



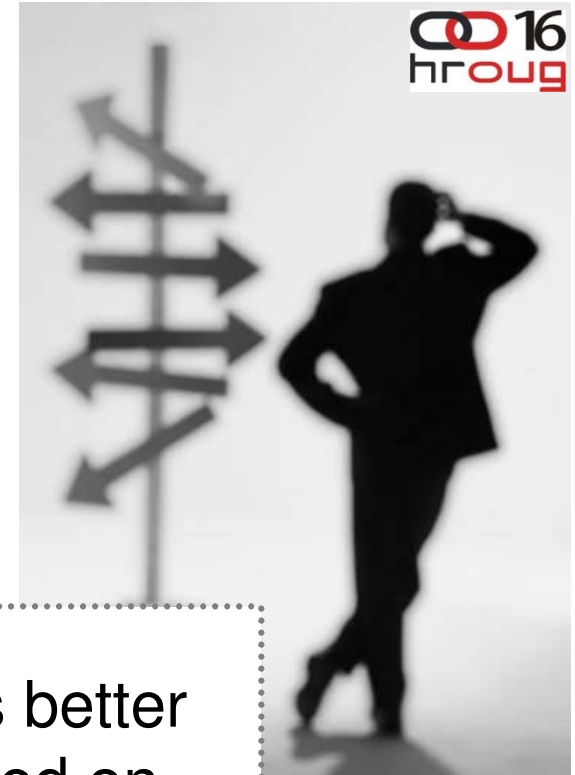
Oracle Location Intelligence

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Business Intelligence...

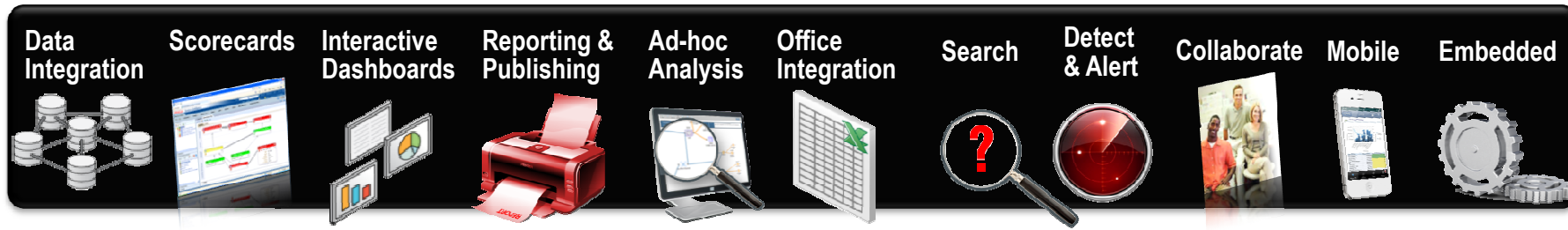


Everyone in your company can do their jobs better if they made decisions and took actions based on actual information rather than “best guess” or “how we did it last year”

The New Standard for Enterprise Analytics

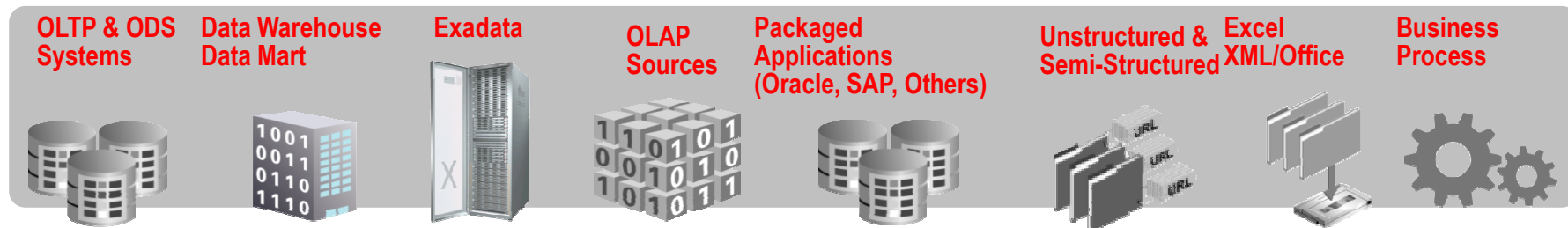
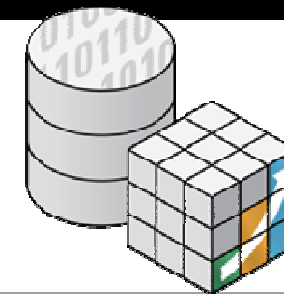
Oracle Business Intelligence 11g

Complete, Open, Integrated



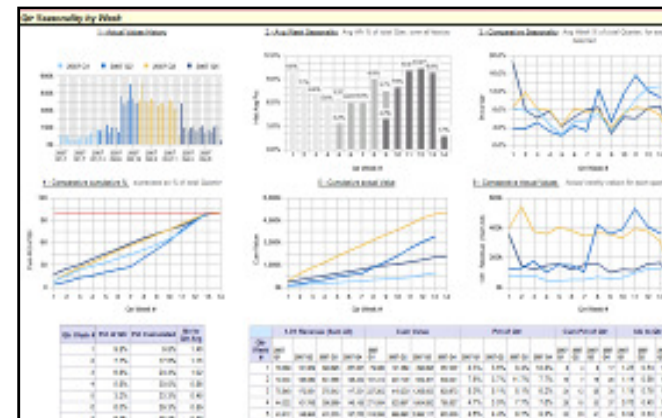
Common Enterprise Information Model

- Common Metadata Foundation across all Data Sources
- Common Security, Access Control, Authorization, Auditing
- Common Request Generation and Optimized Data Access Services
- Common Clustering, Workload Management, & Deployment
- Common Systems & Operational Lifecycle Management



Visualization

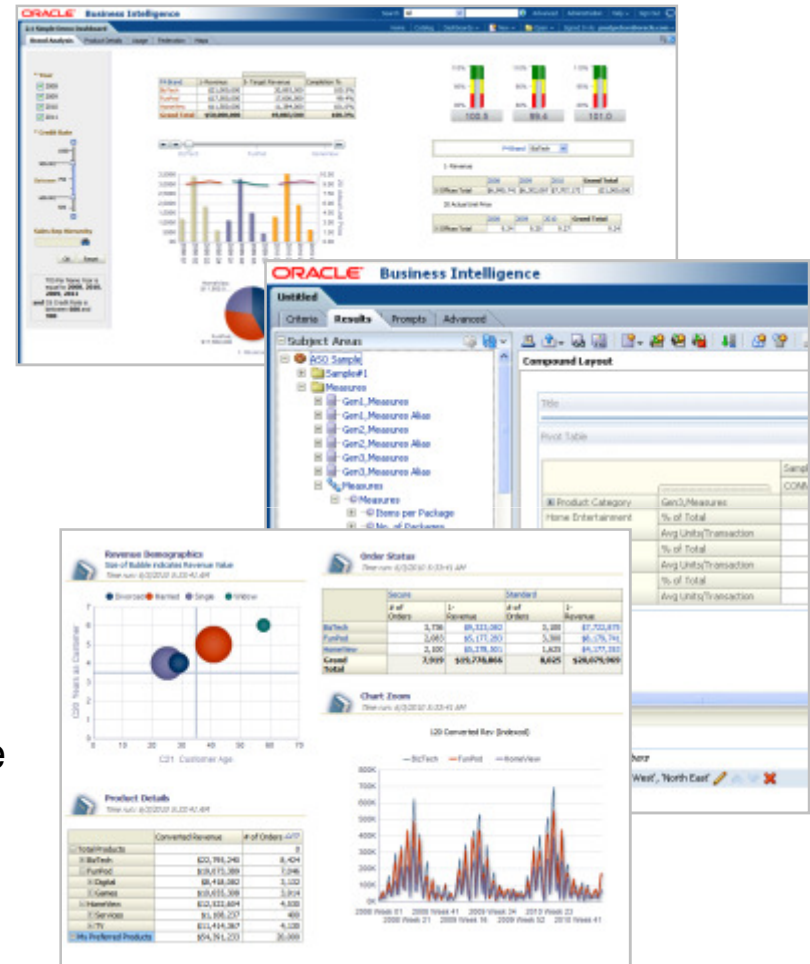
- Effective interactive visualization and analysis are key enabler of insight to analysts and end-users
- Good visualizations are characterized by interactivity, and the ability to enable analysis
- The Oracle BI Suite offers numerous choices ...



Best-in-Class Query & Analysis User Interface



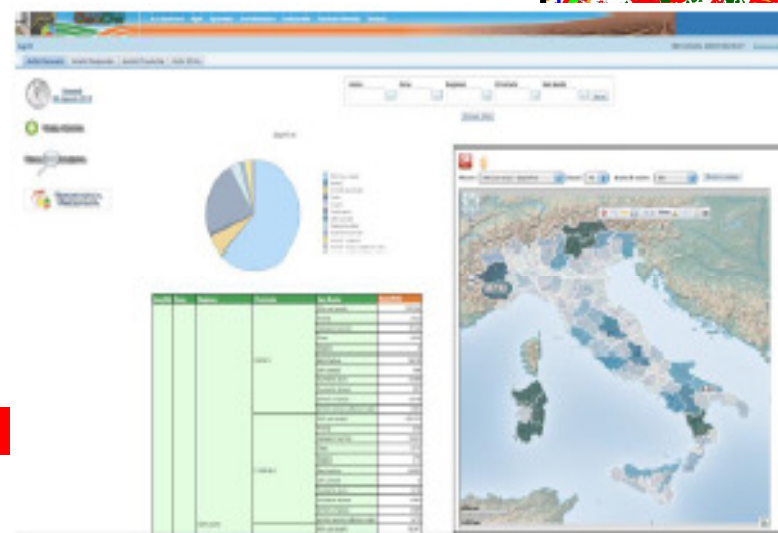
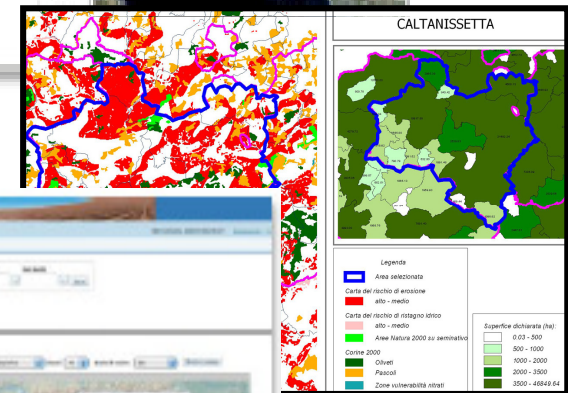
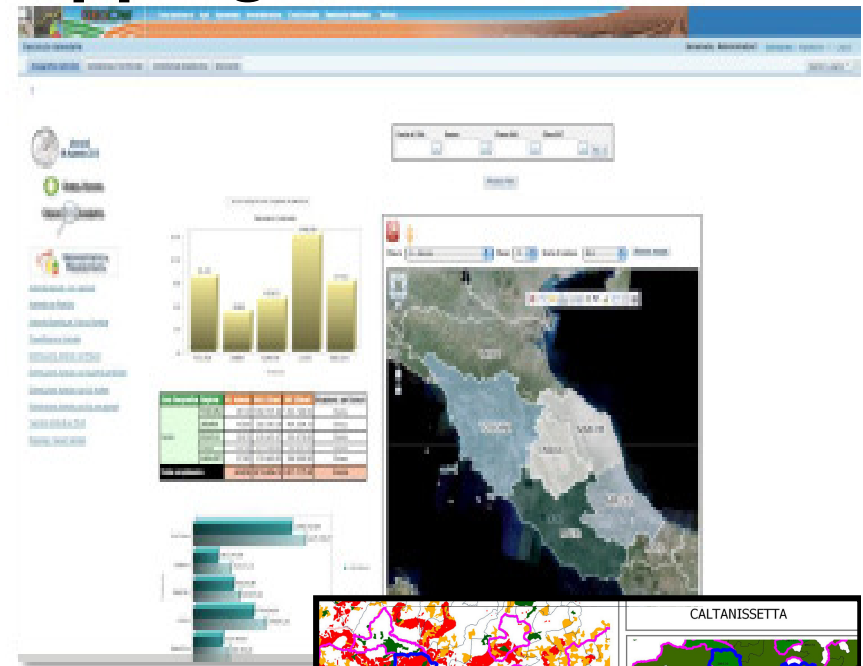
- Powerful dashboards
 - Most popular business user access to Oracle BI
 - Visually appealing
 - Intuitive
 - 100% thin client
 - provide a great deal of interactive exploration right on the dashboards
- Across all styles of analysis
 - R-OLAP, M-OLAP, Scorecards, Reporting, Collaboration, Actions
- Across all data sources
 - Simplified model for users
 - Federated data access
 - On-the-fly calculations, even with complex share and time series
 - Custom members & groups
 - Share, collaborate, & publish
 - Consistency & alignment



Answers Geographical Mapping View

Spatial Data in OBIEE 11g

- Integrated component of OBIEE
- OBI EE Dashboards and Answers
- Variety of mapping visualizations
- Interactive map controls
- Multiple layers
- Global digital map data provided by NAVTEQ
- deeper insight and business value using spatial analytics and visualization
- Map views - intuitive and interactive way to convey spatial relationships (proximity, containment, or connectedness) that is harder to do with other visualizations



What Is Spatial?

Spatial is:

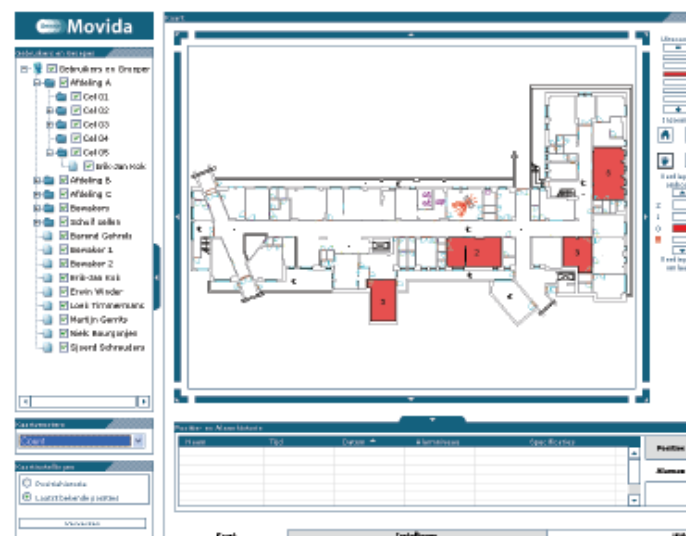
- Every farm
- Every Citizens Address
- Every Crime Scene
- Every Flue Victims Address
- Every House for sale
- Social Economic Figures
- Every Train, Car or Ship



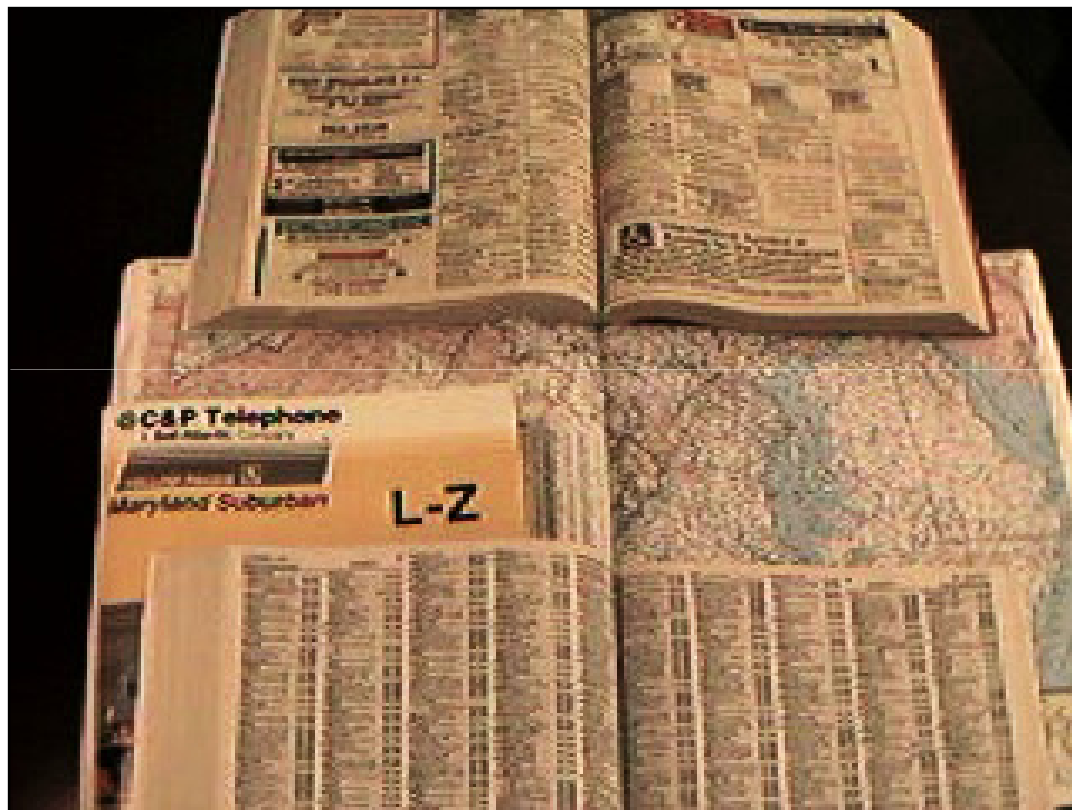
What Is Spatial?

Spatial is also:

- Location of Assets
 - Location of Mobile assets in:
 - Hospitals (Wheelchairs, Infusion Pumps)
 - Workshop (Repair Equipment)
 - Office (beamers)
 - Properties
- Location of People
 - Nurses, Doctors
 - Security Guards
 - Employees in Risky Environments
 - Prisoners
 - In-field personnel
 - Customers



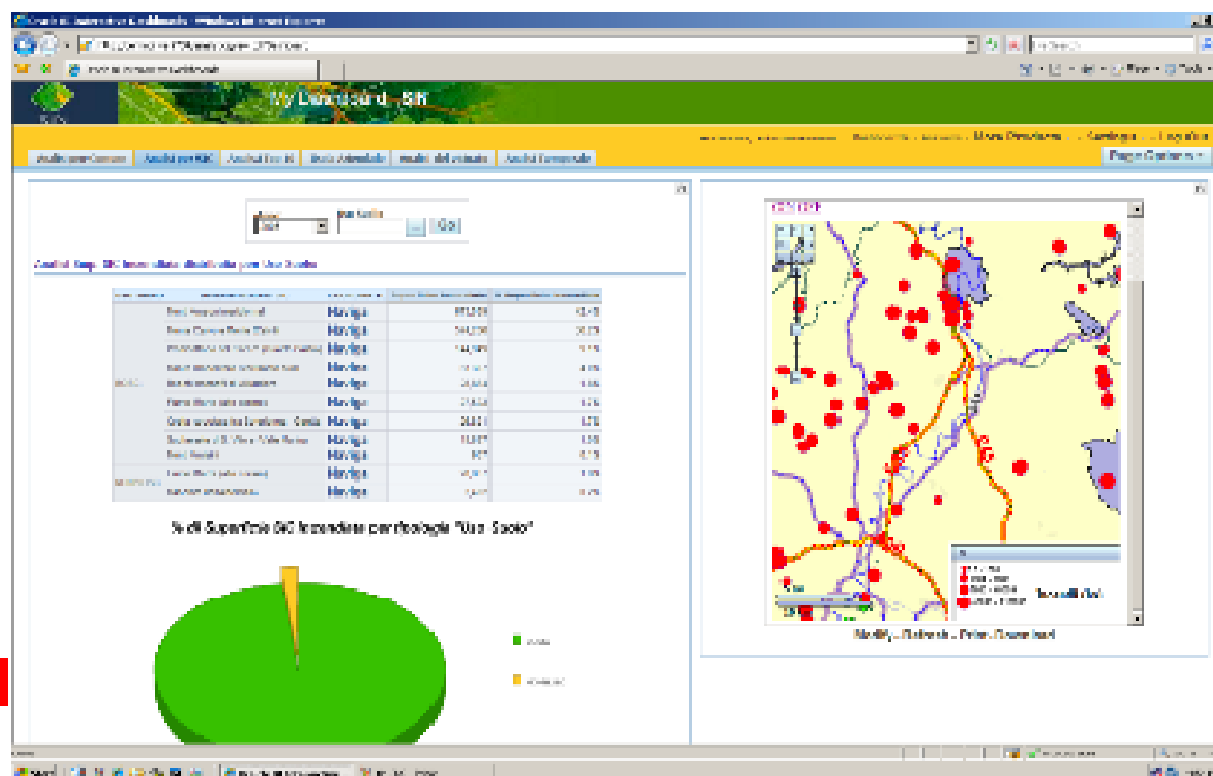
Spatial is Everywhere



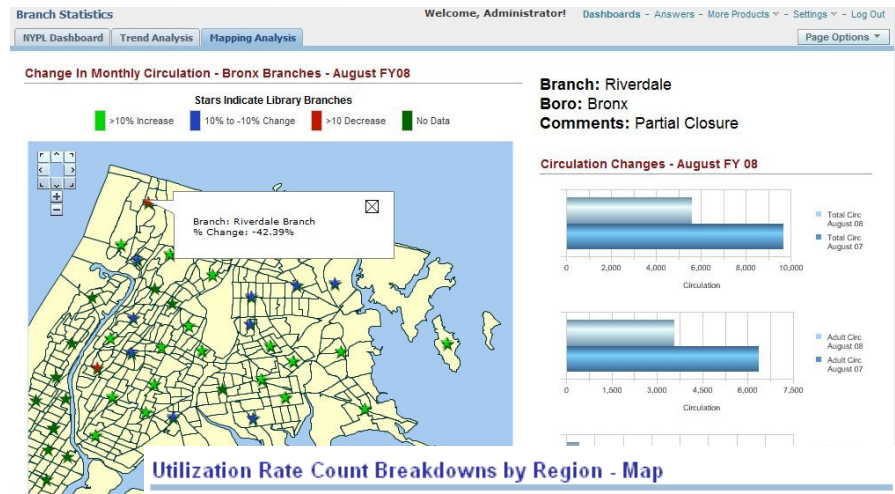
**85% Of Our
Customer's
Data Has
A Spatial
Component**

Location Intelligence

- Location Intelligence - as the integration of spatial capabilities into the Business Intelligence – represents the innovative solution for a more extensive and intelligent use of cartographic data
- The Location Intelligence leverages all kind of geographic information present in many and diverse data sources in order to realize geoDatawarehouses for the study of (public administration) political, social-economic, and business phenomena relative to the territory
- ... from viewing business performance data from a geographic perspective to adding a location element to customer records
- Providing superior alignment, visibility, and fastest time to value



Value of Geospatial/Business Intelligence Integration

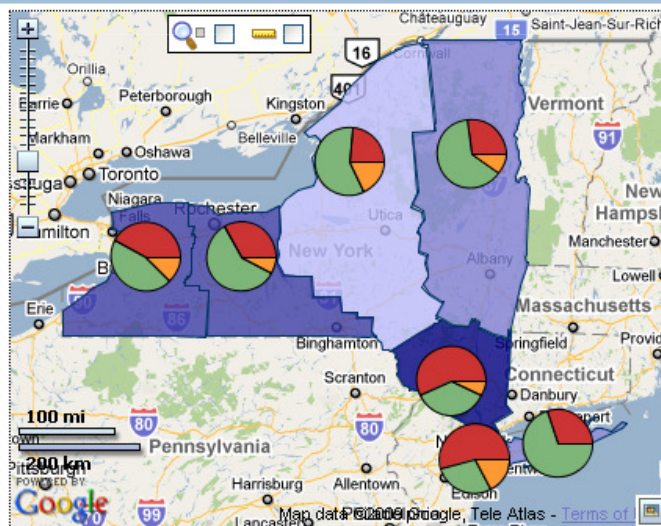


BI Perspective

- Enrich default native BI visualisations with geographic Maps
- Enables location analysis in reporting, alerts and notifications
- Use Maps as vehicle to guide navigation, filtering and drill-down

GIS Perspective

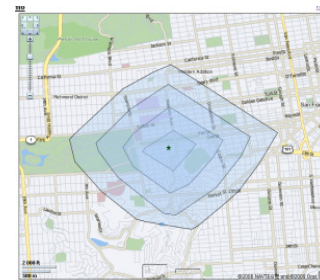
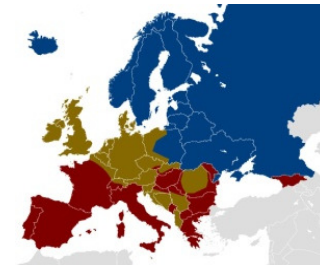
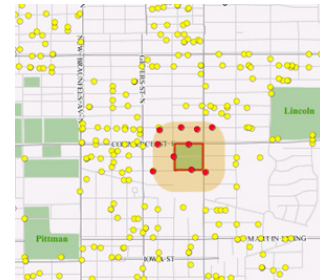
- Enrich GIS Layers with BI measures from ANY source system
- Increases "GIS ROI"
- Decrease time to deploy new GIS applications and custom coding to integrate conformed entities



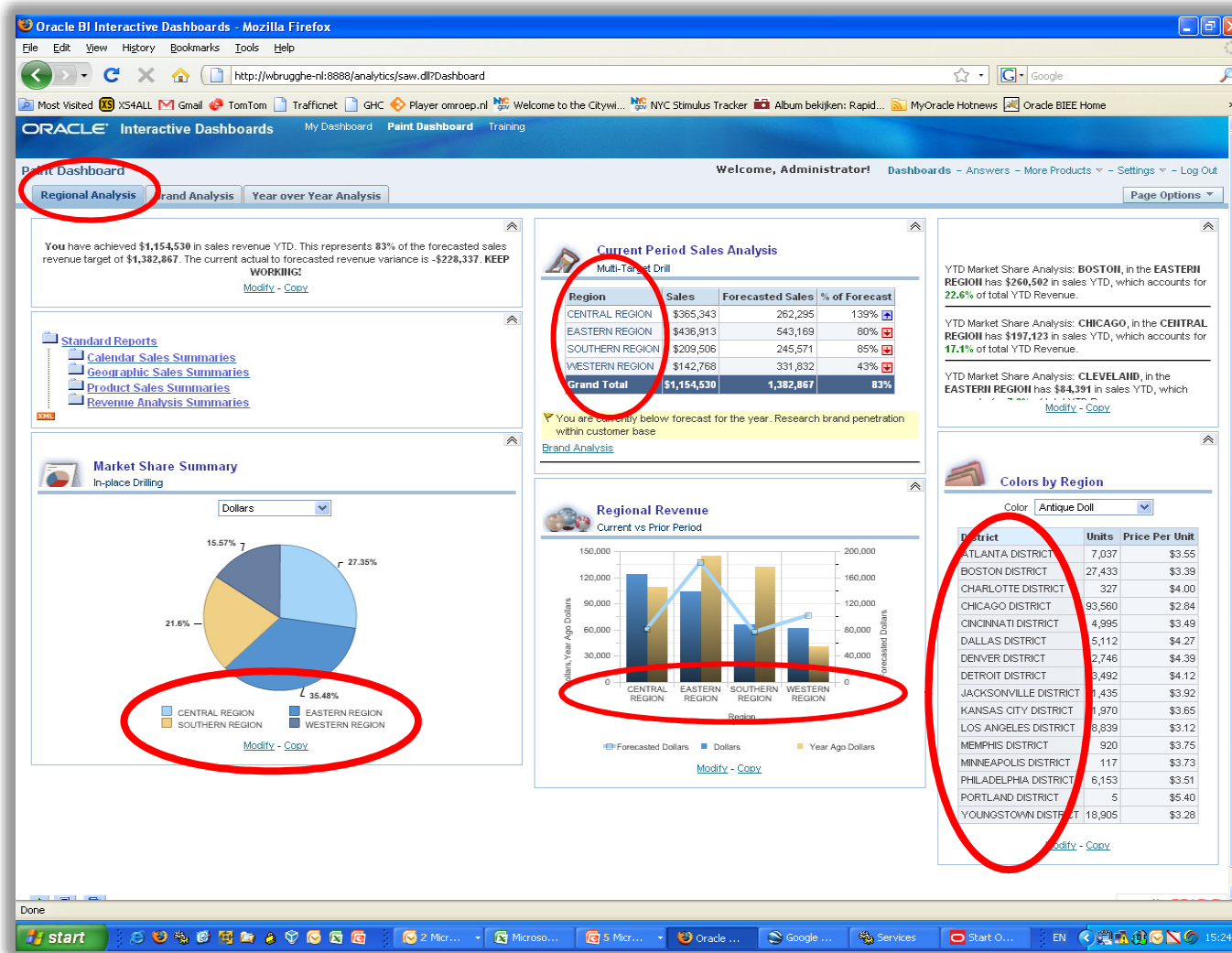
Oracle Spatial and Business Intelligence

Important features for Business Intelligence;

- Locate and analyze individual events
 - Geocoding
- Use custom regions (sales territories, police precincts, ...)
 - Geometry processing
- Analyse BI data based on distance
 - Network processing



How do we use Spatial Information?



We use spatial in business already. Everywhere here in the dashboard.

Year	Plant Location Country	Plant Location State	Spend Type	Spend	# of Suppliers	# of Buyers	Invoiced Quantity
BE	Unspecified		ITEM	8,451,585	11	4	11,746
BR	SP		TAX	288,325	8	4	
FR	Unspecified		ITEM	706,542	2	3	848
FR	Unspecified		ITEM	36,058,468	10	8	51,139

One of the biggest challenges: deciding how to visualize data

My Dashboard

Page 1 Page 2 Page 3

Interactive Visualizations

Spend, Country

Year

Invoiced Quantity

Suppliers

Buyers Spending Type

powered by ORACLE

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

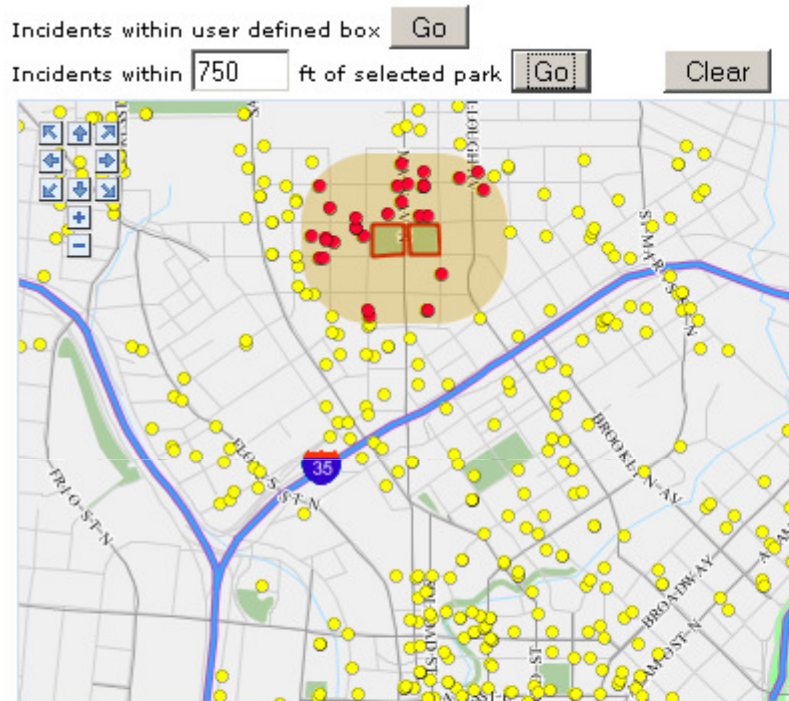
```
SDO_WITHIN_DISTANCE(c.location, b.location,
'distance=2 unit=mile') = 'TRUE'
```



- Certain visualizations best suited for displaying certain types of data:
 - Time-series data - best by a line chart, data with spatial dimension - often best visualized on a map
- Key benefit of interactive mapping and geospatial technology: some types of analysis possible only with spatial analytics and best visualized on maps
 - analysis like finding the top 10 performing stores, by sales volume, within a user-drawn region of interest
 - finding the number, and types, of public safety incidents within a certain distance (e.g. 100 meters) from a specified location (e.g. public parking lot or park).

Map driven filters, or prompts, in BI dashboards

Only Possible With Spatial Analytics



- The user can select a feature of interest, like a park, highlight all incidents within 750 ft of selected park
- Incidents also displayed in a standard table view
- Oracle MapViewer renders maps using sp.data managed by Oracle Spatial; provides services and tools that hide the complexity of sp.data queries and cartographic rendering, while providing customizable options for more advanced users

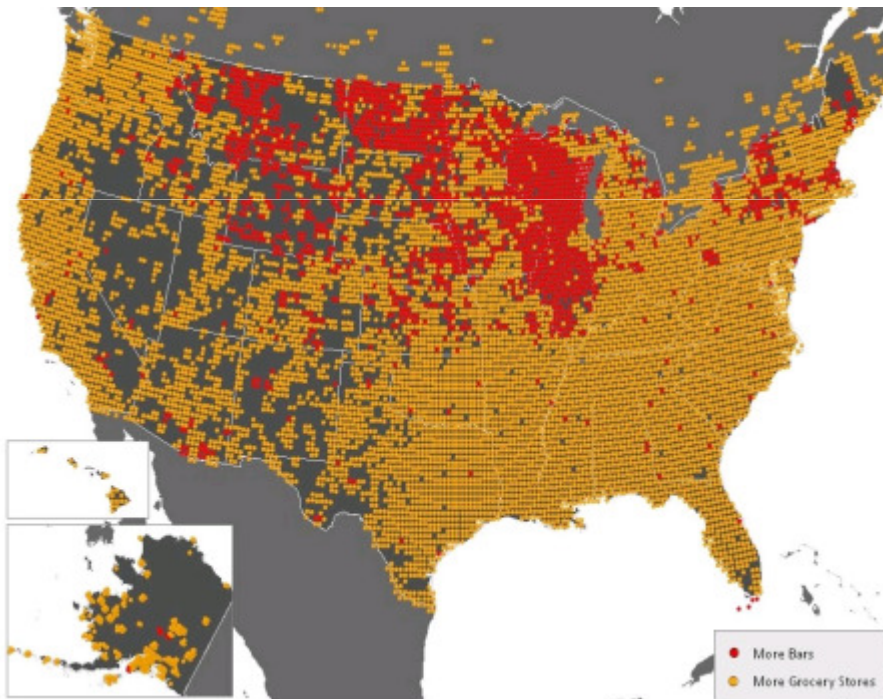
Complaint Detail

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

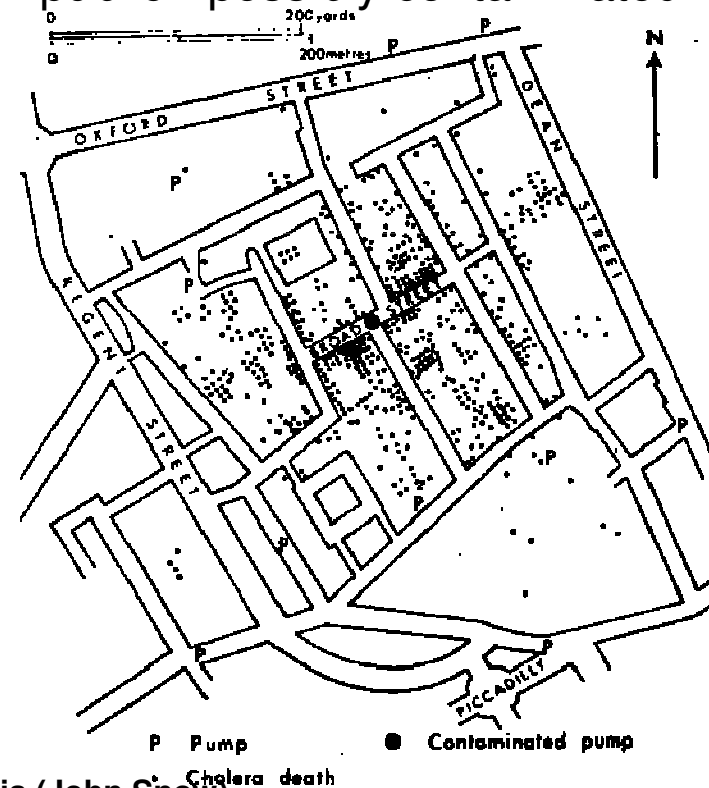
BI and Maps: A Natural Fit

- Maps are a natural choice for representing spatially-related data
- Help understand many phenomena and their relationships

More (higher density of) bars (red) or grocery stores (brown) per 10,000 people



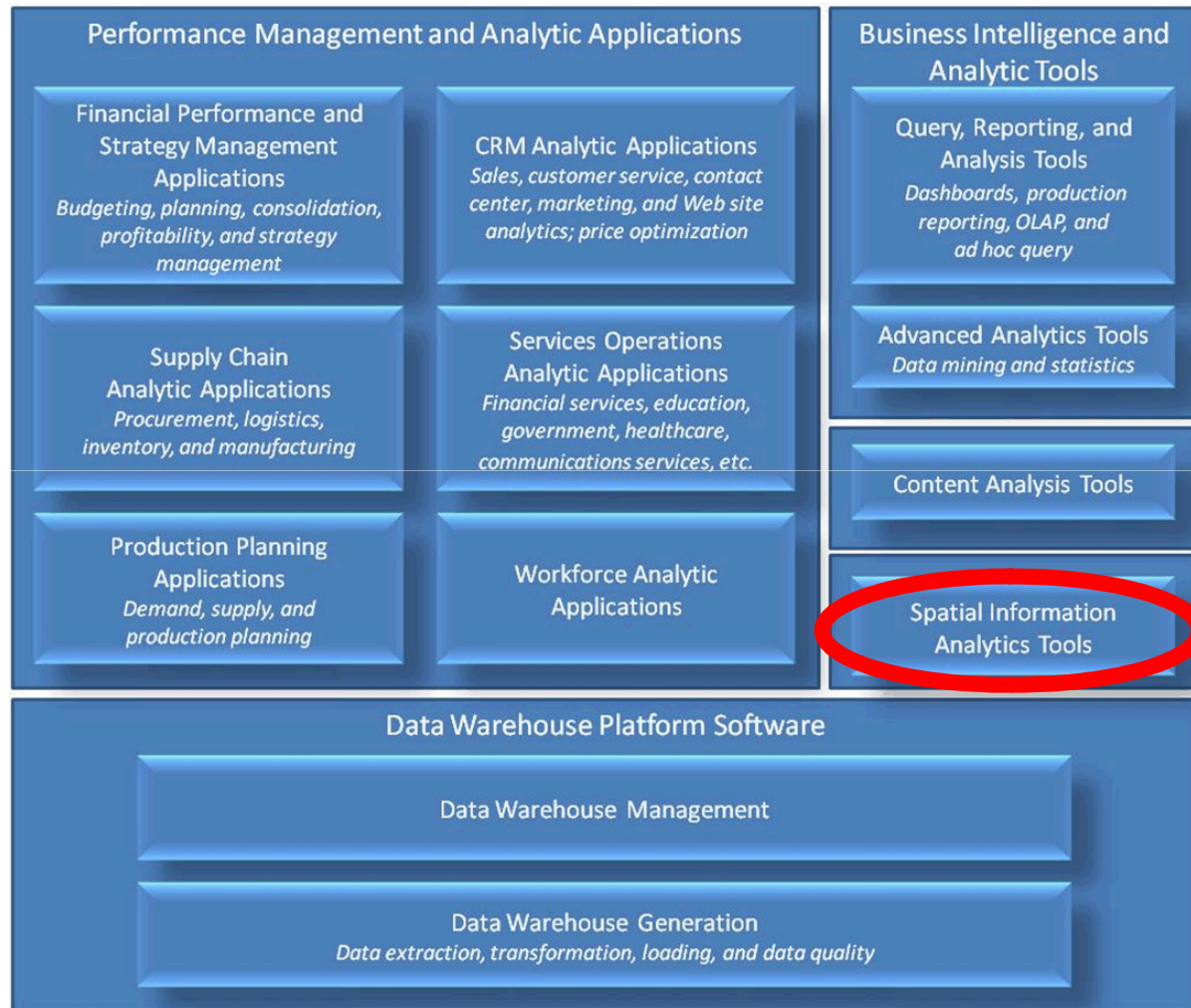
Cholera incidents and locations of public - possibly contaminated well



Map courtesy StrangeMaps, Wikipedia (John Snow)

Spatial as part of the BI environment

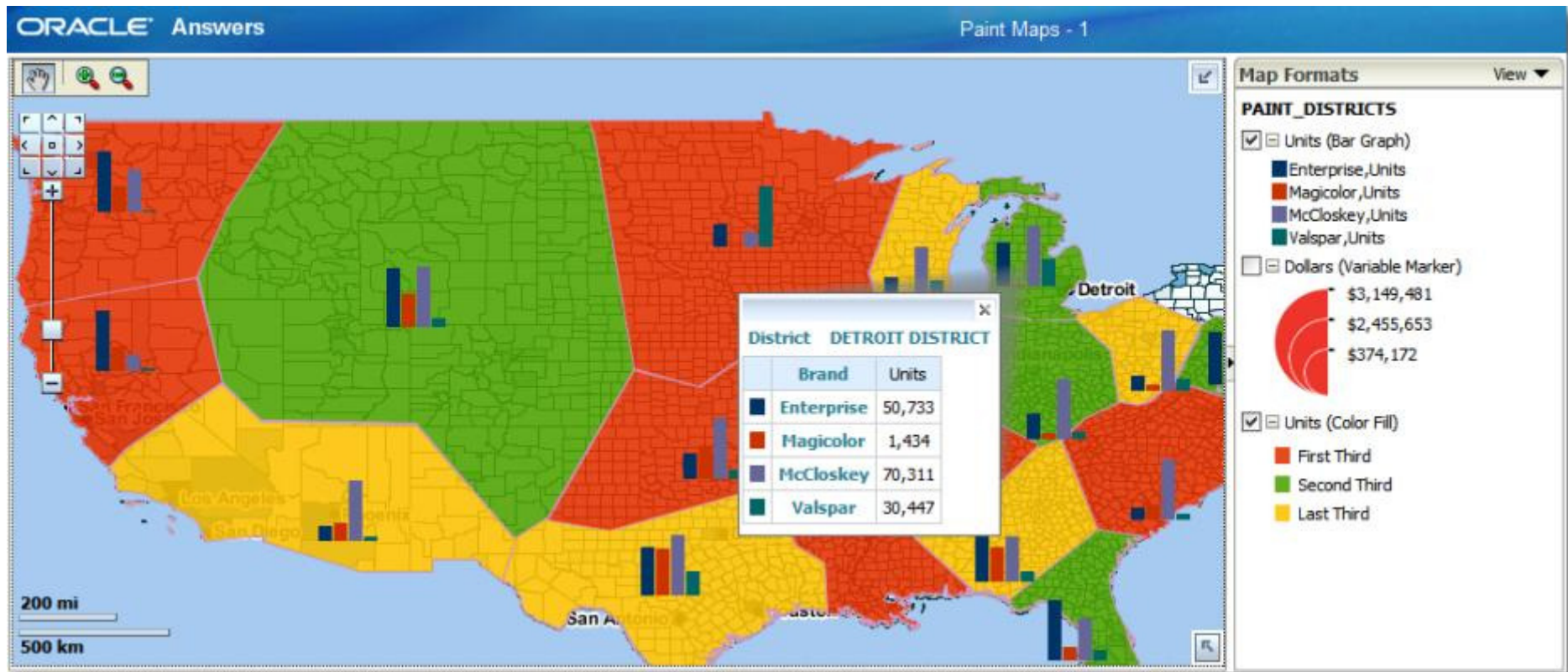
IDC's Business Analytics Software Taxonomy, 2010



When are Map views useful

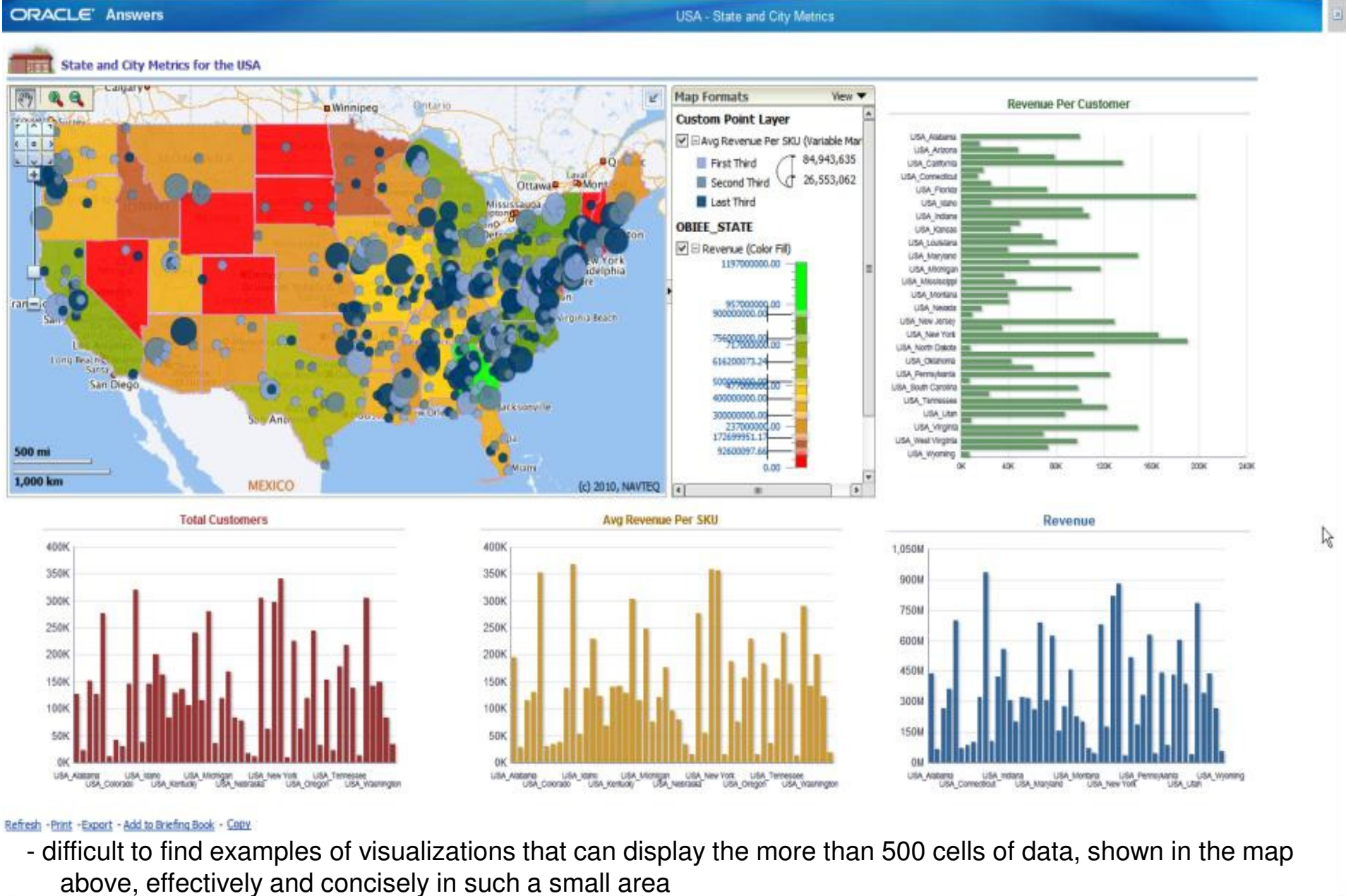
- Time & geography: near-universally accepted hierarchical structure
 - There are of course variations, but there is generally speaking a hierarchy that people expect and are familiar with
- Visualizing data related to geographic locations – when there is a geographical dim. to your data and reports.
- Showing or detecting spatial relationships and patterns.
- Showing lots of data (high density) in a relatively small area.
- Drilling down from a (map) overview to a detailed report, chart, or graph.

A geographic dimension usually has a well known hierarchy, e.g. country, region, state, county



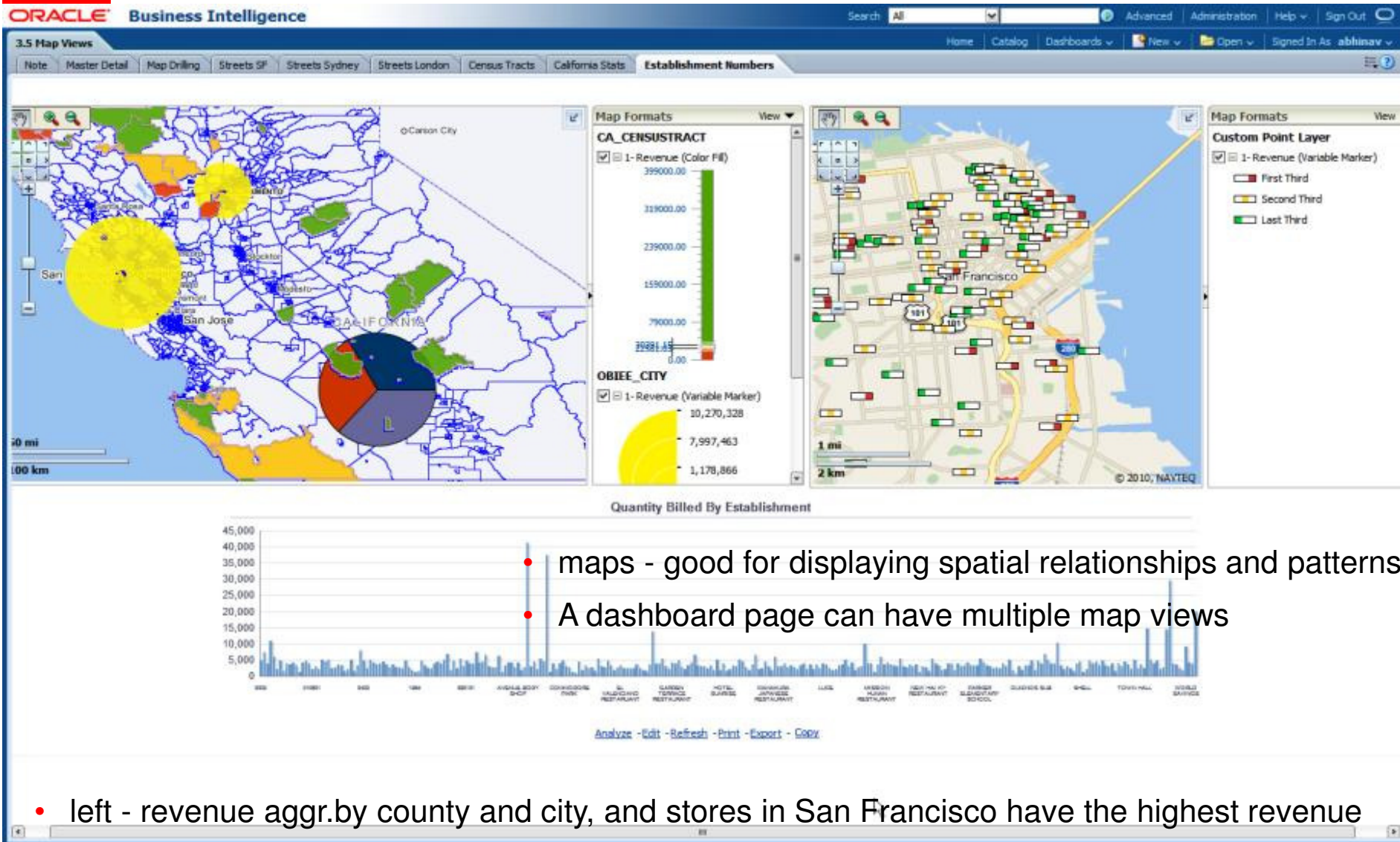
- customer has custom regions demarcated that the company uses as its REGIONS/DISTRICTS
- Oracle BI EE 11g Map Views support this type of custom boundaries seamlessly
- you can view the underlying county boundaries (standard political boundaries) on the map, underneath the color coding applied to these DISTRICTS

Value of Map Views with high density visualization



- difficult to find examples of visualizations that can display the more than 500 cells of data, shown in the map above, effectively and concisely in such a small area

Depict and detect spatial relationships among data

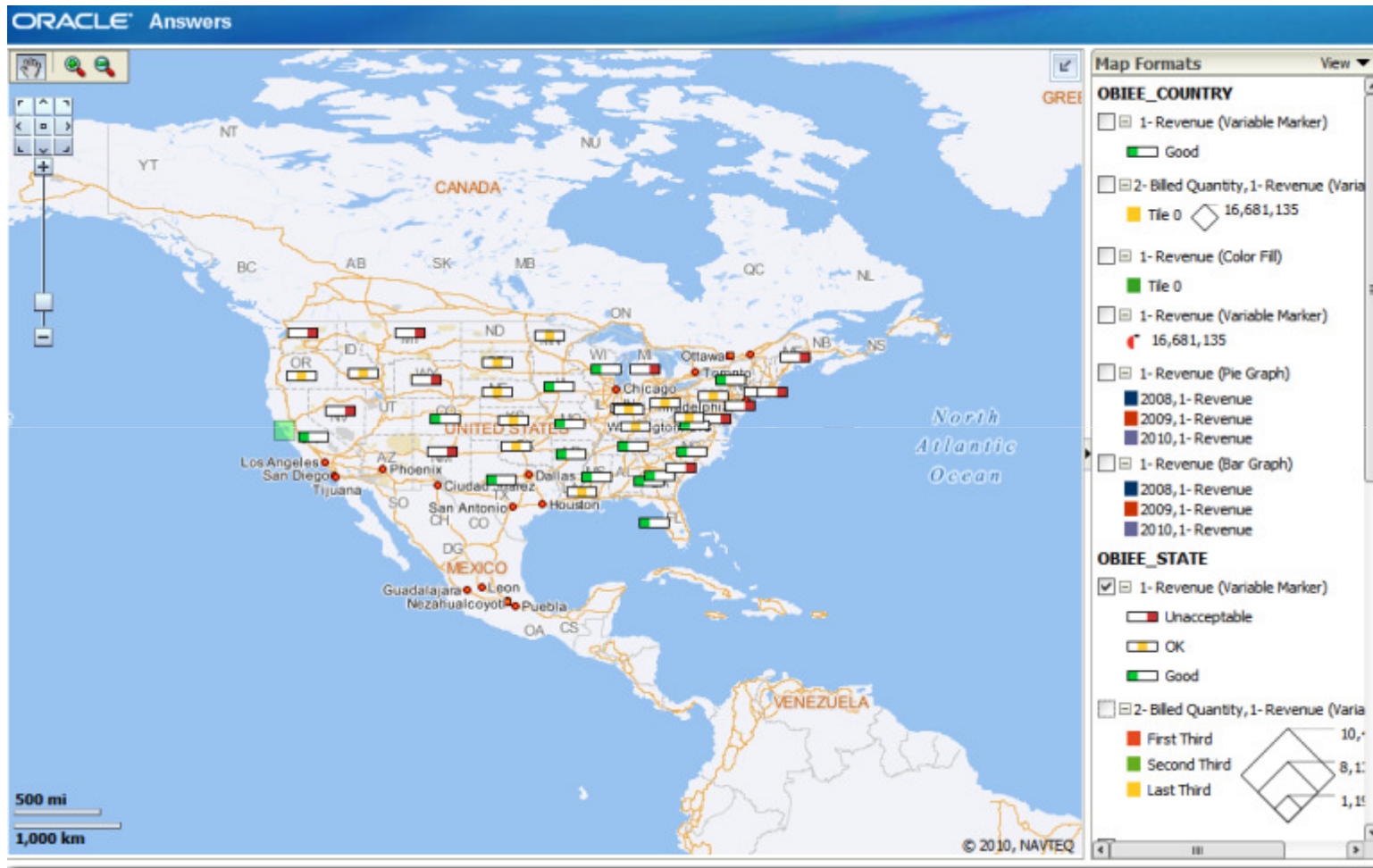


- maps - good for displaying spatial relationships and patterns
- A dashboard page can have multiple map views

- left - revenue aggr.by county and city, and stores in San Francisco have the highest revenue
- right - best performing stores clustered in the downtown San Francisco area

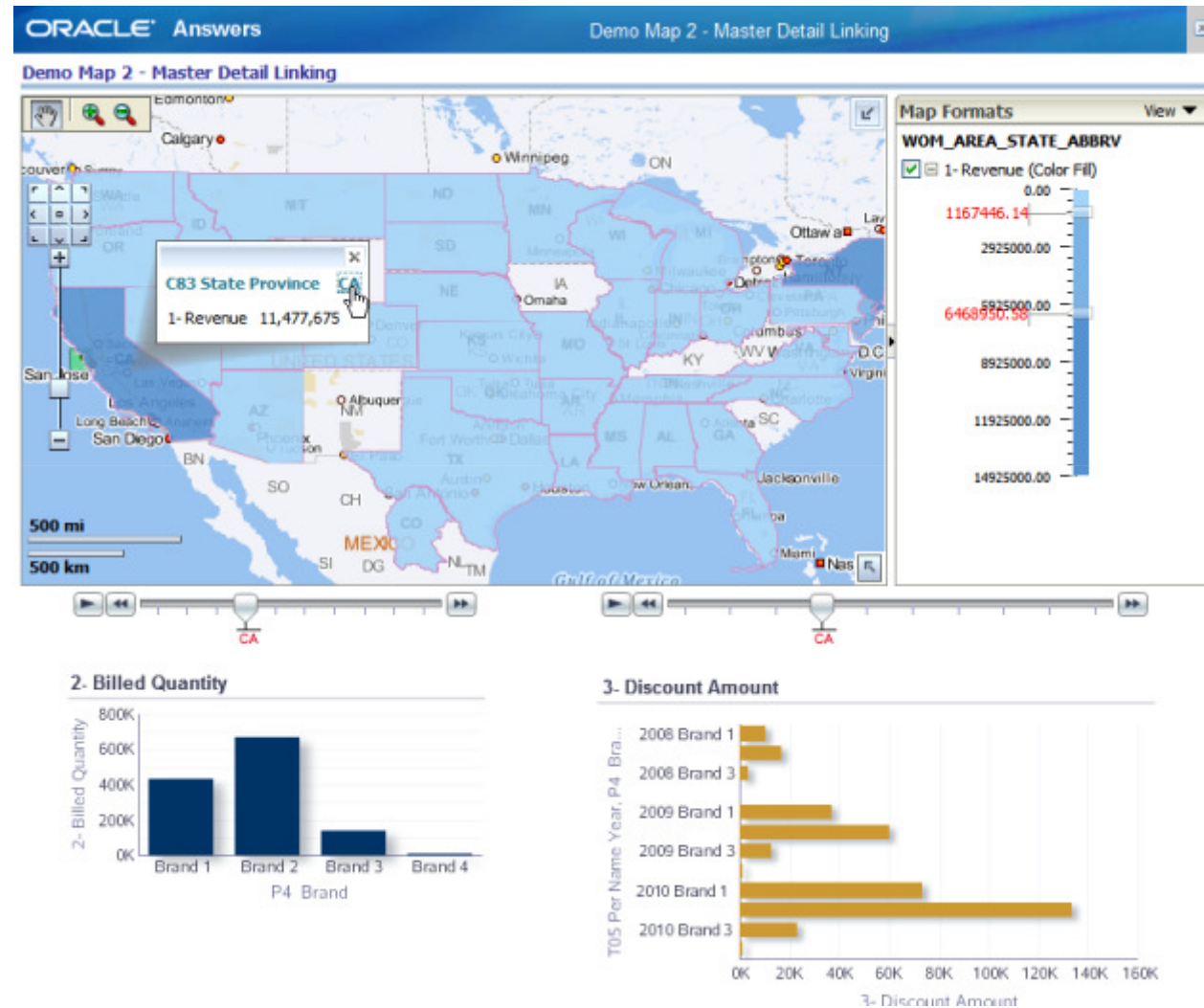
Map Interactions

Drilling

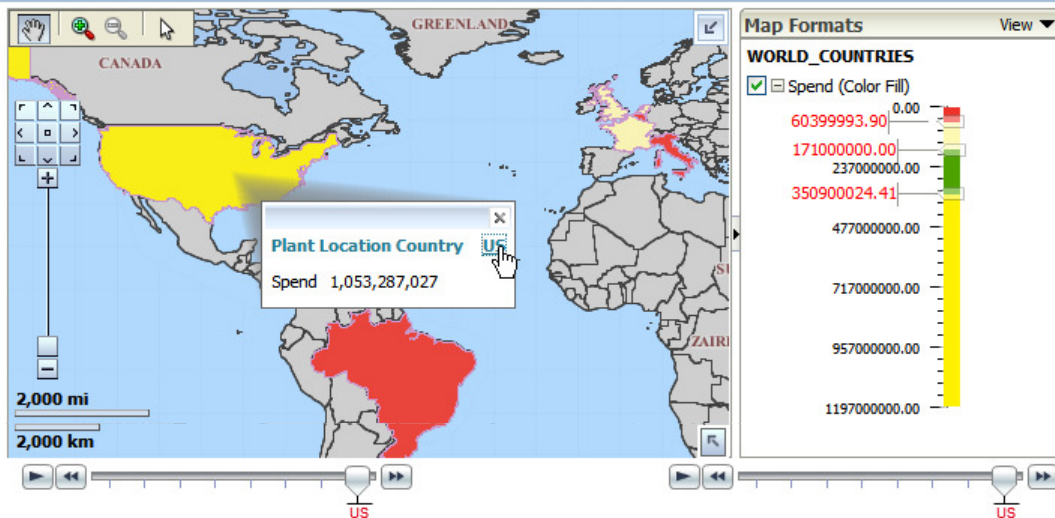


Master-Detail Linking with Map views

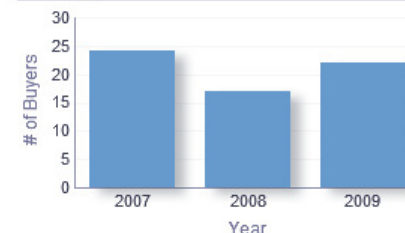
- Maps can be “master” views
- A master-detail view is one in which a selection in the overview panel (master) determines the content of the detail view
- the master view - overview or the set of possible selections <-> specific to that selection - shown in the detail view
- Maps – good candidate for master view since they are ideal for displaying lots of data in a small space



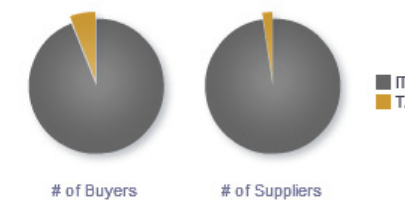
Interactive Visualizations



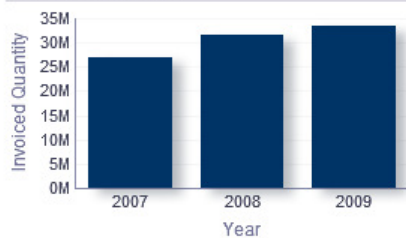
of Buyers



of Buyers, # of Suppliers



Invoiced Quantity



of Suppliers, # of Buyers



[Edit](#) - [Refresh](#) - [Print](#)

Drilling and multiple measures on a map

ORACLE Business Intelligence Search Advanced Help Sign Out

My Dashboard Home Catalog Dashboards New Open Signed In As Administrator

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Spend

Year

Invoiced Quantity

Invoiced Quantity

Year	# of Buyers
2007	1
2008	1
2009	1

Map Formats View

US_STATES

- # of Buyers (Bar Chart)
 - 2007
 - 2008
 - 2009
- Spend (Variable Marker)
 - 2,097,953,527
 - 1,631,741,651
 - 233,106,022
- # of Suppliers (Variable Marker)
 - 62
 - 48
 - 8

500 mi
1,000 km

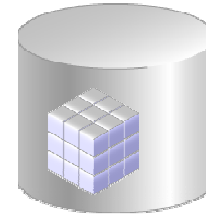
Most widely used Spatial Database

Mapping Agencies and Cadastres	Ordnance Survey, USGS, NGA, Census Bureau, Australia, NAVTEQ, Tele Atlas, Land Registry Ireland, LR Northern Ireland, LR Scotland, Dutch Cadastre, KMS Denmark, LR Singapore
Emergency Response	FEMA, State Emergency Management Agencies, BT 999, UK National Flood Protection
Transportation Infrastructure & Maintenance	Victoria Rail, Austria Rail, Denmark Rail, Dutch Rail, German Rail Over 35 US State DoTs, Alberta Transportation, 10
Telecommunication Services	BT, AT&T, Verizon, Nextel, Sprint, Cingular, Over 20 National Telcos
Utilities	Thames Water, E.On, SNAM, Hydro-Quebec, RWE ,Société des Eaux de Marseille, NI Water, Oshawa, Georgia Power, Stadtwerke Augsburg, ...
Central/Local Government	Beijing Doncheng District, New York City, Chicago, Los Angeles, San Jose, Washington DC, Cleveland, Malmo, Gothenburg, Stockholm, Milan.....
Agriculture	Portugal, Spain, Ireland, Italy, Greece, England, Finland, Czech, Slovakia, Poland, Russia, Denmark, Netherlands

Location Intelligence

Boosts traditional Decision Making

BI provides the
WHO, WHAT & WHEN



Spatial provides the
WHERE



- Reveals spatial relationships, trends, clusters and patterns undetectable with traditional BI.
- Detect links, patterns and trends depending on the spatial context.

SOFTWARE. HARDWARE. COMPLETE.

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