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

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Dan Vlamis and Tim Vlamis

Dan Vlamis – President
 Founded Vlamis 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 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
- 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

xkcd.com
Many BI Systems Can Create Beautiful Results
OBI Operates at a Different Scale
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
Data Visualization Scenarios

- **Deliberative Response**
  - Data Discovery
  - BI Dashboards

- **Immediate Response**
  - Situational Awareness
  - Thresholds

- **Individual**
- **Organizational**
Discovery - Explore vs Pioneer
True Discovery

MEN WANTED

for hazardous journey, small wages, bitter cold, long months of complete darkness, constant danger, safe return doubtful, honor and recognition in case of success.

Ernest Shackleton 4 Burlington st.

MEN—Near-appearing young men of pleasing personality, between 21 and 40.

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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

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

Measure/Fact

Time Period

Attributes

Bar Chart
Scatter Plot
Treemap
Performance Analysis

Bar Chart
Scatter Plot
Line Chart
Area Chart
Trellis

Attributes

Time Period

Measure/Fact
Flow Analysis

- Measure/Fact
- Time Period
- Attributes

Line Chart
Area Chart
Trellis
Waterfall

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Well Established Frameworks

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

<table>
<thead>
<tr>
<th>Lowest Grain</th>
<th>Trend/cycle Correlation Outlier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trellis</td>
<td>Comparative Correlation</td>
</tr>
</tbody>
</table>

High number of factors / cardinality

Low number of factors / cardinality

Flat

Shaped
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
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](http://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”
1. Go to www.vlamis.com/td

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

3. Sign into BICS

4. Use PDF file script or go off-road!
Add business card to basket or fill out card
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+ YESSLQ SUMMIT

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

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Data Visualization Best Practices for Oracle Business Intelligence

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