Dashboard and Visualization Best Practices for Oracle BI Applications

ODTUG Kscope 2014

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Vlamis Software Solutions

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http://www.vlamis.com

Vlamis Software Solutions

- Vlamis Software founded in 1992 in Kansas City, Missouri
- Developed more than 200 Oracle BI systems
- Specializes in ORACLE-based:
  - Data Warehousing
  - Business Intelligence
  - Design and integrated BI and DW solutions
  - Training and mentoring
- Expert presenter at major Oracle conferences
- Authors of 2014 book "Data Visualization for Oracle BI 11g"
- Co-author of book "Oracle Essbase & Oracle OLAP"
- www.vlamis.com (blog, papers, newsletters, services)
- Developer for IRI (former owners of Oracle OLAP)
- Beta tester for OBIEE 11g
- Conference chair for BIWA Summit 2014, 2015

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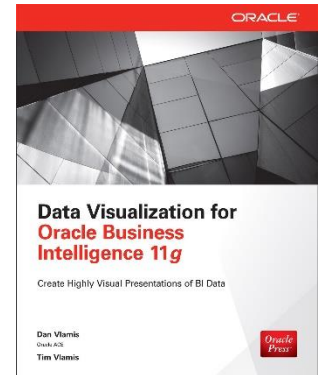
Ingredients → Data Quality & Variety

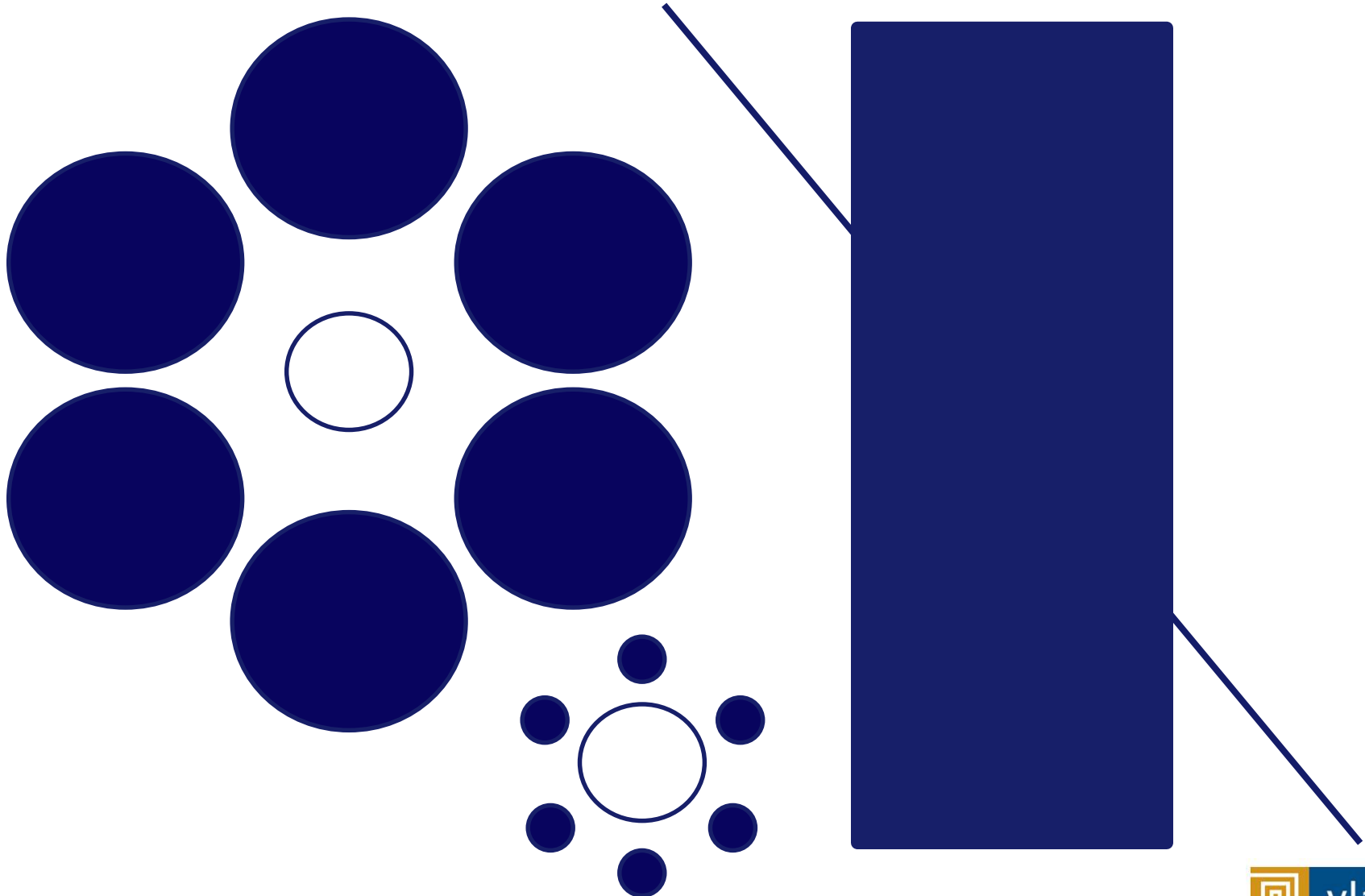**Technique → Data Processing & Prep**

Presentation → Data Visualization
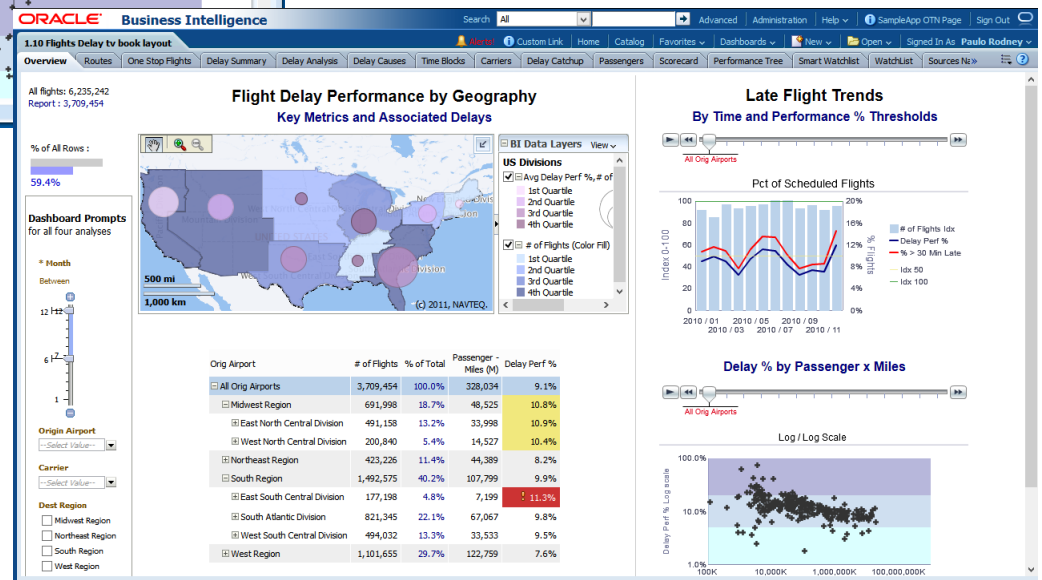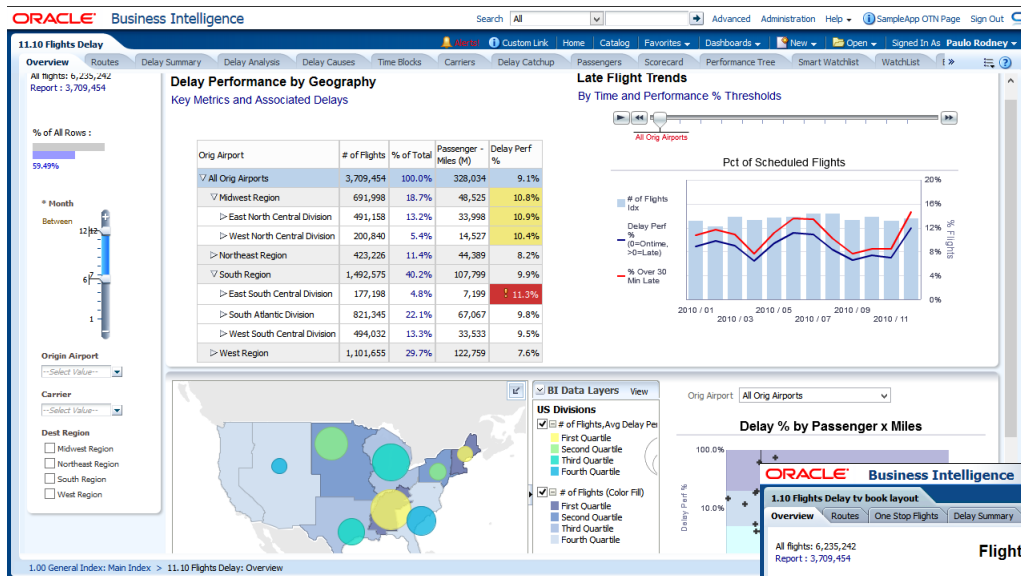
Classic Optical Illusions

The Principles of Human Cognition Should Guide BI Dashboard Design

OBIEE Demo of Changes

Dashboard Definition

A Dashboard is a visual presentation of current summary information needed to manage and guide an organization or activity.

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BI Dashboards are Different

- No mechanical systems needed to move indicators.

- Decisions are not typically made on a second-to-second basis.

- Data selection and filtering are hugely important.

- Dashboards are typically not single situation or single person devices.

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BI Dashboards

- Role-based.
- Data selection and filtering are extremely important.
- Dashboards support evidenced-based decision making.
- Shared understanding of business situation is a key benefit.
- Content may be individualized.
- Design should be standardized.

Best Practice Focus

- Best practices are objective guides to what is likely to work best.

- Many times visualizations are seen as being "design" and subject to "taste".

- Visualizations should be guided by:
    - Human cognition
    - Accurate representations of data
    - Preferred message (consciously designed by visualization developer)

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Graphs and Tables

- Graphs and Charts depict visual representations and relationships

New Product Market Penetration
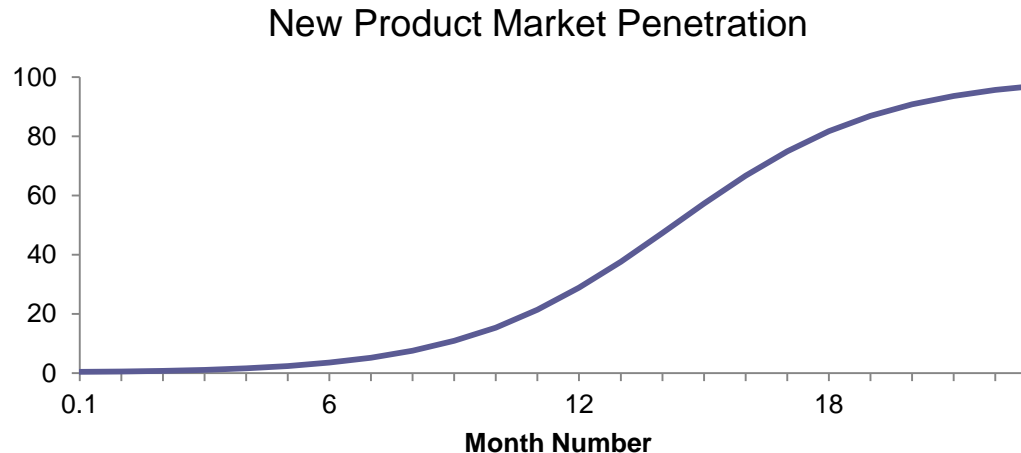
- Tables show data organized for lookup of specific, precise values or items.

Order Type	No of Orders	Sales	Billed Quantity	Actual Unit Price
Express	13,980	$14,027,034	1,117,199	$12.56
Secure	29,347	$28,513,745	2,326,540	$12.26
Standard	27,673	$27,459,221	2,213,482	$12.41
Grand Total	**71,000**	**$70,000,000**	**5,657,221**	**$12.37**

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Tables

- Tables can present data from at drastically different scales.

- Tables can present very different data types simultaneously.

- Tables can repeat and include multiple sets of the same data values.

- Tables are extraordinarily dense and include numerous data relationships without direct distortion of the data itself.

Keys to Effective Tables

- Eliminate unnecessary gridlines
- Enable column and row sorting
- Avoid scrolling (if possible)
- Display significant figures
- Judiciously use conditional formatting
- Avoid putting text in color
- Left justify text cells and Right justify numerical cells
- Align the decimal point for numerical cells
- Prefer smaller tables
- Write informative titles for tables and column head descriptions
- Be transparent about data selection
- Enable roll overs for meta data for commonly used tables

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Keys to Effective Graphs

- Do not use 3-D effects.

- Avoid "stop light" color palette.

- Prefer pastel color palettes.

- Avoid bright colors.

- Do not use round gauges or dials.

- Eliminate gridlines, drop shadows, and other graphics.

- Enable interaction for "exploration" graphs

- Prioritize a single message for "explanation" graphs

- Alignment, proximity, contrast.
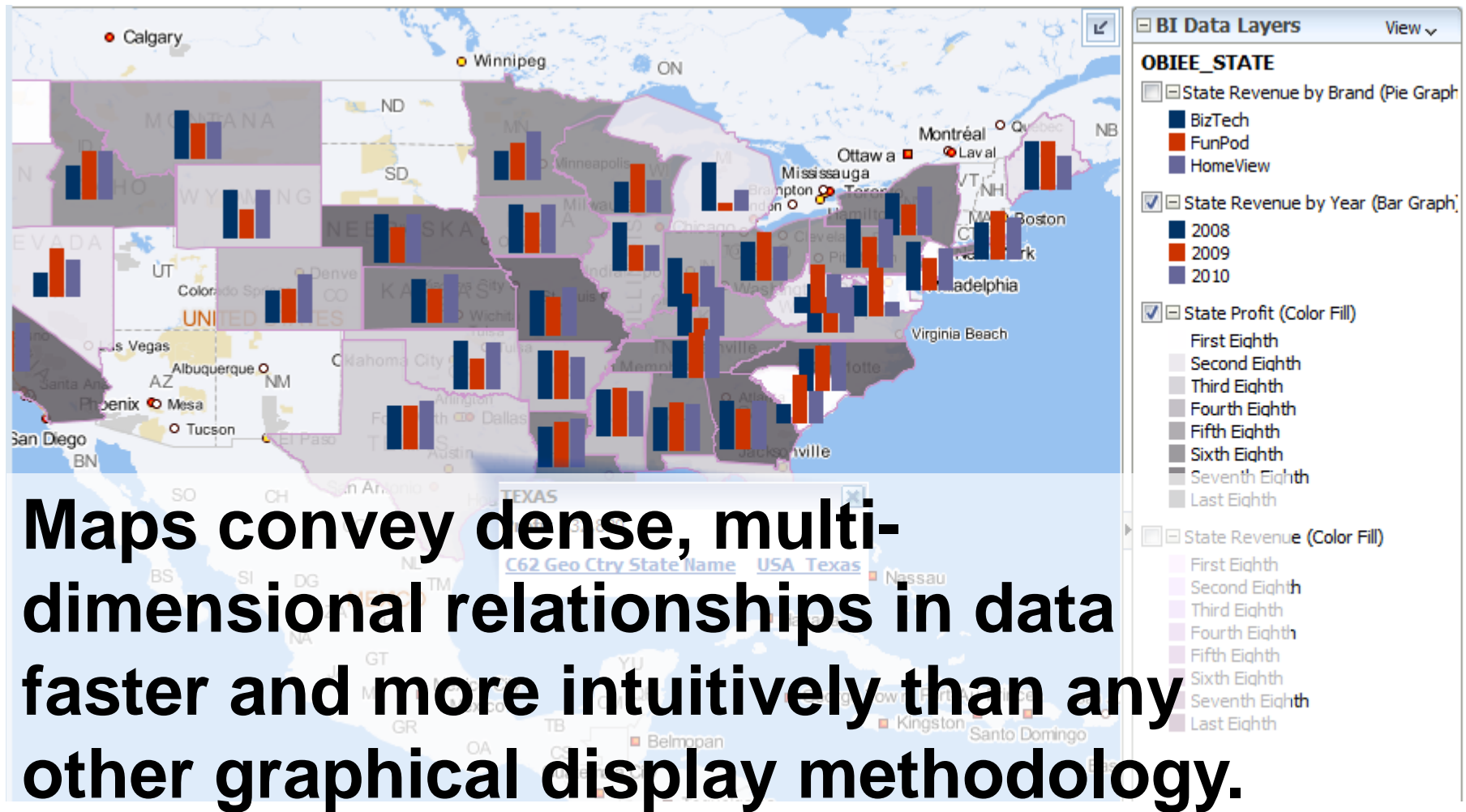
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Maps

- Humans think spatially
- Types of maps
- Map best practices
- Making meaningful maps
- Built-in data sets
- HERE (NAVTEQ) data sets and POI data
- Sources for additional data sets

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Why Maps are Powerful

Maps convey dense, multi-dimensional relationships in data faster and more intuitively than any other graphical display methodology.

What is Spatial Data?

- Business data that contains or describes location
  - Street and postal address (customers, stores, factory, etc.)
  - Sales data (sales territory, customer registration, etc.)
  - Assets (cell towers, pipe lines, electrical transformers, etc.)
  - Geographic features (roads, rivers, parks, etc.)
- Anything connected to a physical location

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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.
- When is location important? Can the dimension be plotted on a map?

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Map View Tips

- Think about what scale to use. Different map scales will reveal different patterns and insights.

- Use Variable marker to display two measures on a map at a point – size and color.

- Avoid overlapping shapes too much.

- Be aware of spatial distortions E.g. Texas is larger than Connecticut.

- Look at color palette. www.colorbrewer2.org

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Trellis View - Simple

- Single type of inner visualization
- Common synchronized scale across all graphs
- Has scale showing by default (can turn off)
- Lots of graph types
  - Vertical Bar
  - Horizontal Bar
  - Line
  - Area
  - Line-Bar
  - Pie
  - Scatter
  - Bubble
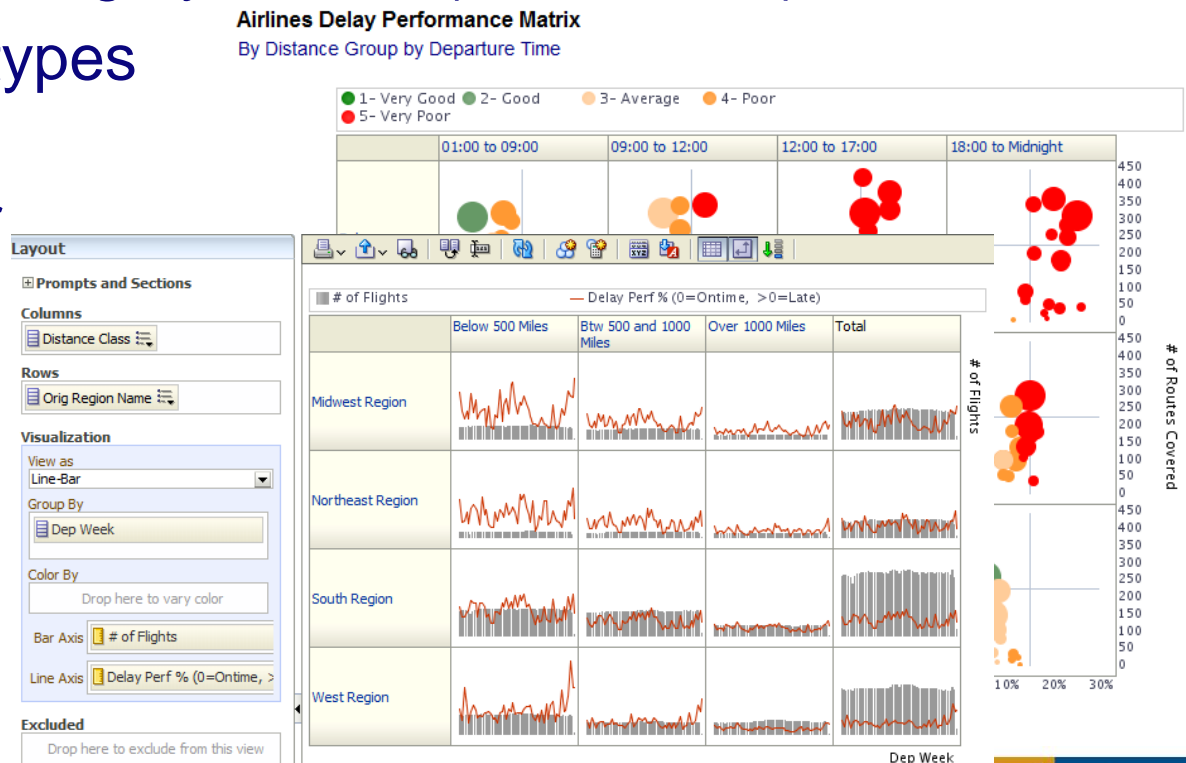
Trellis View - Advanced

- Pivot table with numbers or graphs in cells
- Each microchart has its own scale and not shown
- Most often used to see trend lines
- No axis description, so across should be time
- Can have different visualizations for different measures
  - Spark bar
  - Spark line
  - Spark area
  - numbers

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General Advice

- Dealing with executives who have seen flashy demos and purchased systems because of them
- The need for continual development
- The need for continual training
- The long road
- The perfect is the enemy of the good
- If it's worth doing, it's worth doing right
- Don't settle, the lesson of Steve Jobs and Goldilocks

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Oracle Test Drive

- Free to try out Oracle BI, Advanced Analytics and Big Data
- Go to www.vlamis.com/td
- Runs off of Amazon AWS
- Hands-on Labs based on Collaborate 2012 HOLs
- Test Drives for:
  - Oracle BI
  - Oracle Advanced Analytics
  - Big Data
- Once sign up, you have private instance for 5 hours
- Available now

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Mark Your Calendars Now!

BIWA Summit 2015, Jan 27-29
Oracle HQ Conference Center

Accepting Abstracts NOW!

Business Intelligence, Warehousing and Analytics
IOUG Special Interest Group

www.biwasummit.com

Thank You!

Thank You for Attending Session **Dashboard and Data Visualization Best Practices for OBI Applications**

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