Business Intelligence and Map Visualization with Oracle Spatial

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Oracle Spatial and MapViewer

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usiness Intelligence

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

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patial Analytics Give a Real World Perspective

st business data has a location

Find all competitors within 2 miles of Northport Branch

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

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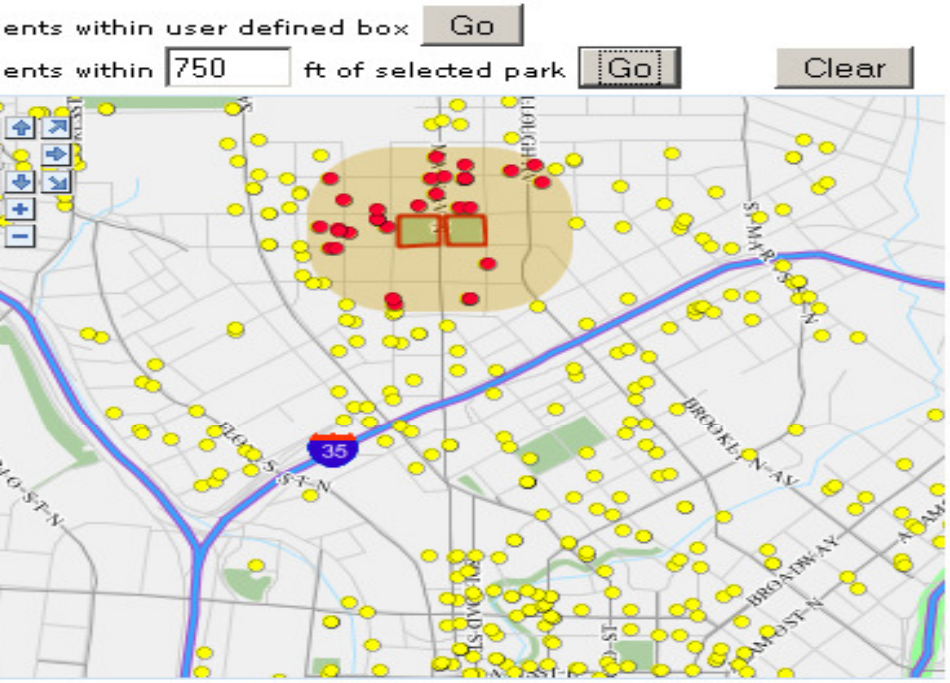
ap driven filters, or prompts, in BI dashboards

y Possible With Spatial Analytics



y incidents within 750 ft
lected 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	HARASSMENT,SUBD 1,CIVILIAN	02-Aug-03	1064	32	C
	HARASSMENT,SUBD 3,4,5	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

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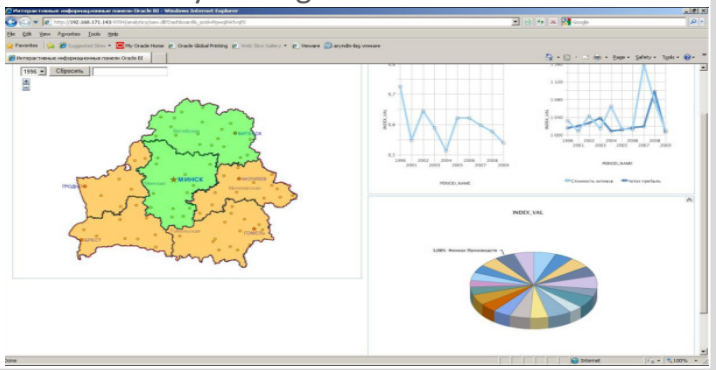
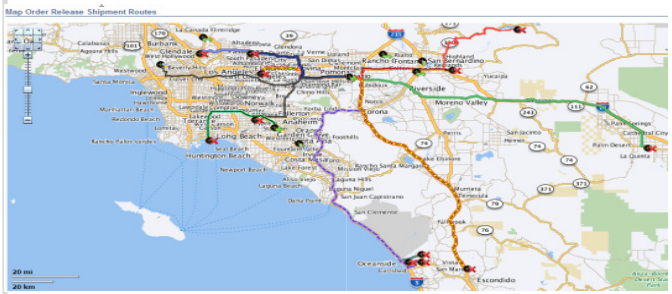
very Application is location-aware, not just GIS pplications

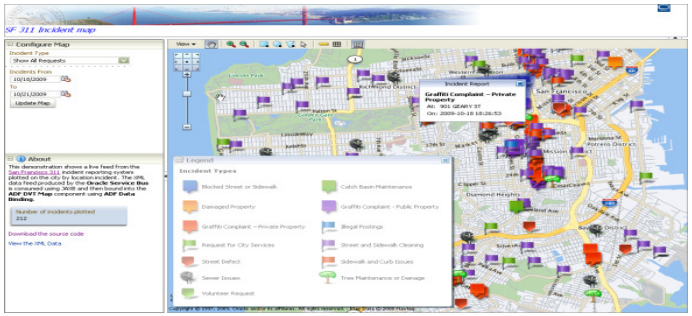
Sales Territory Management



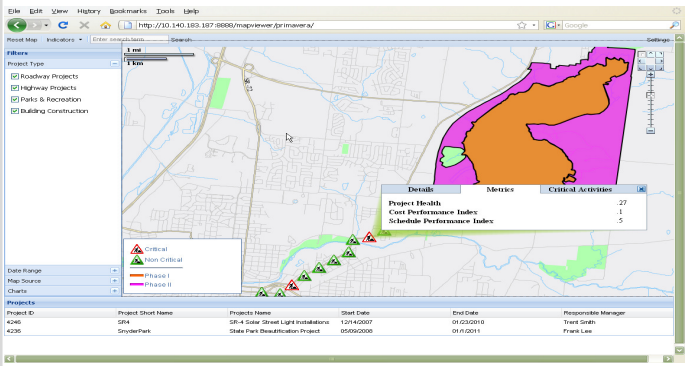
Transportation Management



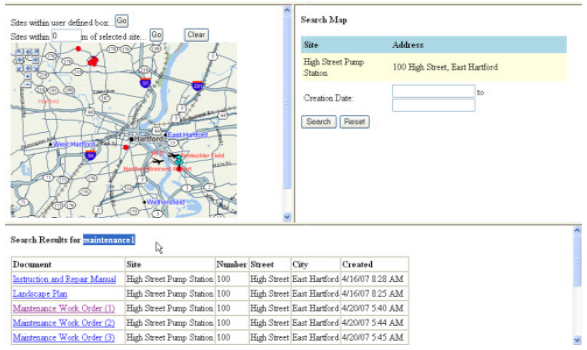
Citizen Services



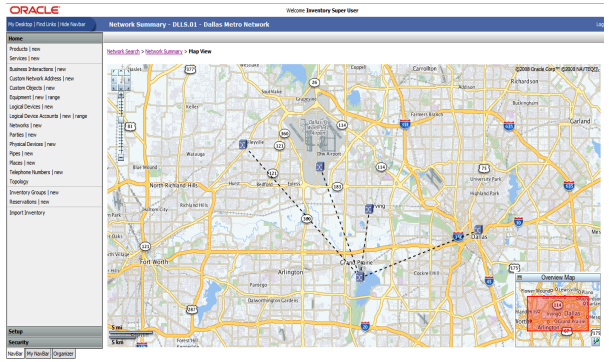
Project Management



Content Management



Asset Management



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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

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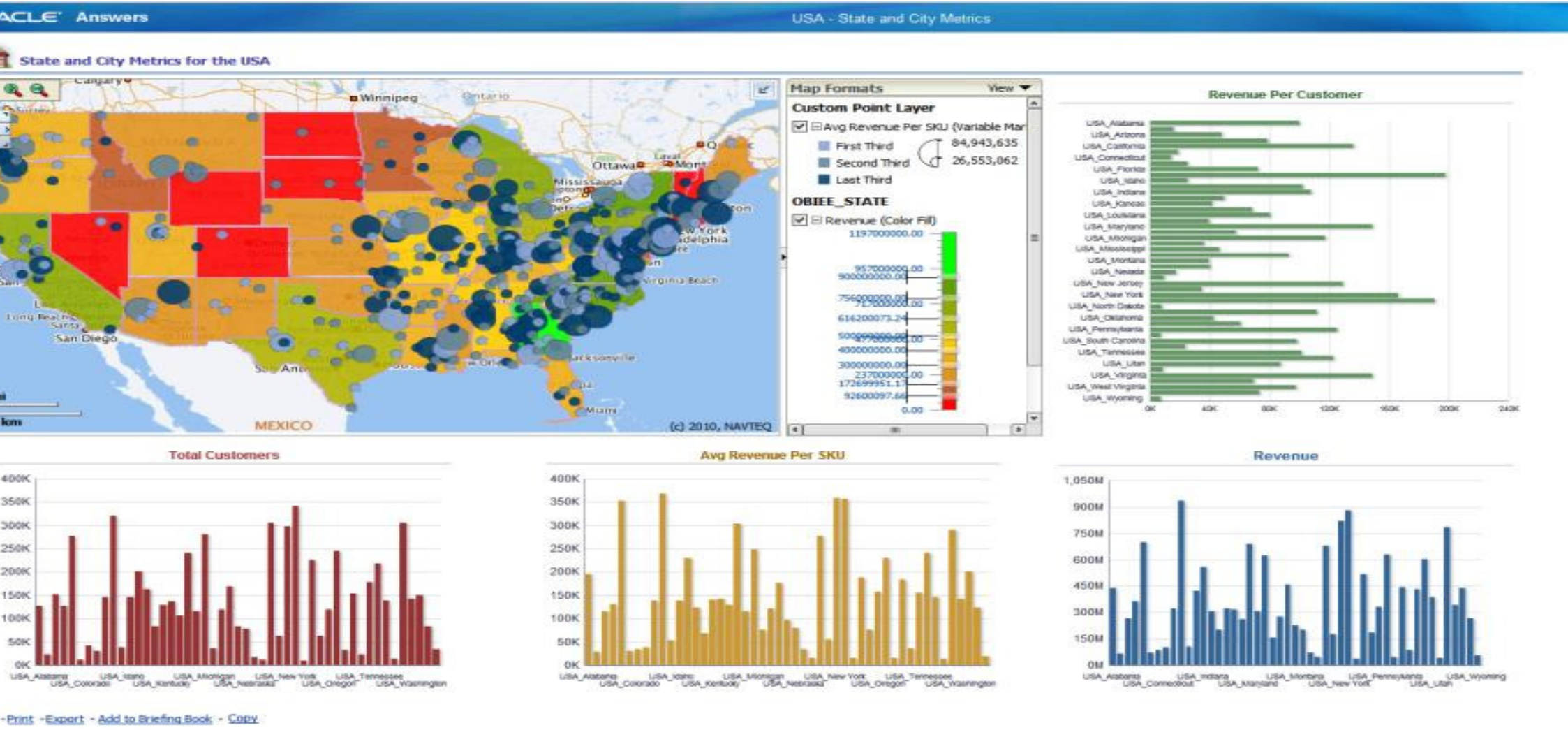
hy Spatial Map Visualizations?

Original High-Density Visualization



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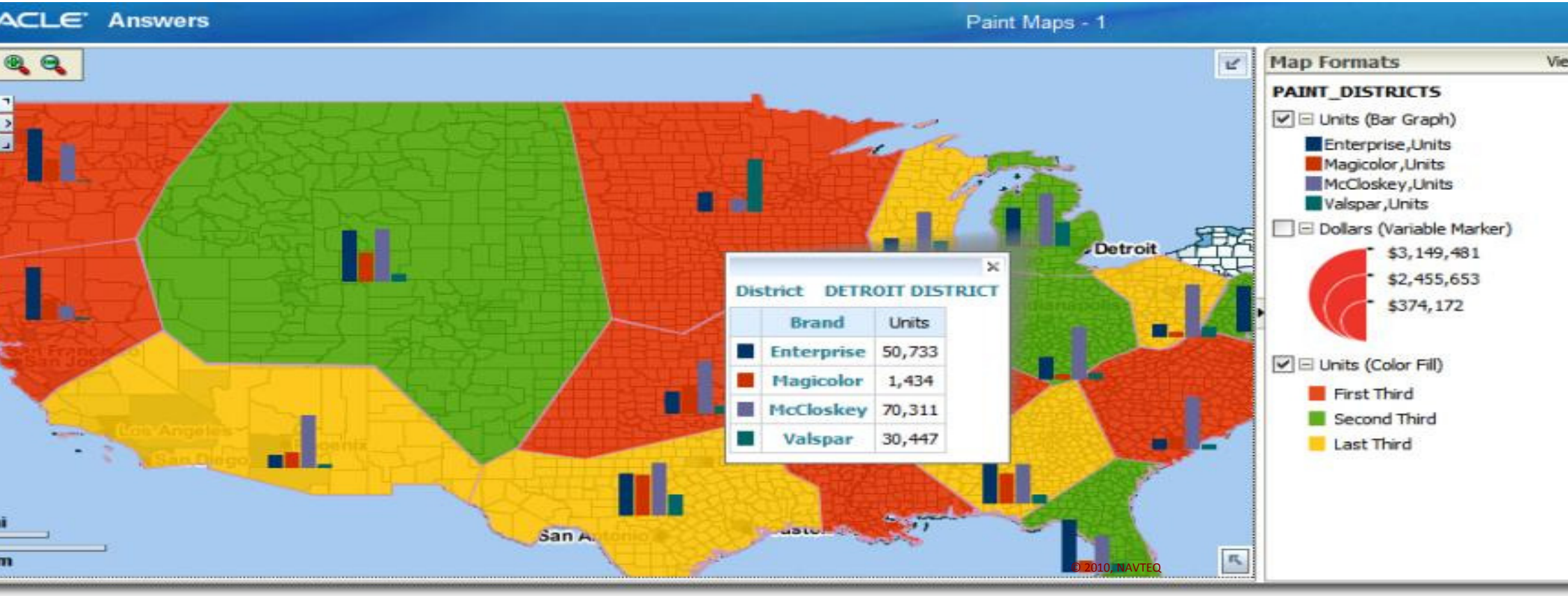
Why Spatial Map Visualizations?

ustom Territories



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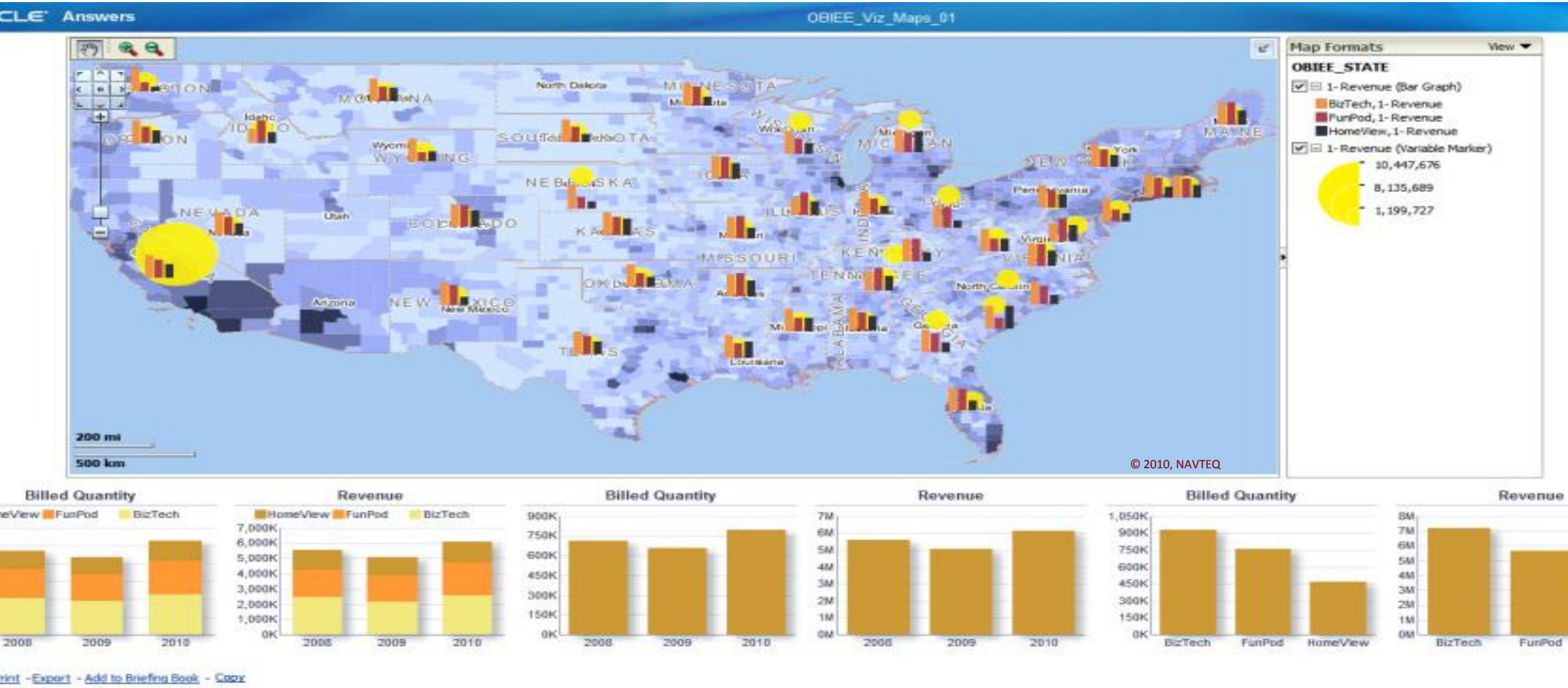
hy Spatial Map Visualizations?

al For Master-Detail Analysis



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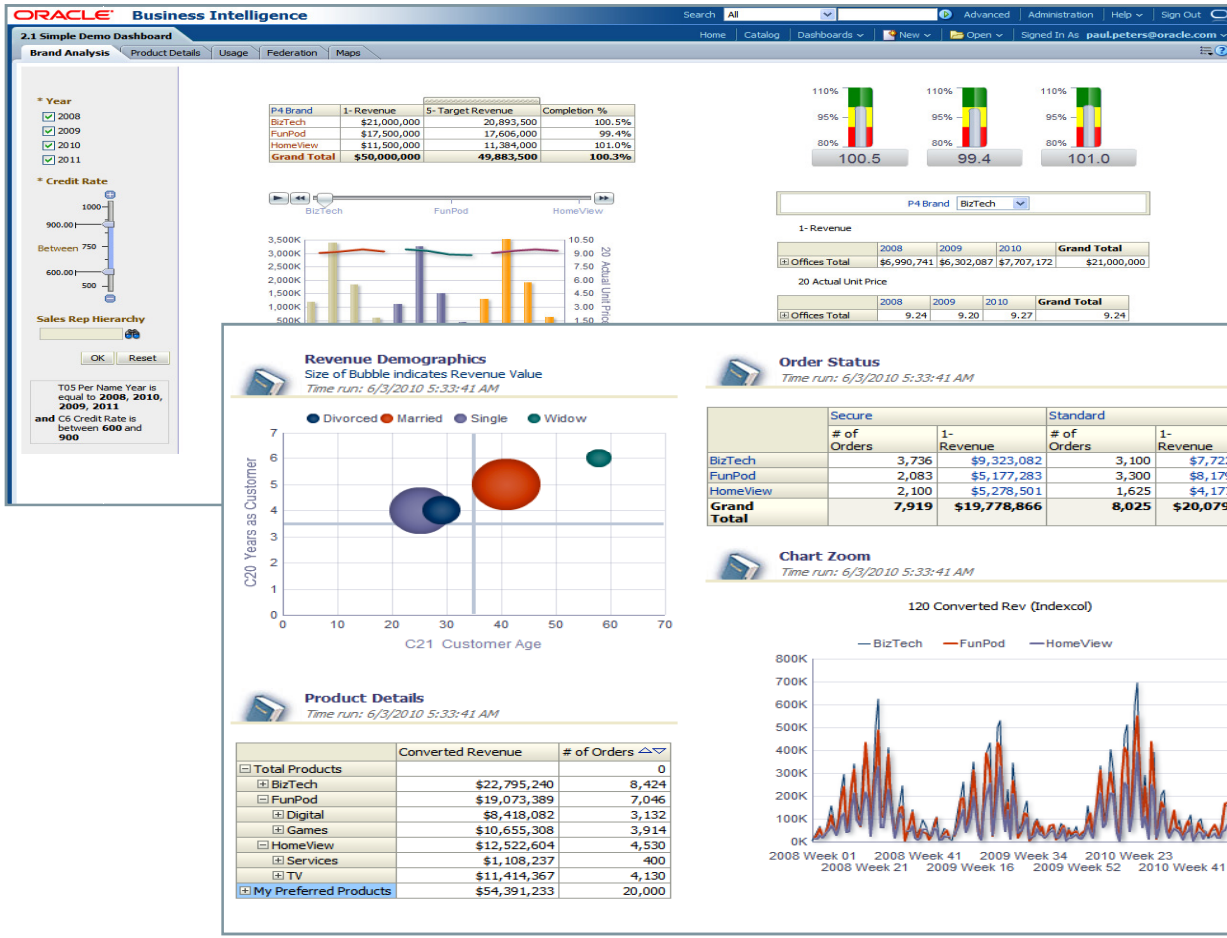
ew Interactive Visualizations

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



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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
2008	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	
	US	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	1,485,759

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

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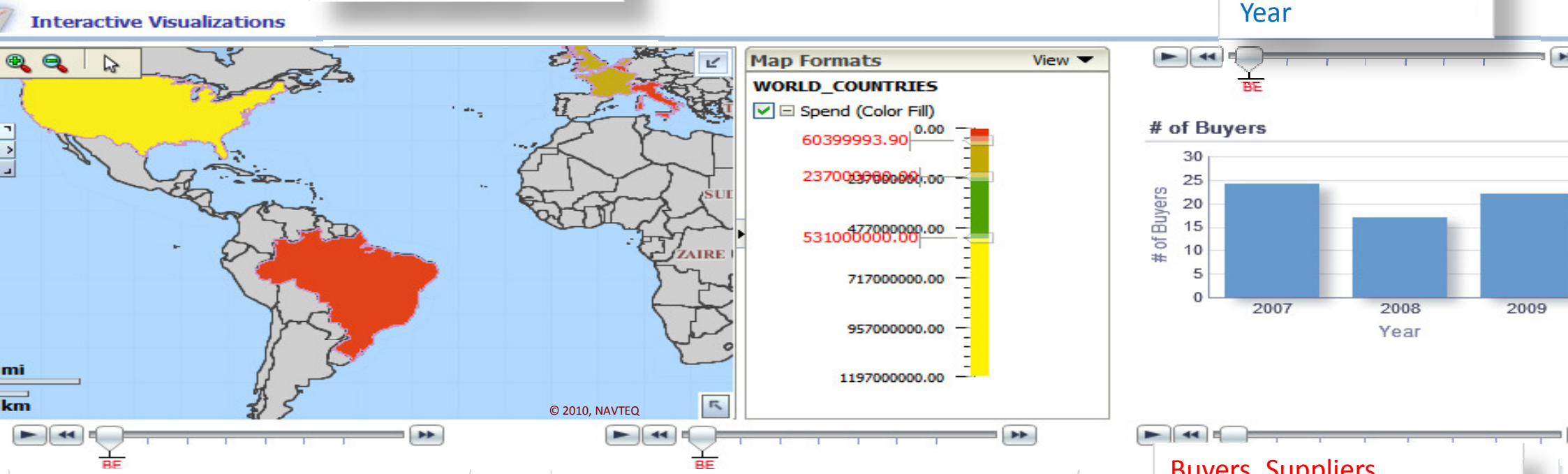
And Resulting Analysis

Spend Country

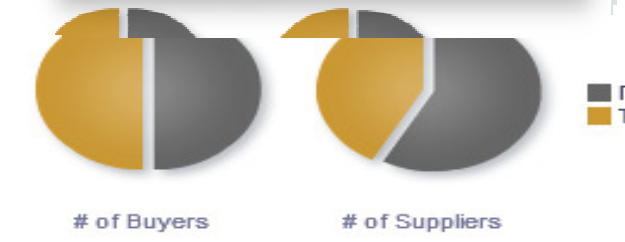
Buyers
Year



Invoiced Quantity Year

Buyers, Suppliers Year

Buyers, Suppliers
Spending Type



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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

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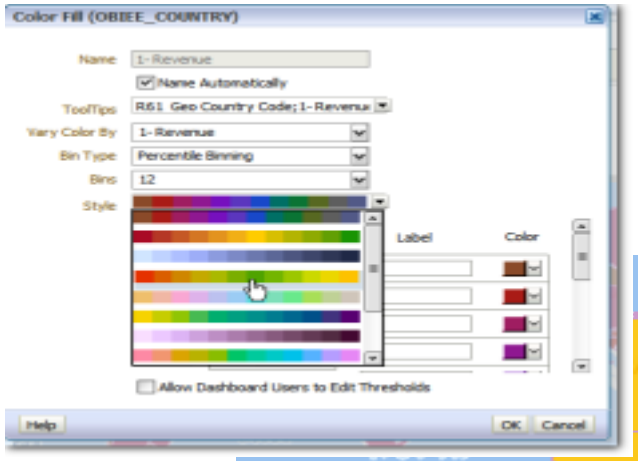
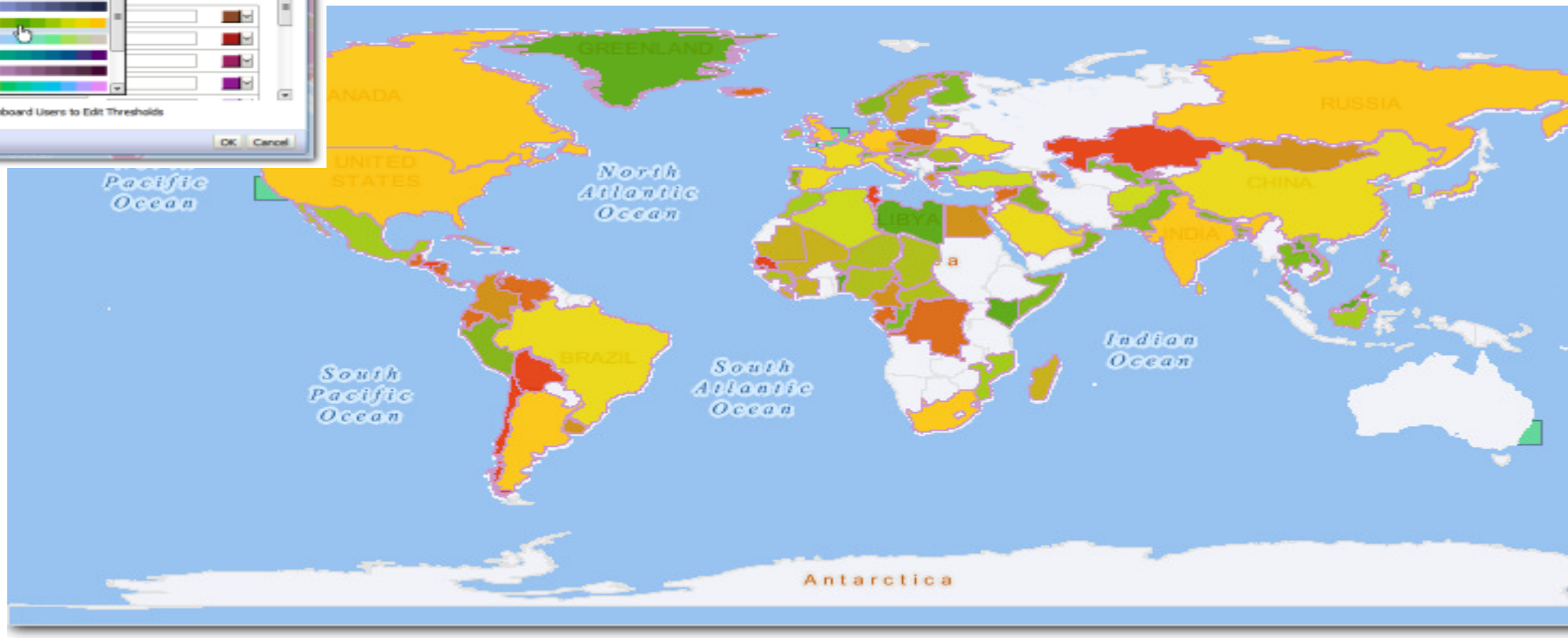
ap Formats

or





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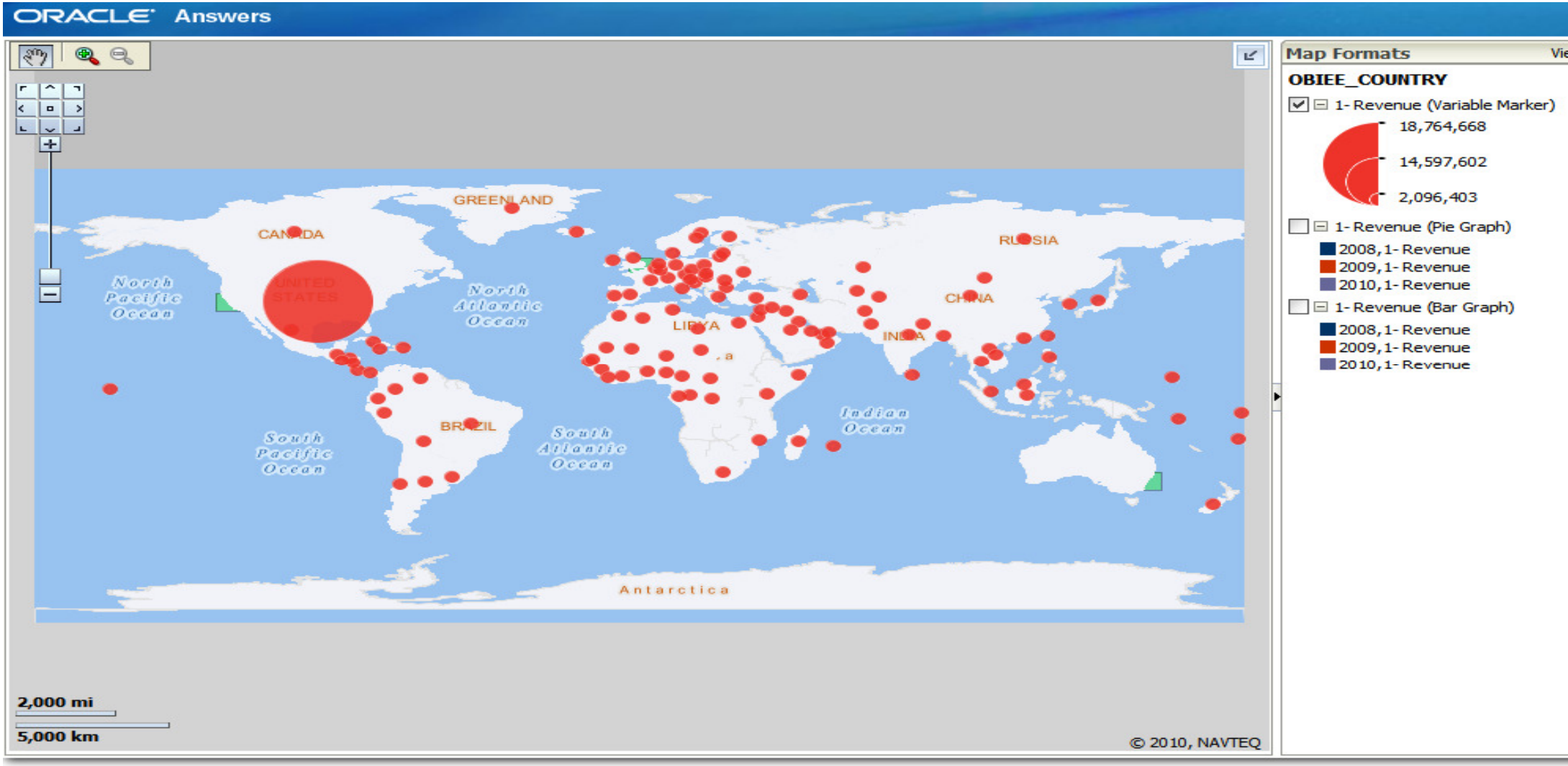
Map Formats

riable Shape (Bubble)



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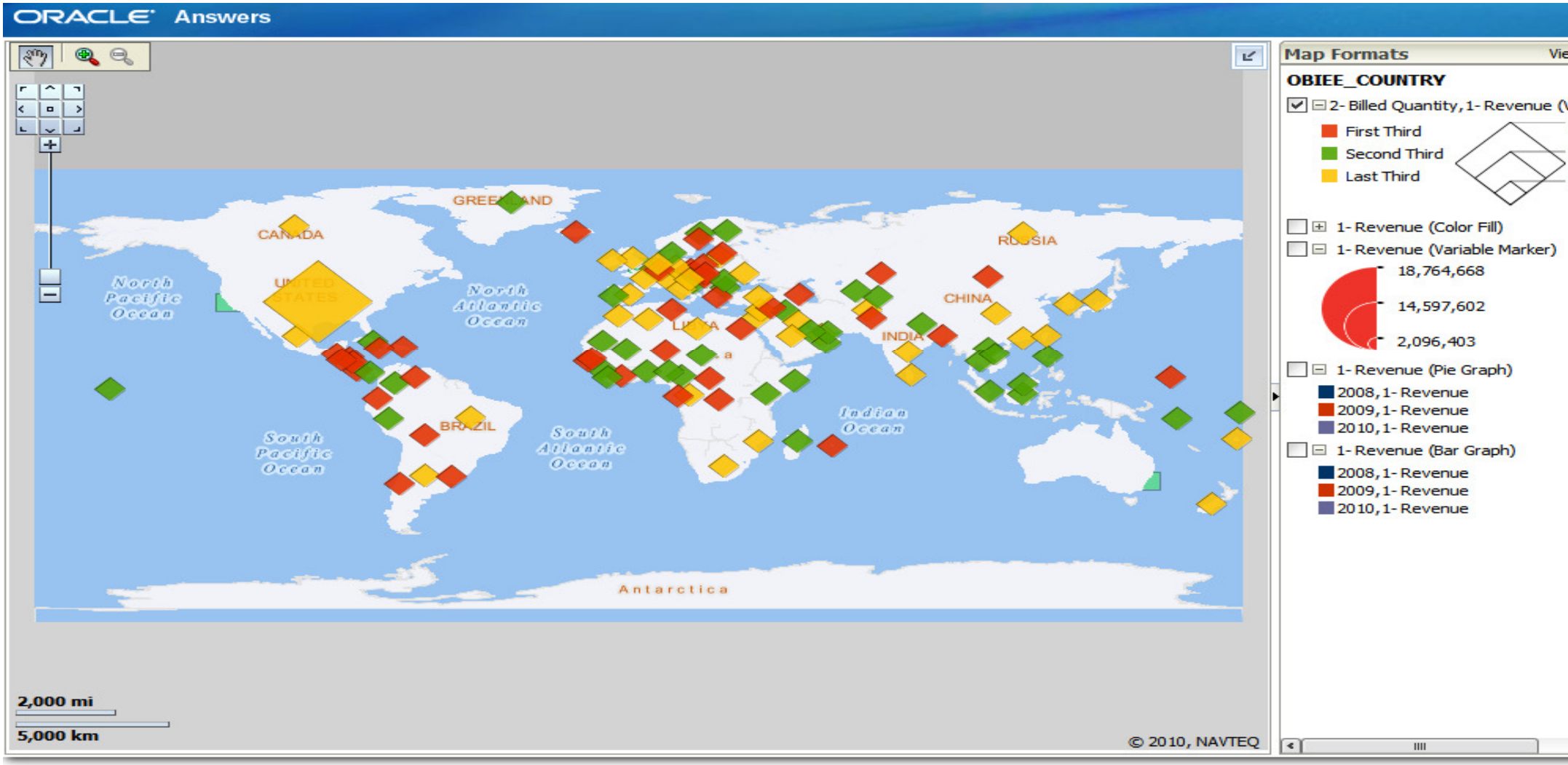

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Map Formats

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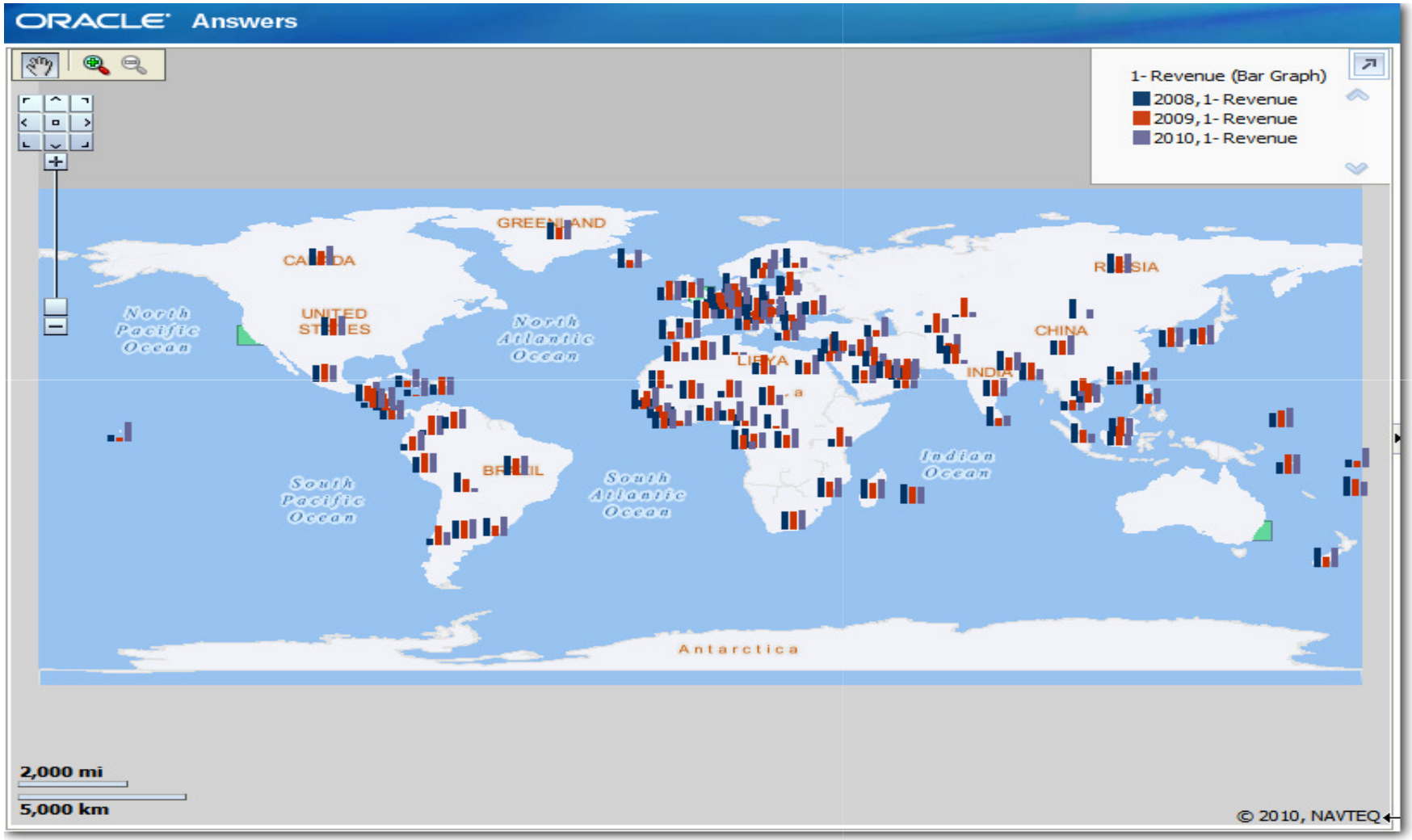
Map Formats

r Graph



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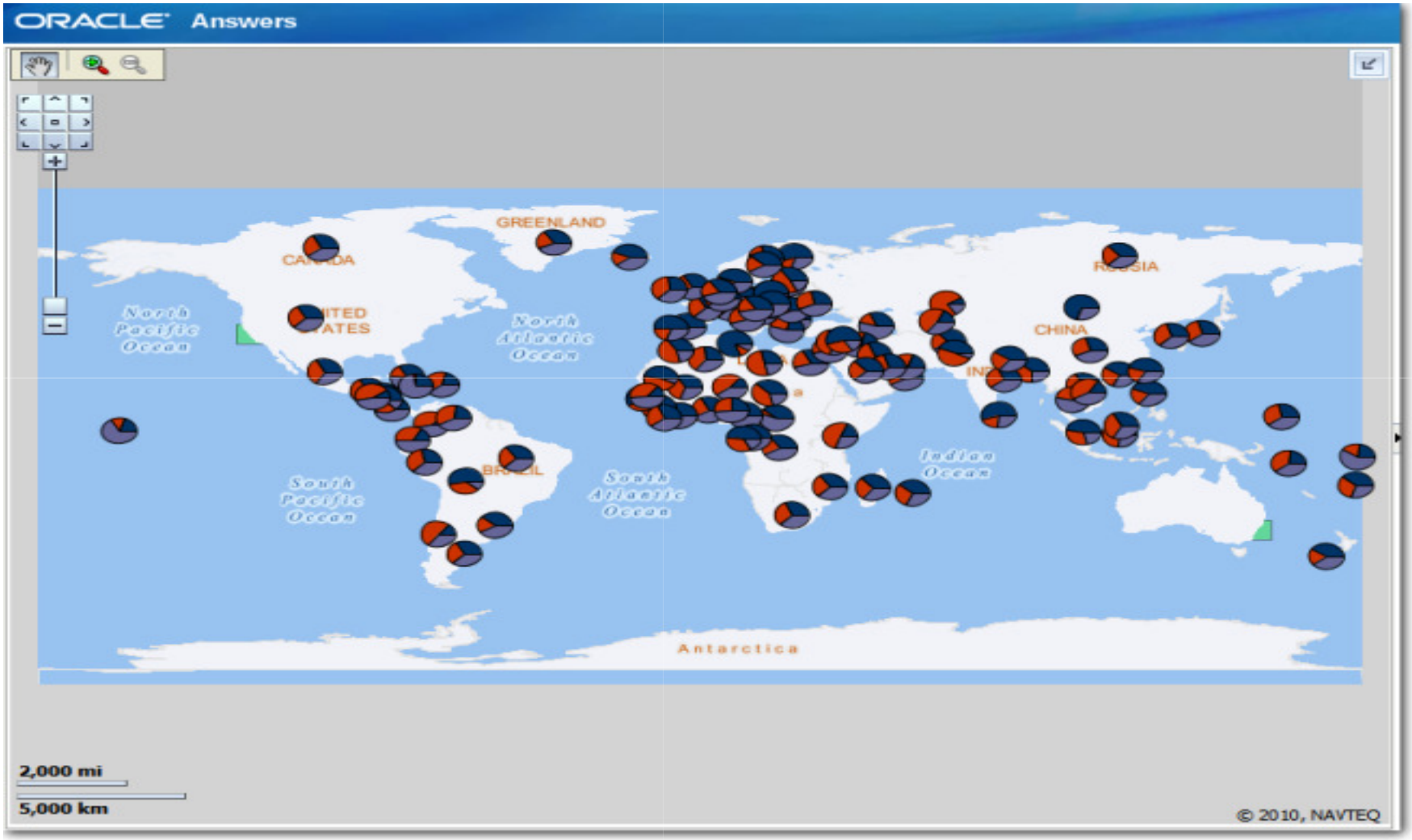
Map Formats

Graph



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Map Interactions

Drilling

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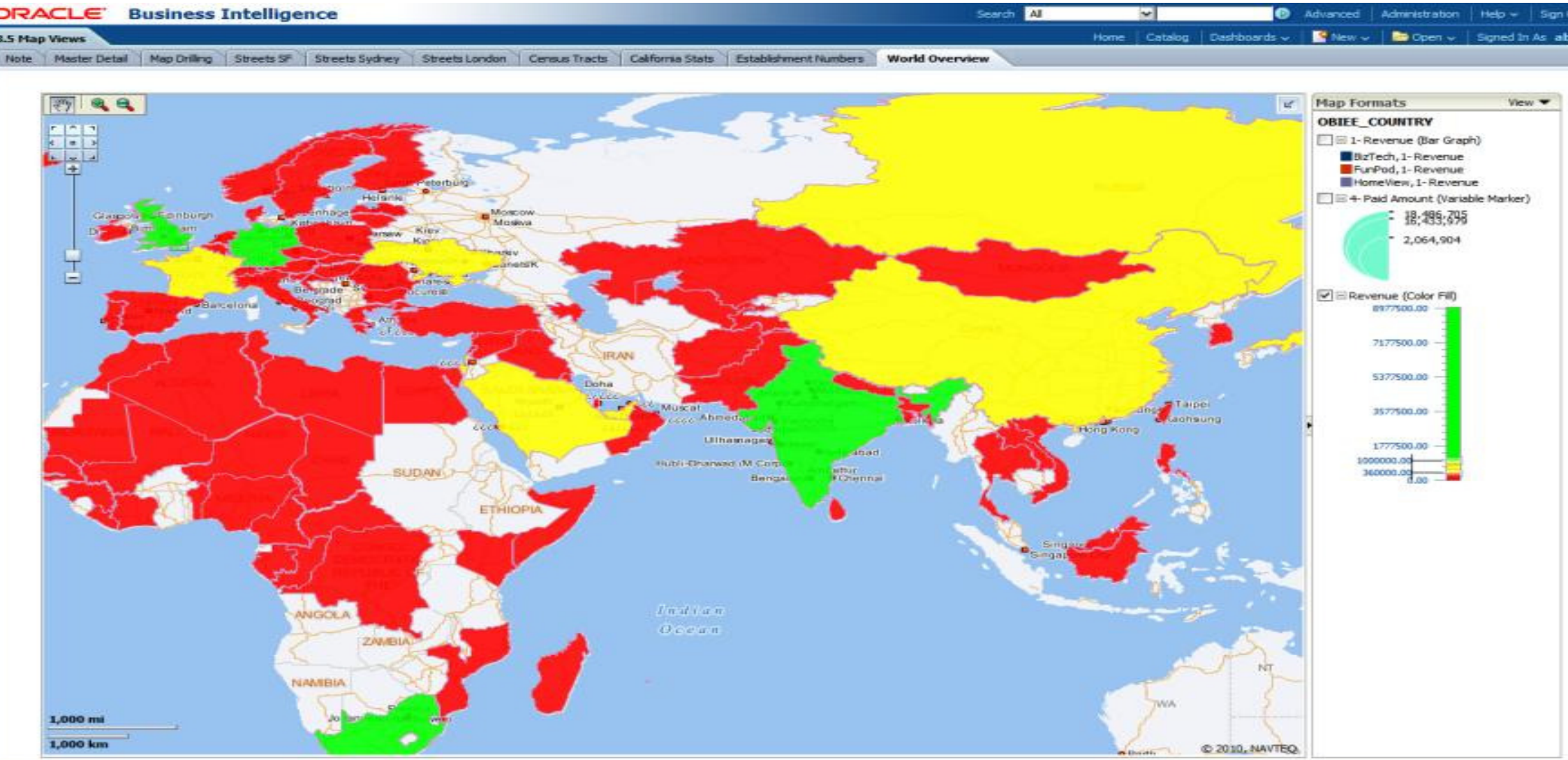

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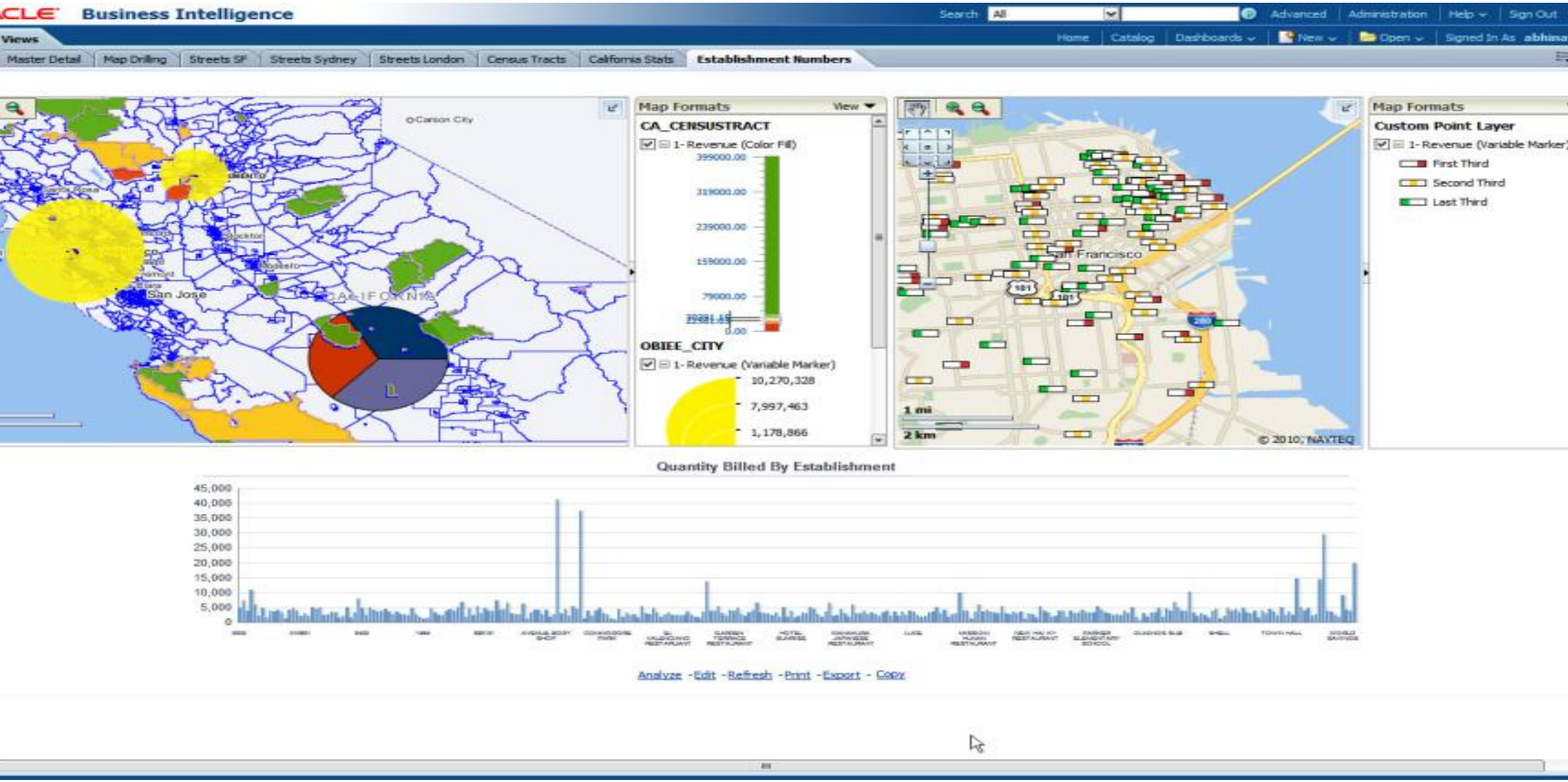
A dashboard page can have multiple map views



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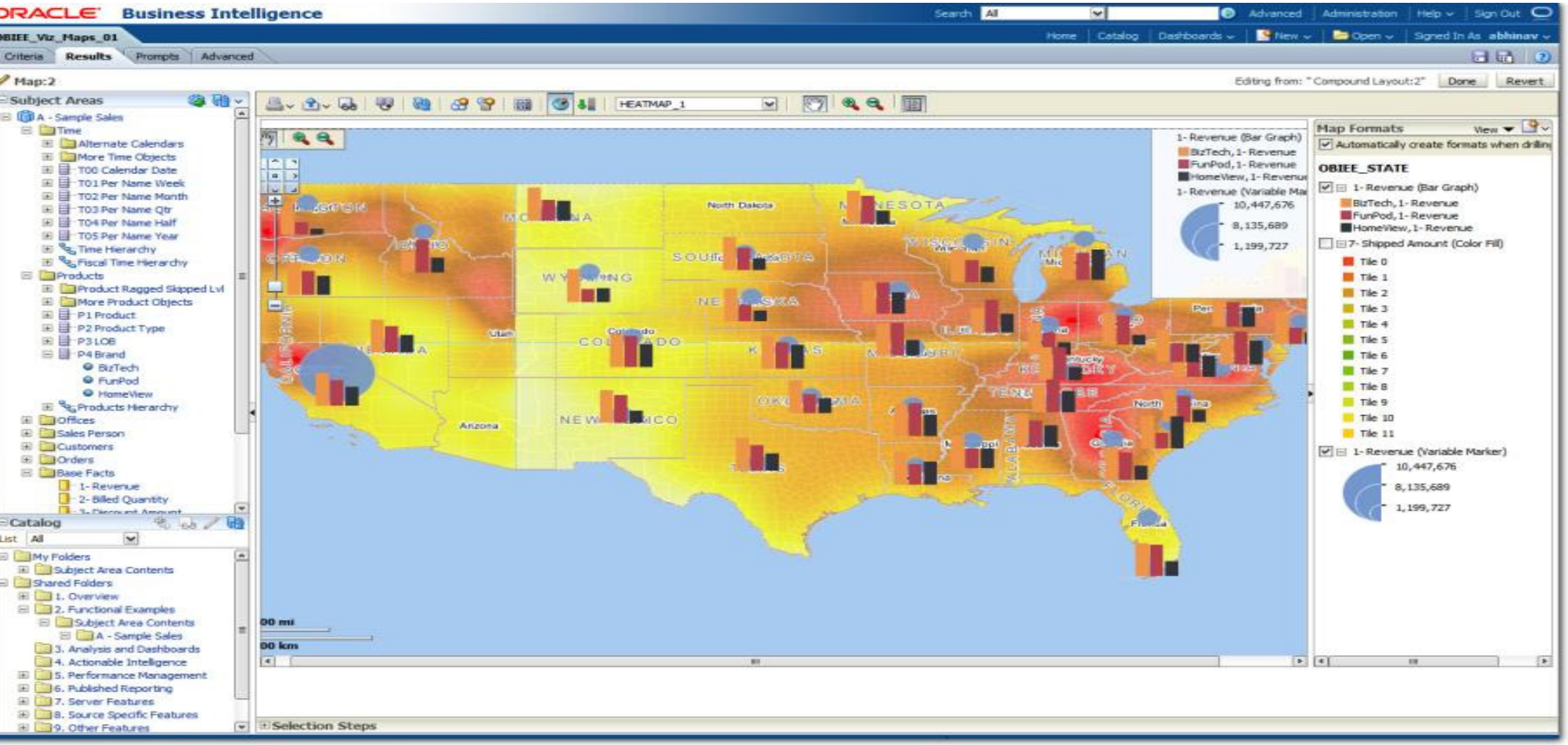
The background map itself can be a thematic map



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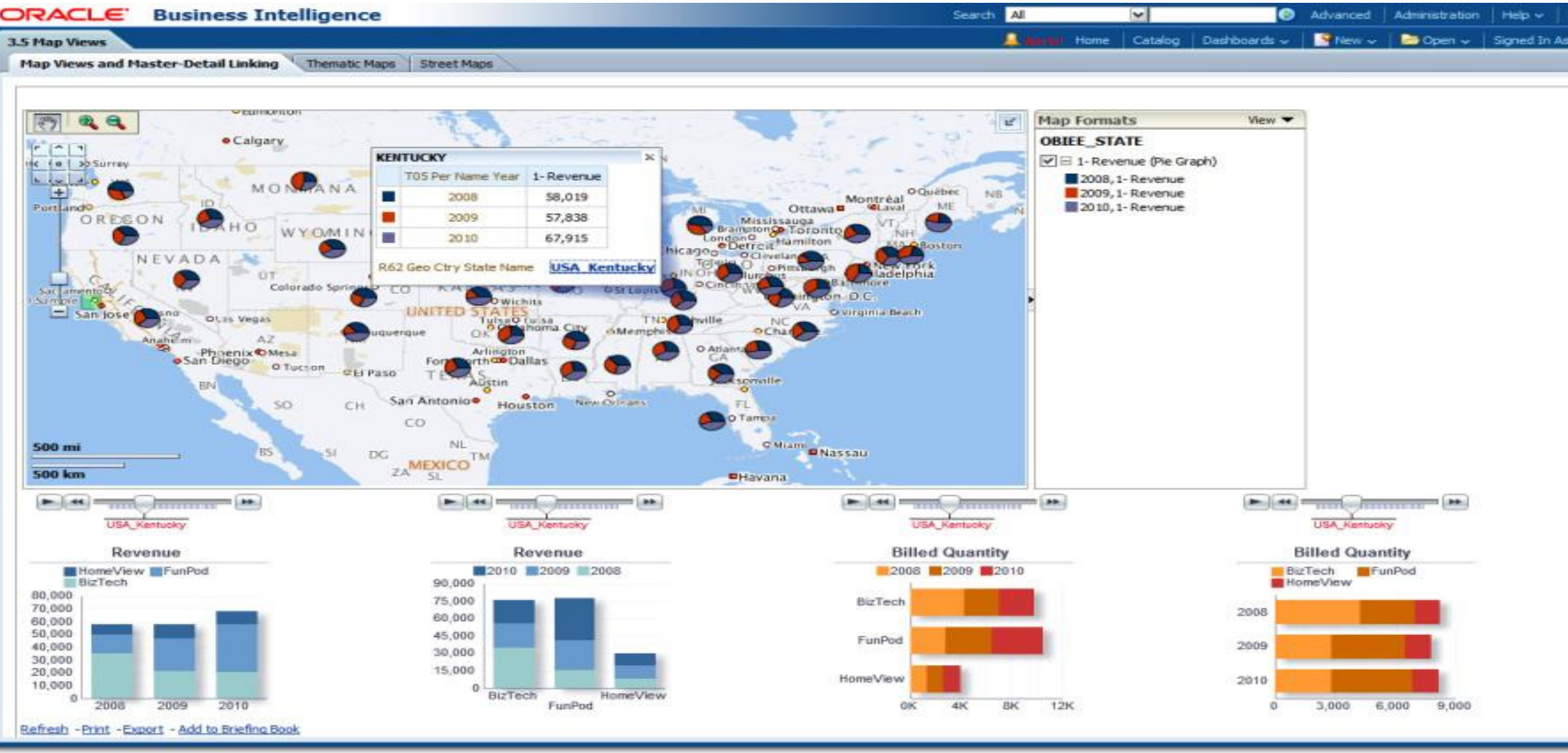
Master-Detail linking: Country at a glance on the map, details for a state in charts



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