



Data Visualization for Oracle BI 12c and Visual Analyzer

Dan VlamiS

As given Thursday, February 9, 2017

At RMOUG Training Days

Vlamis Software Solutions

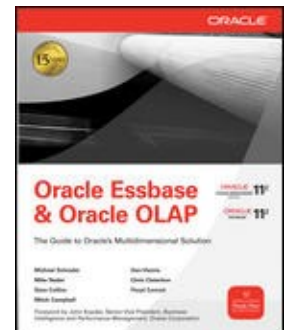
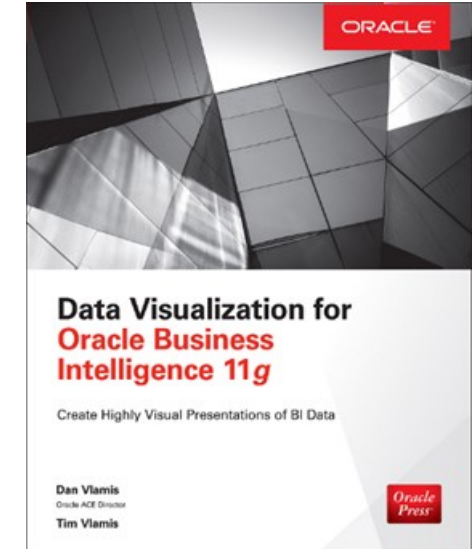
- Vlamis Software founded in 1992 in Kansas City, Missouri
- Developed 200+ Oracle BI and analytics systems
- Specializes in Oracle-based:
 - Enterprise Business Intelligence
 - Data Warehousing
 - Data Mining and Predictive Analytics
 - Data Visualization
- Multiple Oracle ACEs, consultants average 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






Dan Vlami and Tim Vlami

Dan Vlami – President

- Founded Vlami Software Solutions in 1992
- 30+ years in business intelligence, dimensional modeling
- Oracle ACE Director 
- Developer for IRI (expert in Oracle OLAP and related)
- BIWA Board Member since 2008
- BA Computer Science Brown University

Tim Vlami – 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

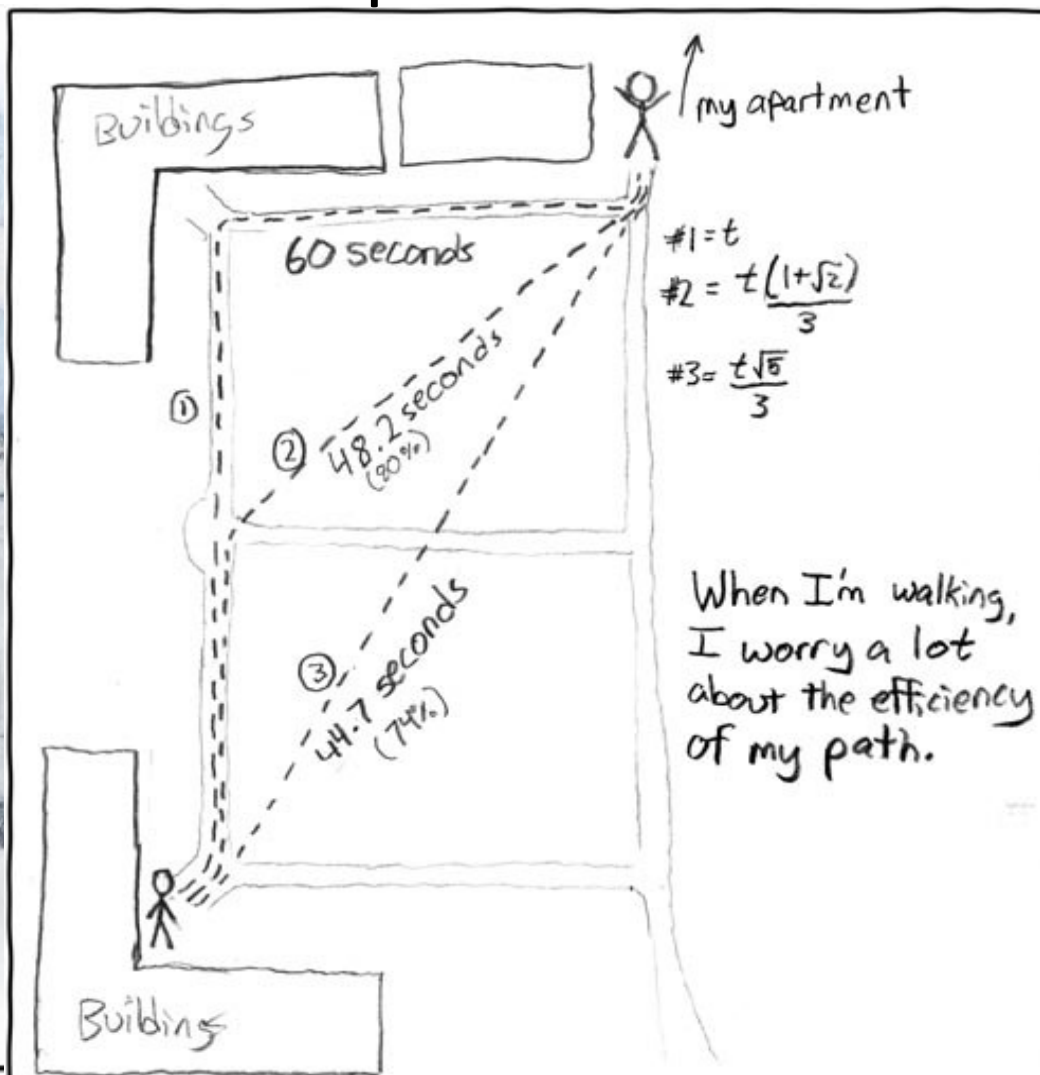


Main Uses of BI Systems

Exploration



Explanation



Many BI Systems Can Create Beautiful Results



**OBI Operates at
a Different Scale**



A rich, detailed still life composition featuring a variety of fresh ingredients and kitchenware. In the foreground, there are leeks, celery, green beans, a whole melon, and several jars of spices. To the right, a wooden crate holds bottles of wine or beer, and a pineapple sits next to a large green cucumber. In the background, two copper pots hang from a brass scale, and a wooden lattice structure holds more bottles. 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

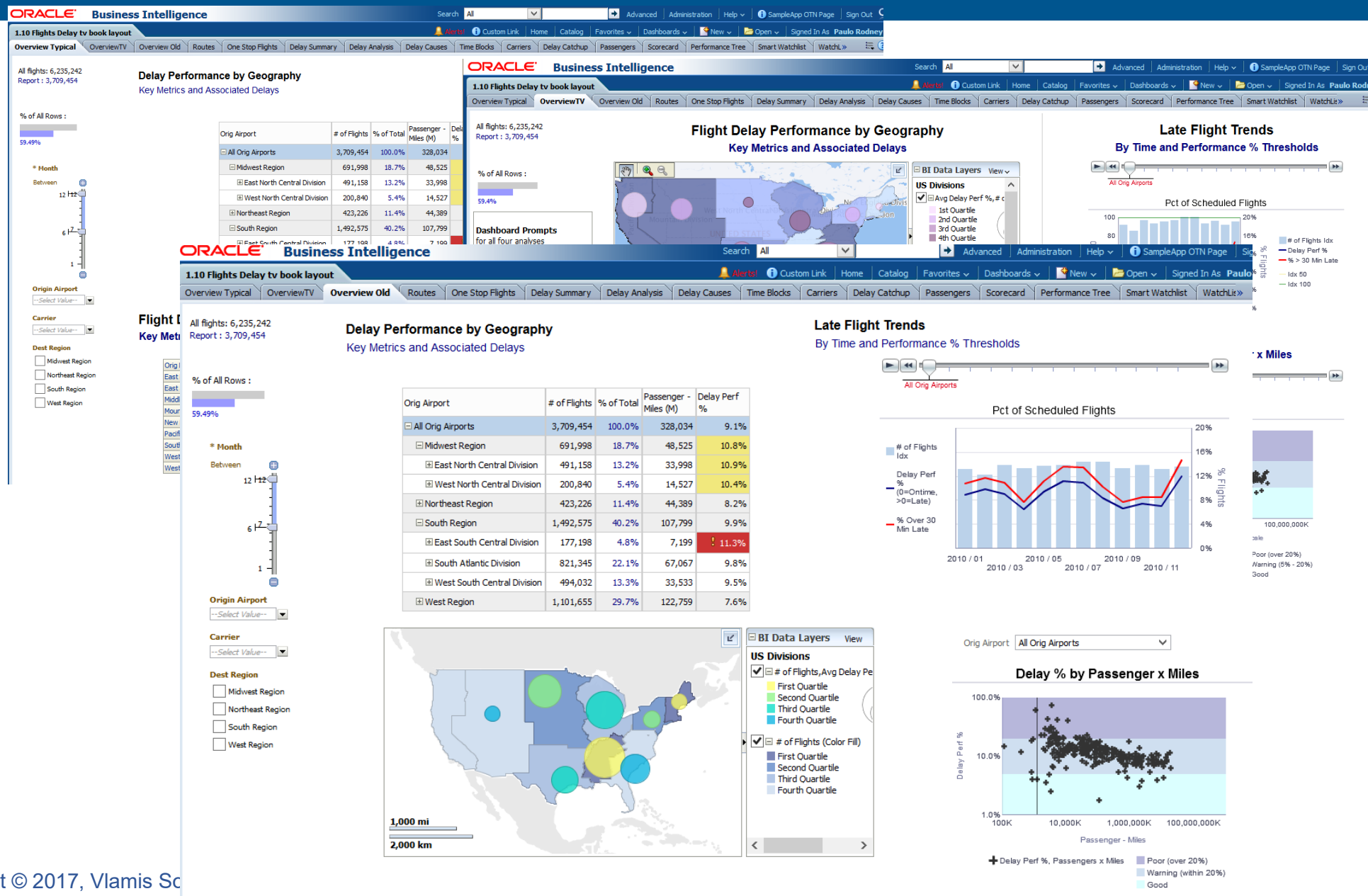


The Principles of Human Cognition Should Guide BI Visualization Design





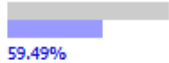
OBIEE Demo Content from Chap 1



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

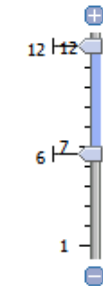
Delay Performance by Geography
Key Metrics and Associated Delays

% of All Rows :



* Month

Between



Origin Airport

--Select Value--

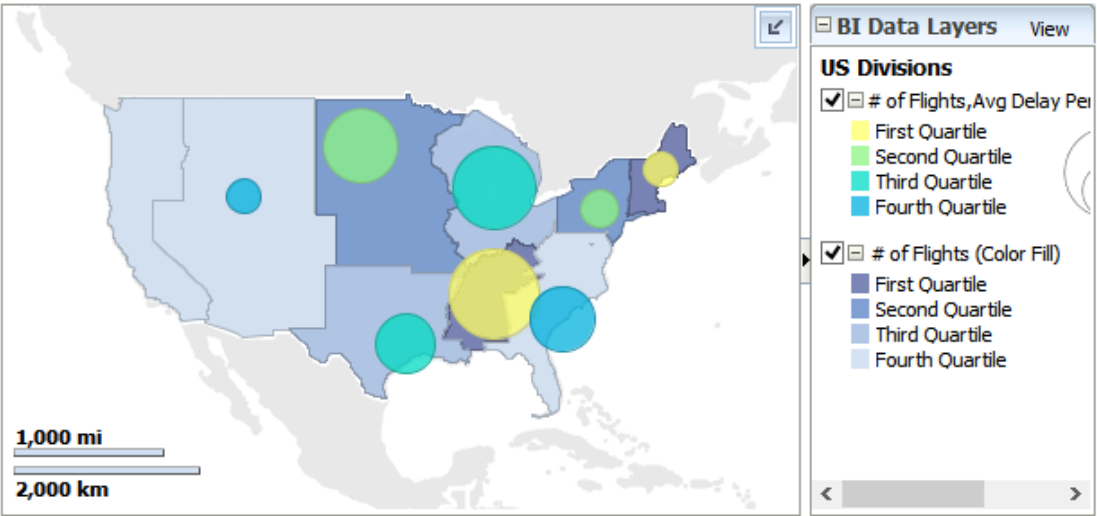
Carrier

--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% |

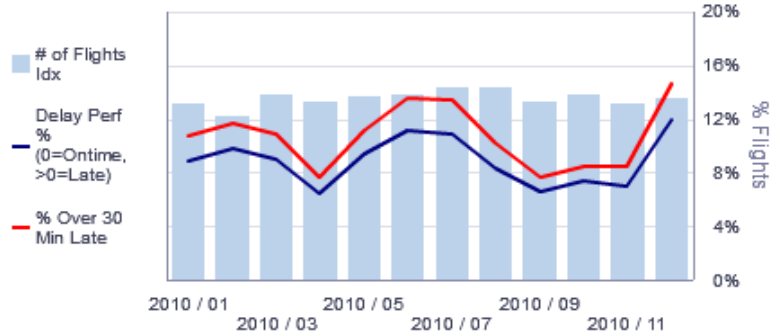


Late Flight Trends

By Time and Performance % Thresholds

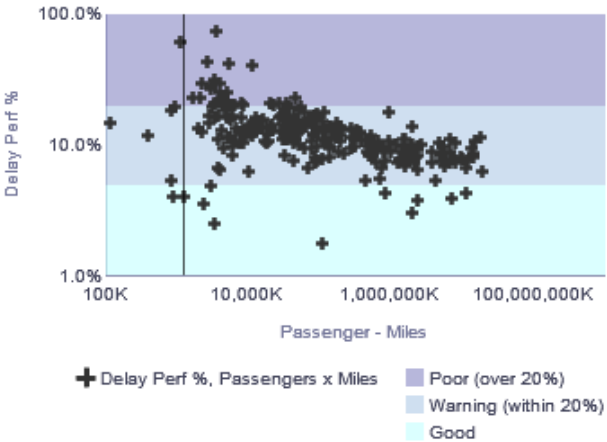


Pct of Scheduled Flights



Orig Airport: All Orig Airports

Delay % by Passenger x Miles





Data Visualization Scenarios

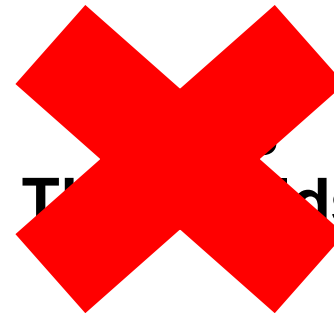
Deliberative
Response



BI Dashboards



Immediate
Response



Individual

Organizational



Discovery - Explore vs Pioneer





True Discovery





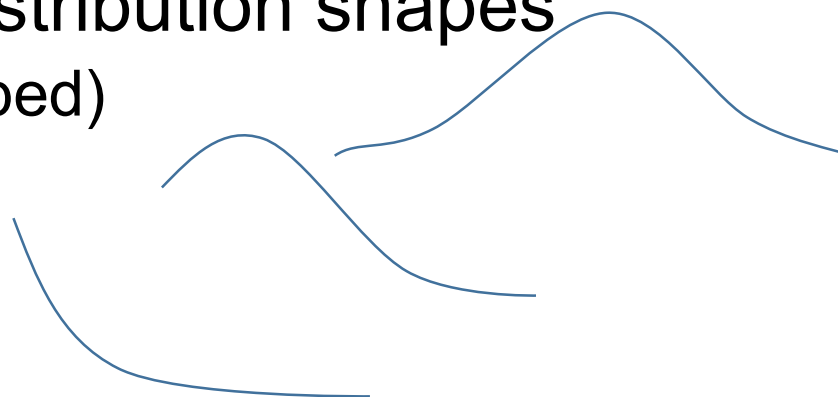
Data Discovery Sequence

- “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



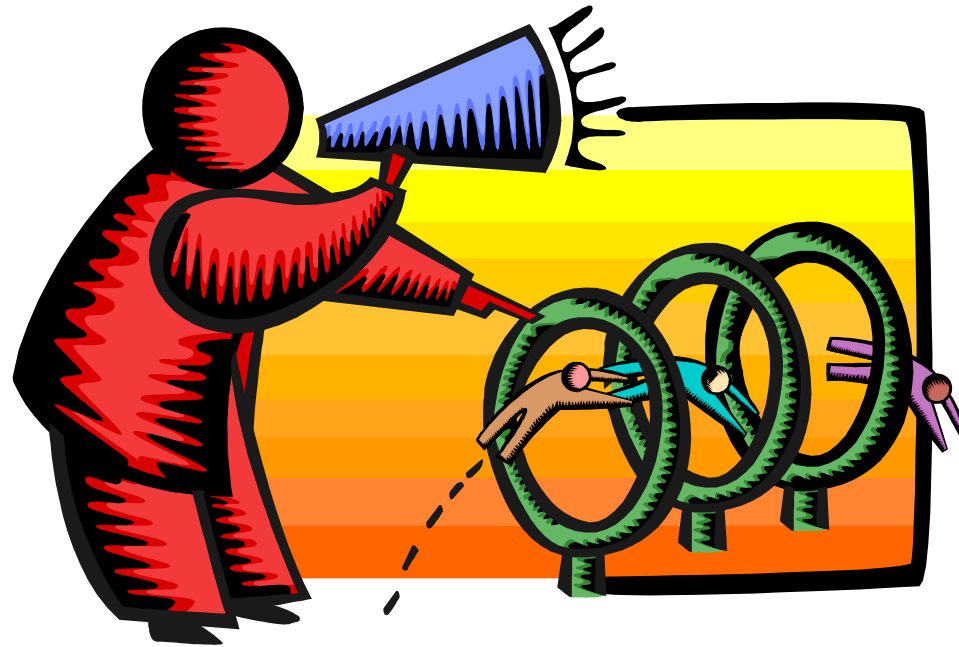
Understanding Measures for Exploration

- 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



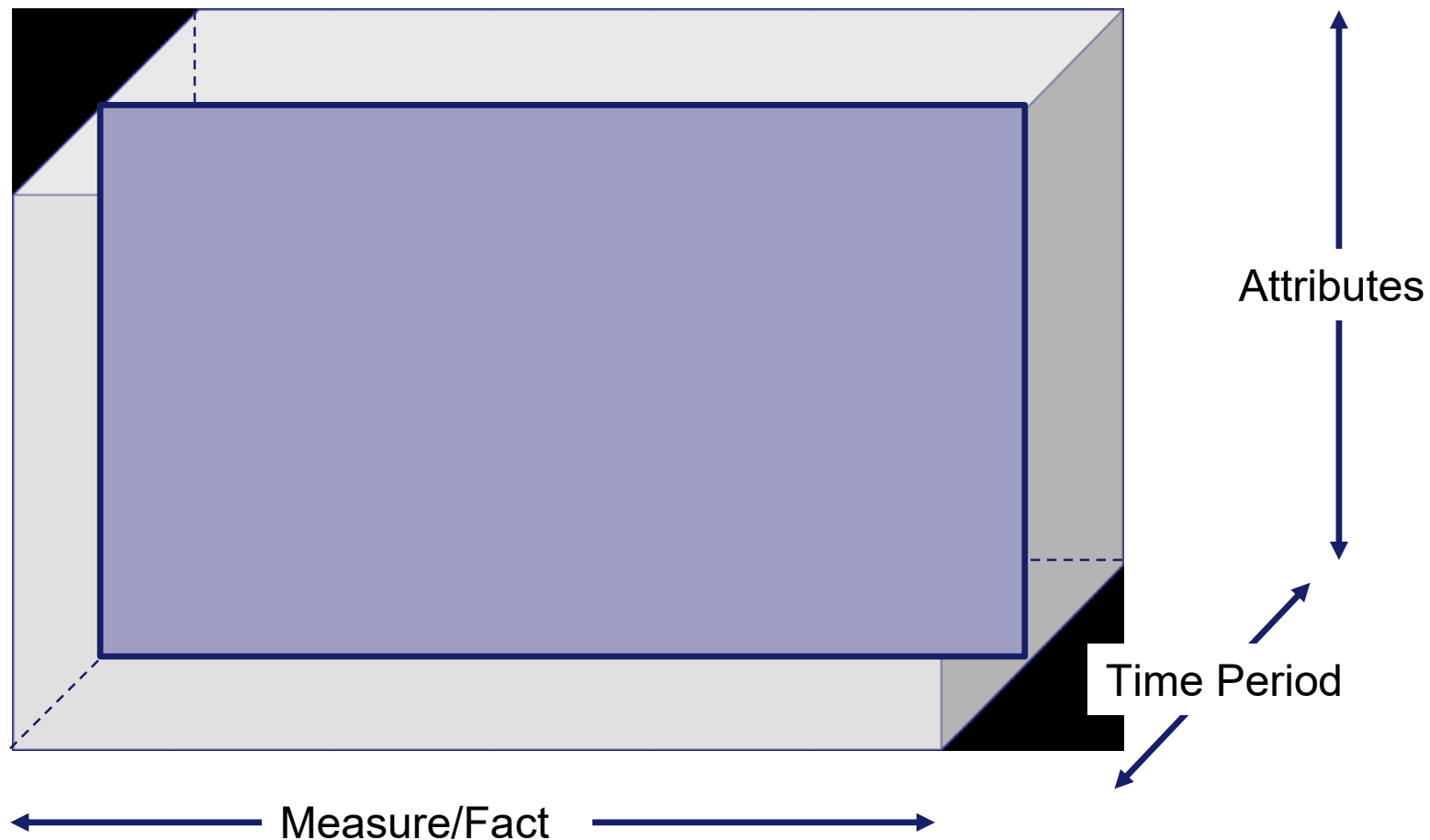


An Example Useful Framework

| 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 |



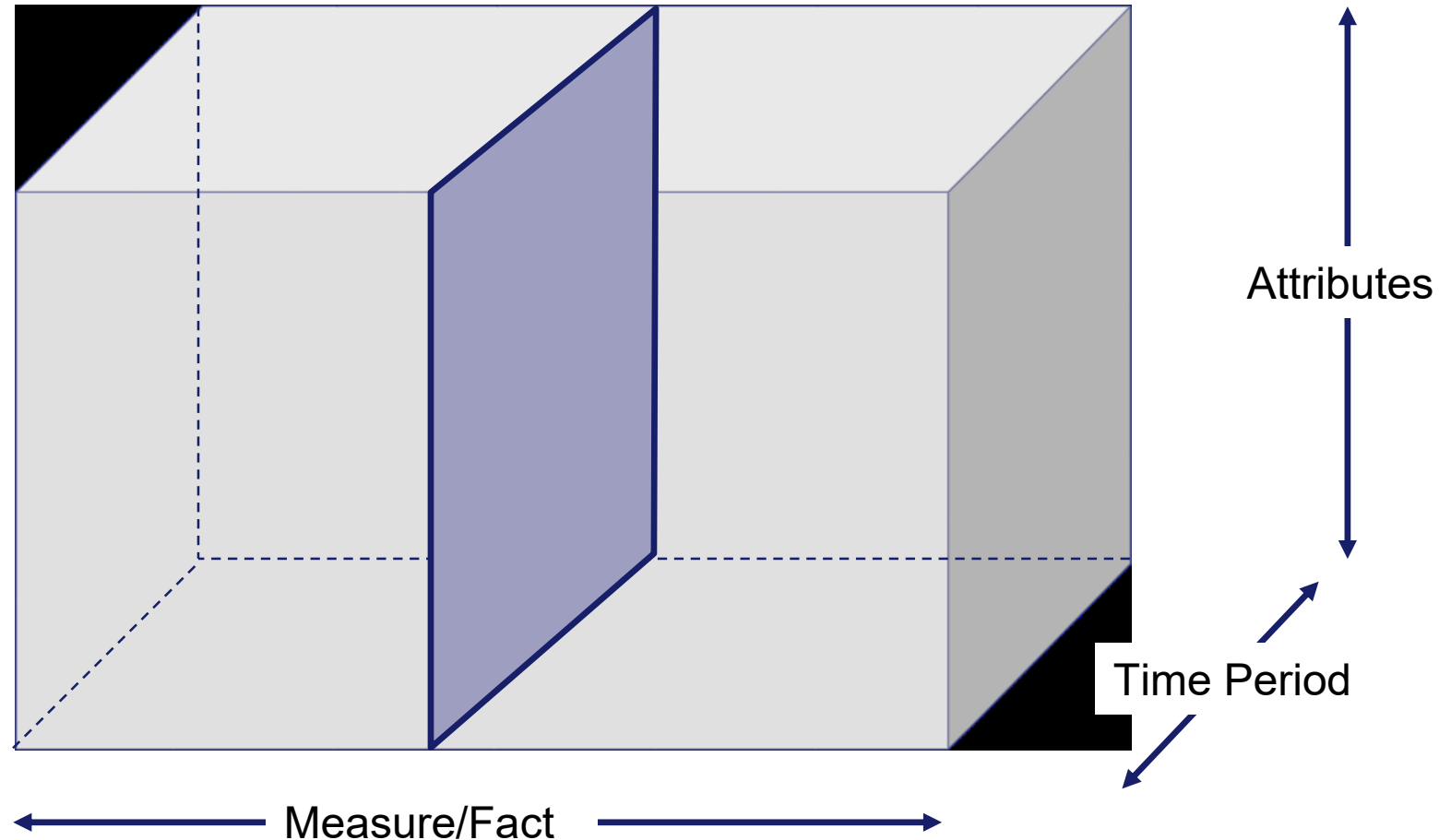
Position Analysis



Bar Chart
Scatter Plot
Treemap



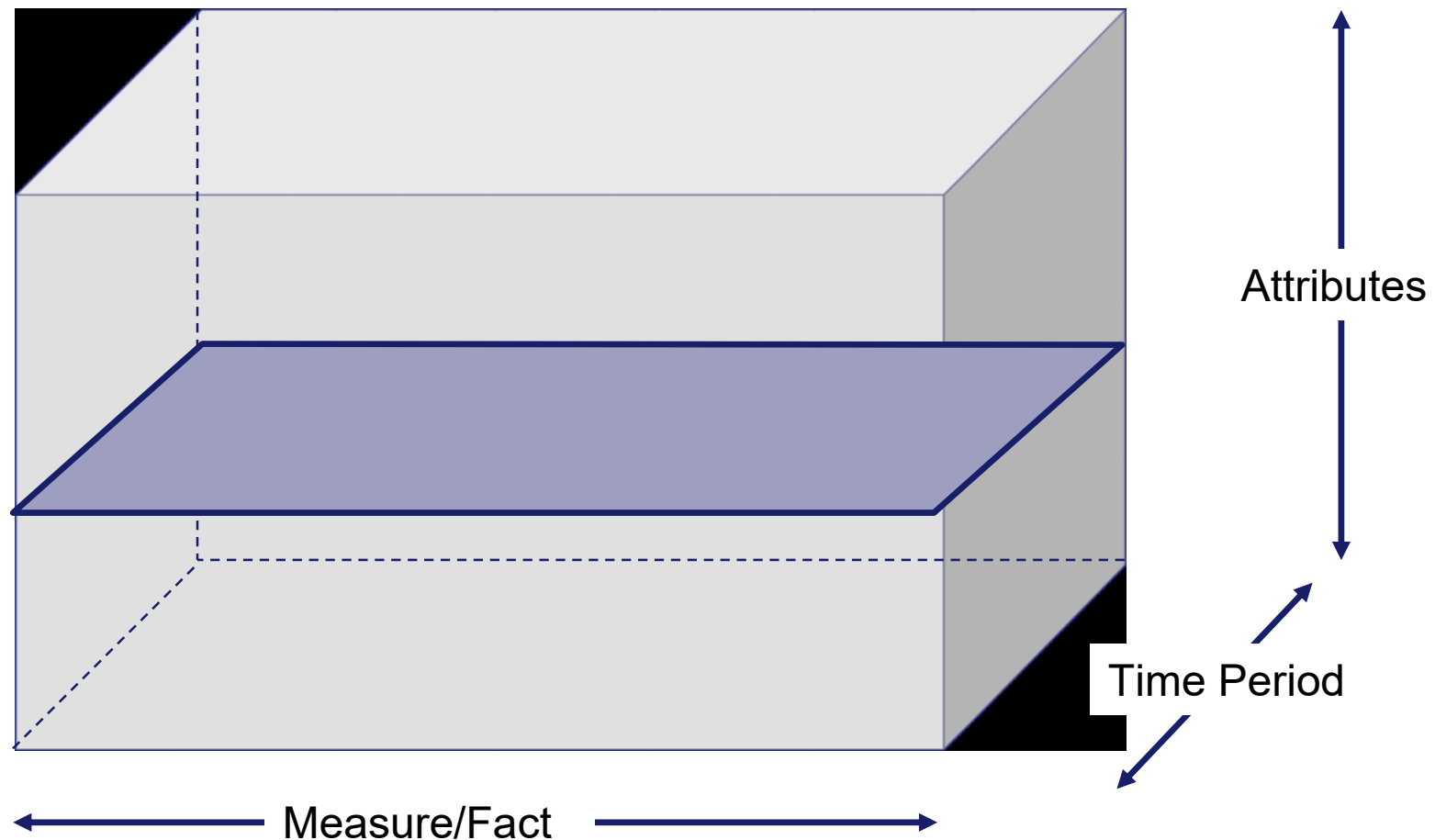
Performance Analysis



Bar Chart
Scatter Plot
Line Chart
Area Chart
Trellis



Flow Analysis



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

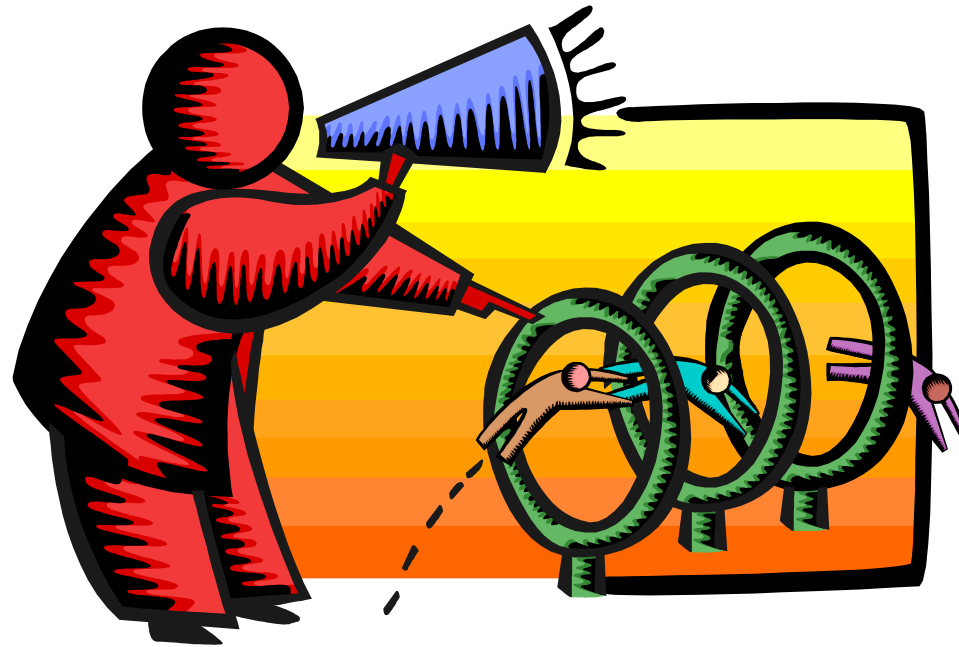
**Comparative
Correlation**

Flat

Shaped



Demo





Keys to Data Discovery

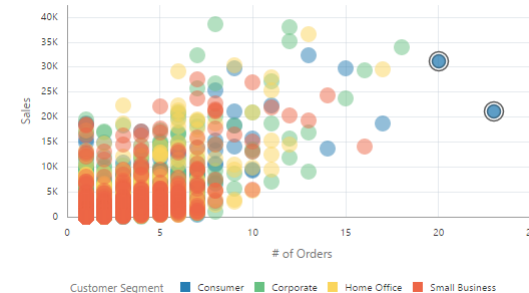
- Identify your main topic of interest with a performance tile
- Summary
- Evaluating a fact or a dimension?
 - Sales analysis
 - Customer or product analysis
- Fact analysis
 - Find lowest grain
 - Flat low distribution
 - Event or transaction
- Look for clustered distribution
 - Scatter with points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



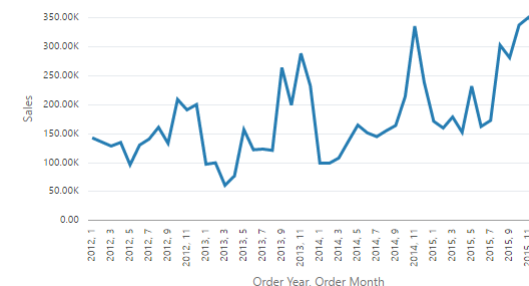
Major Types and Uses of Graphs

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

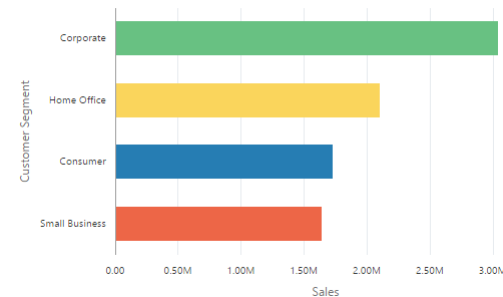
of Orders, Sales by Customer Name, Customer Segment



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 *

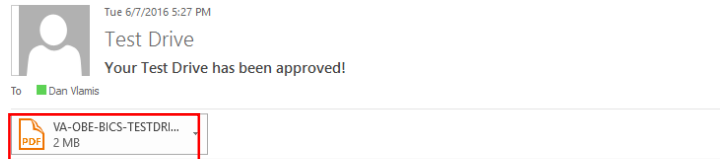
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US phone number where you can be reached during normal business hours.

Comments

Submit

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



Dear Dan,

Thank you for requesting time on the VlamiS Oracle Business Intelligence Cloud Services (BICS) Test drive.

You can access this from your browser at:



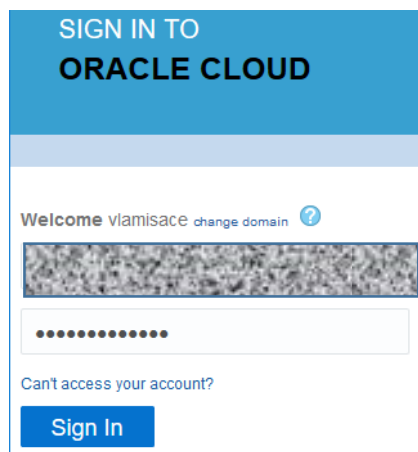
Please login with the following:

username / Password:

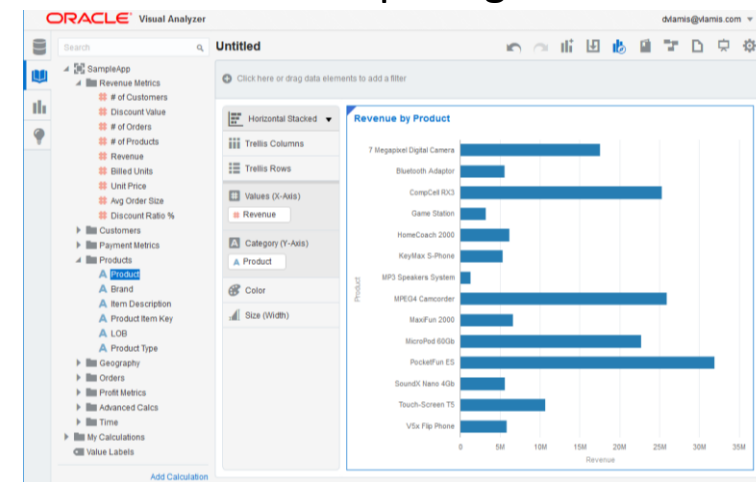


The attached document has access information and the lab activities. We hope you enjoy your exploration of Oracle BICS and we will follow up after your completion. This environment will be available to you for 24 hours.

3. Sign into BICS



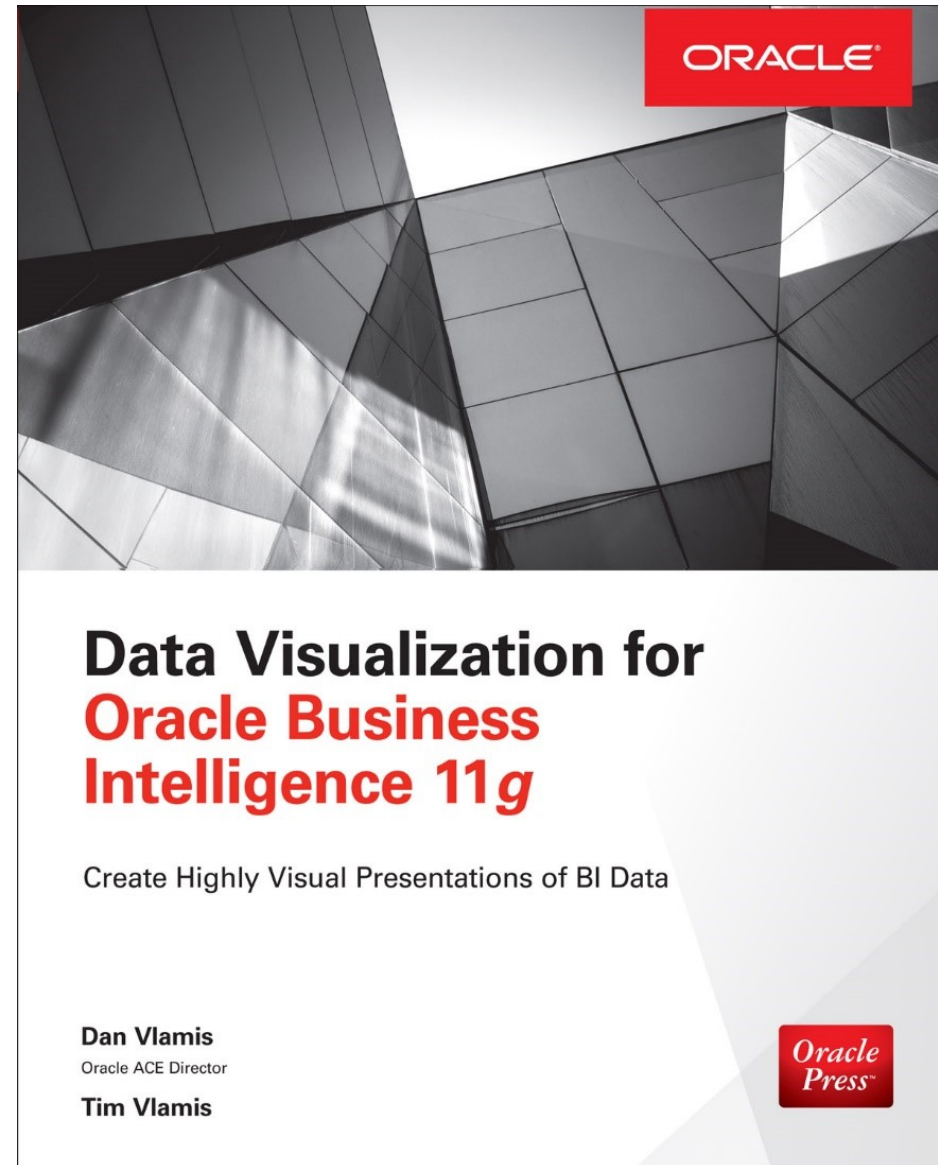
4. Use PDF file script or go off-road!





Drawing for Free Book

Add business card to basket
or fill out card



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THE Big Data + Analytics + Spatial + Cloud + IoT + Everything Cool User Conference
January 31 - February 2, 2017

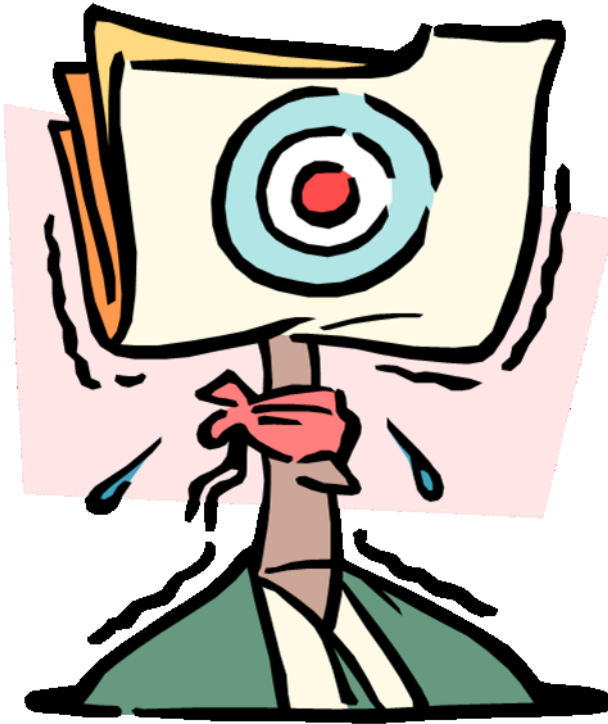
REGISTER NOW



www.biwasummit.org



Questions?





Thank You!

Data Visualization Best Practices for Oracle Business Intelligence

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www.vlami.com

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