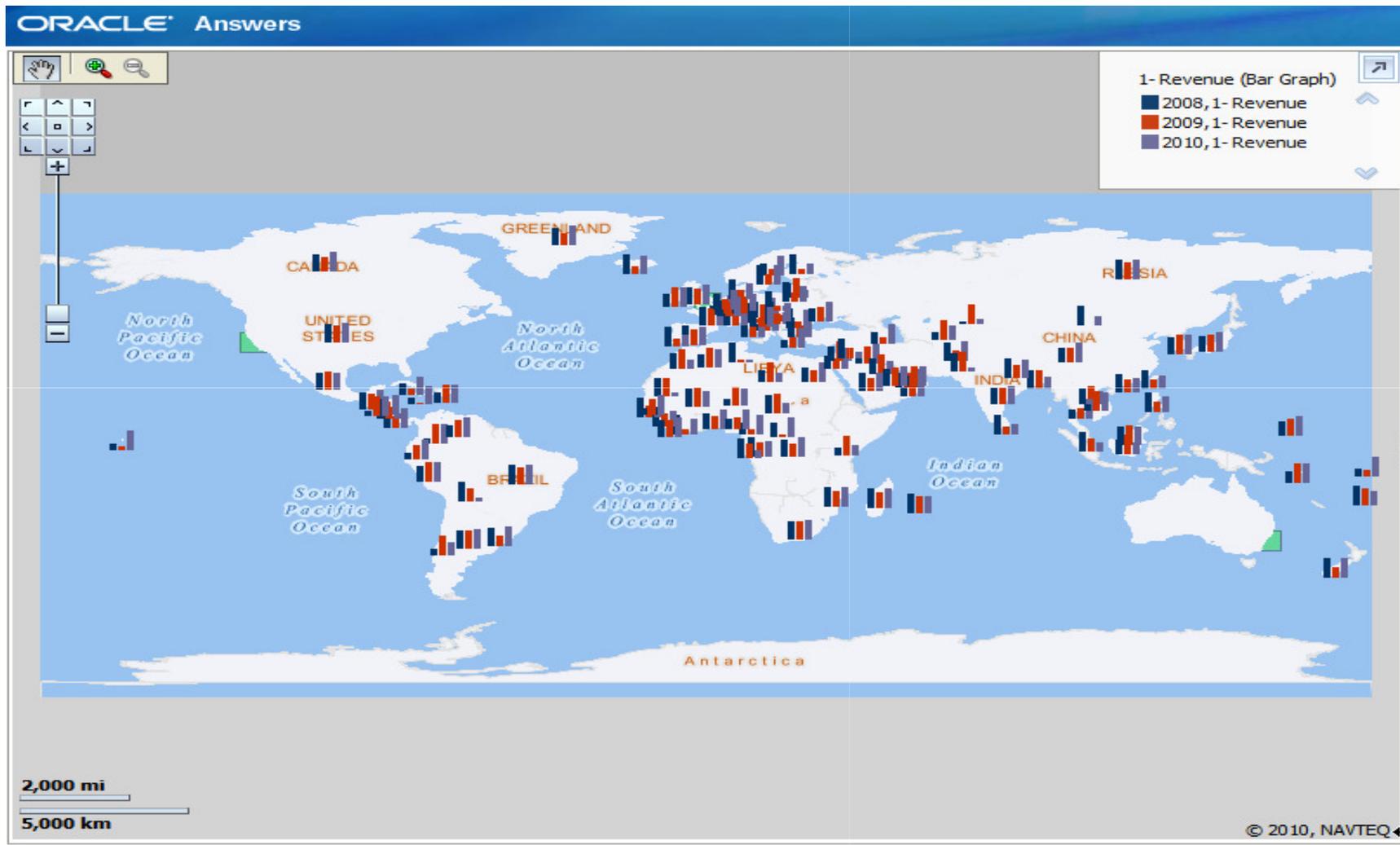
Map Formats

OBIEE_COUNTRY

- 1- Revenue (Variable Marker)
 - Unacceptable
 - OK
 - Good
- 2- Billed Quantity, 1- Revenue (Variable Marker)
 - First Third
 - Second Third
 - Last Third
- 1- Revenue (Color Fill)
- 1- Revenue (Variable Marker)
 - 18,764,668
 - 14,597,602
 - 2,096,403
- 1- Revenue (Pie Graph)
 - 2008, 1- Revenue
 - 2009, 1- Revenue
 - 2010, 1- Revenue
- 1- Revenue (Bar Graph)
 - 2008, 1- Revenue
 - 2009, 1- Revenue
 - 2010, 1- Revenue

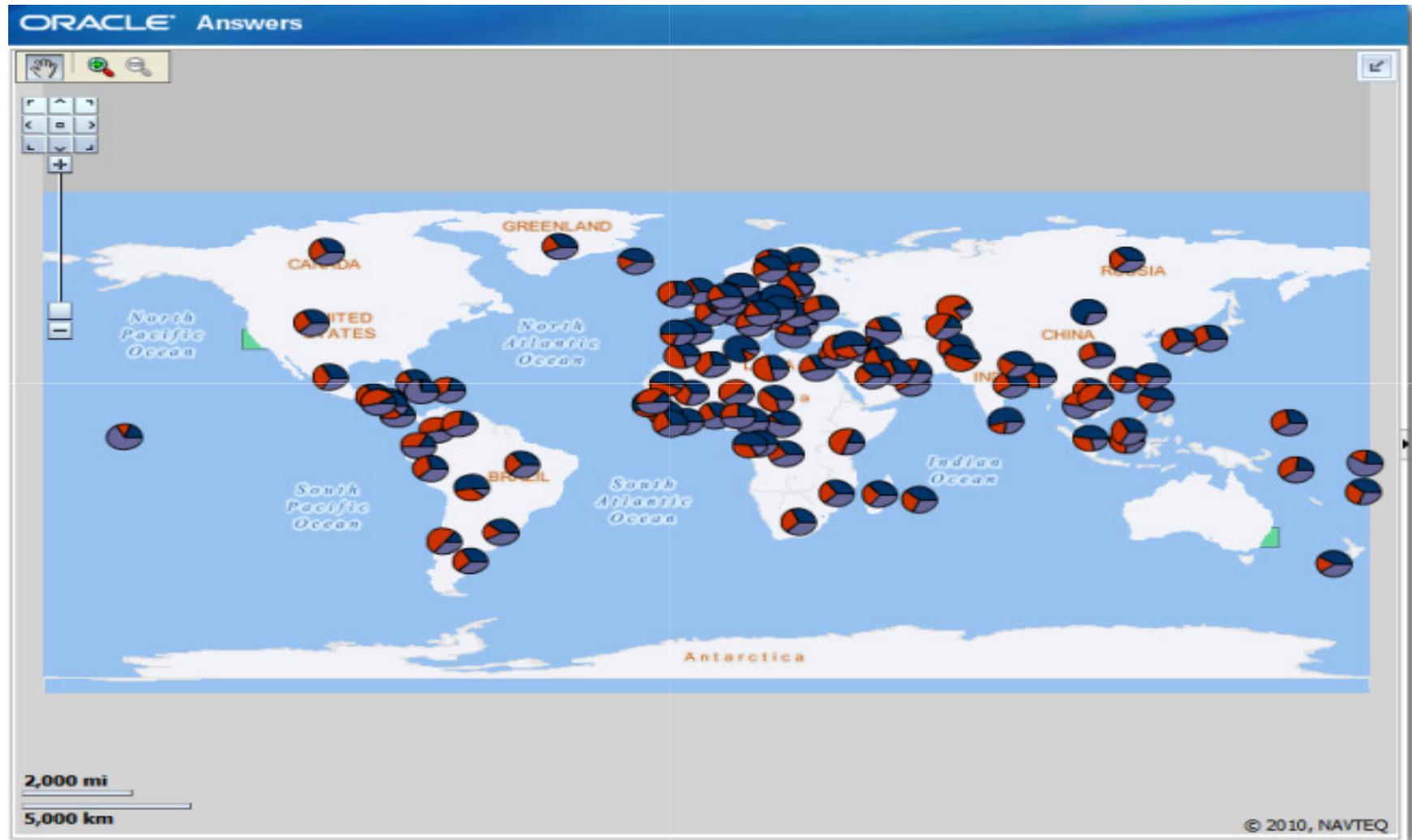
Map Formats

Bar Graph



Map Formats

Graph

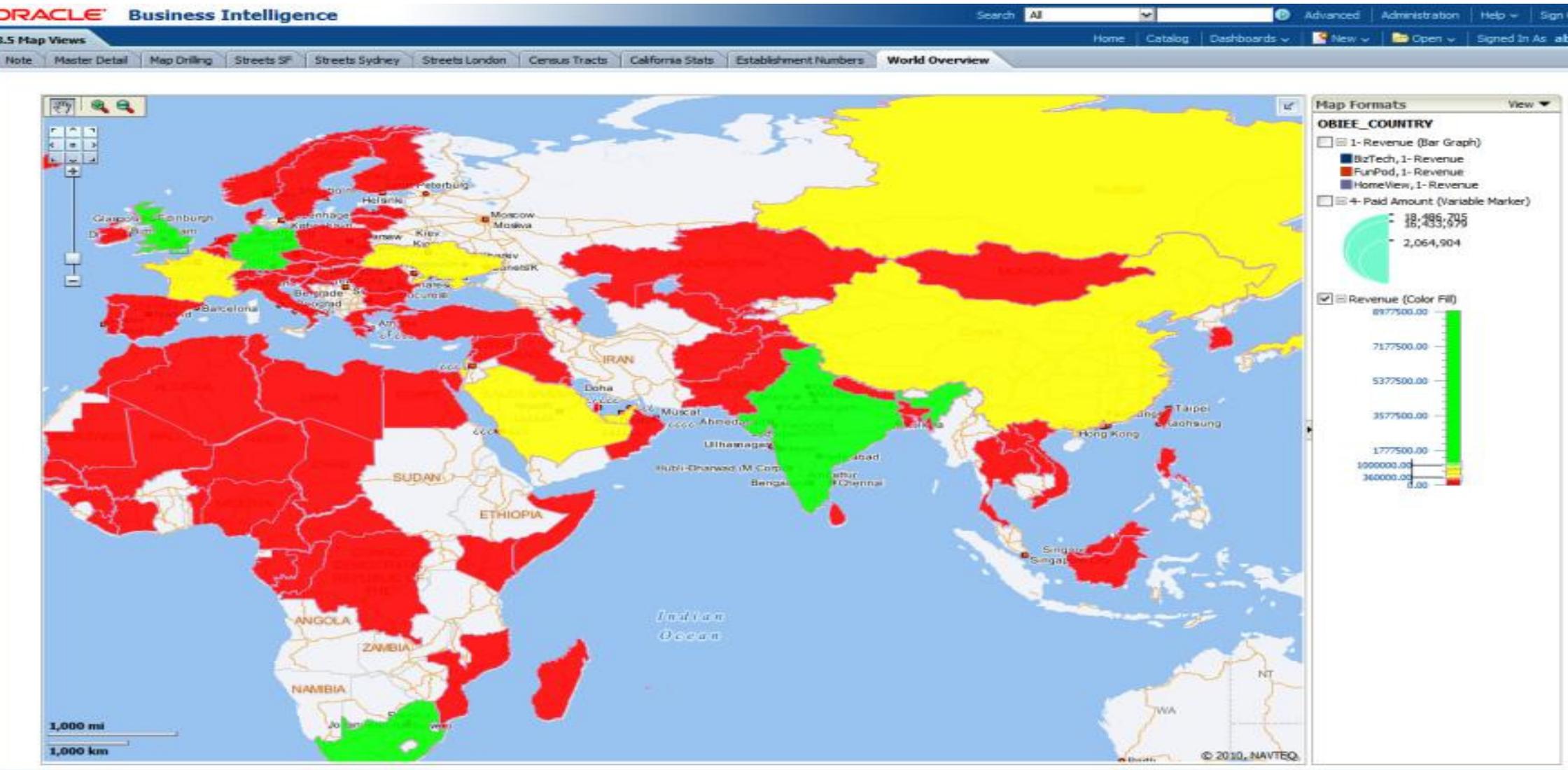


Map Interactions

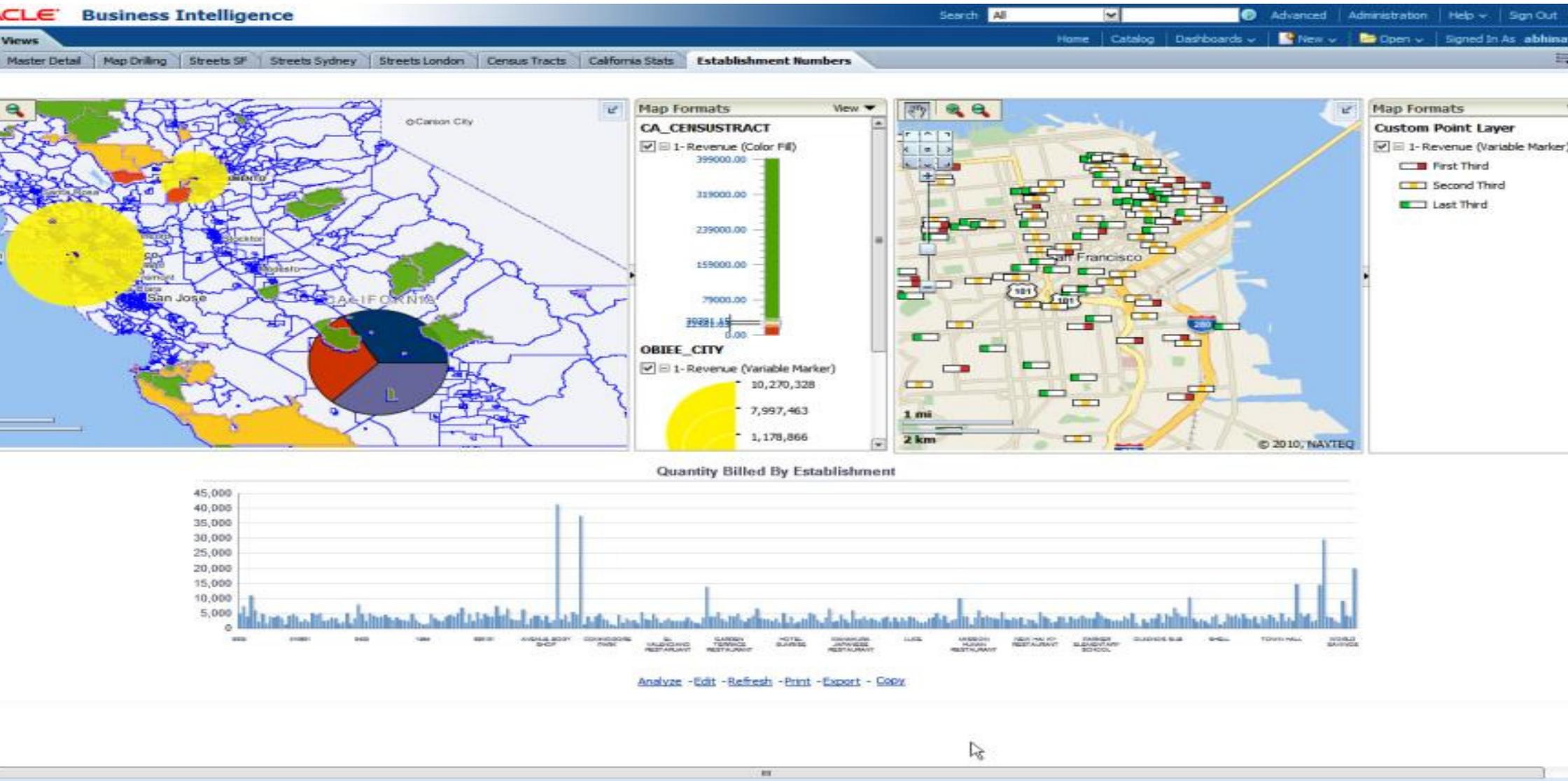
Drilling



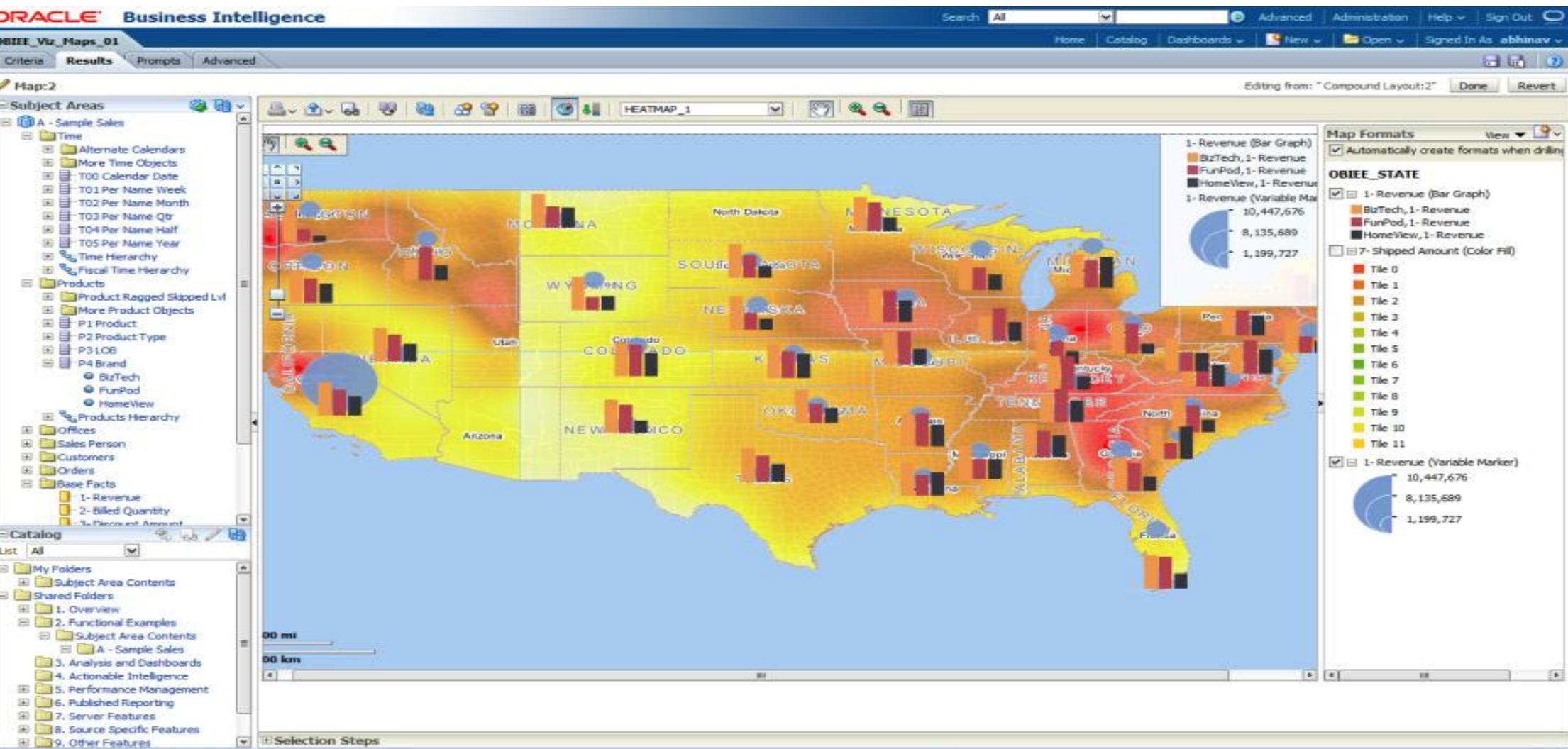
Users can choose which formats are displayed



A dashboard page can have multiple map views



The background map itself can be a thematic map



Master-Detail linking: Country at a glance on the map, details for a state in charts

ORACLE Business Intelligence

3.5 Map Views

Map Views and Master-Detail Linking

Thematic Maps Street Maps

Search All

Advanced Administration Help

Home Catalog Dashboards New Open Signed In As

KENTUCKY

T05 Per Name Year	1- Revenue
2008	58,019
2009	57,838
2010	67,915

R62 Geo Ctry State Name: USA_Kentucky

Map Formats

OBIEE_STATE

1- Revenue (Pie Graph)

- 2008, 1- Revenue
- 2009, 1- Revenue
- 2010, 1- Revenue

Revenue

■ HomeView ■ FunPod ■ BizTech

Year	HomeView	FunPod	BizTech
2008	~15,000	~15,000	~20,000
2009	~15,000	~15,000	~20,000
2010	~15,000	~15,000	~20,000

Revenue

■ 2010 ■ 2009 ■ 2008

Company	2010	2009	2008
BizTech	~30,000	~30,000	~30,000
FunPod	~30,000	~30,000	~30,000
HomeView	~15,000	~15,000	~15,000

Billed Quantity

■ 2008 ■ 2009 ■ 2010

Company	2008	2009	2010
BizTech	~4K	~4K	~4K
FunPod	~4K	~4K	~4K
HomeView	~2K	~2K	~2K

Billed Quantity

■ BizTech ■ FunPod ■ HomeView

Year	BizTech	FunPod	HomeView
2008	~4,000	~4,000	~2,000
2009	~4,000	~4,000	~2,000
2010	~4,000	~4,000	~2,000

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