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Sensing, Seeing, and Showing: Visualizing Data in OAC

Great Lakes Oracle Conference 2018

Dan Vlamis

May 16, 2018

@VlamisSoftware

GLOC

Great Lakes Oracle Conference

Sensing, Seeing, and Showing:

Visualizing Data in OAC

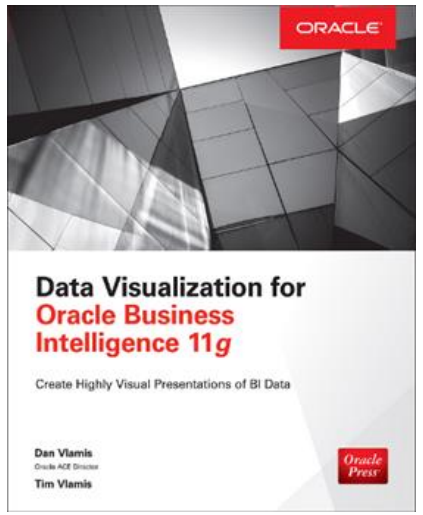
MAY 16 & 17, 2018

CLEVELAND PUBLIC AUDITORIUM, CLEVELAND, OHIO

WWW.NEOOUG.ORG/GLOC

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 & Analytics
  - Analytic 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



ORACLE ACE Director

ORACLE ACE

ORACLE ACE Associate

ORACLE EDUCATION RESELLER

ORACLE Gold Partner
Specialized
Oracle Business Intelligence
Foundation Suite 11g

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Presenter Background

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
- @dvlamis

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Vlamis Presentations at GLOC 18

Presenter	Location	Time	Title
Dan Vlamis	LL01	Wednesday 8:30am	Sensing, Seeing, and Showing: Visualizing Data in Oracle Analytics Cloud
Tim Vlamis	LL06	Wednesday 8:30am	Future-Proof Your Career: What Every Executive Needs to Know about Adaptive Intelligence
Tim Vlamis	LL01	Wednesday 11:15am	Introduction to Machine Learning in Oracle Analytics Cloud
Dan Vlamis	LL01	Wednesday 4:15pm	Architecting for Analytics

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Presentation Agenda

- Explanation vs. Exploration vs. Extrapolation
- Dashboards and Analyses in the legacy OBIEE interface
- Data exploration in the Oracle Data Visualization interface
- Strategies for dimensional visualizations
- Using Sankey, parallel coordinates, and network visualizations
- Designing Narratives and visual guides
- Standards and conventions

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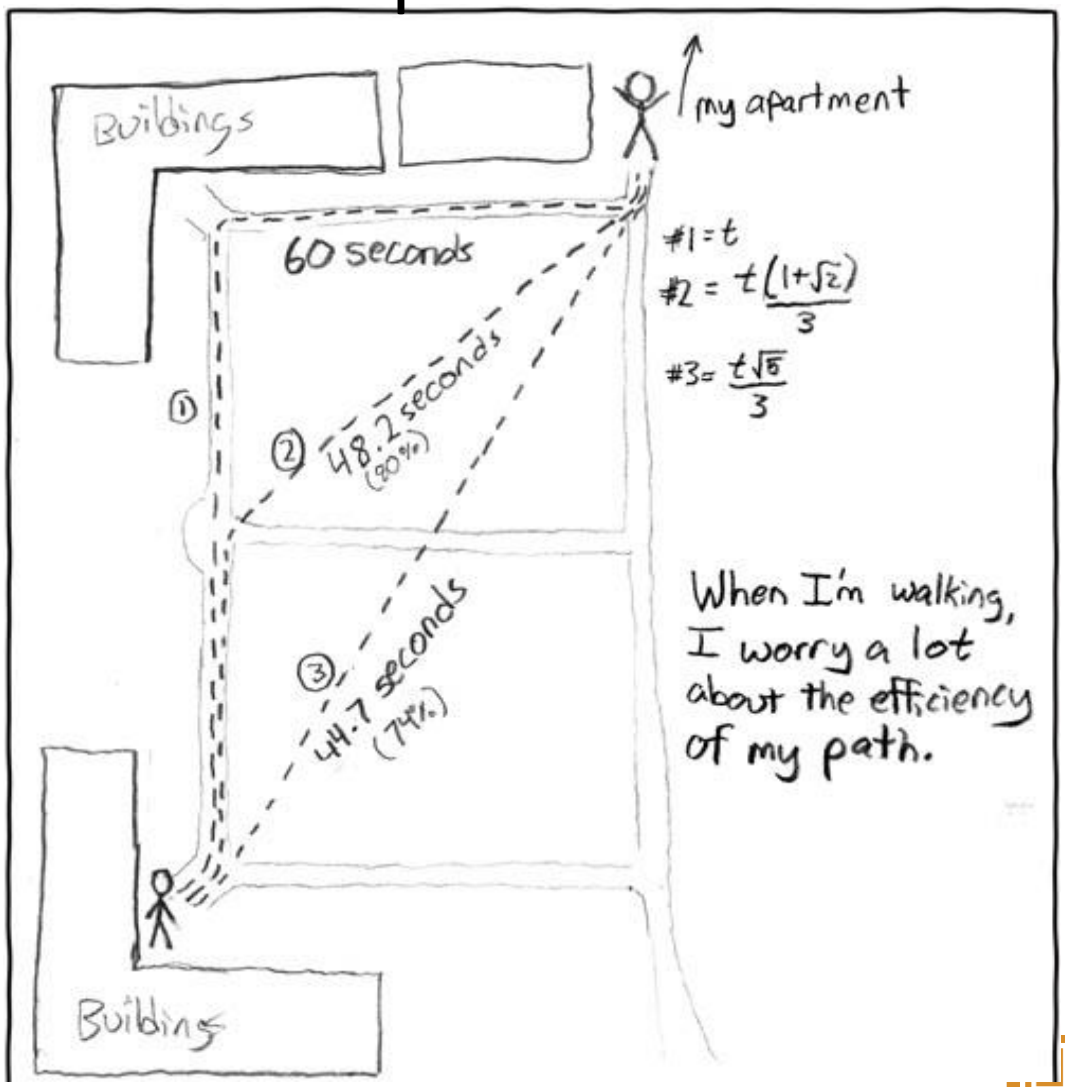
Three Main Functions of Analytics Systems

Exploration

Explanation



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xkcd.com

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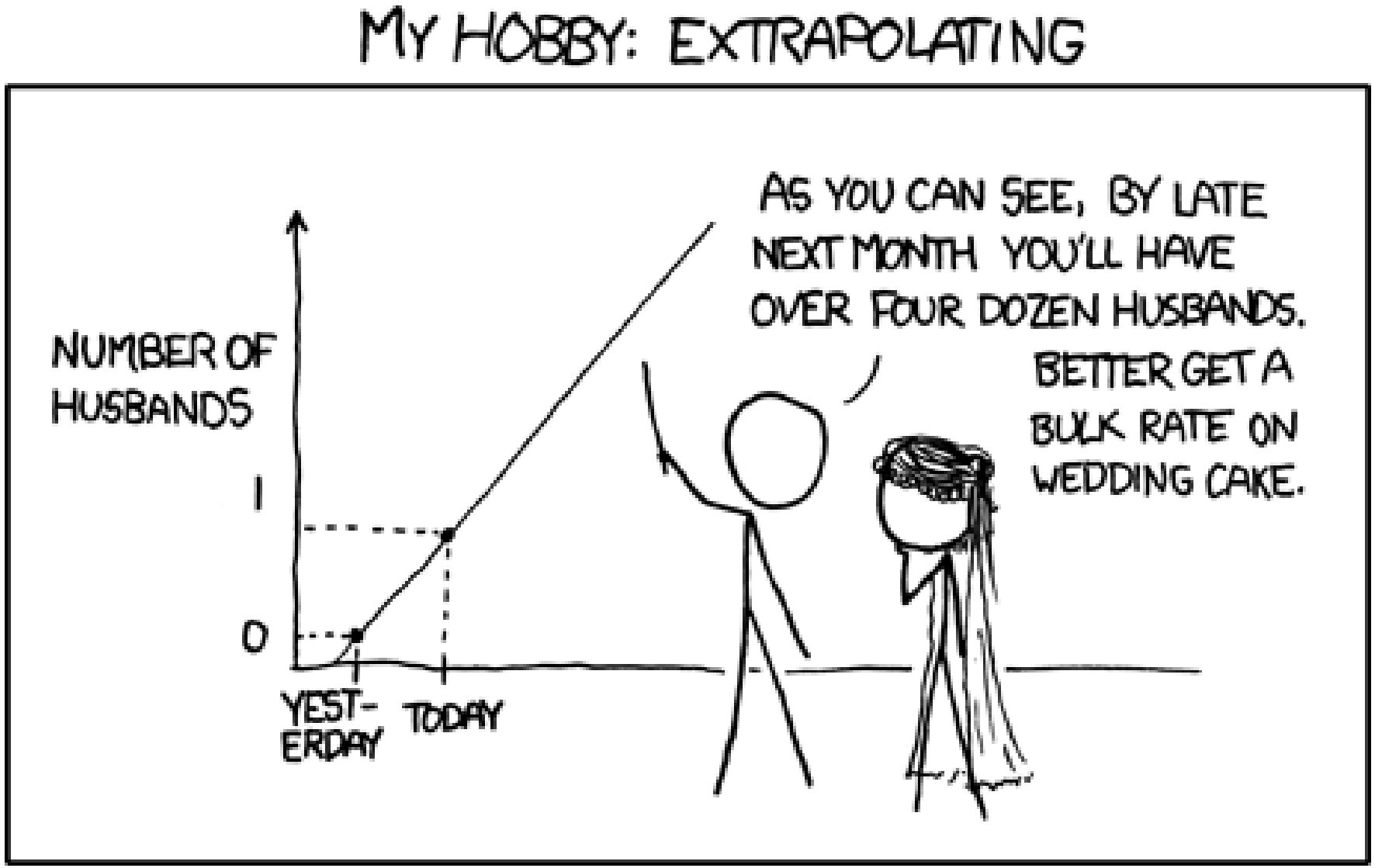
Extrapolation



https://xkcd.com/605/

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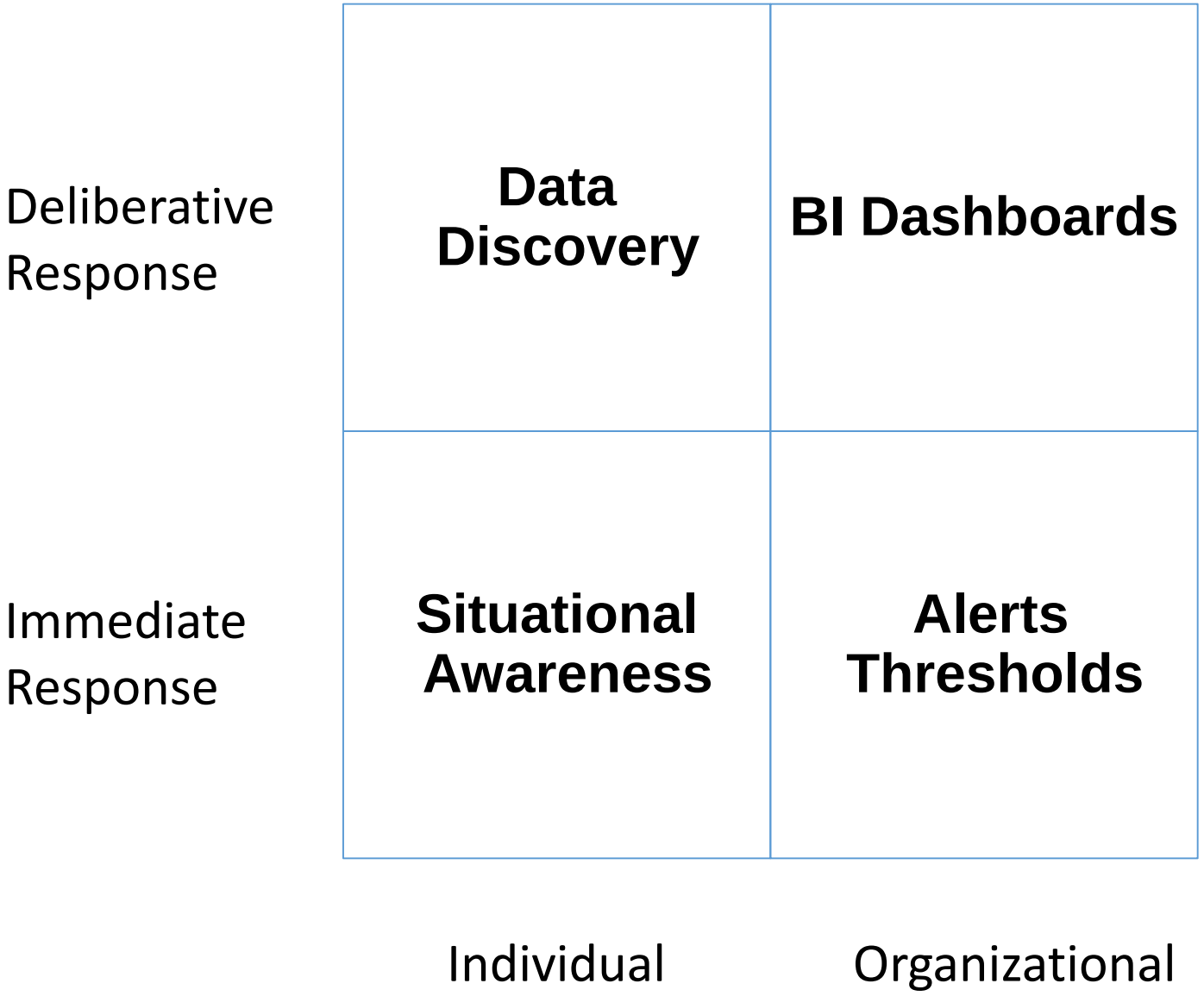
Data Visualization Scenarios



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Dashboard Definition

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

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Dashboard Definition

BI Dashboards should be designed to drive organizational coherence through a shared understanding of organizational position, performance, flows, and influencers.

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Discovery - Explore vs Pioneer

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True Discovery

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Data Discovery Steps

- Skim data in Data Prep Tiles view
- Determine primary dimensions and areas of interest based on data distributions and business hypothesis/interest
- Build major dimension summary view

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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

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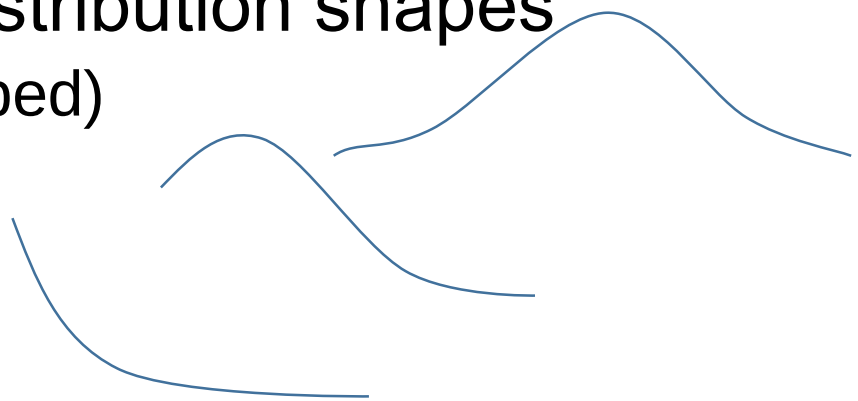
Understanding Measures for Exploration

- 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

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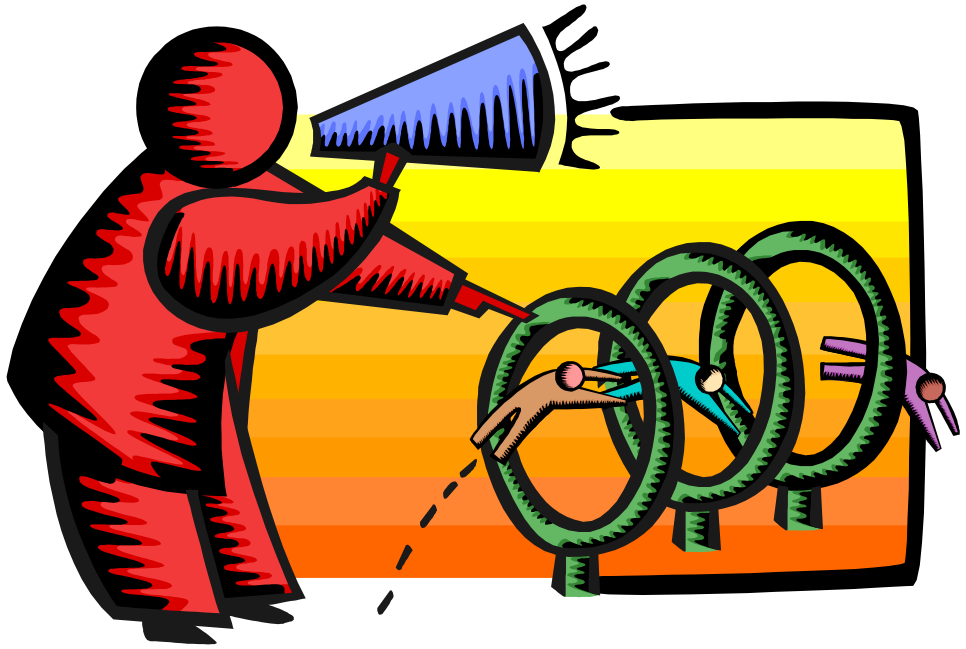
Demo



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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

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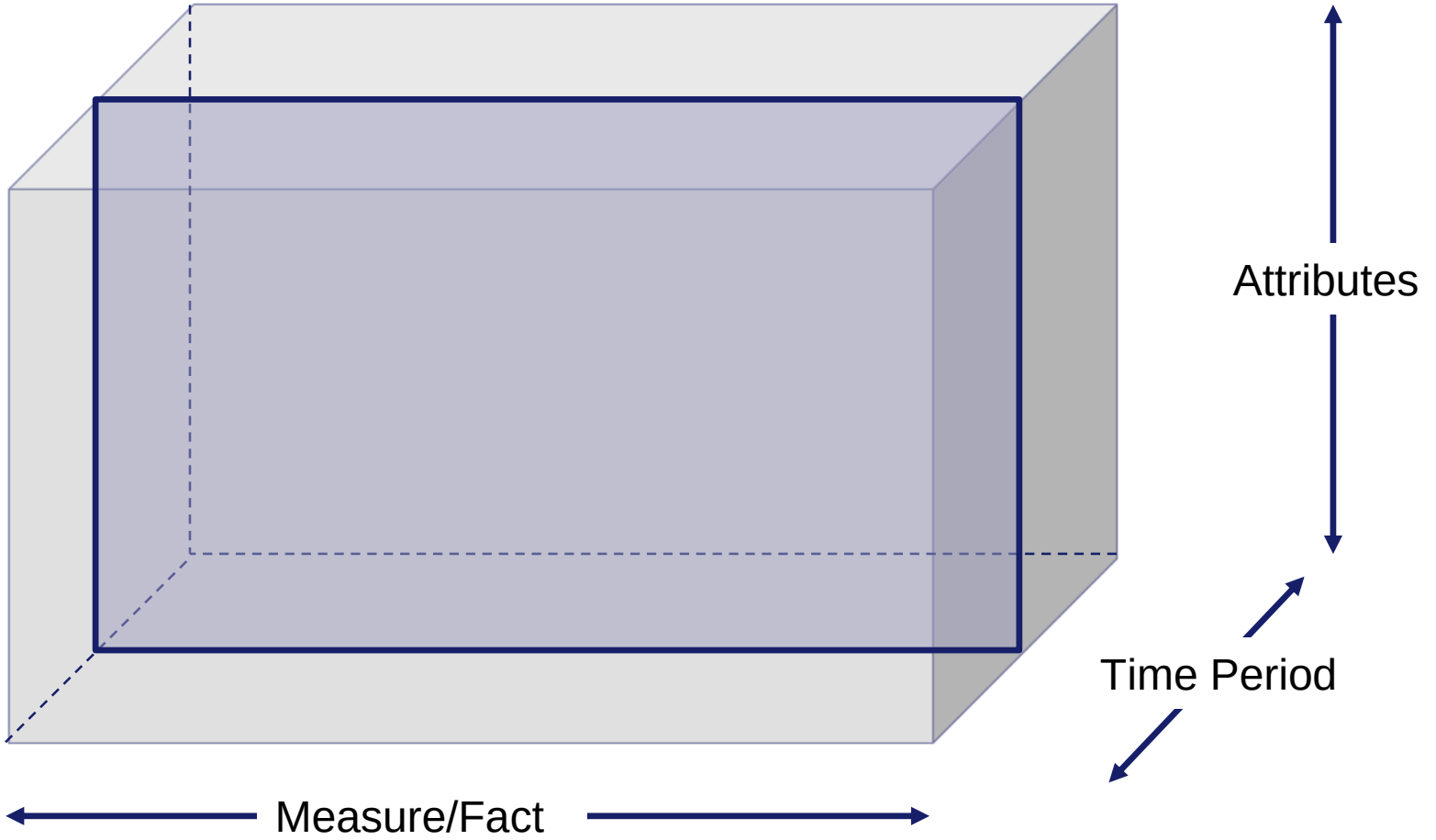
Position Analysis



Bar Chart
Scatter Plot
Treemap

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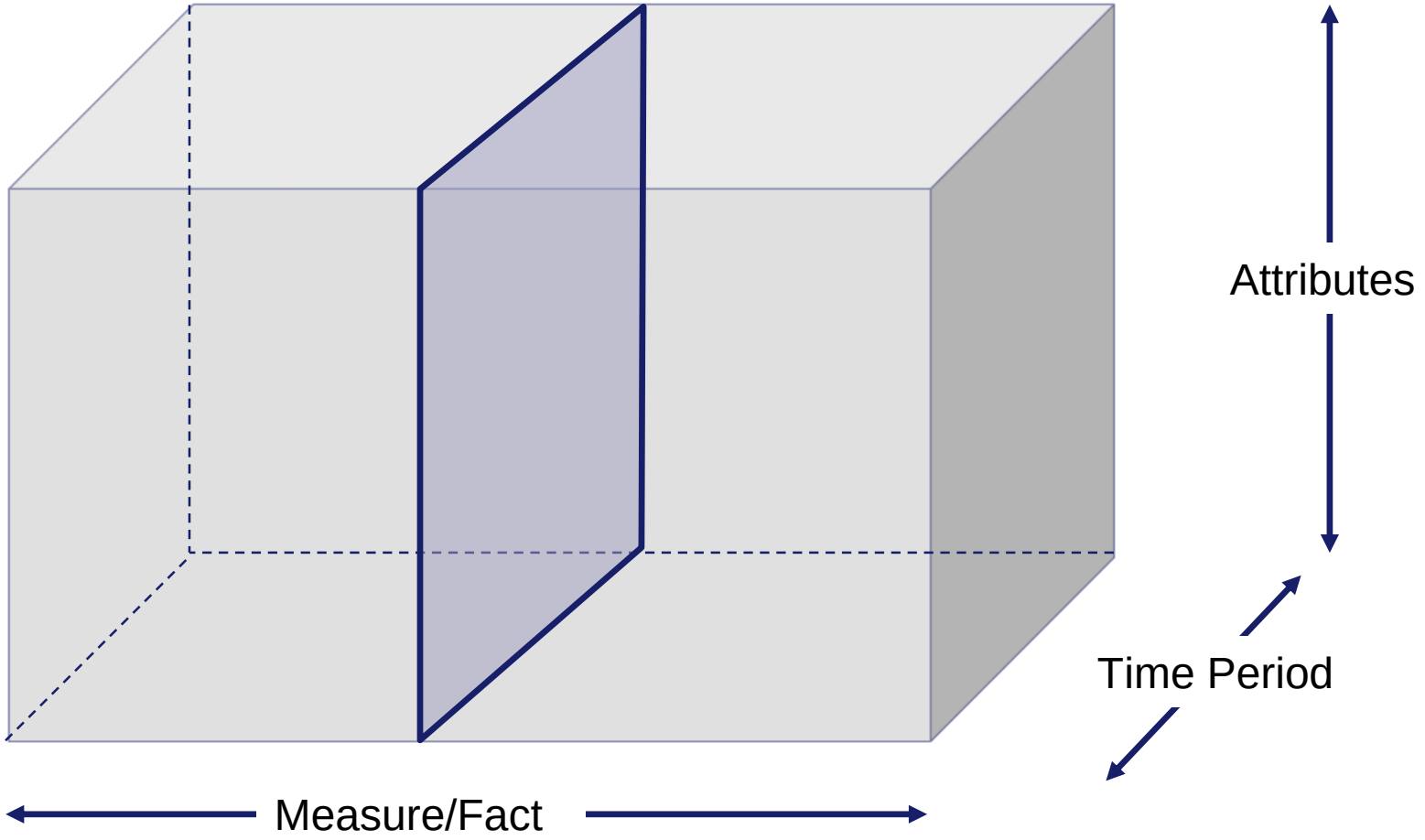
Performance Analysis



Bar Chart
Scatter Plot
Line Chart
Area Chart
Trellis

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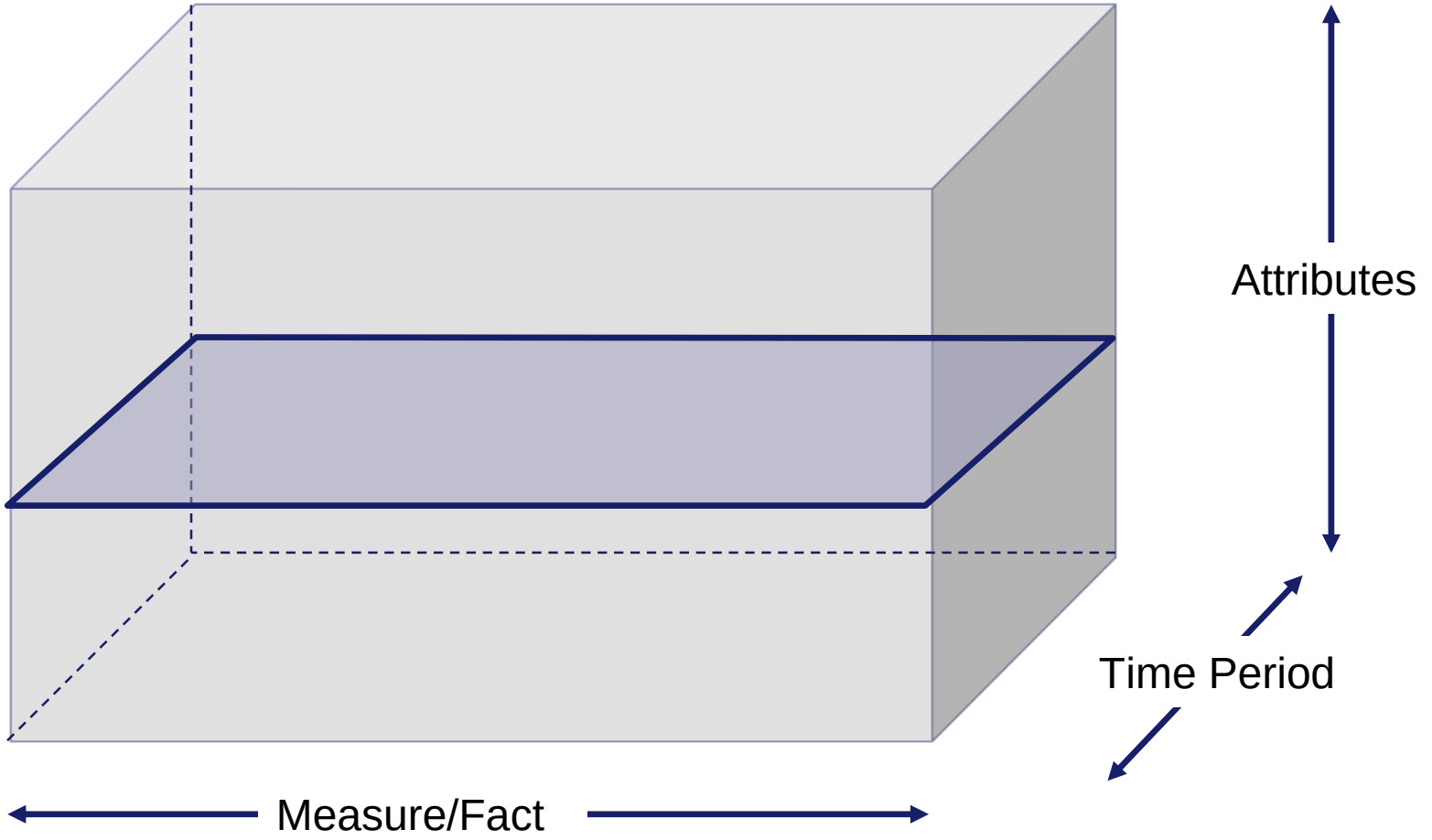
Flow Analysis



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)
- Five W's (who, what, when, where, why)

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Dimensional Columns

High number of factors / cardinality	**Lowest Grain**	**Trend/cycle** **Correlation** **Outlier**
Low number of factors / cardinality	**Trellis**	**Comparative** **Correlation**

Flat Shaped

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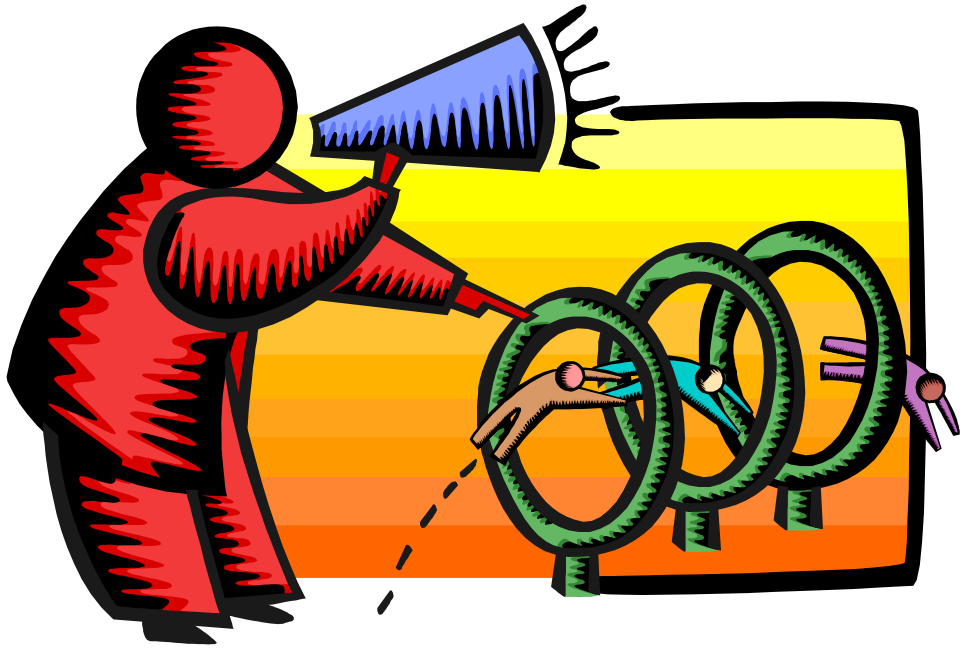
Demo



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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

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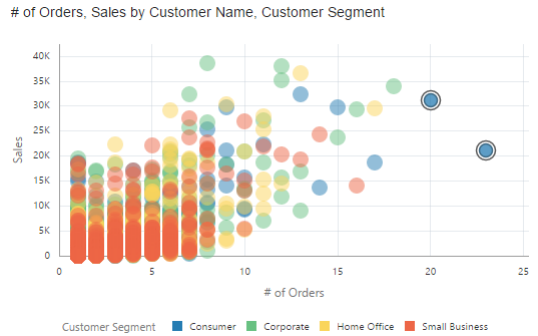
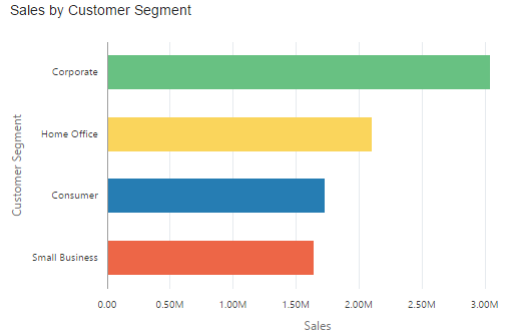
Major Types and Uses of Graphs

- Scatter plot – outlier detection



- Line graph – time based measures. Looking for trends and patterns

- Bar graph – comparison analysis



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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

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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

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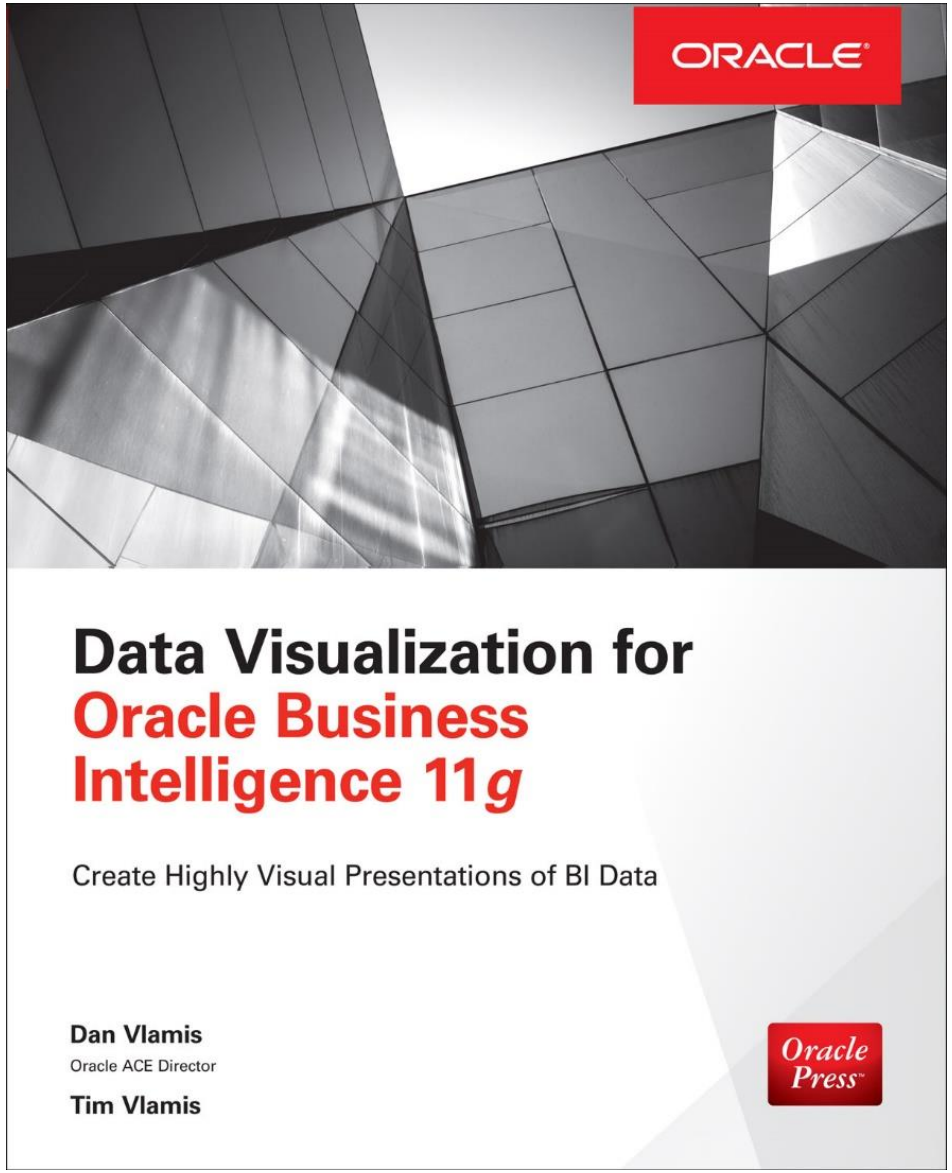
Drawing for Free Book

Add business card to basket

or fill out card



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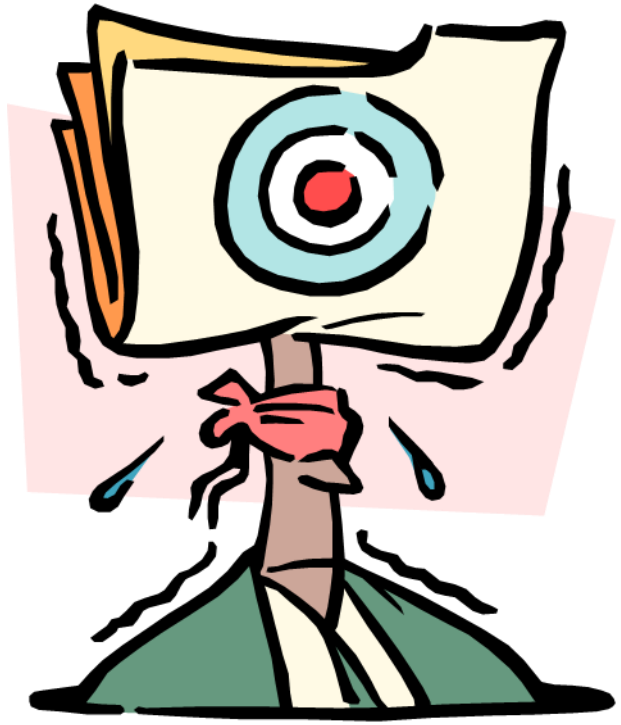
Questions?



Using the Oracle Database for an Analytic Warehouse
https://blogs.oracle.com/database/using-the-oracle-database-for-an-analytic-warehouse

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