



SOFTWARE SOLUTIONS

Data Visualization for Oracle Business Intelligence 11g

Heartland OUG Fall 2014

Tim VlamiS

Dan VlamiS

VlamiS Software Solutions

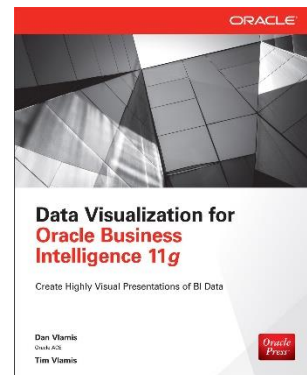
816-781-2880

<http://www.vlamiS.com>



Vlami Software Solutions

- Vlami 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.vlami.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

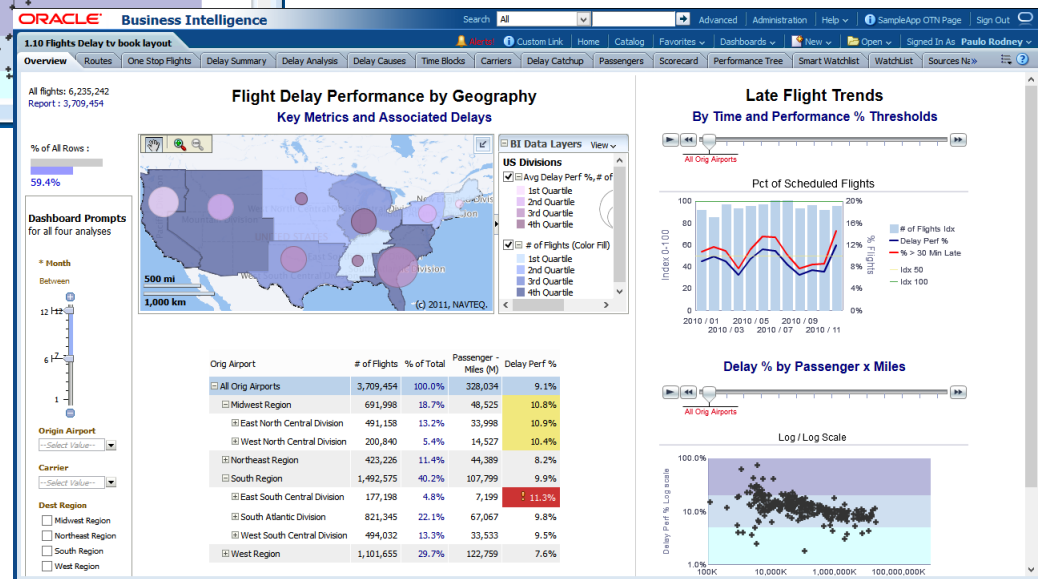
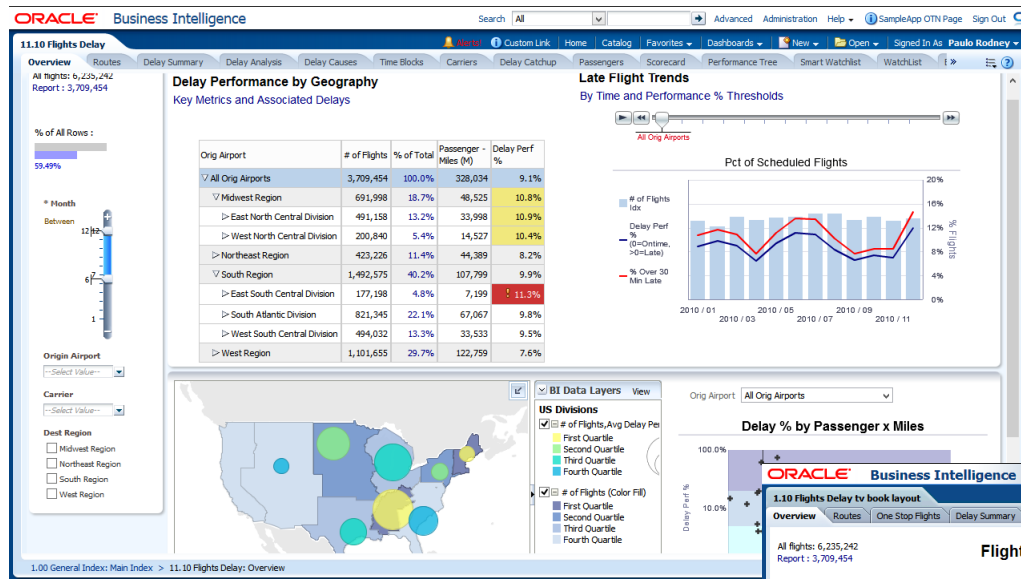


Presentation → Data Visualization





OBIEE Demo of Changes





Best Practice Focus

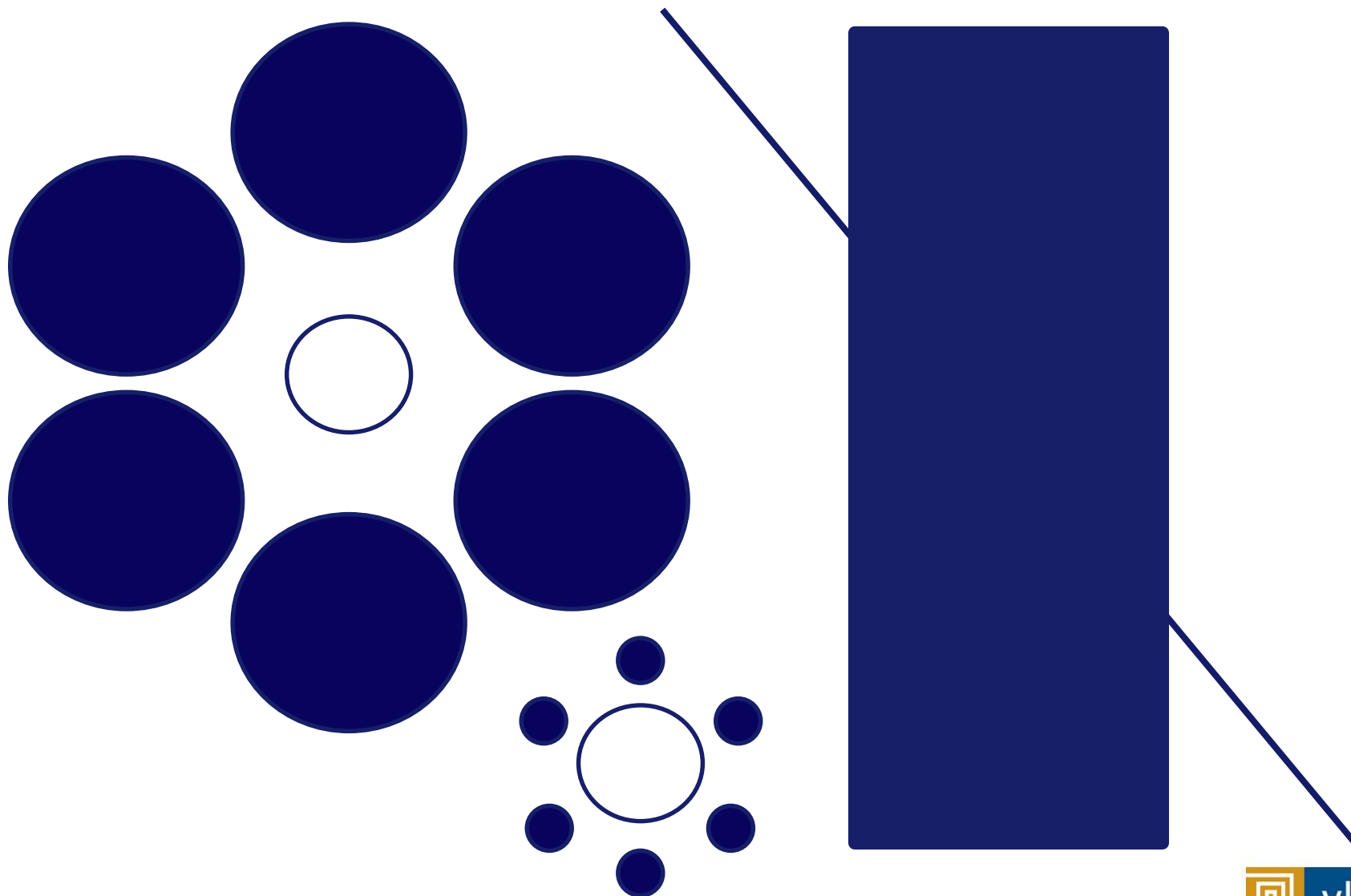
- Best practices are objective guides to what is likely to work best.
- Many times visualizations are seen as being “design” and subject to “taste”.
- Visualizations should be guided by:
 - Human cognition
 - Accurate representations of data
 - Preferred message (consciously designed by visualization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

The Principles of Human Cognition Should Guide BI Dashboard Design



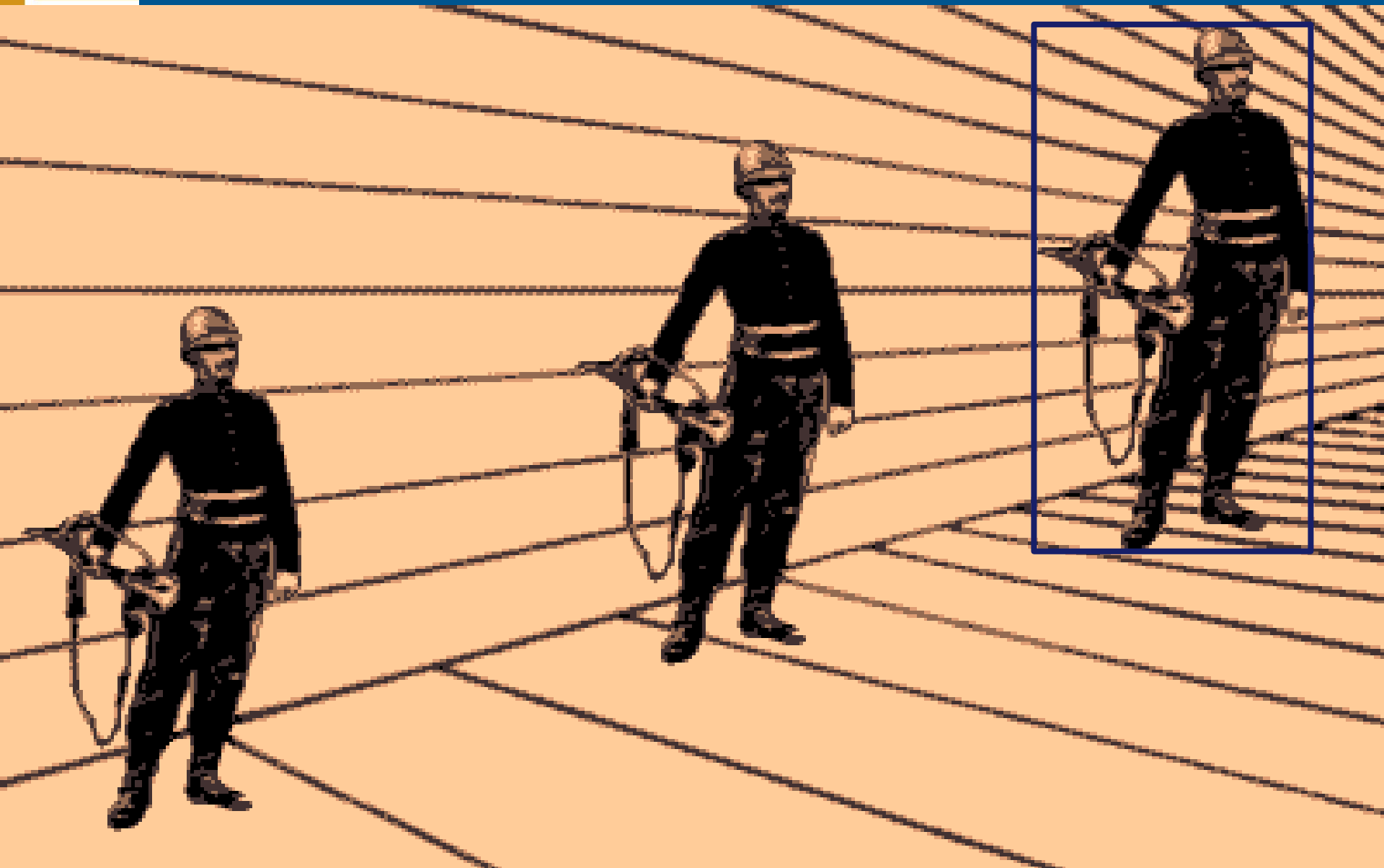


Classic Optical Illusions



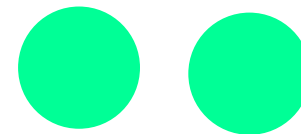
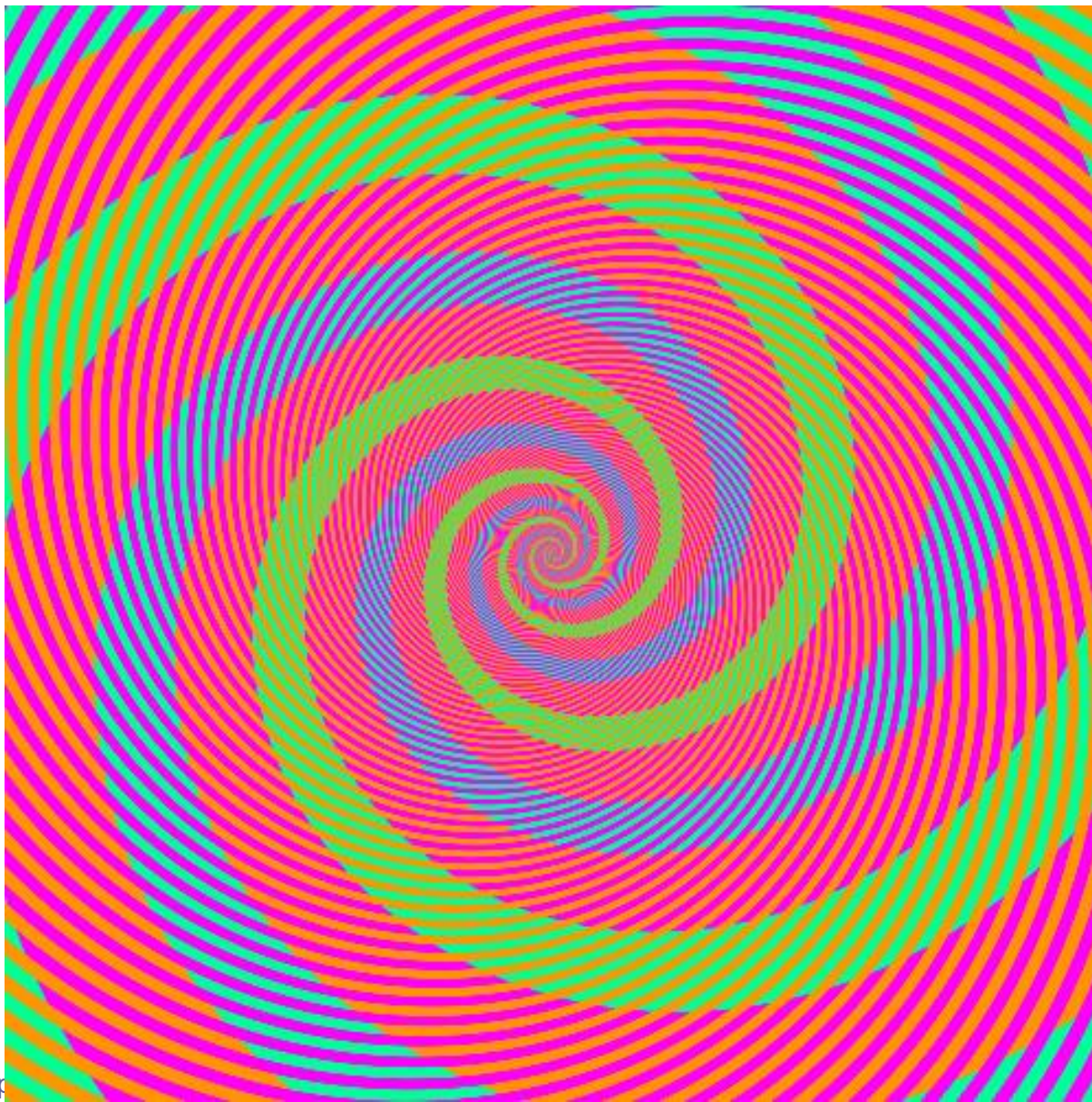


Which Soldier is tallest?



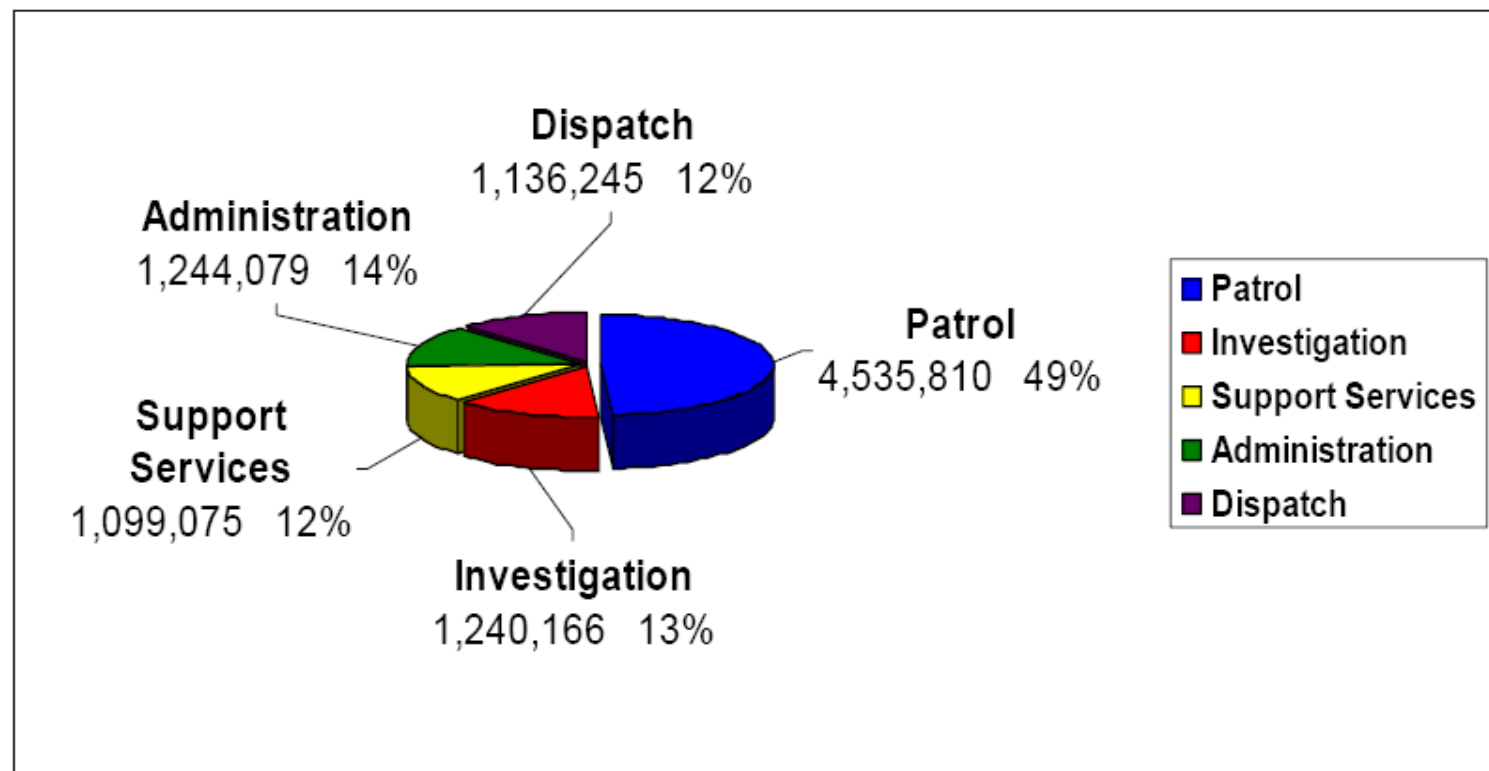


The Spirals are the Same Color

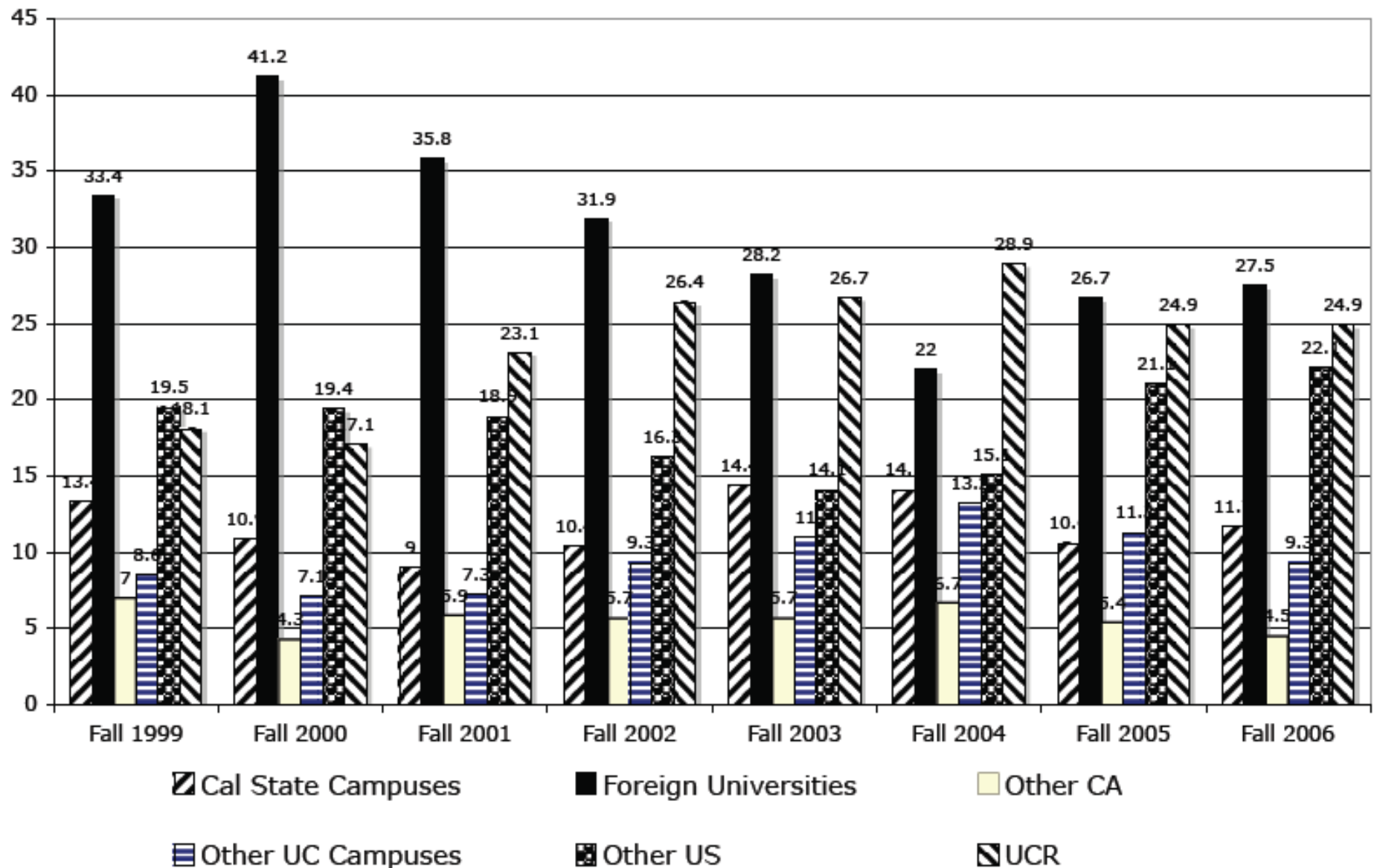


2004 - 2005 Budget

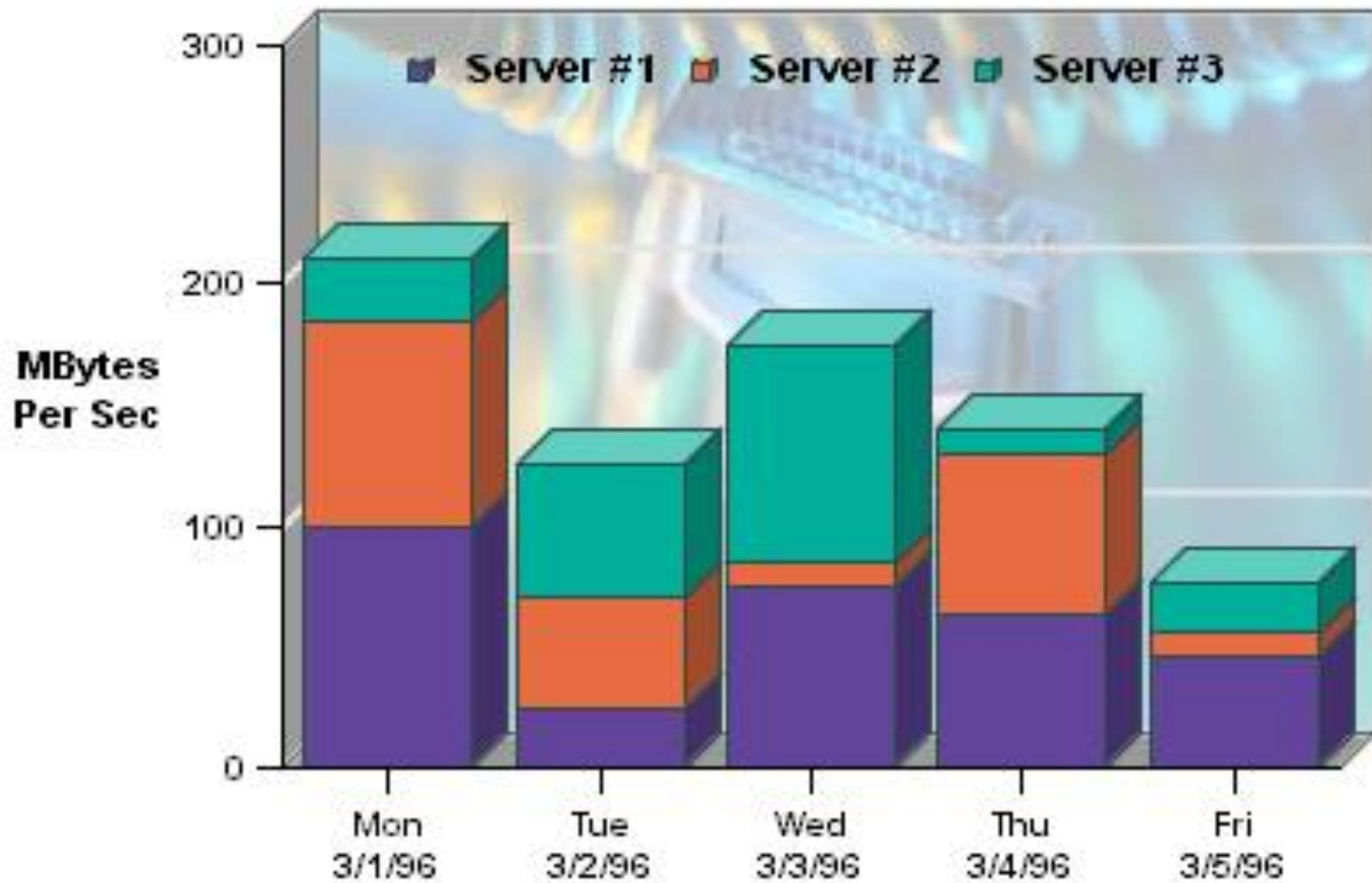
Budget By Division



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



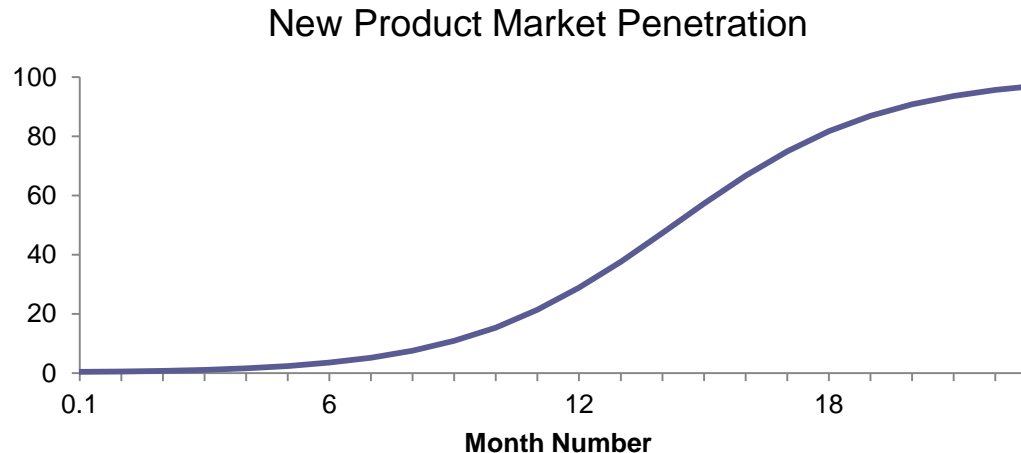
Weekday Server Load





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

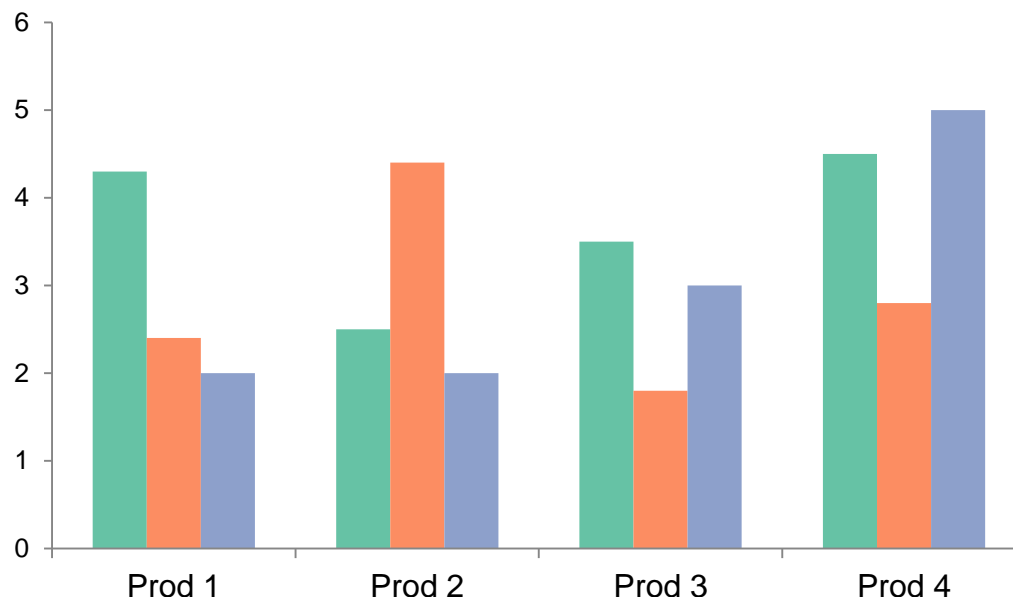


Keys to Effective Graphs

- 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.



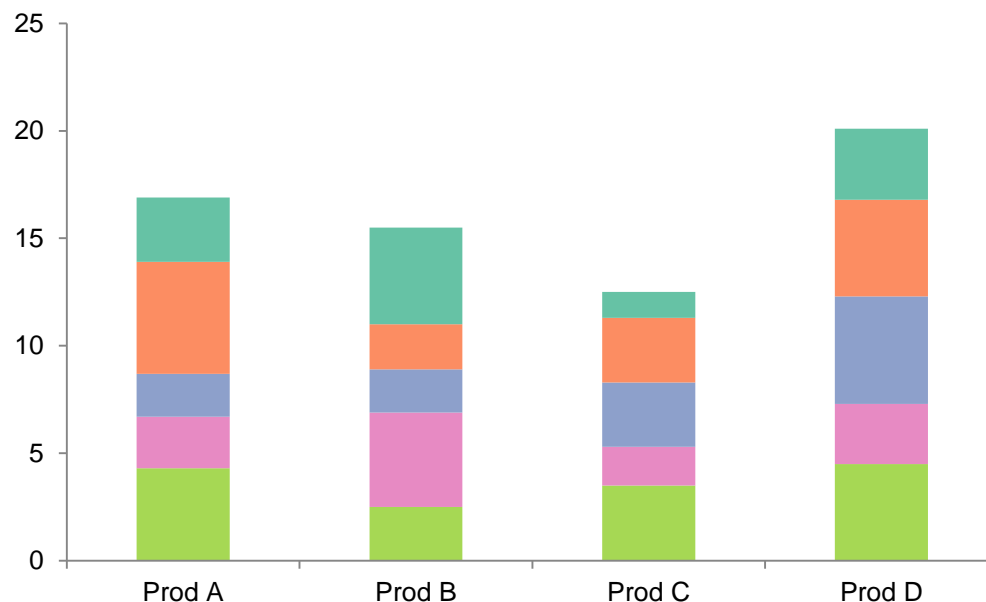
Bar Charts



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



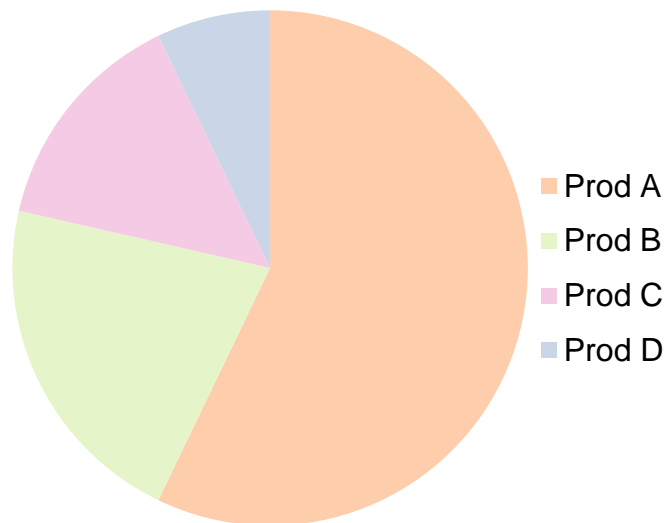
Stacked Bar Chart



- 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.



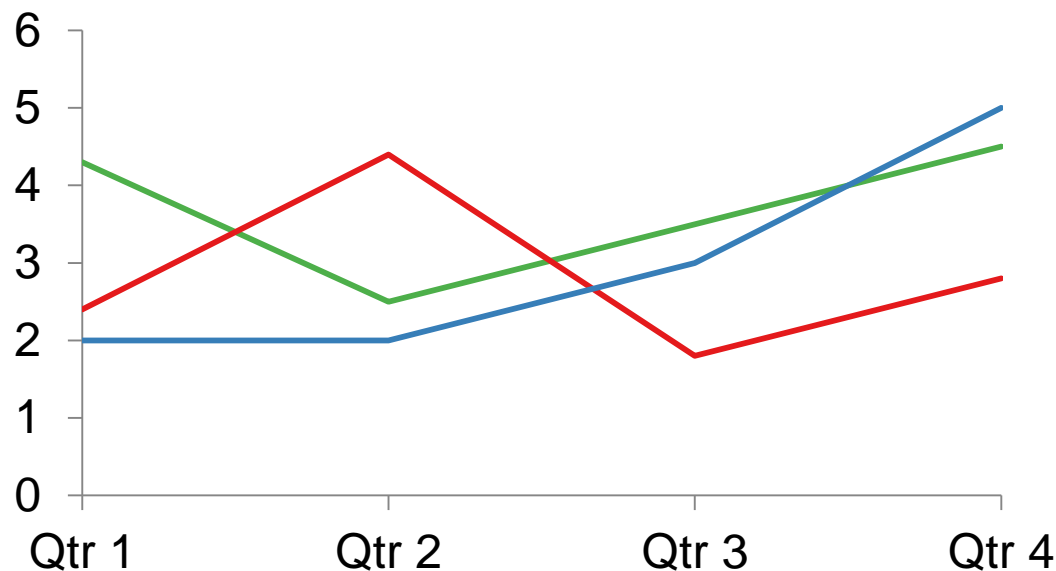
Pie Charts



- 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.



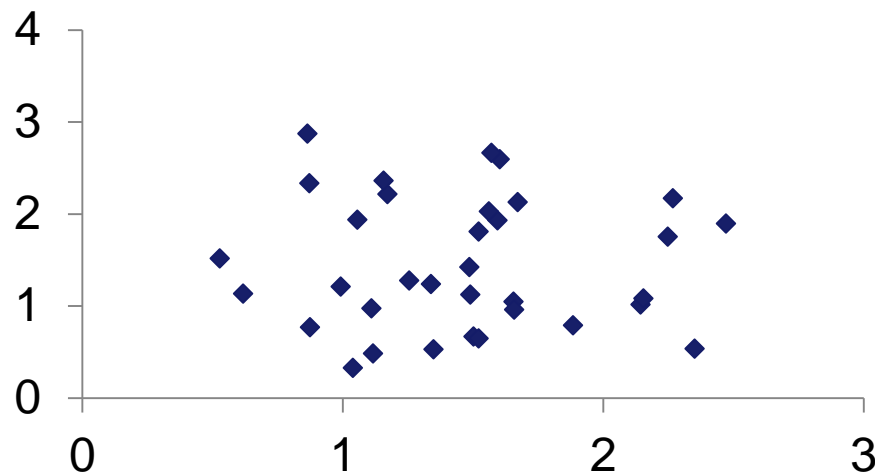
Line Chart



- 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.



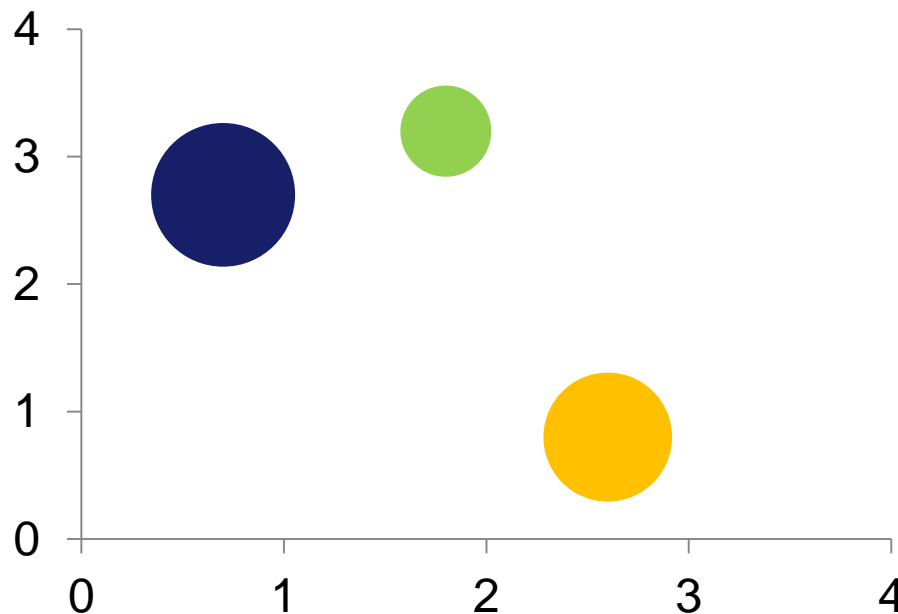
Scatter Plot



- 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

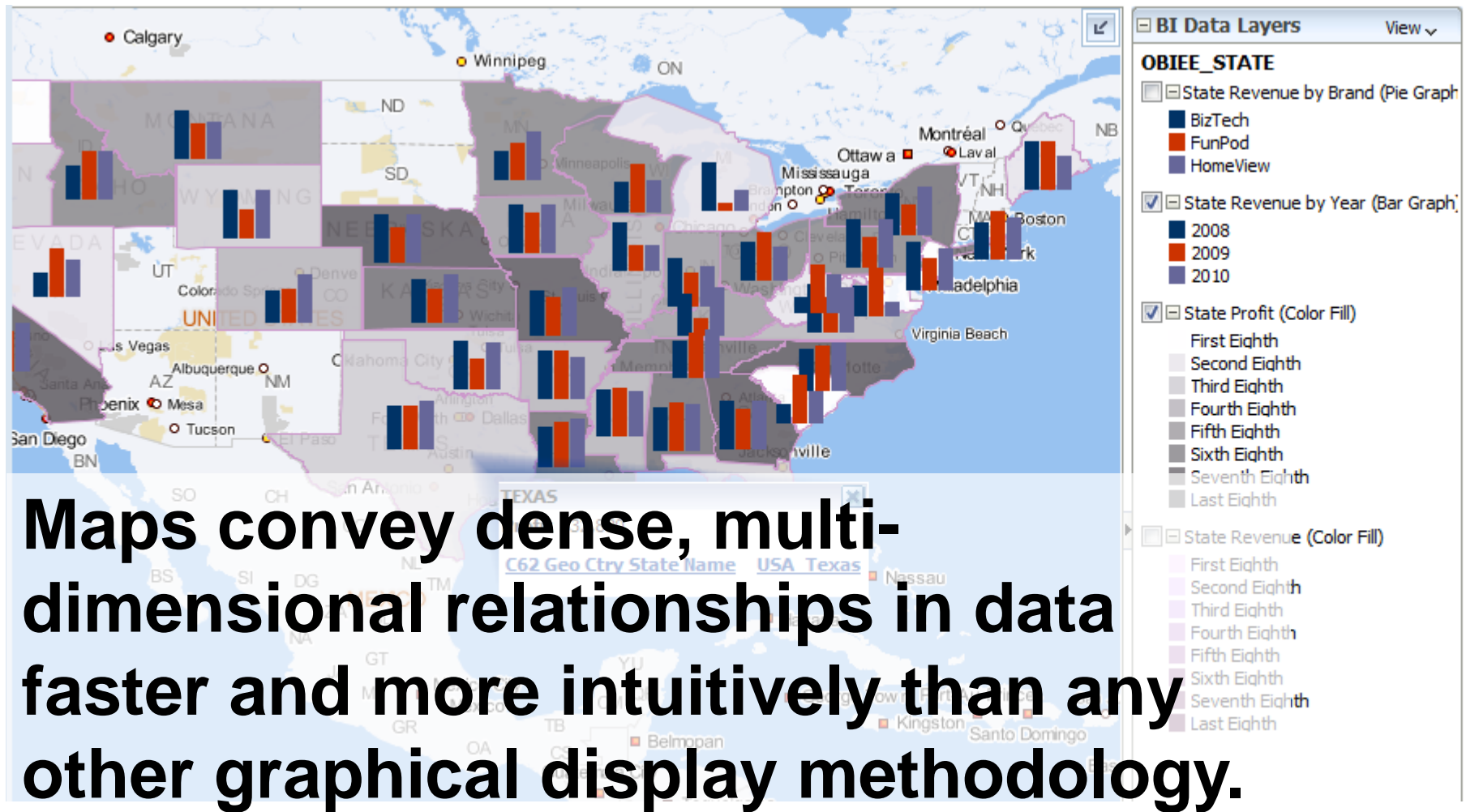


Maps

- 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*)

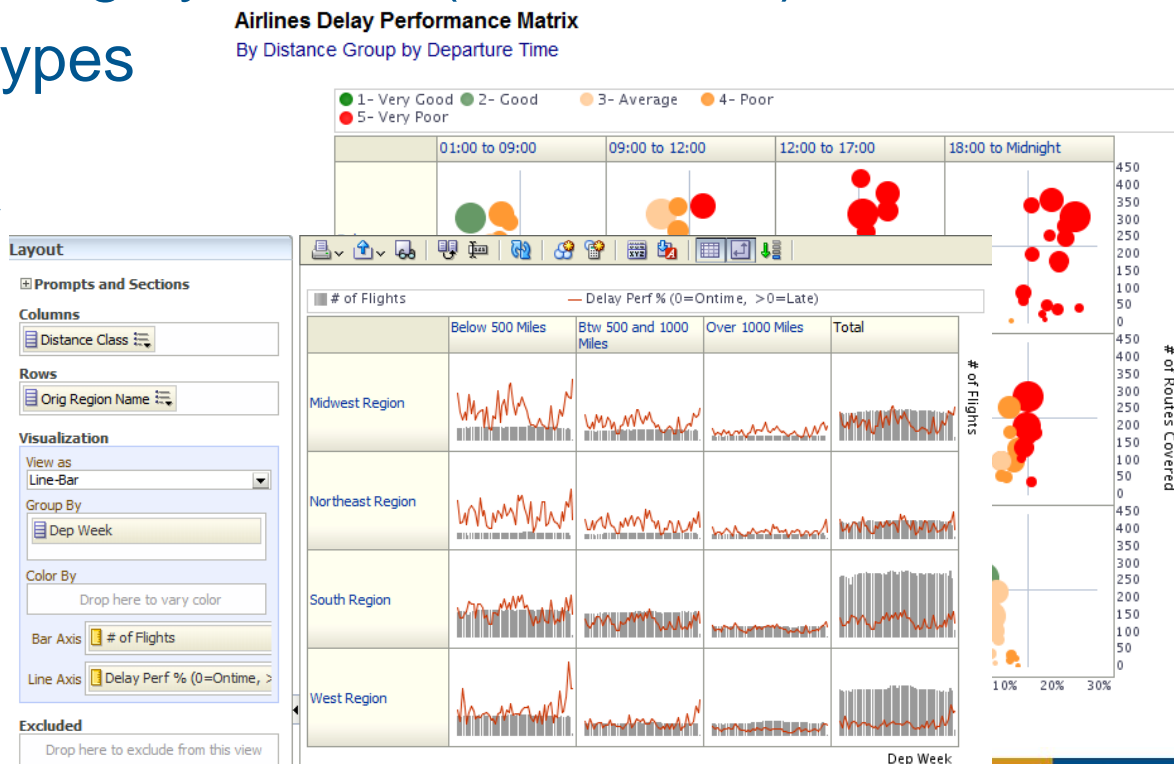




Trellis View - Simple

- 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

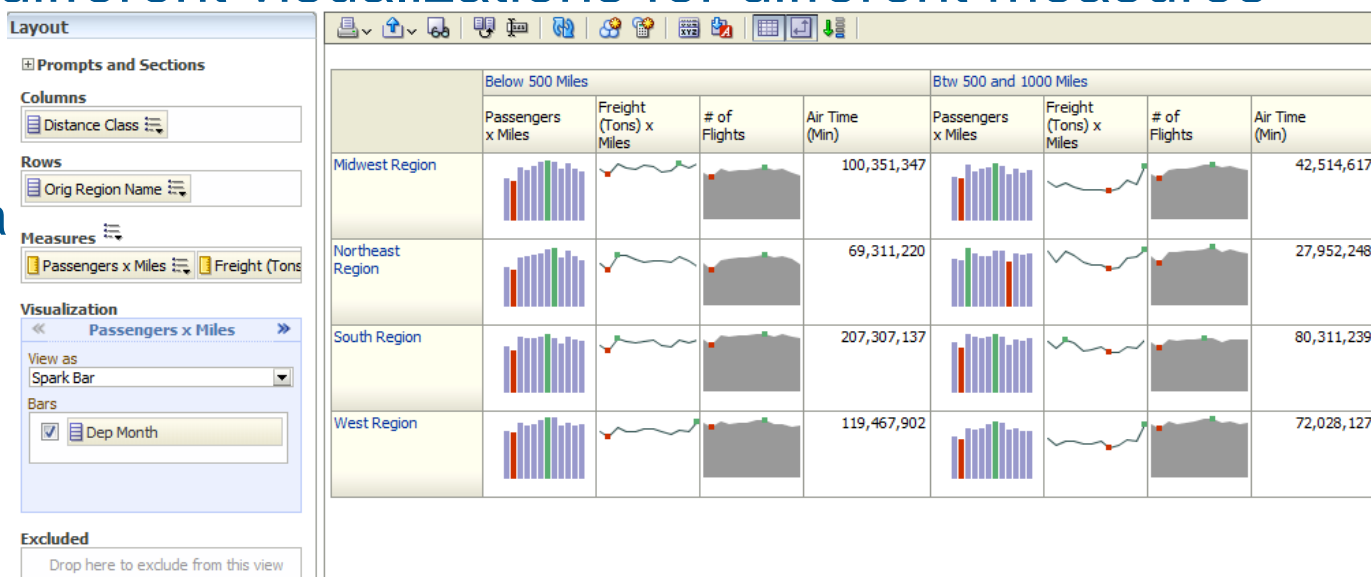




Trellis View - Advanced

- 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



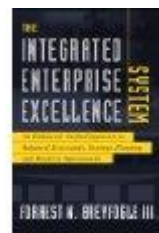
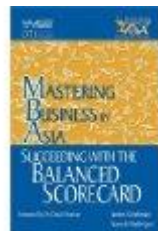
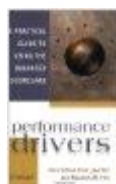
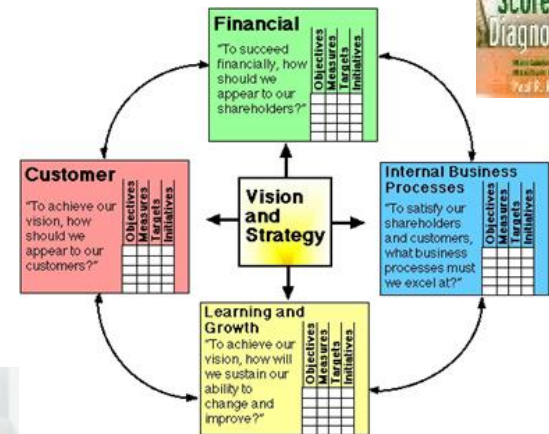
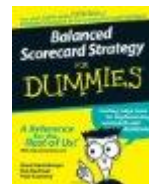
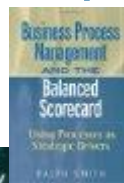
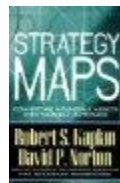
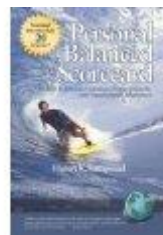
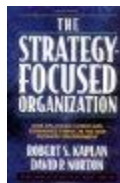
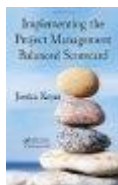
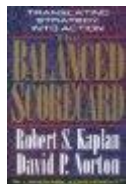
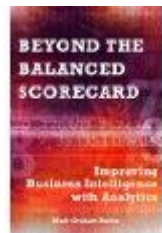
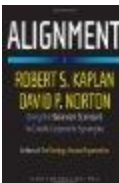


New Trellis Views

- 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

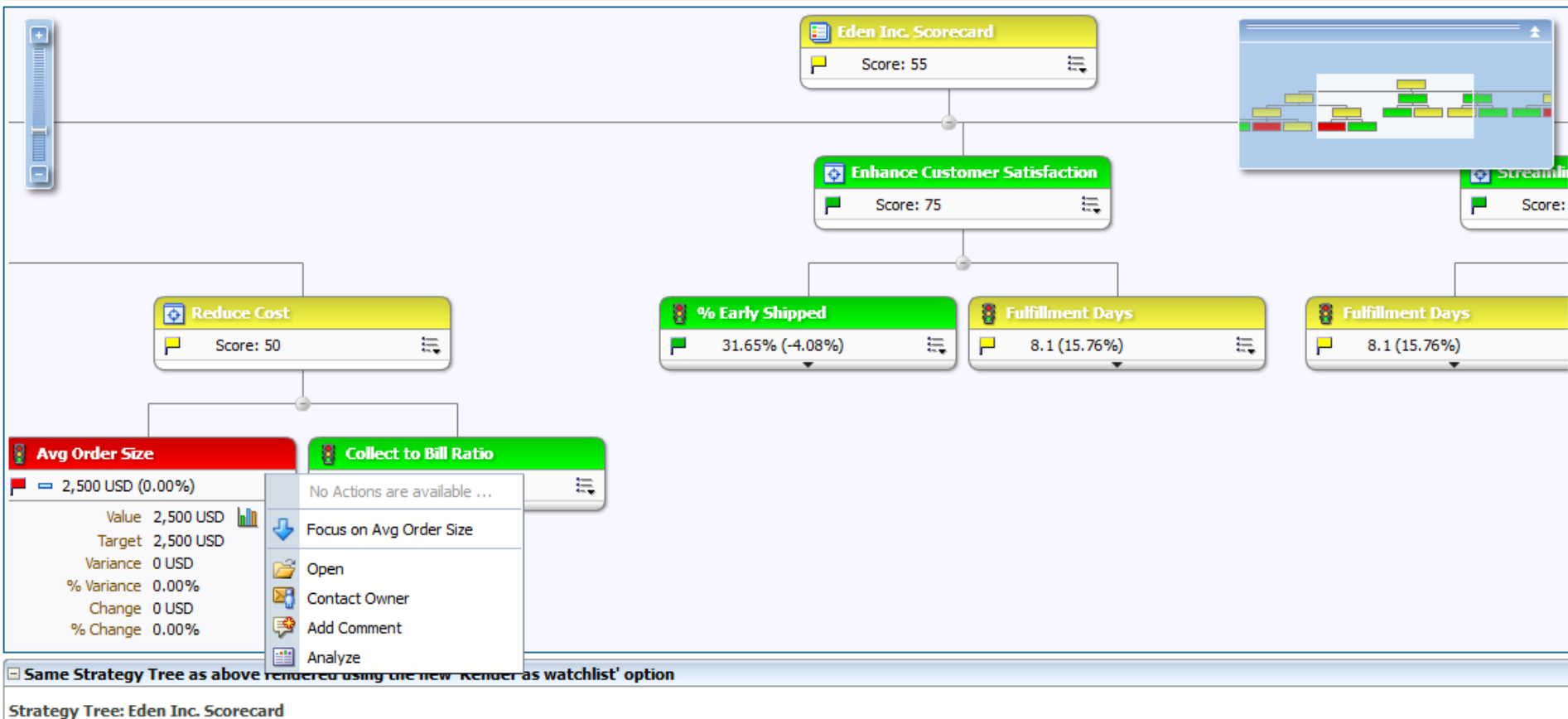
KPI WatchList

Custom View

Prompt Example

Strategy Tree

[Return to Main Index page](#)



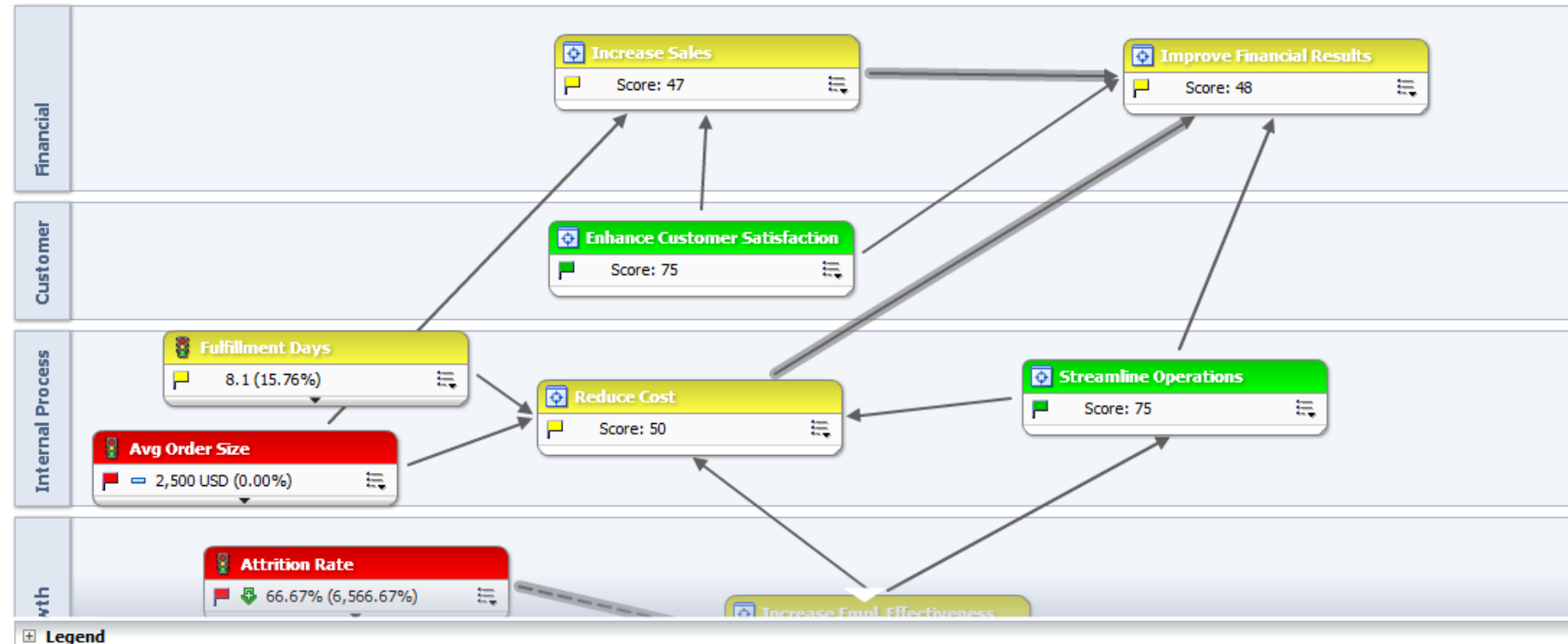


Strategy Map View

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

Strategy Map

[Return to Main Index page](#)



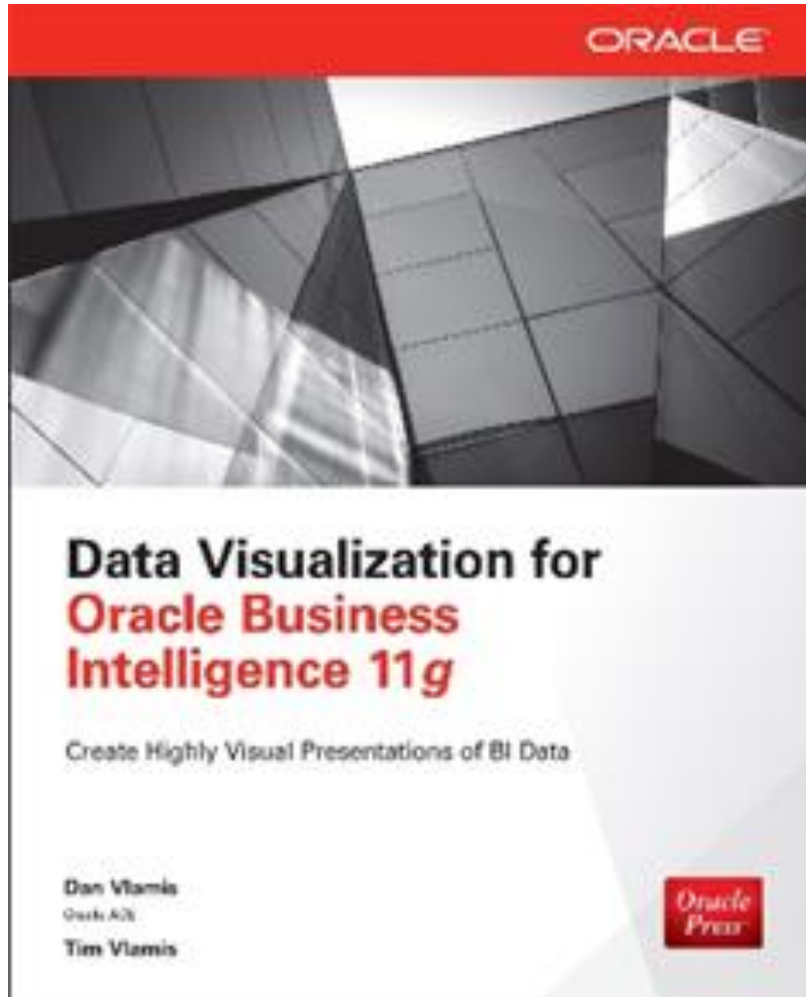


General Advice

- 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.vlami.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





Thank You!

Thank You for Attending Session
Data Visualization for OBI 11g

Presenter Information:

Dan Vlami, President

Tim Vlami, Consultant

Vlami Software Solutions, Inc.

816-781-2880

dvlami@vlami.com

tvami@vlami.com

For more information go to www.vlami.com