



Data Visualization for Oracle BI 12c and Visual Analyzer

Tim VlamiS

Wednesday, May 17, 2017

Great Lakes Oracle Conference

[@VlamiSoftware](#)

VlamiS Software Solutions

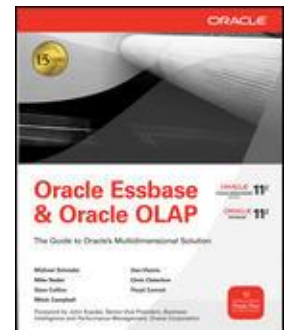
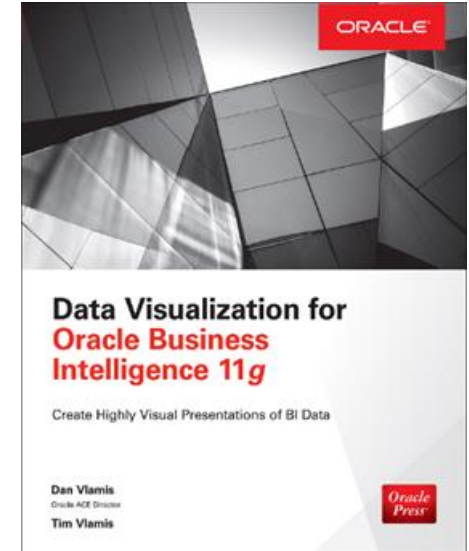
- VlamiS Software founded in 1992 in Kansas City, Missouri
- Developed 200+ Oracle BI and analytics systems
- Specializes in Oracle-based:
 - Enterprise Business Intelligence
 - Data Warehousing
 - Data Mining and Predictive Analytics
 - Data Visualization
- Multiple Oracle ACEs, consultants average 15+ years
- www.vlamiS.com (blog, papers, newsletters, services)
- Co-authors of book “Data Visualization for OBI 11g”
- Co-author of book “Oracle Essbase & Oracle OLAP”
- Oracle University Partner
- Oracle Gold Partner

 EDUCATION RESELLER

 APPROVED
EDUCATION CENTER

 Gold
Partner

Specialized
Oracle Business Intelligence
Foundation Suite 11g





Tim Vlamis Background

Tim Vlamis – Vice President & Analytics Strategist

- 30+ years in business modeling and valuation, forecasting, and scenario analyses
- Oracle ACE 
- Instructor for Oracle University's Data Mining Techniques and Oracle R Enterprise Essentials Courses
- Professional Certified Marketer (PCM) from AMA
- MBA Kellogg School of Management (Northwestern University)
- BA Economics Yale University



Agenda

- BI Exploring vs Explanation
- Understanding the foundations of data discovery
- Discovery scenarios
- Discovery frameworks
- Using Visual Analyzer to discover data insights

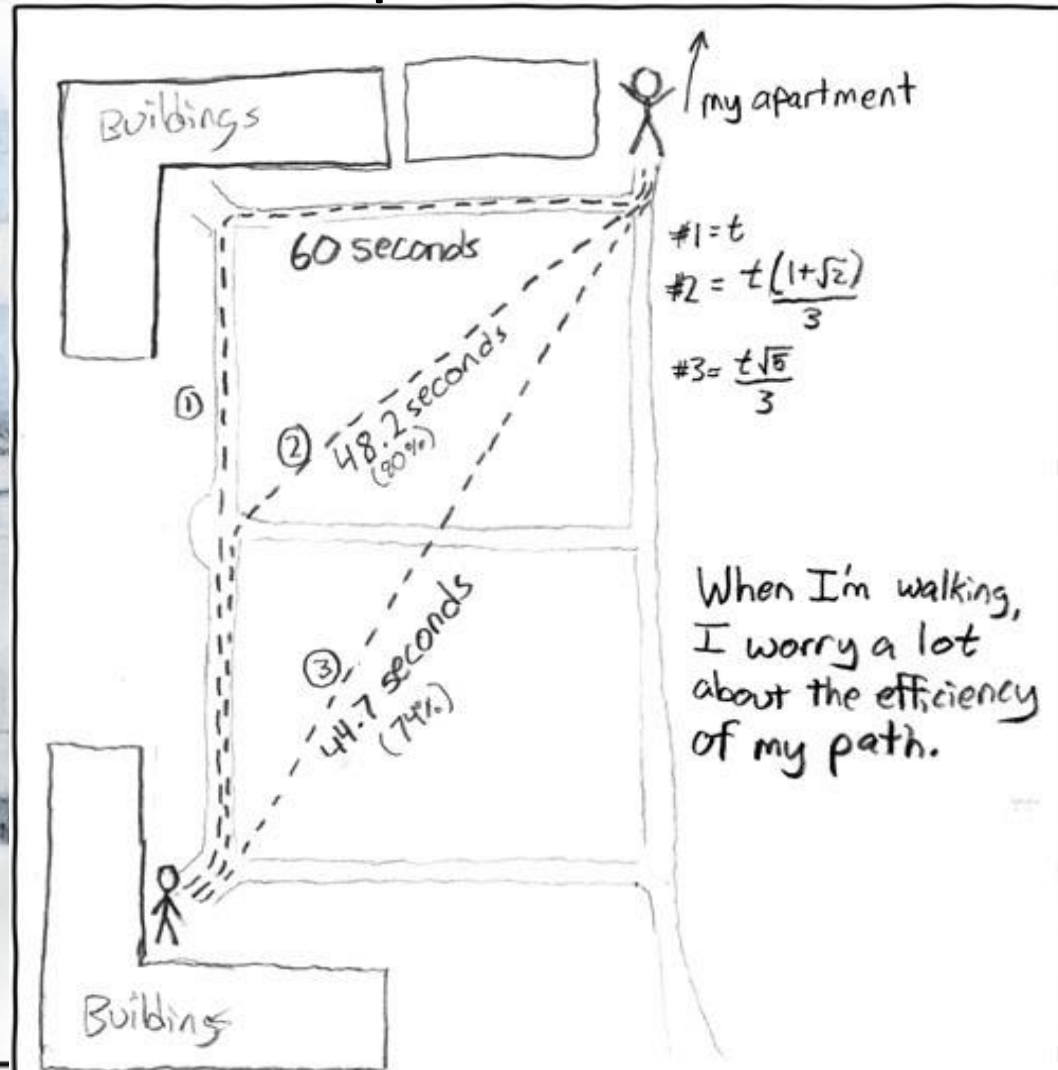


Main Uses of BI Systems

Exploration



Explanation



Many BI Systems Can Create Beautiful Results



**OBI Operates at
a Different Scale**



A rich, detailed still life composition of various kitchen ingredients and tools. In the foreground, there's a large bowl of leeks and celery, a pile of small potatoes, green and red bell peppers, and a bowl of yellow lentils. To the right, a basket holds a pineapple, several oranges, and a bottle of wine. In the background, a wooden wine rack holds several bottles, and a string of garlic hangs from a metal frame. Two copper pots hang from the frame, and a brass scale is visible on the left. The scene is set against a backdrop of autumn leaves and greenery, creating a warm, rustic atmosphere.

Ingredients → Data Quality & Variety

Technique → Data Processing & Prep



Presentation → Data Visualization



The Principles of Human Cognition Should Guide BI Visualization Design



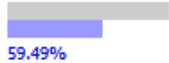


All flights: 6,235,242
Report : 3,709,454

Delay Performance by Geography

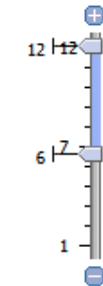
Key Metrics and Associated Delays

% of All Rows :



* Month

Between



Origin Airport

--Select Value--

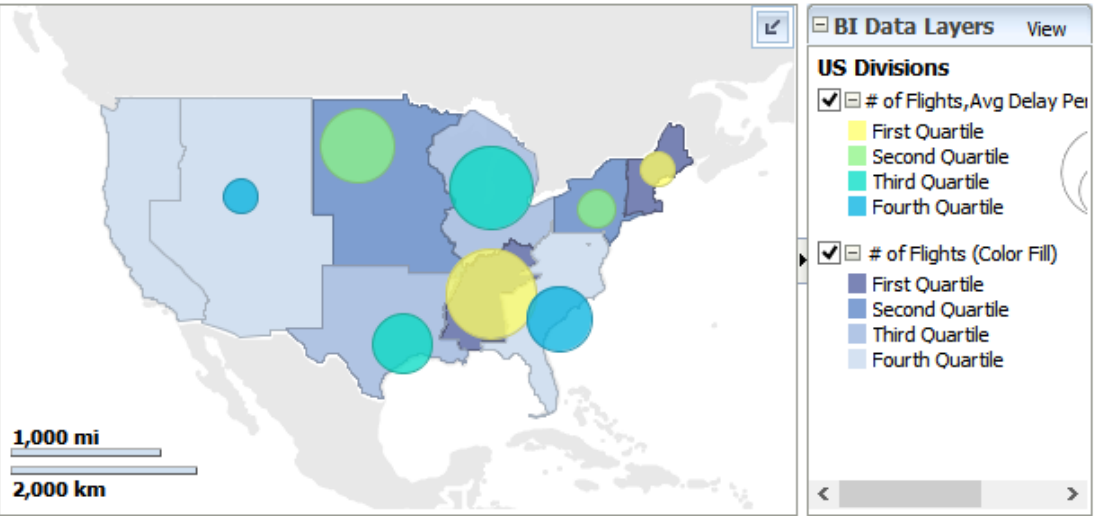
Carrier

--Select Value--

Dest Region

- ☐ Midwest Region
- ☐ Northeast Region
- ☐ South Region
- ☐ West Region

Orig Airport	# of Flights	% of Total	Passenger - Miles (M)	Delay Perf %
All Orig Airports	3,709,454	100.0%	328,034	9.1%
Midwest Region	691,998	18.7%	48,525	10.8%
East North Central Division	491,158	13.2%	33,998	10.9%
West North Central Division	200,840	5.4%	14,527	10.4%
Northeast Region	423,226	11.4%	44,389	8.2%
South Region	1,492,575	40.2%	107,799	9.9%
East South Central Division	177,198	4.8%	7,199	11.3%
South Atlantic Division	821,345	22.1%	67,067	9.8%
West South Central Division	494,032	13.3%	33,533	9.5%
West Region	1,101,655	29.7%	122,759	7.6%

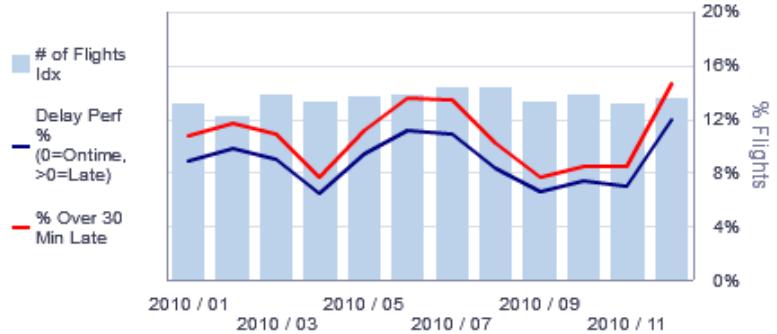


Late Flight Trends

By Time and Performance % Thresholds

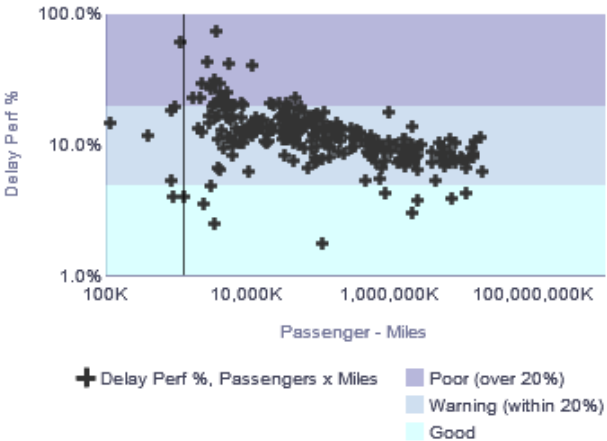


Pct of Scheduled Flights



Orig Airport: All Orig Airports

Delay % by Passenger x Miles





Data Visualization Scenarios

Deliberative
Response



BI Dashboards



Immediate
Response



Individual

Organizational



Discovery - Explore vs Pioneer





True Discovery





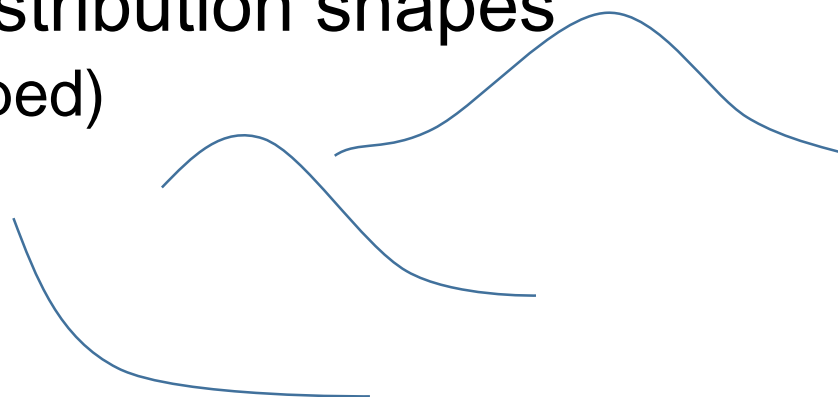
Data Discovery Sequence

- “Skim” the entire data set to get a sense of its size and scope
- “Read” the data set a **second** time more carefully
 - Identify facts/measures
 - Transaction/event records included?
 - Identify major dimensions
- Make a list of potentially important or interesting business issues/implications
- Compare your original business issues with your new list
- Apply useful frameworks
- Transform data and add new data
- Apply useful frameworks



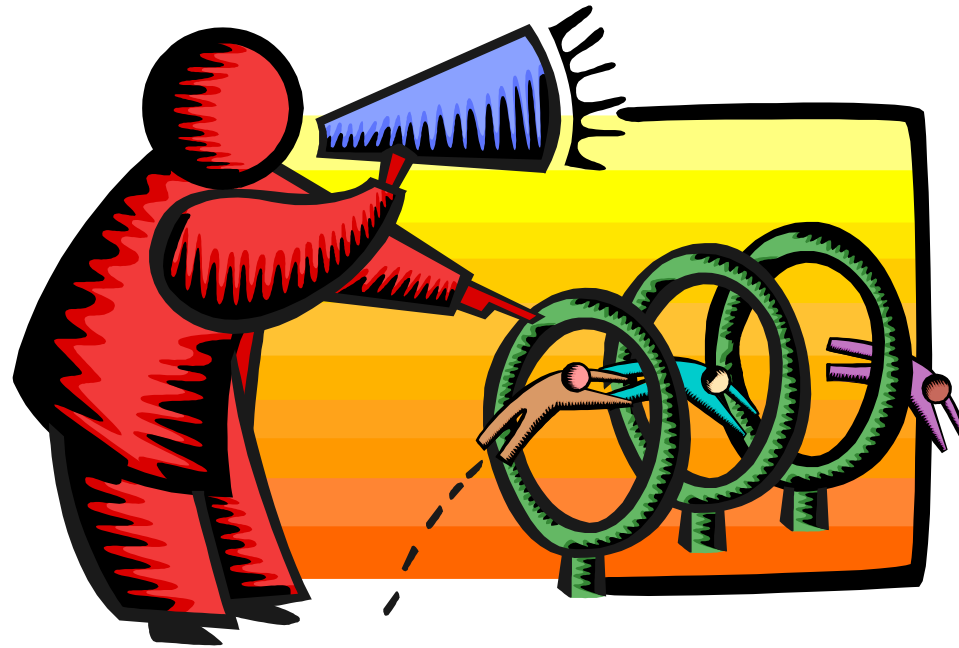
Understanding Measures for Exploration

- Aggregation method is important
- If use average, also add a bucketed measure
- Compute differences
- Understand data's natural distribution shapes
 - Normal distributions (bell shaped)
 - Log-normal distributions
 - Exponential distributions
- Average has strong meaning only for normal distributions
- Outlier identification & treatment are important for non-normal distributions





Demo





An Example Useful Framework

Position Analysis	Performance Analysis	Flow Analysis
static	period of time	period of time
descriptive	results	change in single asset/resource
relative/comparative	fixed vs. variable	sources and uses
balance sheet	P&L	cash flow
strength/weakness	bottom line/zero based	change over time
portrait	motion picture	narrative



Position Analysis



Attributes

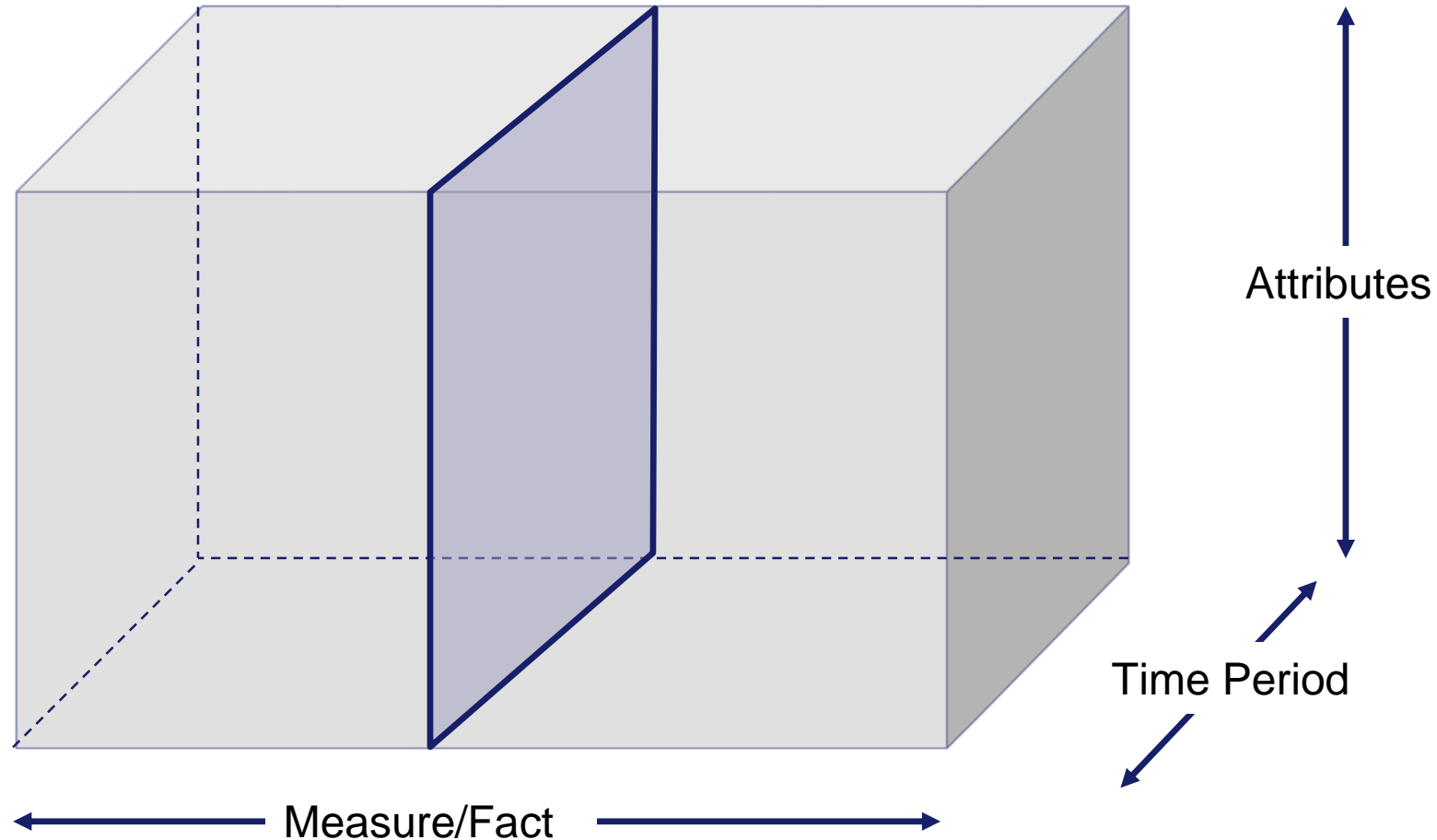
Time Period

Bar Chart
Scatter Plot
Treemap

Measure/Fact



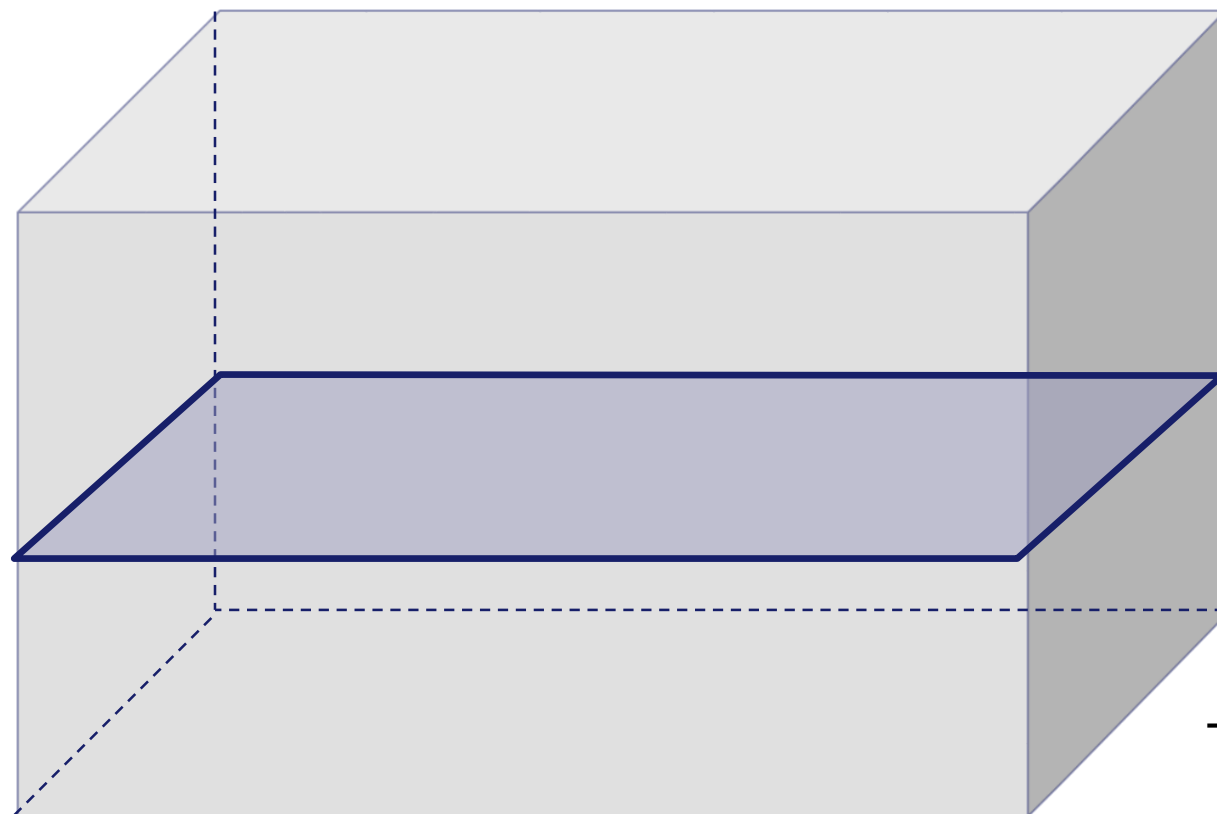
Performance Analysis



Bar Chart
Scatter Plot
Line Chart
Area Chart
Trellis



Flow Analysis



← Measure/Fact →

↑
Attributes
↓

↗
Time Period
↘

Line Chart
Area Chart
Trellis
Waterfall



Well Established Frameworks

- Key Performance Indicator (KPI) Development (business)
- Root cause analysis (science)
- Diagnostic analytics (science)



Dimensional Columns

High number of factors
/
cardinality

Lowest Grain

**Trend/cycle
Correlation
Outlier**

Low number of factors
/
cardinality

Trellis

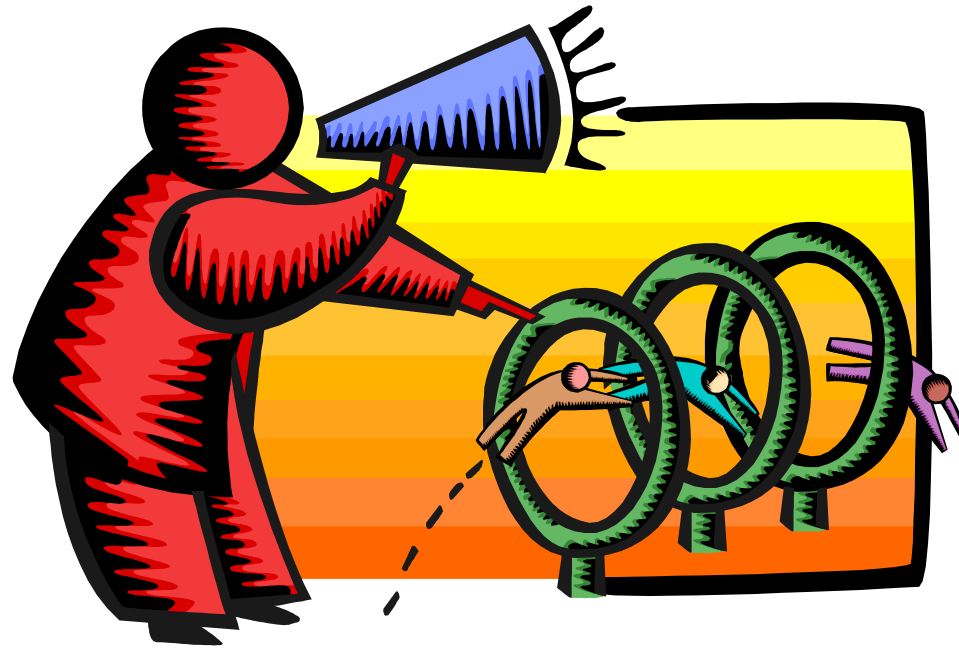
**Comparative
Correlation**

Flat

Shaped



Demo





Keys to Data Discovery

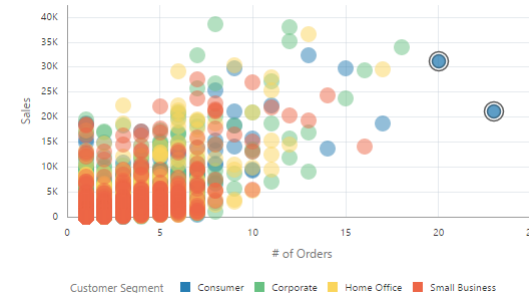
- Identify your main topic of interest with a performance tile
- Summary
- Evaluating a fact or a dimension?
 - Sales analysis
 - Customer or product analysis
- Fact analysis
 - Find lowest grain
 - Flat low distribution
 - Event or transaction
- Look for clustered distribution
 - Scatter with points as event in fact table
 - Set fact on X axis and response variable on Y axis



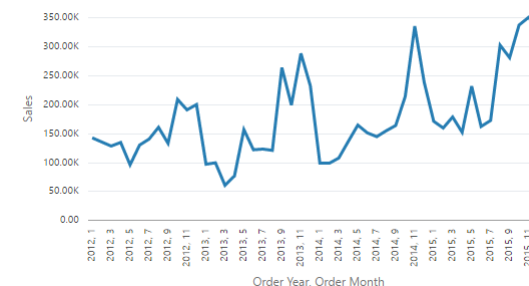
Major Types and Uses of Graphs

- Scatter plot – outlier detection
- Line graph – time based measures. Looking for trends and patterns
- Bar graph – comparison analysis

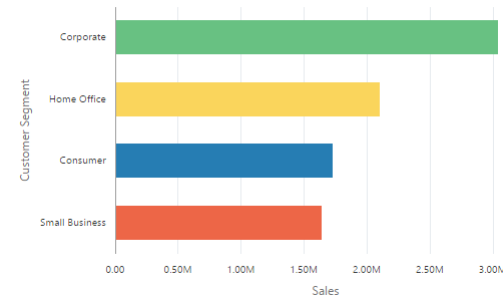
of Orders, Sales by Customer Name, Customer Segment



Sales by Order Year, Order Month



Sales by Customer Segment





Starting with Data Discovery

- Begin either with a specific question or a framework
- Avoid “wandering around”
- Most of your visualizations will not produce new insights
- Move quickly through visualizations
- Be prepared to open a lot of browser tabs



Finding is not Explaining

- Process of interaction has a huge impact on the contextual understanding of an insight
- When someone discovers something, they believe it more
- Human Cognition Biases



Oracle Test Drive

- Free to try Oracle BICS, Oracle Advanced Analytics
- Go to www.vlamis.com/td
- Runs on Oracle Cloud
- Test Drives for:
 - Oracle BICS
 - Oracle Advanced Analytics (initially Oracle Data Mining)
- Once sign up, you can access for 24 hours
- Click by click script included, but can go “off road”
- Faster and easier than official Oracle “trial web account”



Using BICS Test Drive on Oracle Cloud

1. Go to www.vlamiS.com/td

Select the cloud service you wish to try: *

☐ Oracle BI Cloud Service - Visual Analyzer

☐ Oracle Advanced Analytics - Oracle Data Mining

Your Name *

Email Address *

@

This must be your corporate email address. Requests from free mail services such as Gmail will be declined.

Company Name *

Daytime Phone Number *

- -

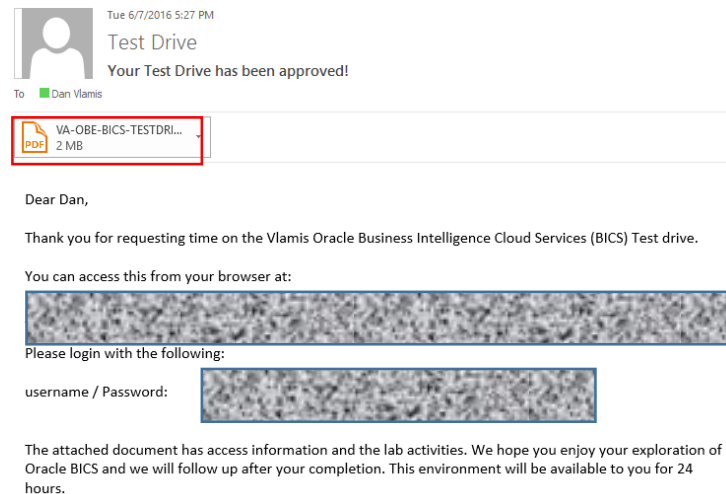
(###) ### ####

US phone number where you can be reached during normal business hours.

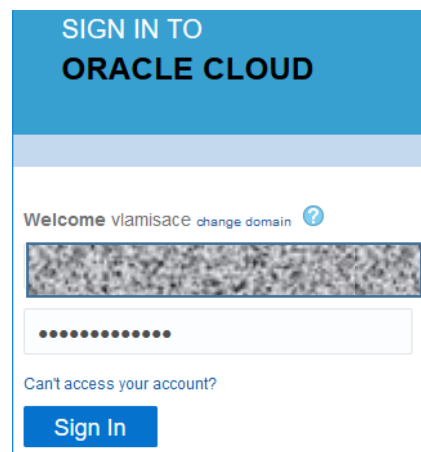
Comments

Submit

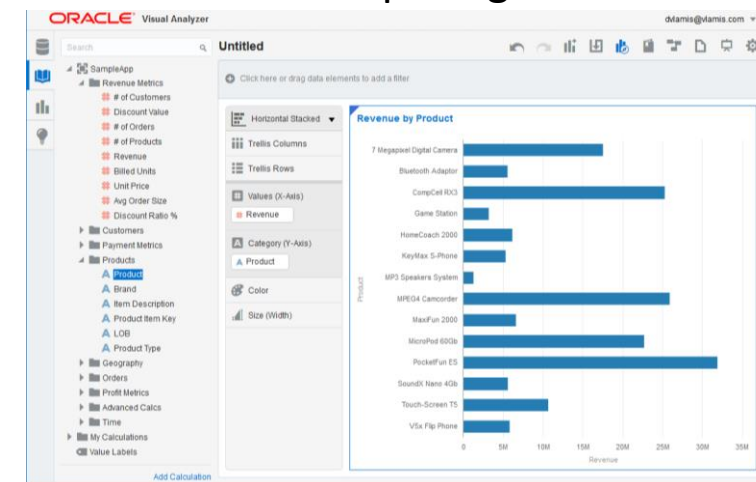
2. We send you email with userid/pw and script



3. Sign into BICS



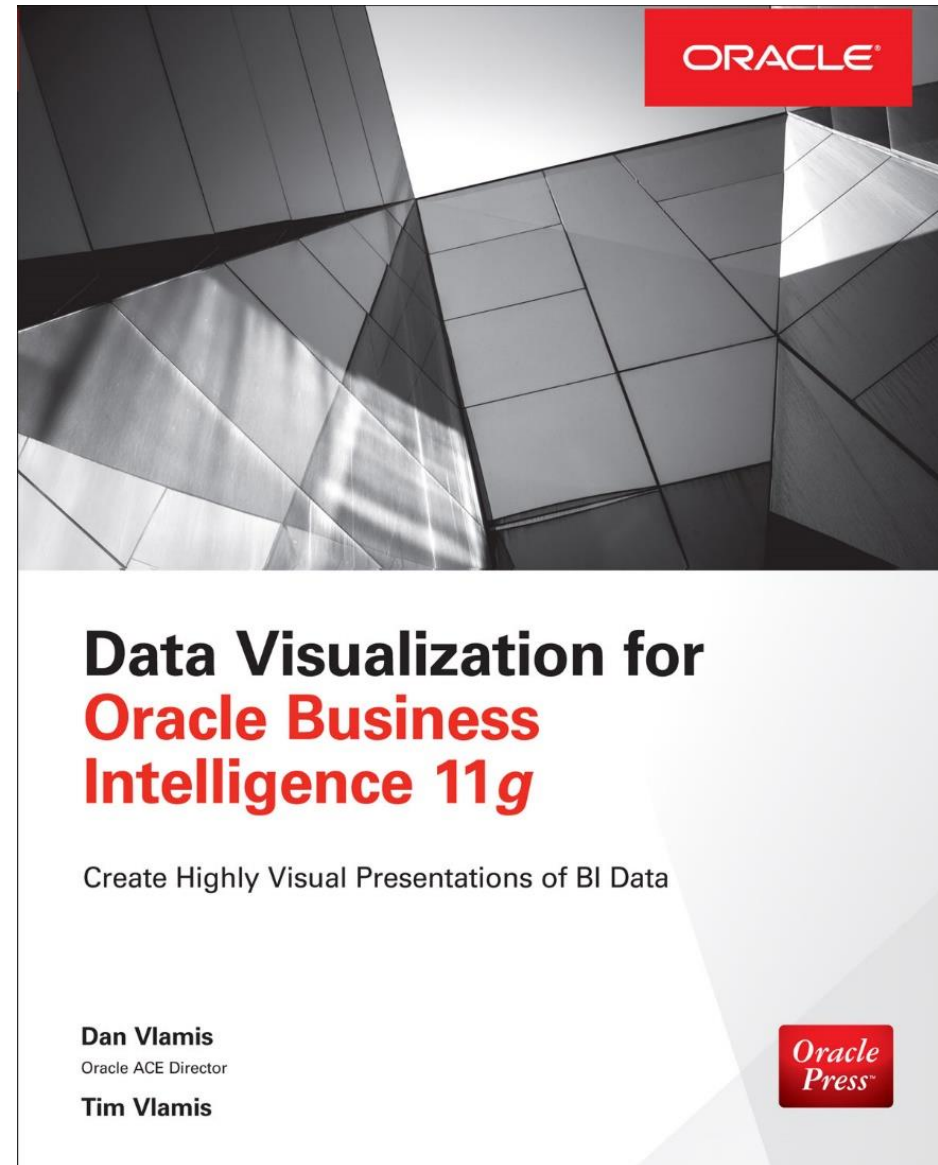
4. Use PDF file script or go off-road!





Drawing for Free Book

Add business card to basket
or fill out card





BIWA SUMMIT 2018 WITH SPATIAL SUMMIT

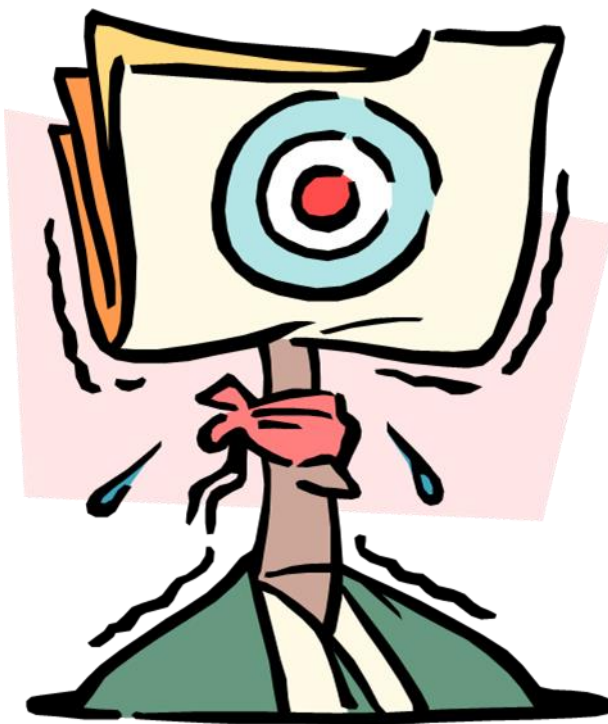
January 30 - February 1, 2018

THE Big Data + Analytics + Spatial + Cloud + IoT + Everything Cool User Conference

www.biwasummit.org



Questions?





Thank You!

Data Visualization Best Practices for Oracle Business Intelligence

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