

ORACLE®

Location Intelligence Integrating Maps into Oracle Business Intelligence

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Agenda

- Business Analytics
- Oracle Business Intelligence
- Map Visualization
- Location Intelligence

Key Issues

- What trends are driving analytics?
- What capabilities can you use today and expect in the future?

Top Performing Companies use Analytics to Drive Business Performance

New Insights Shape Strategy and Execution

Imagine what analytics can do for your business

3x



Top performers are **3x** more likely to use analytics than low performers

53%



Use analytics to drive **strategy**

50%



Use analytics to transform **daily operations**

Sources: MIT, Gartner, Nucleus Research

Technology Trends



MOBILE



CLOUD



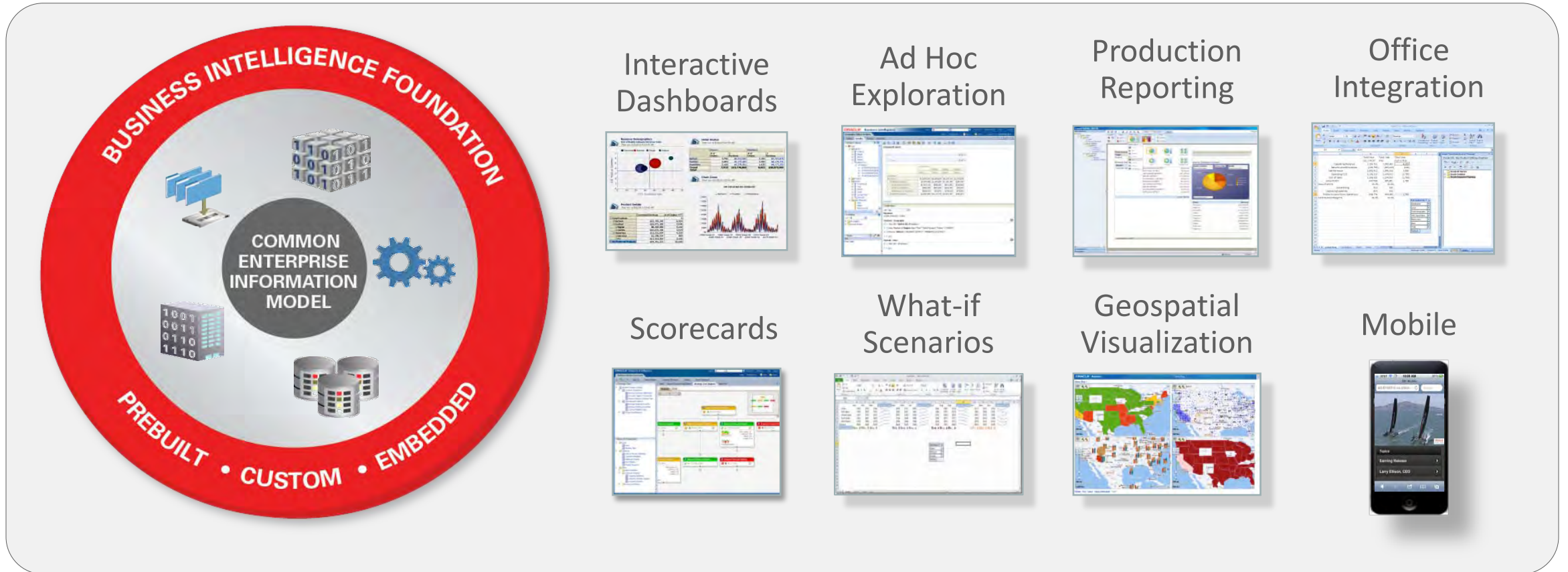
BIG DATA



PREDICTIVE

Oracle BI Foundation Suite

Comprehensive, Integrated, Analytic Tools



One more key trend for BI

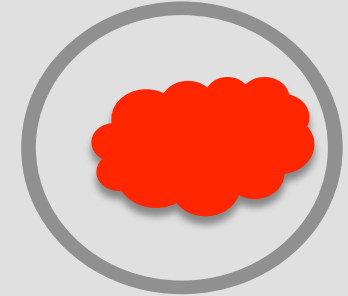


SELF-SERVICE

**These Enable
Self-service**



MOBILE



CLOUD

**Self-Service
Makes These
Accessible**



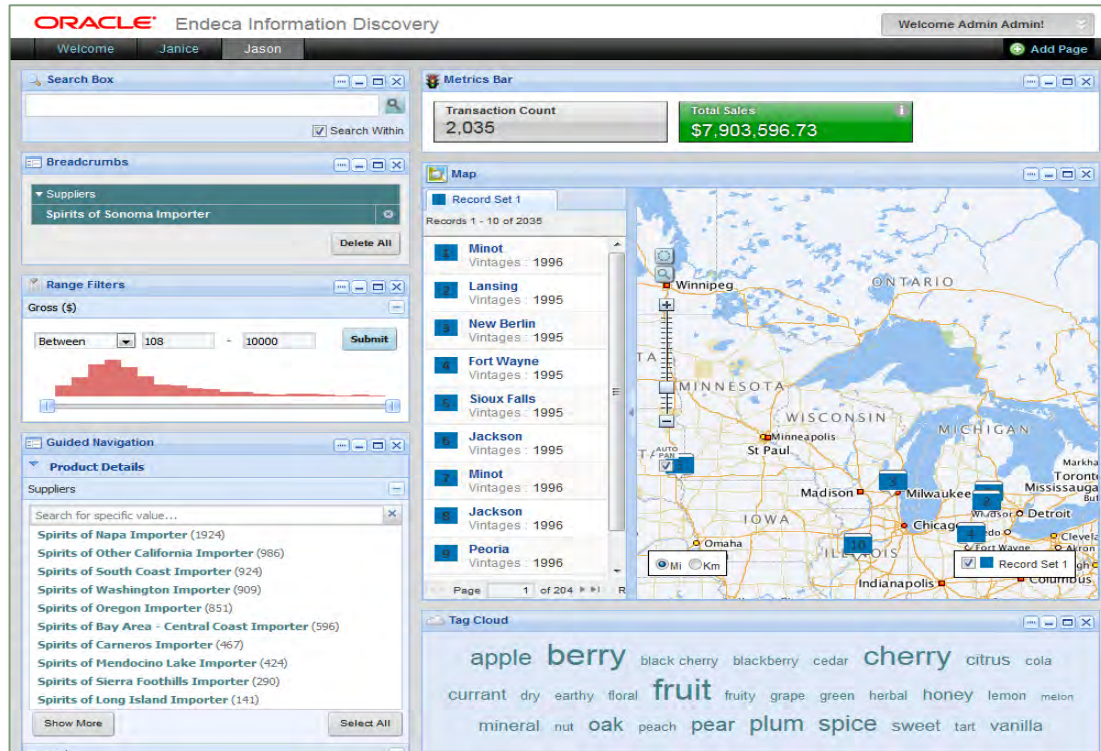
BIG DATA



PREDICTIVE

Oracle Endeca Information Discovery

Simplicity of Search, Power of Discovery / Exploration

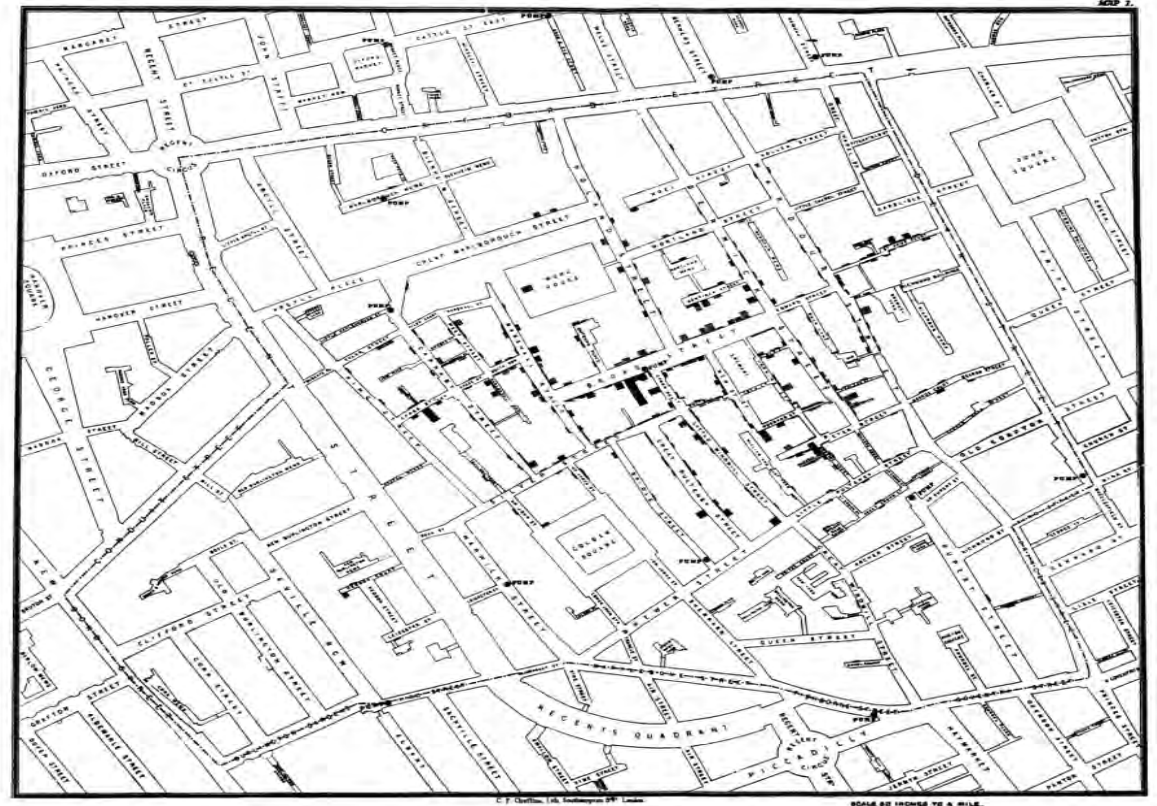


- Walk up ease of use
 - No need for any modeling
 - Search and faceted navigation metaphor
 - Highly interactive analysis
- Governed Data Discovery
 - Mash up personal data with curated OBI data sets
 - Robust ingestion with file/web crawls
- Integrated Text Enrichments

Why Maps ?

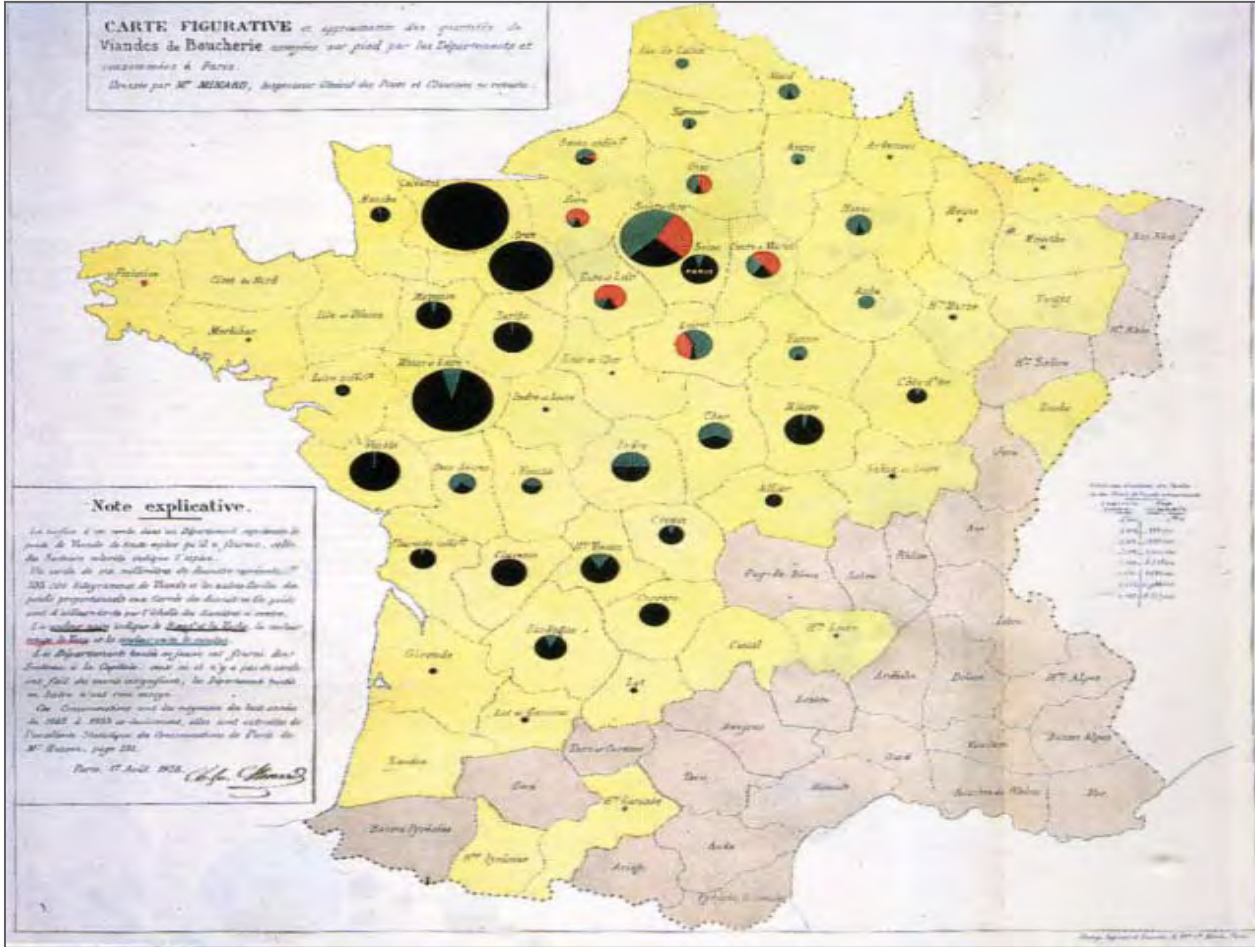
BI and Maps: A Natural Fit

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



Map courtesy Wikipedia (John Snow,)

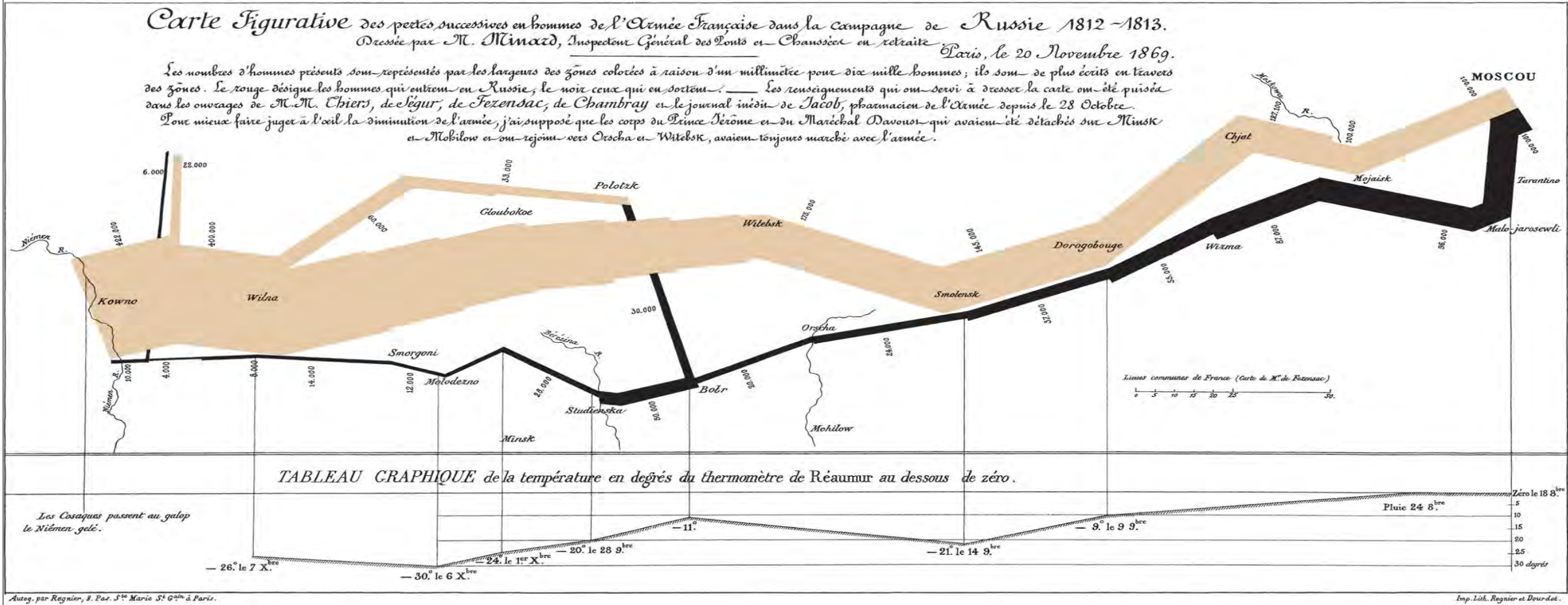
BI and Maps: A Natural Fit



Map courtesy Wikipedia (Charles Joseph Minard)



Innovative Information Representation



Map courtesy Wikipedia (Charles Joseph Minard)



More Interesting Maps

“36 Maps That Explain The Entire World”



Maps ...

- Show many values
- Highlight spatial proximity
- Highlight spatial correlations

businessinsider.com/maps-that-explain-the-world-2013

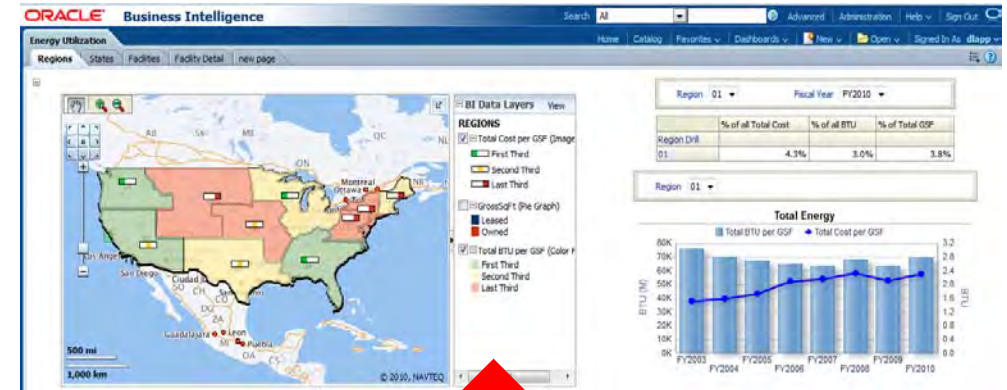
BI Map Views

Why BI and Maps ?

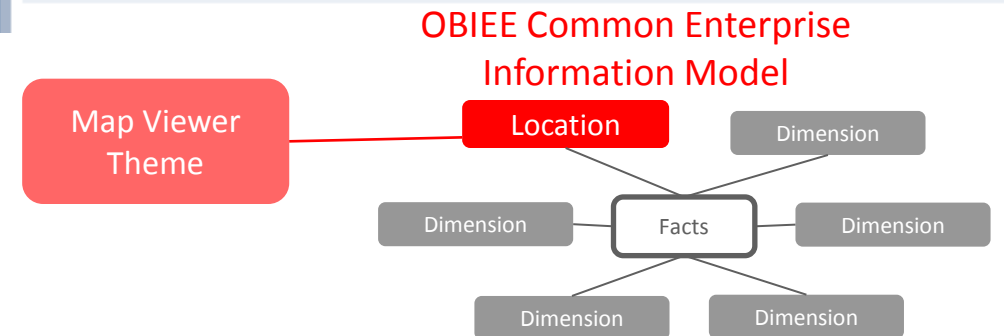
- Because business data is “spatially-related”
 - “80 % of data is spatially-related”
- Business transactions typically involve:
 - A product or service
 - A consumer and/or a provider
 - A time
 - A location
- Maps help understand the location aspects
 - Where are most of my sales ?
 - Compare with competitors.
 - Relate with my stores.

OBIEE Mapping Capability The “Map View”

- The ability to add colorful and interactive maps to any dashboard.
- Standard feature of OBIEE.
- Render results of OBIEE analysis as interactive, drillable color coded maps
- Inherits all OBIEE functionality; drilling, navigation, master-detail
- A map view is just like any other view
- No coding or technical know-how required



The screenshot shows the Oracle Business Intelligence Administration console. The 'Manage Map Data' section is highlighted, with the text 'Manage map components and associate geographic layers to BI data'.

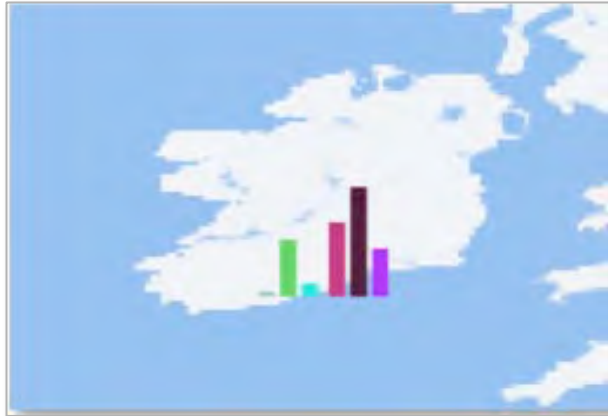


Many Ways to Render the Results

Color Fill



Bar Chart



Pie Chart



Images



Markers

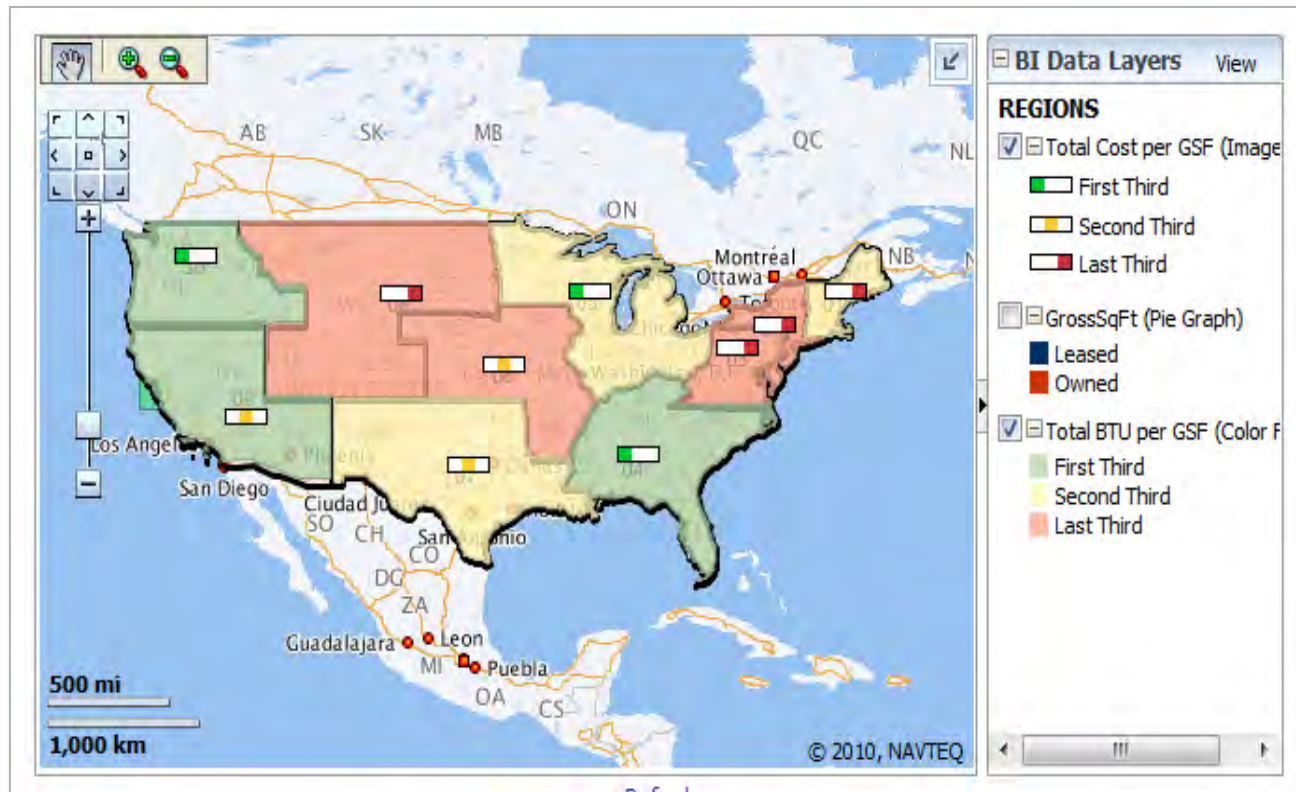


Bubble



Multiple Results

- A map can show multiple facts
- User can turn facts on or off



Creating a Map

① Define your result as usual

Selected Columns
Double click on column names in the Subject Areas pane to add them to the analysis filters, apply sorting, or delete by clicking or hovering over the button next to its name

Cust Geo Codes: C61 Geo Country Code
Base Facts: 1- Revenue, 2- Billed Quantity

Compound Layout

C61 Geo Country Code	1- Revenue	2- Billed Quantity
AFG	227,923	17,207
ARE	626,833	48,956
ARG	1,973,179	160,956
AUS	9,375,202	753,977
AUT	92,980	6,823
AZE	194,524	16,442

② Add a map view over that result

View menu: Title, Table, Pivot Table, Trellis, Graph, Gauge, Funnel, **Map**, Filters, Selection Steps, Other Views

BI Data Layers: OBIEE_WORLD_COUNTRY
1- Revenue (Color Fill)
First Quartile
Second Quartile
Third Quartile
Fourth Quartile

① Customize the map

Color Fill (OBIEE_WORLD_COUNTRY) dialog: Legend for 1- Revenue (Color Fill) with segments from First Eighth to Last Eighth.

BI Data Layers: OBIEE_WORLD_COUNTRY
1- Revenue (Color Fill)
First Eighth
Second Eighth
Third Eighth
Fourth Eighth
Fifth Eighth
Sixth Eighth
Seventh Eighth
Last Eighth

How does it work ?

Results from BI queries shown as tables, charts and also as maps

Map automatically updated when results change

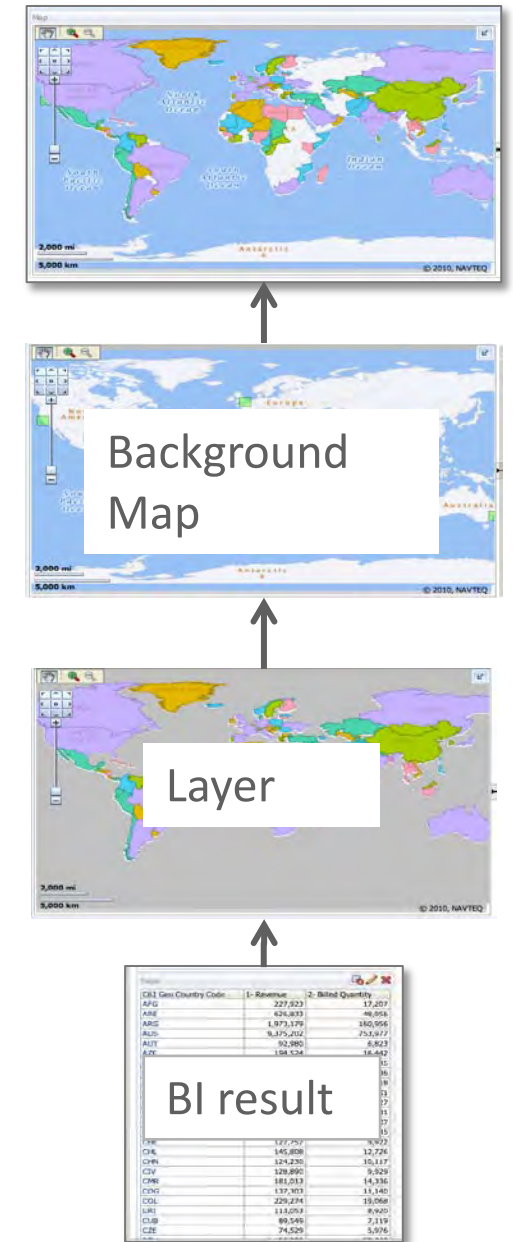
C61 Geo Country Code	1- Value	2- Billed Quantity
AFG	227,923	17,207
ARE	626,833	48,956
ARG	1,973,179	160,956
AUS	9,375,202	753,977
AUT	92,980	6,823
AZE	194,524	16,442
BEL	94,020	7,845
BEN	172,199	15,036
BGD	80,363	6,218
BGR	93,977	7,551
BOL	100,024	7,827
BRA	633,014	53,231
CAF	142,013	10,407
CAN	698,120	57,345
CHE	127,757	9,922
CHL	145,808	12,726
CHN	124,230	10,117
CIV	128,890	9,929
CMR	181,013	14,336
COG	137,303	11,140
COL	229,274	19,068
CRI	113,053	8,920
CUB	89,549	7,119
CZE	74,529	5,976



Results driven by map clicks

Architectural Concepts

- **Background Map**
 - The map on which the results are drawn
 - Can be produced from spatial tables in an Oracle database
 - Can come from an external service (Google, maps.oracle.com, WMS, ...)
- **Layers**
 - The graphical results drawn on the background map
 - Shapes and locations come from an Oracle database
 - Country boundaries, regions, etc
 - Graphical representation driven by BI results
 - Sales, revenue, etc



Full-function Pre-built Analytics

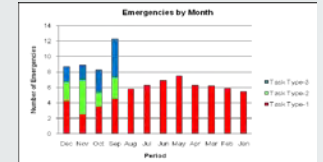
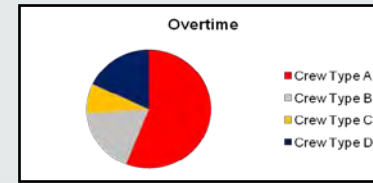
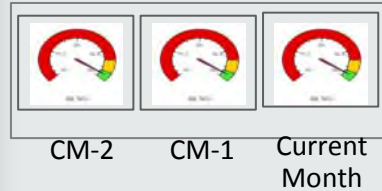
Prebuilt Analytics

BI Platform

Extractors and Schema

Data Source

Oracle Dashboards / Prebuilt Analytics



Oracle Business Intelligence 11g

Interactive Dashboards

Reporting & Publishing

Ad-hoc Analysis

Proactive Detection

Disconnected Analytics

MS Office Plug-in

Integrated Schema and Prebuilt Extractors



Utilities Applications

MWM

MDM

CC&B

NMS

ERP

Others

Pre-Built Utilities Dashboards

Leverage Standards, Tools and Industry Best Practices

Corporate Administration Analytics

- Supply Chain
- Human Resources
- Financials
- Project Planning

Customer Analytics

- Exception Analytics
- Customer Analytics
- Revenue Analytics
- Credit and Collections Analytics
- CRM

Meter Data Analytics

Operational Analytics

- Device Analytics*
- Mobile Workforce Analytics
- Outage Analytics
- Work and Asset Analytics

Oracle Business Intelligence Enterprise Edition

Oracle Business Intelligence for Utilities Extractors & Schema

ERP, EPM	CCB, CSS, CRM	MDM, SGG	MWM, WAM, ODM*	OMS, DMS,
Corporate	Customer	Meter	Work & Asset	Grid

End to End Business Intelligence

Spatial Analytics

Spatial Analytics

Office to Customer Distance
Time run: 8/24/2011 11:51:29 PM

D1 Office:

	Distance in Meters	1- Revenue ▲▼
Addison Hurd	5,165	10,296
Arentina Downey	8,375	60,655
Bertha Oddell	8,090	30,295
Biddy Ross	6,993	81,645
Colburn Tillman	5,583	11,929
Enos Silvis	12,573	61,305
Geraldine Gentle	3,483	3,371
Henry	4,286	1,691

- Supplements and weaves together the native analytic capabilities of OBIEE with location-based analyses.
- Configured by invoking Oracle Spatial features through supported straightforward OBIEE integration mechanisms.
 - Proximity,
 - Nearest neighbor,
 - Within distance,
 - Topological operators,
 - Geocoding etc
- Seamless with other OBIEE data and can be rendered in any OBIEE view (table, chart, map etc)

“Within Distance” Search

ORACLE Business Intelligence Search All [dropdown] [button] Advanced Administration Help [dropdown] SampleApp OTN Page Sign Out [button]

8.11 Oracle Spatial Custom Link Home Catalog Favorites Dashboards New Open Signed In As Paulo Rodney [dropdown]

Business in Distance Range **Blocks in Distance Range** Cust Distance SF Geocode SQL Cust Distance Lon Cust Distance Syd Driving Distance SF Network Data Model [button]

Point of Interest (POIs) to Blocks distance [button] Return to Main Index page [button] View Physical SQLs generated by this report [button]

Page Information (click to collapse or expand)

Description : In this example, OBIEE is generating Oracle Spatial queries to retrieve information on block population that live in a given distance range of specific shop types. For a selected Zip Code, click on the shop types you are interested in, and the distance range you need OBIEE to filter with. The Analysis will return all the blocks that are in the distance range of one of the shops, and their total population.

Blocks Population in Range of Selected Shops Time run: 6/19/2013 7:33:40 AM

* All Blocks in Range of (meters) 500

Shop Postcode 94102 [dropdown]

Category of Shop

- BOOKSTORE
- CLOTHING STORE
- COFFEE SHOP
- CONSUMER ELECTRONICS STORE
- CONVENIENCE STORE
- DEPARTMENT STORE
- GROCERY STORE
- HOME IMPROVEMENT AND HARDWARE STORE
- HOME SPECIALITY STORE
- OFFICE SUPPLY AND SERVICE STORE
- PHARMACY
- SPECIALTY STORE
- SPORTING GOODS

# of Shops in Postcode	15
# of Blocks in Range	103
Total Pop in Range	1,068,347

BI Data Layers View [dropdown]

Loc Long, Loc Lat

- Shops (Image)
- Shops
- Shops

SF Blocks

- Population of Blocks in Range (Color I)
- First Quartile
- Second Quartile
- Third Quartile
- Fourth Quartile

0.1 General Index: Main Index > 8.11 Oracle Spatial: Blocks in Distance Range

Geocoding and Distance Search

ORACLE Business Intelligence Search All Advanced Administration Help SampleApp OTN Page Sign Out

8.11 Oracle Spatial Custom Link Home Catalog Favorites Dashboards New Open Signed In As Paulo Rodney

Business in Distance Range Blocks in Distance Range Cust Distance SF **Geocode SQL** Cust Distance Lon Cust Distance Syd Driving Distance SF Network Data Model

Geocode Report Made of direct Physical Database SQL Query Return to Main Index page See Most Recent Physical SQLs Generated

Page Information (click to collapse or expand)

Description : This interactive report shows all shops of a given type, located in a distance range of a selected address. The report is made up directly of a physical SQL statement to the database (no ad hoc columns), which remains interactive within the dashboard. You can visit its design by clicking the edit link on the report.

Type in or Select Address
747 Howard St, San Francisco, CA 94103, US

Shops of Type PHARMACY Within 500m of 747 Howard St, San Francisco, CA 94103, US
Time run: 6/19/2013 7:38:36 AM

Set Distance Range (meters)
500

Select shop type

- BOOKSTORE
- CLOTHING STORE
- COFFEE SHOP
- CONSUMER ELECTRONICS STORE
- CONVENIENCE STORE
- DEPARTMENT STORE
- PHARMACY

NAME	STREET	PHONE	CATEGORY_NAME	# of Stores
Walgreens	116 New Montgomery St		PHARMACY	1
	825 Market St		PHARMACY	1
	730 Market St		PHARMACY	1
Rite Aid	776 Market St		PHARMACY	1
Grand Total				4

[Analyze](#) - [Edit](#) - [Refresh](#) - [Print](#) - [Export](#) - [Copy](#)

of Stores in Range: 4

0.1 General Index: Main Index > 8.11 Oracle Spatial: Geocode SQL

Drivetime Polygons

ORACLE Business Intelligence

Search All [dropdown] [button] Advanced Administration Help [dropdown] SampleApp OTN Page Sign Out [button]

8.11 Oracle Spatial [dropdown] Custom Link Home Catalog Favorites [dropdown] Dashboards [dropdown] New [dropdown] Open [dropdown] Signed In As Paulo Rodney [dropdown]

Business in Distance Range Blocks in Distance Range Cust Distance SF Geocode SQL Cust Distance Lon Cust Distance Syd **Driving Distance SF** Network Data Model [dropdown] [button]

Driving Distance Polygons : from SF BART Stations [button] Return to Main Index page

Page Information (click to collapse or expand)

Description : On this dashboard, two pre-computed driving distance polygons are displayed for each BART train station in San Francisco area. The smaller polygon represents a driving distance coverage of 1 km from the station location. Bigger polygons are set for a driving distance of 2.5 kms from each station. The red dots are points of interest in San Francisco area.

Scripts used for generating and persisting these polygons are saved under ~oracle/scripts/ndm directoty within SampleApp image.

Points of Interests in Driving Distance

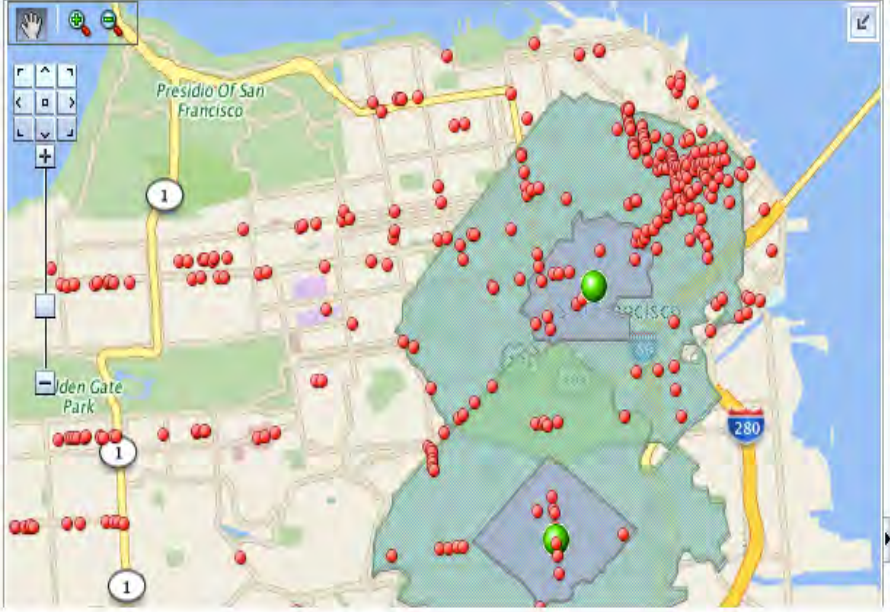
POI Category
BUSINESS [dropdown]

POI Sub Category
ATM [dropdown]

BART Train Station

- NULL
- BART-BALBOA PARK STATION
- BART-POWELL STREET STATION
- BART-16TH STREET STATION
- BART-MONTGOMERY STREET STATION
- BART-GLEN PARK STATION
- BART-EMBARCADERO STATION
- BART-CIVIC CENTER STATION
- BART-24TH STREET STATION

[Apply] [Reset [dropdown]]



BI Data Layers [button] View [dropdown]

Loc Long, Loc Lat

- Points of Interest (Image)
- BART Station
- Point of Interest

SF Driving Distance Polygon (1 km)

- Distance Polygon (Color Fill)
- 1 Km Driving Distance from Station

SF Driving Distance Polygon (2.5 kms)

- Distance Polygon (Color Fill)
- 2.5 Kms Driving Distance from Station

0.1 General Index: Main Index > 8.11 Oracle Spatial: Driving Distance SF

Code examples for Advanced Analytics in OBI SampleApp

ODM & PREDICTIVE	ORE	DB CLAUSES & FUNCTIONS	SPATIAL	TEXT	TEMPORAL & TIME
ODM model results Visualization	R Visuals Blob Integration in dashboard	Data Binning and Distribution	Point to point / Address to Point Distance Analytics	Mining & Tokenization (Word Distribution)	Temporal Query (SCD)
Hierarchical view of Classification Tree	R content End-User Interaction	Simple Regression Functions	Point to polygon Distance Analytics	Blending Tokens with Bus. Insights	Temporal Query at Session Level
Explain clause : Variables Significance	R Script Edit from Dashboard	Pattern Detection	Mapviewer Feature layers (Heatmaps)	Advanced Text Filtering	Dynamic Timezone Conversion
Dynamic Individual What if Scoring	R Sourcing from BI CEIM – Script	Descriptive Stats	Network Data Model : Static Results	Text Classification	Dynamic DST Conversion
Dynamic Predictive Queries : Anomaly Detection, Classification, Regression	R calculation embedded in RPD Models : end-user interact	Frequent Itemset (Market Basket)	Network Data Model : Dynamic Refresh	Text Aggregation	Timespan Calculations
Model Score Dynamic Aggregation	BIP Sourcing from R	Model Clause Interactive Projection	Floor Plan Background		
Model Scores conditional highlighting		Sourcing from Web Services	Custom Geographies Aggregation		

Predictive and Advanced Analytics in OBI

Best practices illustrated in Oracle BI SampleApp



Try it out using the Sample Application

ORACLE Business Intelligence Search All [Dropdown] [Advanced] [Administration] [Help] [SampleApp OTN Page] [Sign Out]

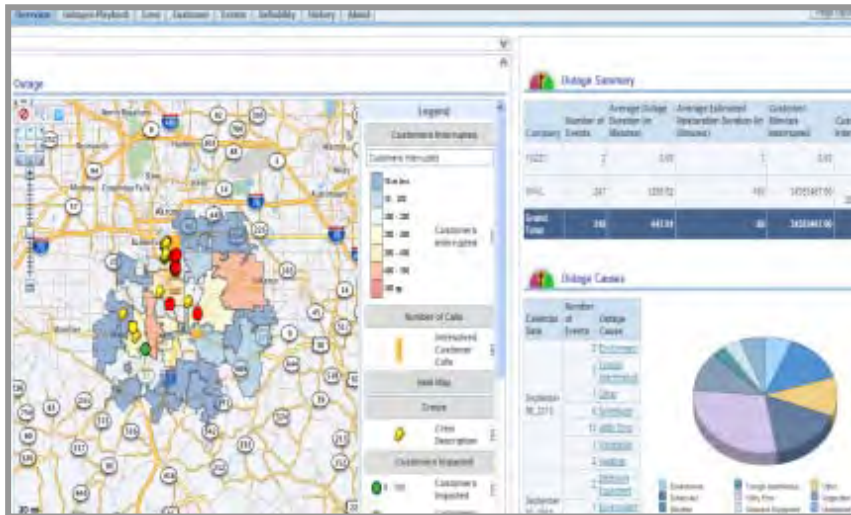
Main Index | SampleApp LaunchPad | URLs & Login Credentials | Catalog Browse | Auto-Index

Minimize All (+) Maximize All (-) **OBI EE 11.1.1.7.0 Samples Application Index** Bright Blue = V305 New Content SampleApp LaunchPad Configuration

1. Quick Demos <ul style="list-style-type: none">1.00 New Features Demo1.10 Flights Delay1.2 Financials Demo (Essbase)1.30 Quickstart	2. Functional Examples <ul style="list-style-type: none">2.10 Descriptive Stats2.11 Comparative Analysis2.12 Trending2.20 BPM Analytics2.21 Oracle Real-Time Decisions	3. Analysis and Dashboards <ul style="list-style-type: none">3.10 Query Building3.20 Vanilla Visuals3.21 Configured Visuals3.22 Java Based Visuals3.23 Google Visuals3.30 Map Views<ul style="list-style-type: none">Map Backgrounds, Map Backgrounds 2, Tiles, Sizes, Layers Format, Feature Layers, Feature Layers 2, Line Geometries, Drilling, Maps Master Detail 1, Maps Master Detail 2, Geo Aggregation, Descriptive Geo IDs, More Maps Examples in Spatial Db3.31 Map Examples<ul style="list-style-type: none">US Counties, SF Blocks Demographics, India Areas Hierarchy, India States, India States - 2, India Districts, India neighbourhoods, Mumbai example, Mumbai Per Capita, Floor Plan, SF Metrics, Streets London, Streets SF, Streets Sydney, US Counties Zoom3.40 Dashboards Design3.41 Accessibility3.50 Mobility3.60 Segmentation, EPM, FR	4. Search and Actions and Interactions <ul style="list-style-type: none">4.1 Actions4.2 Custom Interactions 5. Performance Management <ul style="list-style-type: none">5.1 Scorecards 6. Published Reporting <ul style="list-style-type: none">6.a Overview6.b Features6.c Integration Reports6.d Applications	7. Source Agnostic Server Features <ul style="list-style-type: none">7.10 Logical Modeling7.20 Logical Aggregations7.30 Physical Layer Features7.31 Federation-Fragment7.32 Aggregate Sources7.40 Localization7.50 Users and Security	8. Integration Features <ul style="list-style-type: none">8.10 Oracle DB<ul style="list-style-type: none">8.11 Oracle Spatial<ul style="list-style-type: none">POIs to Blocks Distance, Address to POI Distance, Point to Point Distance: Office to Customers, Geocode SQL, Cust Distance Lon, Cust Distance Syd, Driving Distance SF, Network Data Model8.12 Oracle Datamining8.13 Oracle R Enterprise8.20 Oracle Essbase8.21 Oracle Essbase Interaction8.22 Oracle OLAP8.30 Oracle TimesTen8.40 Oracle Endeca8.50 Flat Files Source
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Value Proposition

- **Pre-built analytics and KPIs across multiple applications**
 - Integrated spatial analytics
 - Key Performance Indicators for all major Utility Business areas
 - Pre-built OBIEE Answers covering key subject areas



- **Intuitive, well organized content**
 - Highlights metrics to investigate
 - Help identify bottlenecks
 - Support key functional workflows
 - Provides ability to drill back into the source for details
 - Offers an Action Framework to initiate corrective action right from the BI pages

Safe Harbor Statement

The preceding is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

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