



SOFTWARE SOLUTIONS

Data Visualization for Oracle Business Intelligence 11g

Oracle OpenWorld 2014

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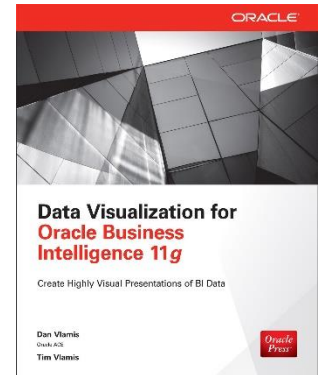
<http://www.vlamis.com>

Session #UGF9227



VlamiS Software Solutions

- VlamiS Software founded in 1992 in Kansas City, Missouri
- Oracle Gold Partner, Oracle University Partner
- Developed more than 200 Oracle BI systems
- Specializes in ORACLE-based:
 - Business Intelligence
 - Data Warehousing
 - Data Mining and Predictive Analytics
 - Data Visualization
- 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)
- Beta tester for OBIEE 11g
- Conference chair for BIWA Summit 2014, 2015





Tim and Dan Vlamis

- Tim (business analyst and academic guy)
 - 25+ years in business modeling, valuation, and scenario analysis
 - Professional Certified Marketer (PCM) from AMA
 - Active Member of NICO (Northwestern Institute on Complex Systems)
 - Adjunct Professor of Business, Benedictine College
 - MBA Kellogg School of Management (Northwestern University)
 - BA Economics, Yale University
-
- Dan (OLAP expert and career IT guy)
 - 25+ Years in business intelligence/executive information systems
 - Led development team at IRI
 - Founded Vlamis Software Solutions 20 years ago in 1993
 - Author, speaker, Oracle ACE
 - BS Computer Science, Brown University



Presentation Agenda

- Human cognition insights
- OBIEE demo
- Table design
 - Best practices
 - When and when not to use
- Graph design
 - Best practices
 - Use cases for different graph types
- Questions from audience at all times

Many BI Systems Can Create Beautiful Results



OBI Operates at a Different Scale



Ingredients → Data Quality & Variety



Technique → Data Processing & Prep

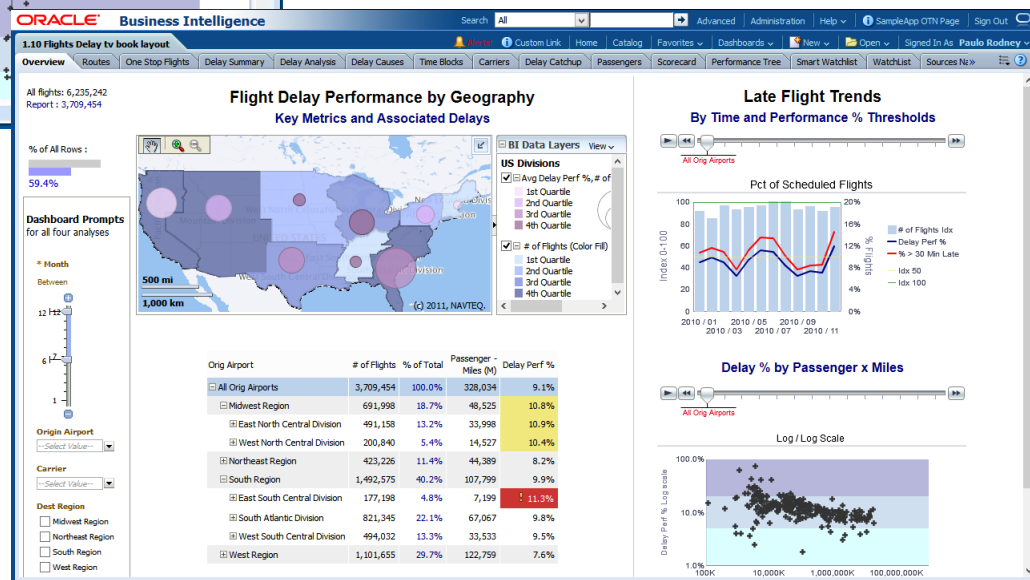
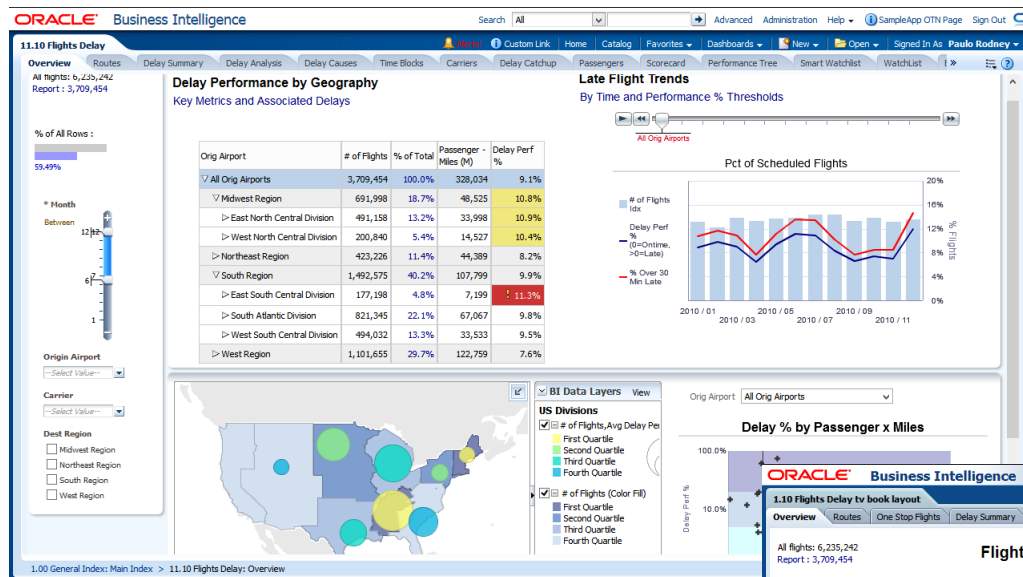


Presentation → Data Visualization





OBIEE Demo of Changes





Best Practice Focus

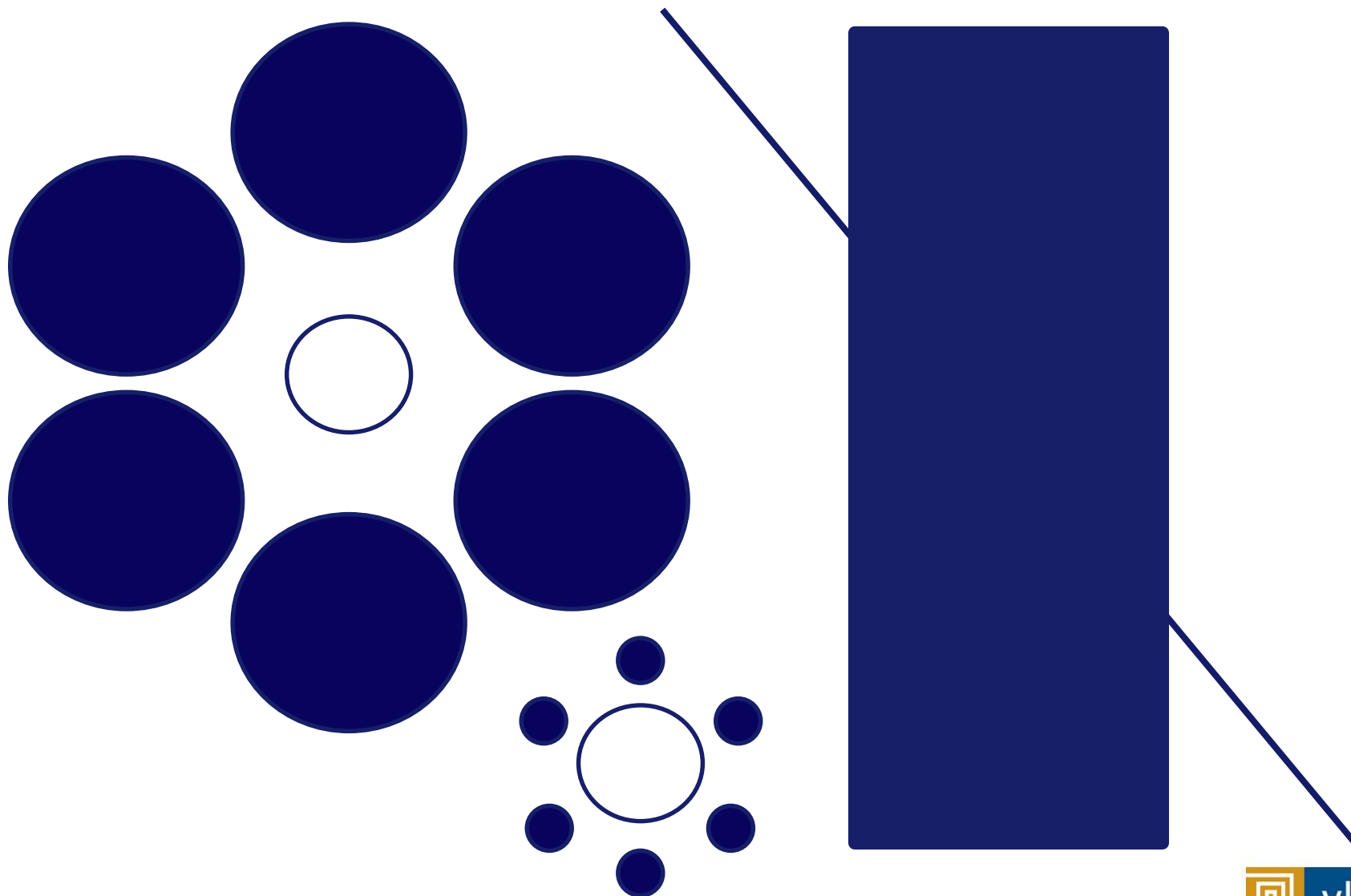
- Best practices are objective guides to what is likely to work best.
- Many times visualizations are seen as being “design” and subject to “taste”.
- Visualizations should be guided by:
 - Human cognition
 - Accurate representations of data
 - Preferred message (consciously designed by visualization developer)

The Principles of Human Cognition Should Guide BI Dashboard Design



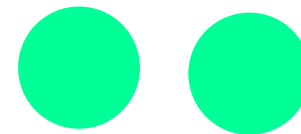
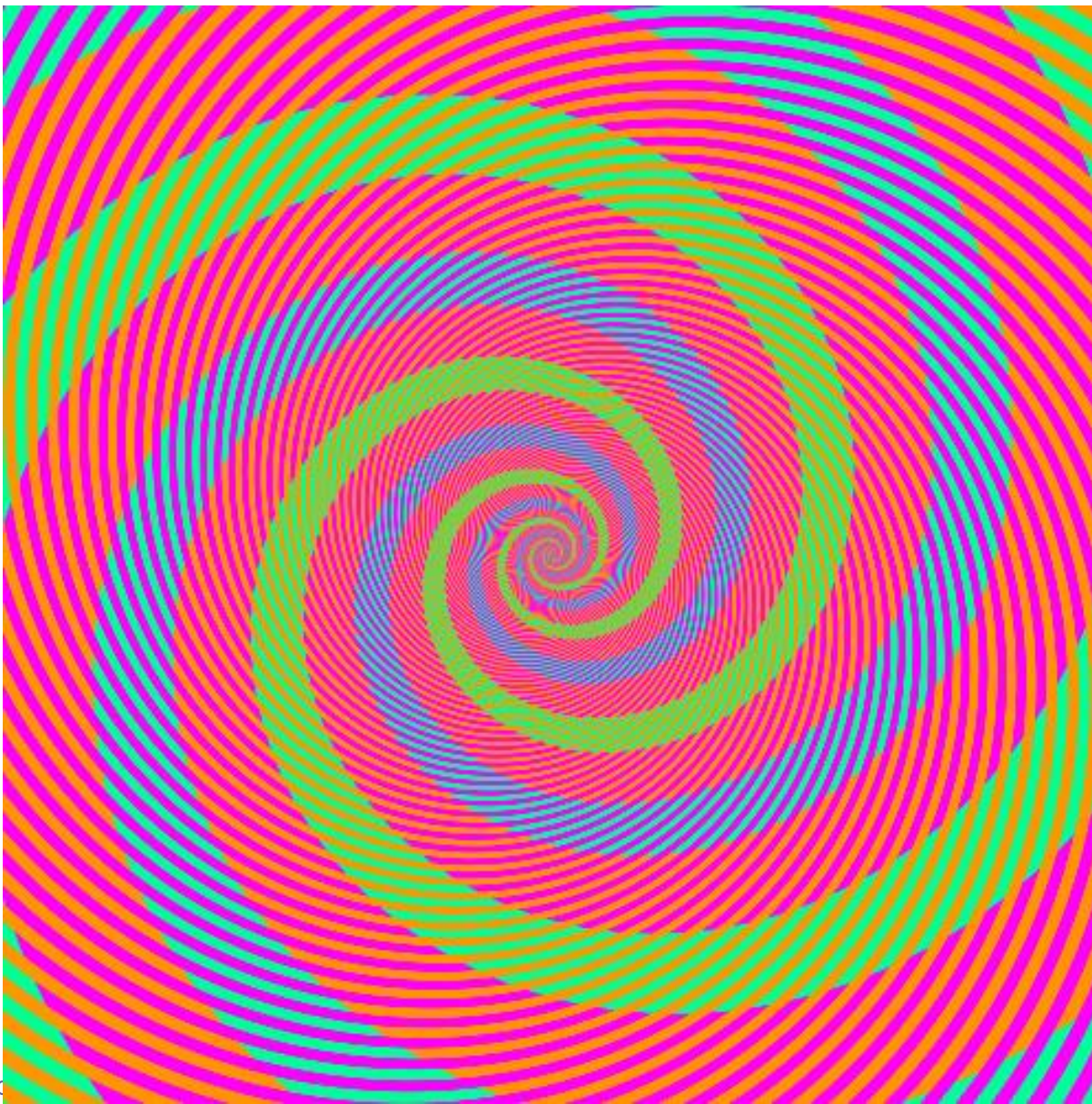


Classic Optical Illusions



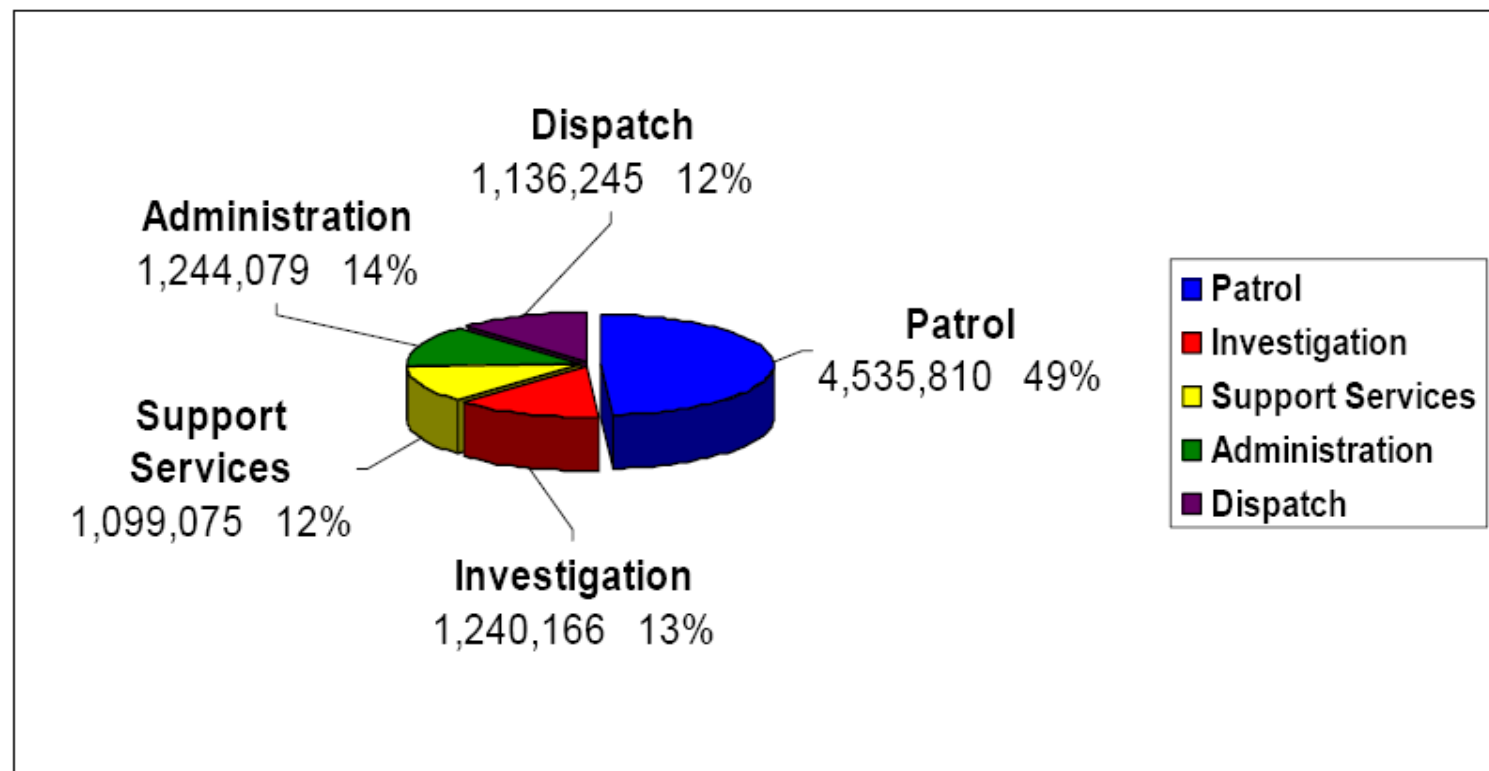


The Spirals are the Same Color

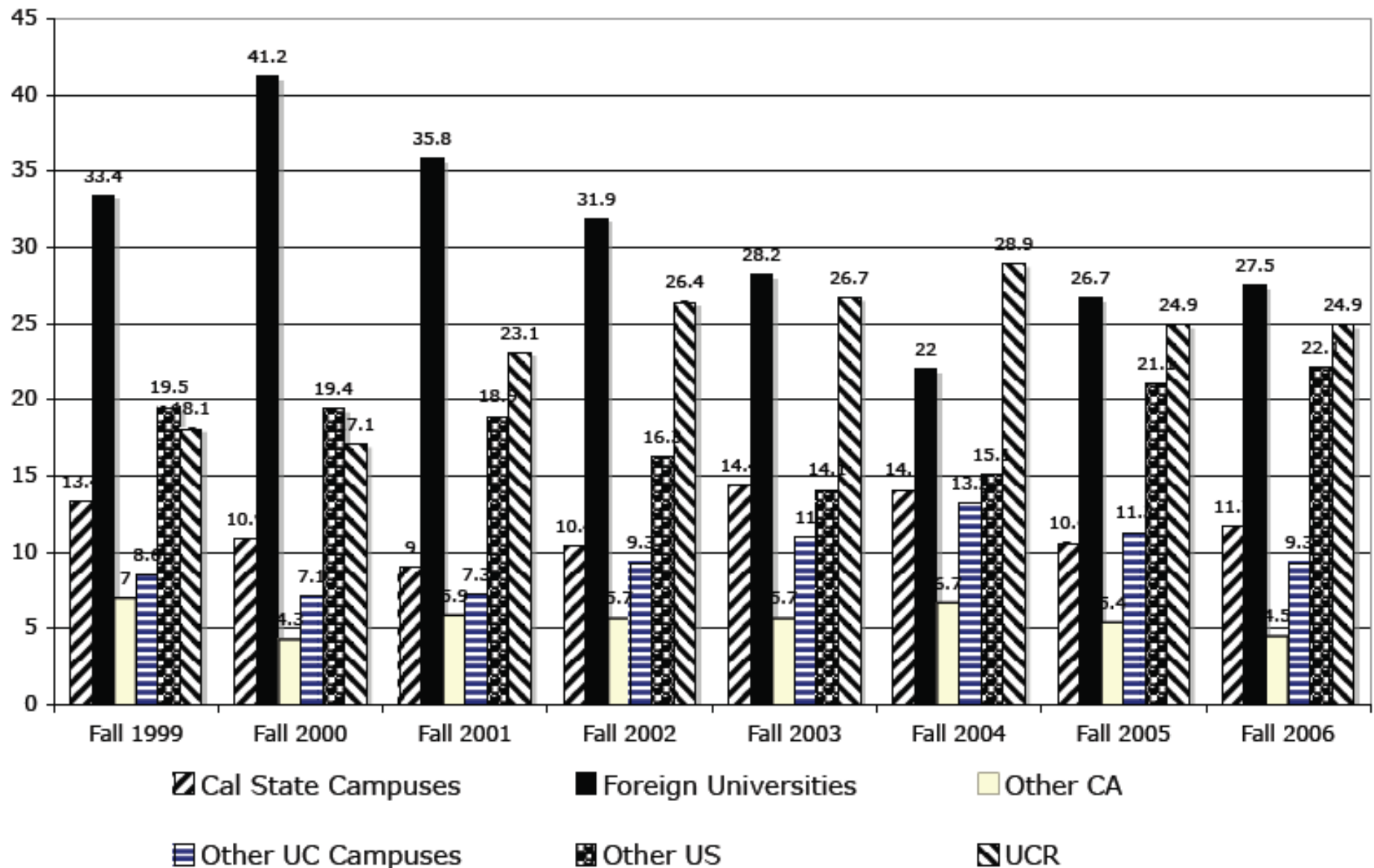


2004 - 2005 Budget

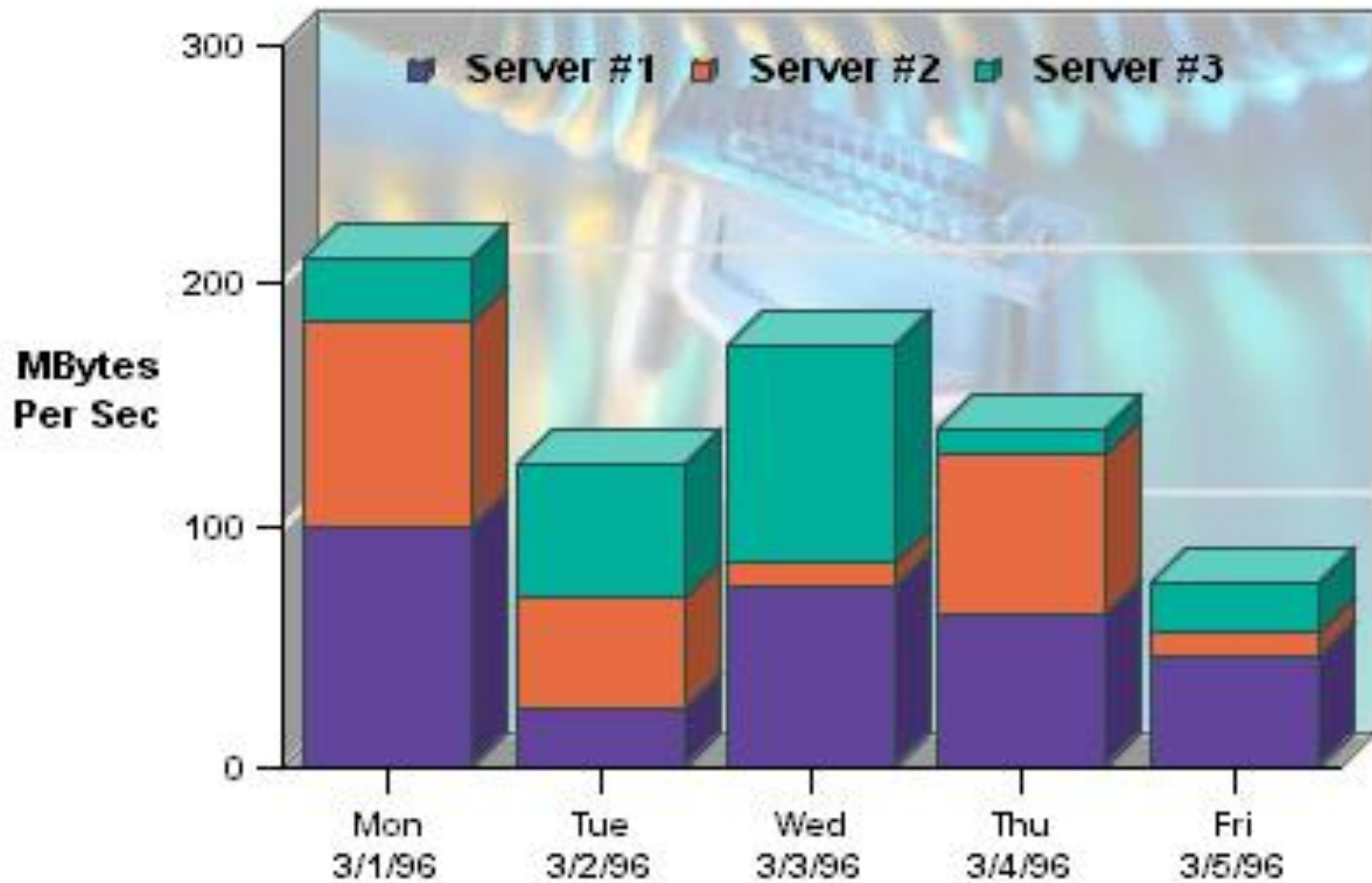
Budget By Division



Baccalaureate Degree Institutions of New Graduate Students- Fall Quarters- Percentages from Type of Institution



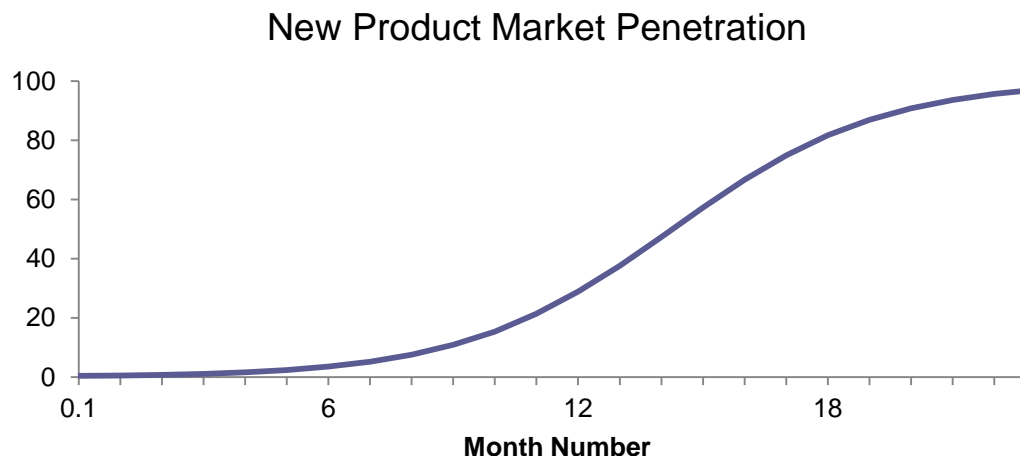
Weekday Server Load





Graphs and Tables

- Graphs and Charts depict visual representations and relationships



- 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



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
- Prefer smaller tables
- Organize with white space, grouping, and alignment
- 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
- Write informative titles for tables and column head descriptions
- Be transparent about data selection
- Enable roll overs for meta data for commonly used tables

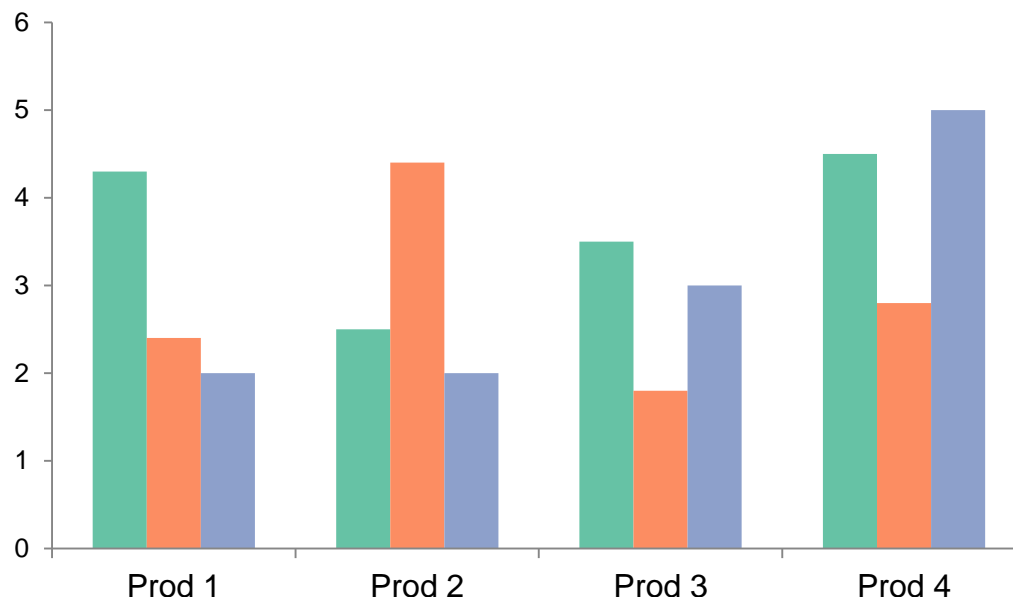


Keys to Effective Graphs

- 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.



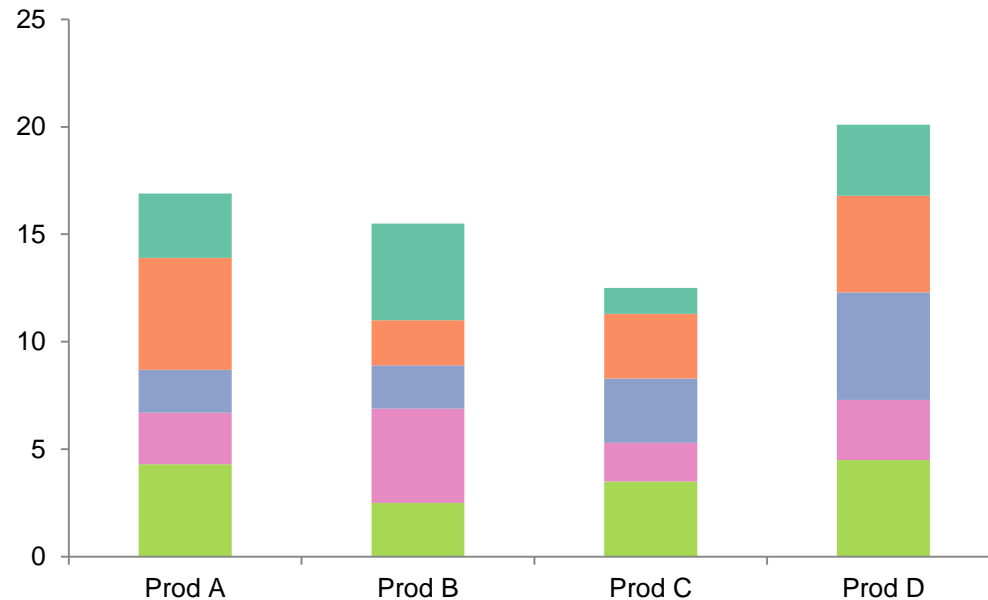
Bar Charts



- Show nominal data values in comparison to one another.
- Start with zero.
- If use a logarithmic scale, clearly notate.



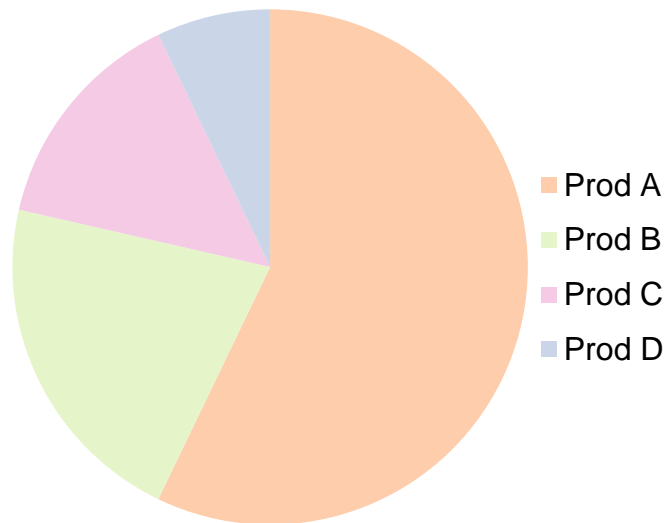
Stacked Bar Chart



- Somewhat confusing, not great for representing change.
- Total is most clearly represented number.
- Typically stack with largest values on the bottom.
- Single scale can make for interesting intra-bar comparisons.



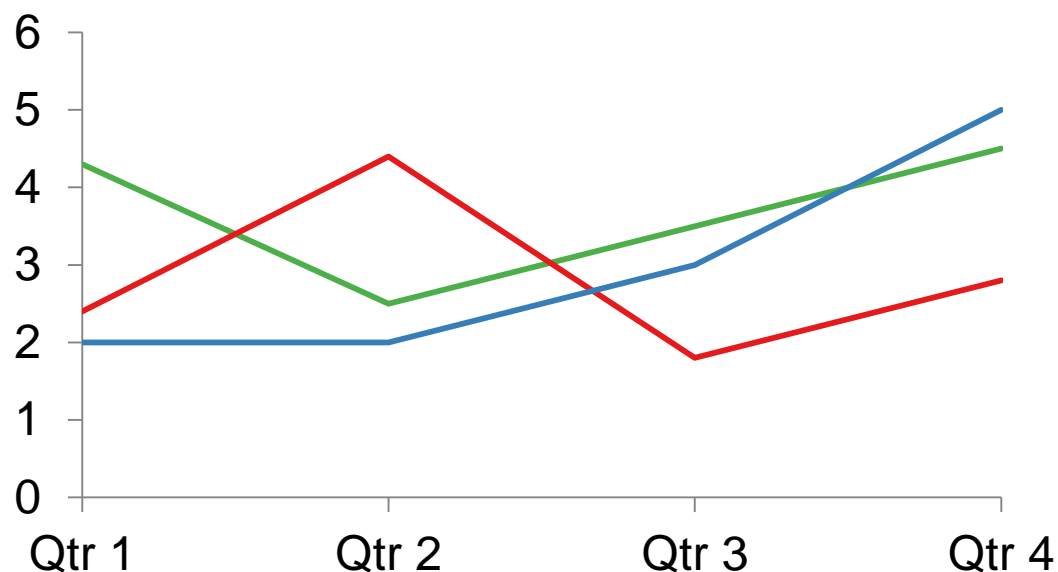
Pie Charts



- Typically used for showing parts of whole by percentage.
- Not great for piece to piece comparisons.
- Limit number of pieces.
- Can be interesting to show lots of pies together if significant differences exist.
- Stephen Few hates them.
- Do not use 3-D.



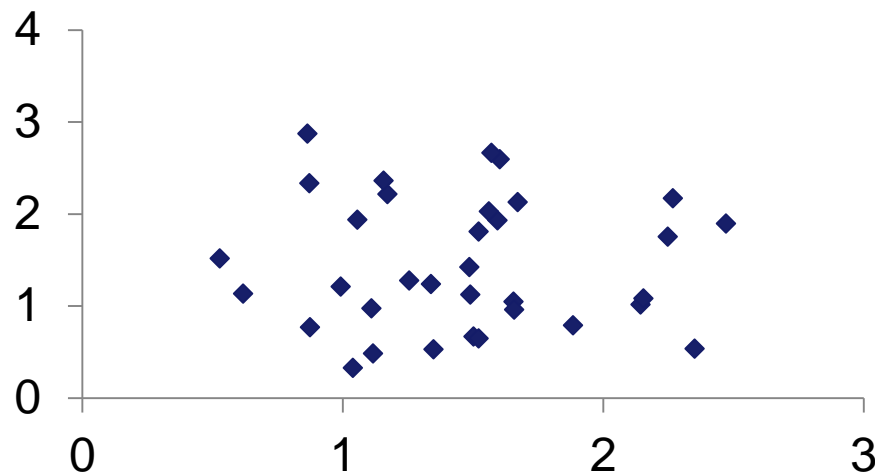
Line Chart



- Show a pattern or progression over a continuous range or period.
- Can be valued within a range to highlight a particular pattern (careful!).
- Maintain a rectangular shape close to golden proportion.



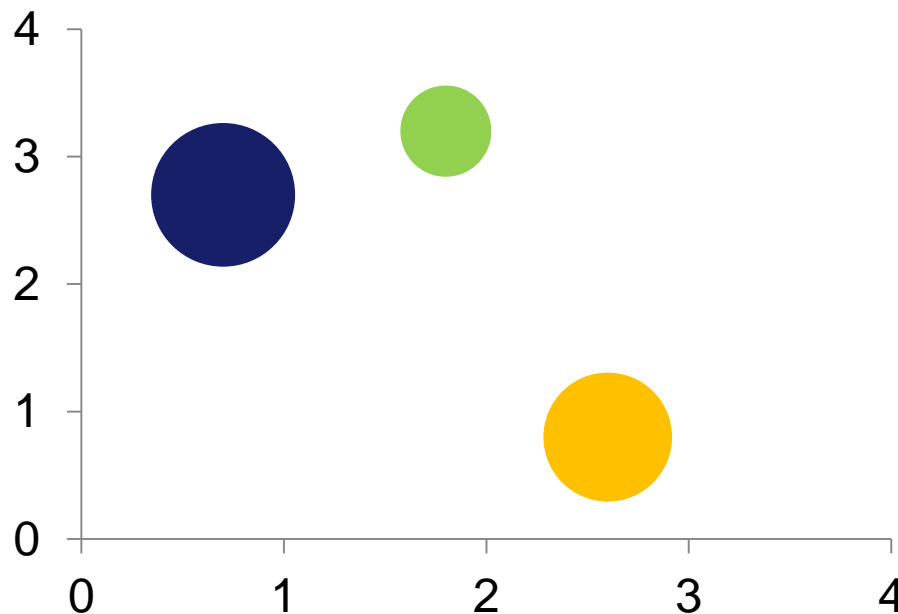
Scatter Plot



- Shows single data points at the intersection of two values.
- Often depict a large number of discrete data points (hundreds or thousands).
- Useful comparisons of two variables.
- Trend lines are often added.
- Clearly notate if use logarithmic scale(s).



Bubble Chart



- Special type of scatter plot.
- Size of bubble is related to a third variable.
- Color is related to a fourth variable.
- Reduces number of points that can be depicted.
- Best for depicting approximate values and comparisons.



Dashboard Definition

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



BI Dashboards are Different

- No mechanical systems needed to move indicators.
- Decisions are not typically made on a second-to-second basis.
- BI dashboards are not primarily single situation or single person devices.



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.



OBIEE Dashboard Overview

- Designed with columns and sections (containers).
- Presentation server is often separate from BI server.
- Dashboards are web-based and are viewed with browsers.
- HTML, XML, and Java coding skills are useful, but not required.



Dashboard Principles

- Promote user interactivity
 - Prompts
 - View and column selectors
 - Hierarchical column drills
 - Column sorts
 - Guided navigation and action links
- Promote data transparency
 - Prompts
 - Filter views
 - Narrative views
 - Master detail linking
- Establish design guidelines for consistency

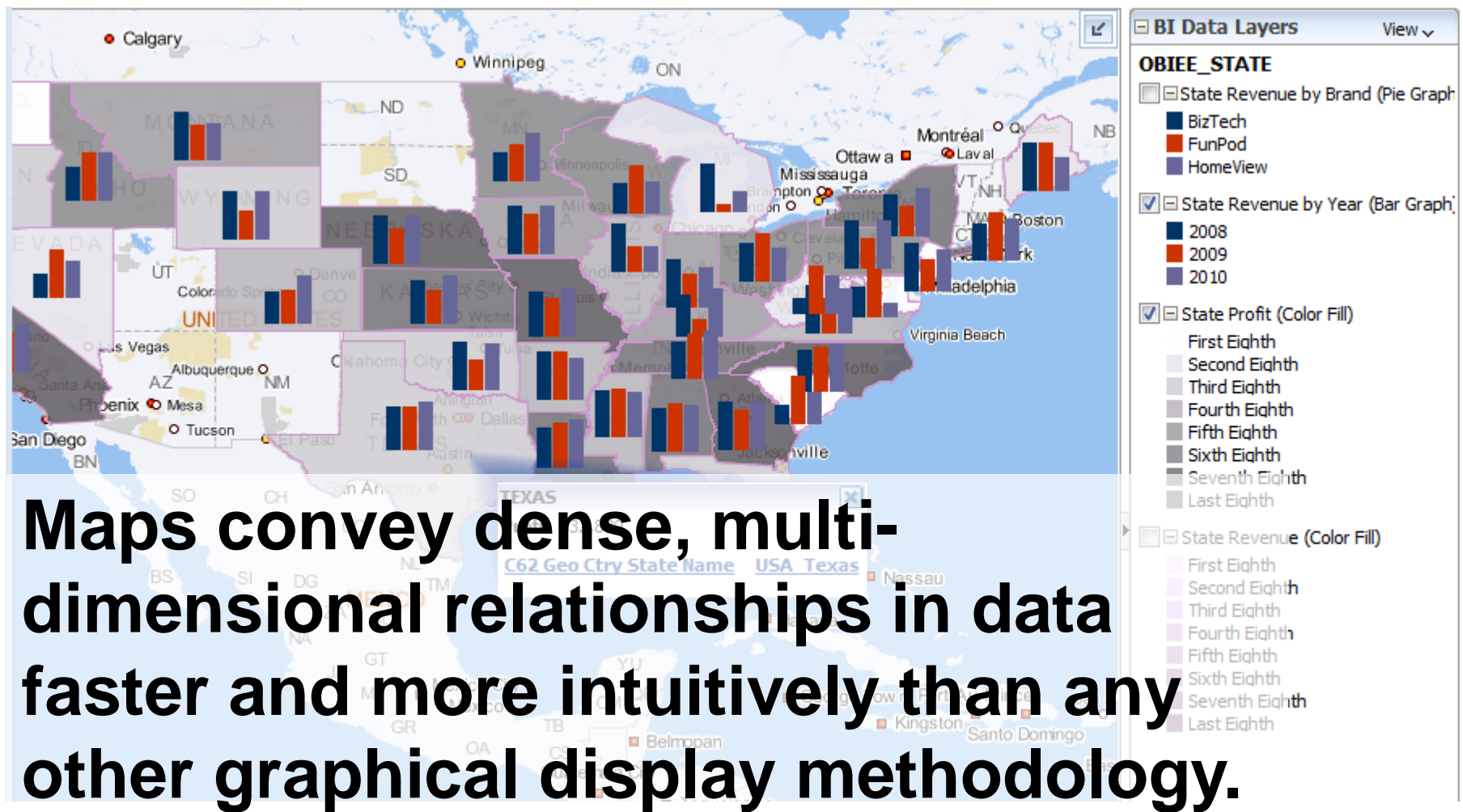


Maps

- 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



Why Maps are Powerful





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?



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



Map Definitions

- **FEATURE**
 - Provide a spatial context: cities, highways, rivers, etc...
 - Features of Interest: store location, postal boundaries, pipelines, etc...
- **STYLE**
 - Define rendering properties for features
 - Can control fill color, border color, line thickness, line style and more
- **THEME**
 - Collection of features
 - Typically associated with a spatial geometry layer
 - County/state boundaries, major highways, etc...
- **BASEMAP**
 - A grouping of themes to create a map
 - Maps can share themes
 - When associating a theme with a map, can specify min scale and max scale (sometimes known as zoom control)
- **MAP**
 - Basemap with additional themes overlain



Map Interactivity in OBIEE 11g

- Display BI data on top of maps
 - Color fill
 - FOI point display
- Interact with other Dashboard Elements
 - Drive map content with dashboard prompts
 - Drive map content through drilling and navigation
 - Drive other dashboard elements through map interactions
- Reveal additional information on maps through mouseovers
- Drill to map detail



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



Trellis Charts

- Trellis Layout of Smaller Charts in a grid with Consistent Scales
- Great for finding structures / patterns in complex data
- Use 2D Layout to View Multidimensional Data (like a timeline –*mental animation*)

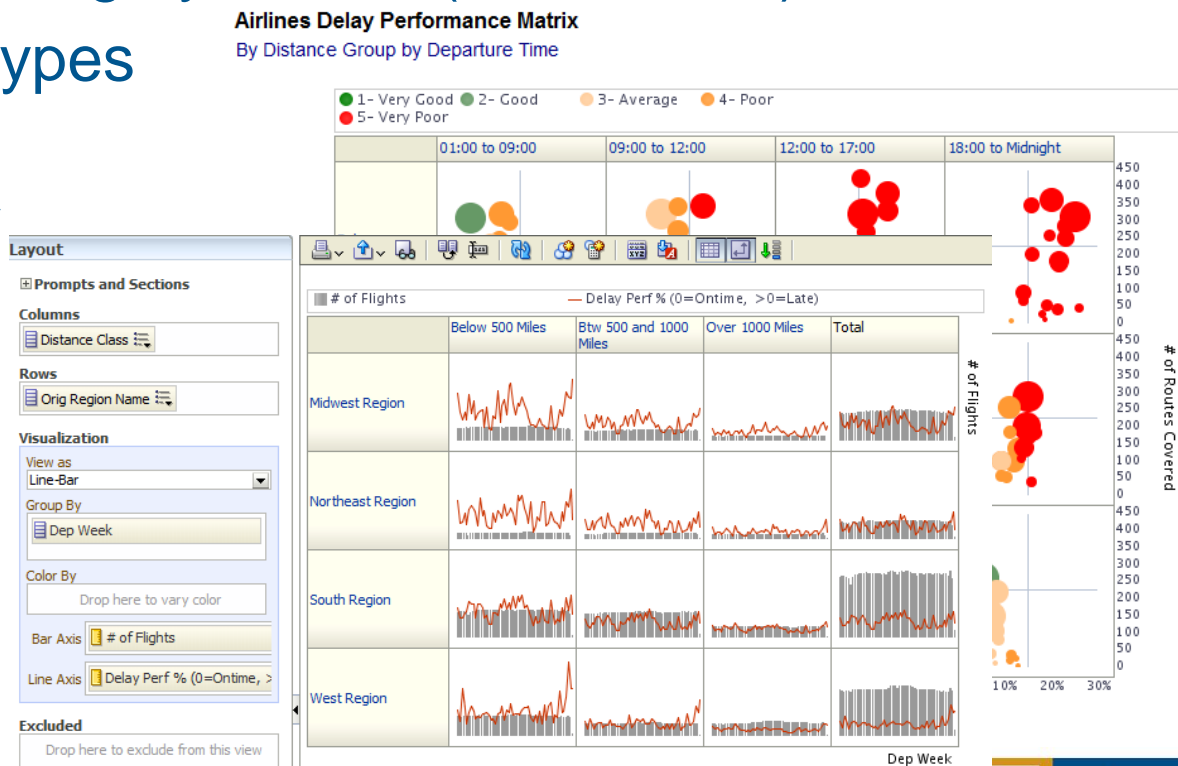




Trellis View - Simple

- 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

Layout

Prompts and Sections

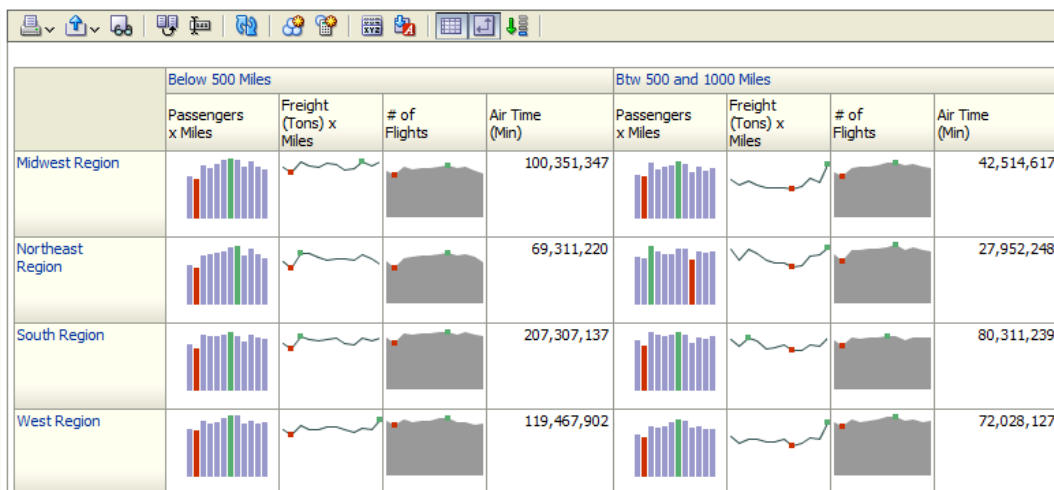
Columns
Distance Class

Rows
Orig Region Name

Measures
Passengers x Miles
Freight (Tons)

Visualization
Passengers x Miles
View as: Spark Bar
Bars: ☒ Dep Month

Excluded
Drop here to exclude from this view



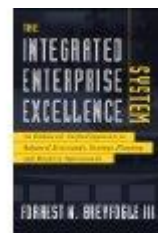
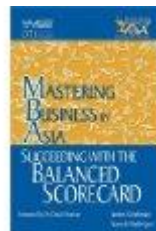
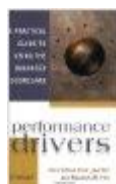
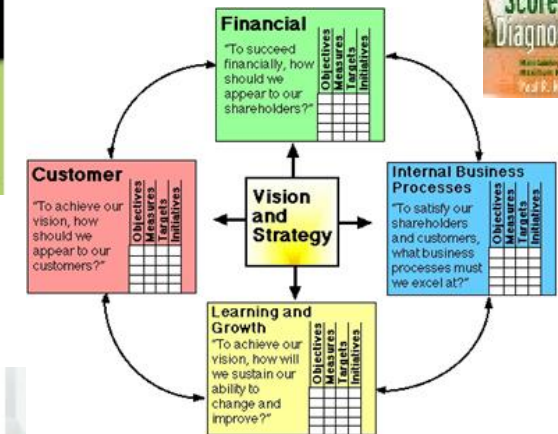
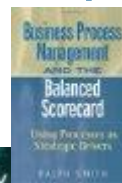
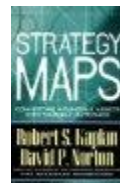
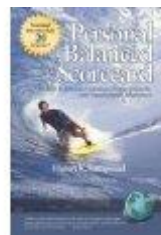
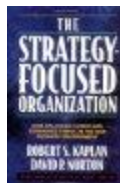
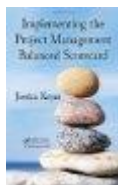
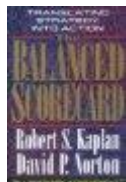
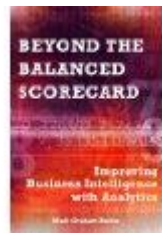
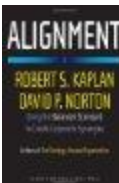


New Trellis Views

- Does not require Exalytics but need fast Pres Server
- Can display LOTS of data in compact form
- Capable of dense visualizations
 - Great for snapshot of trending
 - Great for comparing patterns across dimension values
- Two types
 - Simple (shows full graphs per cell)
 - Advanced (sparklines – no scales per cell, separate scales)
- Need to think what you're trying to show on a trellis

OBI Scorecard & Strategy Management

- Integrated toolset in OBIEE
- Follows “Balanced Scorecard” methodology
- Enables corporate goals and objectives to be monitored and managed
- Includes strategy maps, strategy trees, KPI watch lists, and cause and effect maps





New Contribution Wheel Visualization





Strategy Tree View

5.1 Scorecards

Alerts!

Home

Catalog

Favorites ▾

Dashboards ▾

New ▾

Open ▾

Signed In As weblogic ▾

Strategy Tree

Strategy Map

Cause & Effect Map

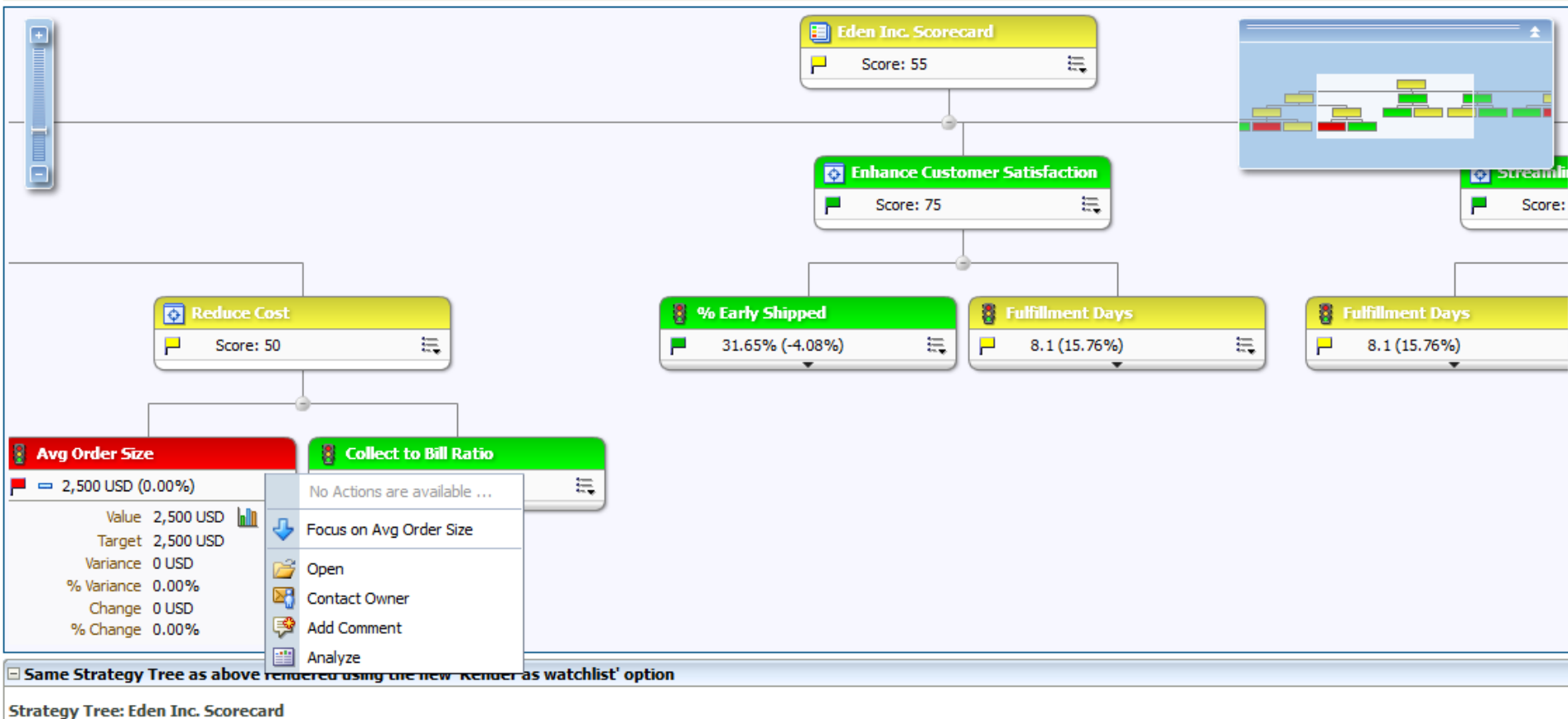
KPI WatchList

Custom View

Prompt Example

Strategy Tree

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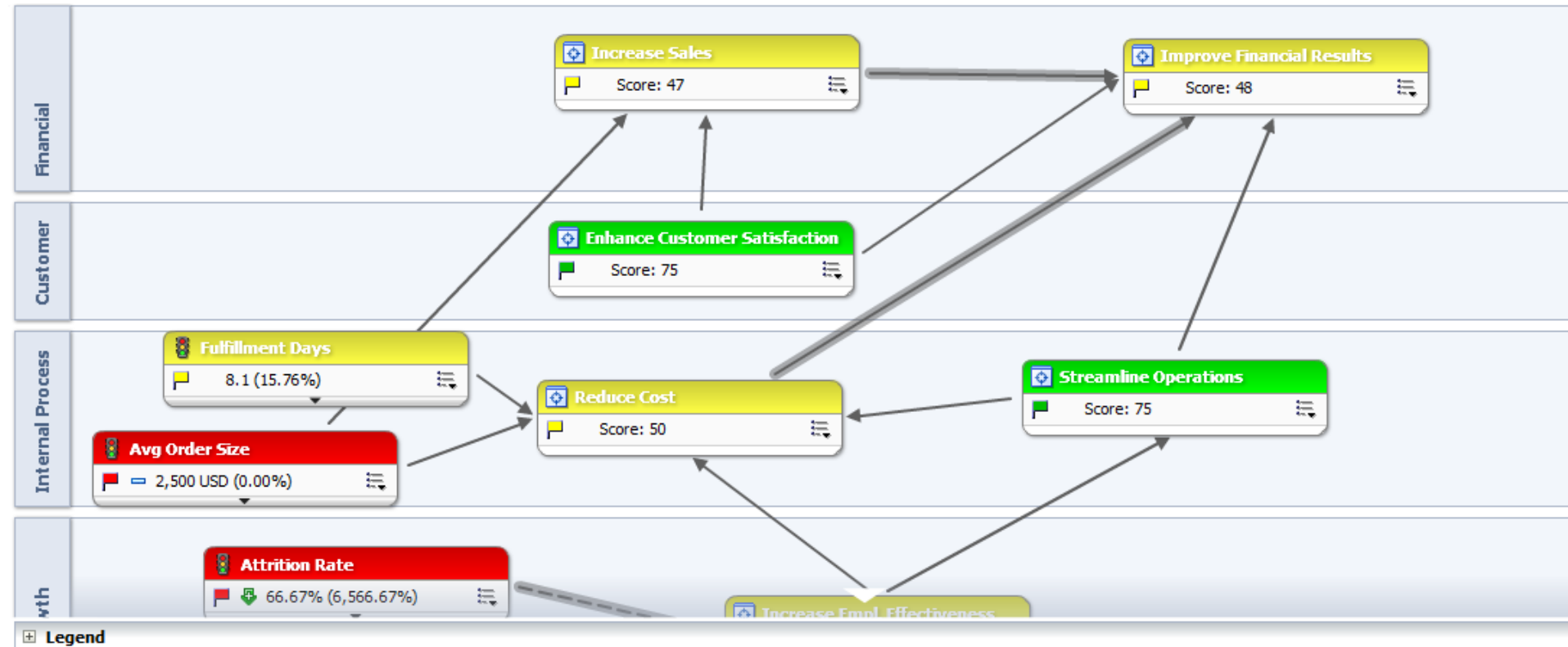


Strategy Map View

Strategy Tree **Strategy Map** Cause & Effect Map KPI WatchList Custom View Prompt Example

Strategy Map

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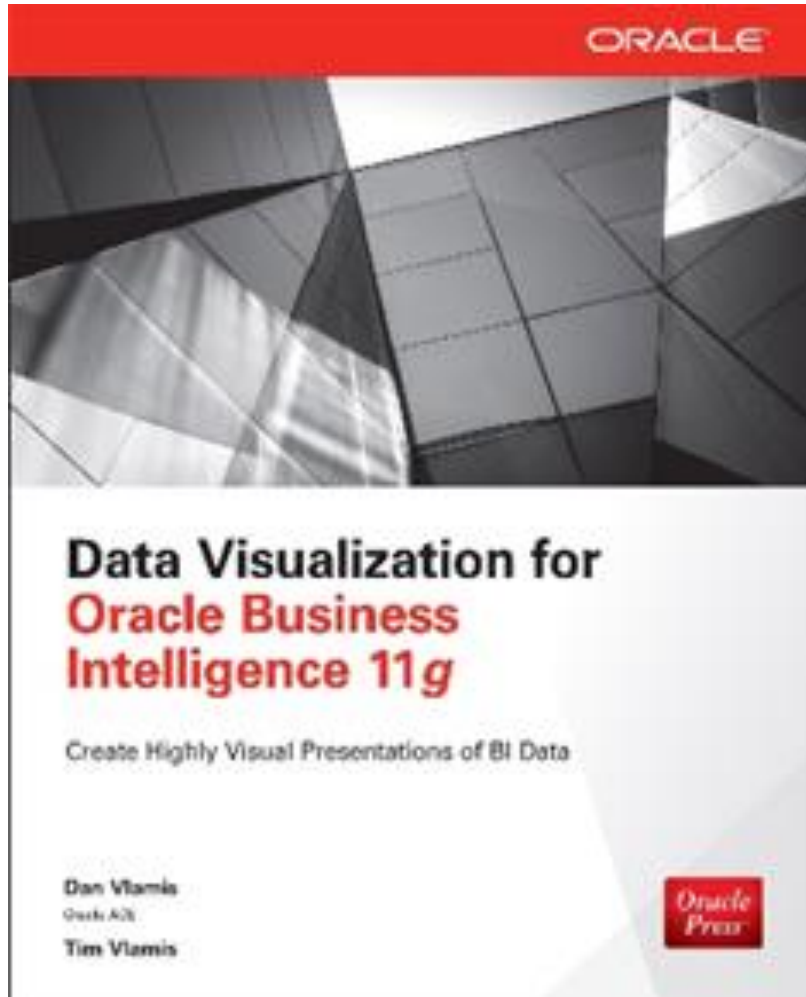


General Advice

- 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



Available December 22, 2014





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
- Step-by-step exercises
- Test Drives for:
 - Oracle BI
 - Oracle Advanced Analytics
 - Big Data
- Once signed up, you have private instance for 3 hours
- Available now



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

Accepting Abstracts and Registration Open NOW!

Business Intelligence, Warehousing and Analytics
and Spatial

IOUG Special Interest Group

www.biwasummit.com



Oracle OpenWorld 2014:

Unauthorized BI Scoop Session

Thursday, October 16, noon CST

IOUG BIWA SIG TechCast



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<http://tinyurl.com/oow14biscoop>



Thank You!

Thank You for Attending Session **UGF9227** **Data Visualization for OBI 11g**

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