Data Analysis with Various Oracle Business Intelligence and Analytic Tools

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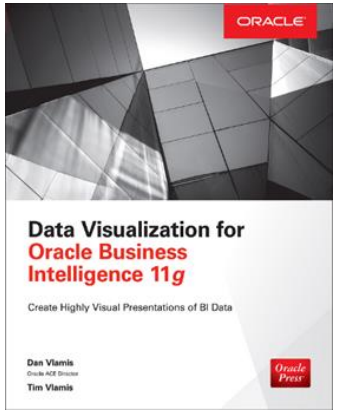
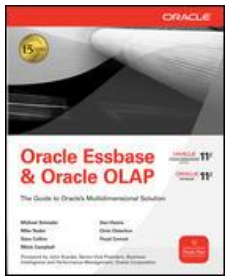
Agenda

- What we will talk about
  - Underlying technologies
  - Underlying platforms and systems
  - How things fit together
  - Your opinions, corrections/additions, and questions
- What we will not have time to talk about
  - Details of how specific applications function
  - Will not have time to discuss all vertical and function specific applications (BI Apps and EPM)

Vlamis Software Solutions

- Vlamis Software founded in 1992 in Kansas City, Missouri
- Developed more than 200 Oracle BI systems
- Specializes in ORACLE-based:
  - Data Warehousing
  - Business Intelligence
  - Data Mining and Predictive Analytics
  - Data Visualization
- Expert presenter at major Oracle conferences
- 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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Foundation Suite 11g

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SOFTWARE SOLUTIONS

The following is our interpretation of Oracle Business Intelligence and Analytics software systems. It is intended for information purposes only and may not be incorporated into any contract. It is not a commitment in any way as we may or may not believe what we are going to present. We like and respect Oracle and ask you not to get us into trouble with them as a result of this presentation. If you really want to know all about Oracle Business Intelligence and Analytics software, you should read Oracle's official documentation and view their road map videos. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

Analytics Market is Rapidly Evolving,

- Avoid “flavor of the month” solutions
- Data Discovery and Self-Service BI are hot
- Oracle is chasing Tableau

What is Oracle's Analytics Identity?

Is Oracle Best in Class or Best in Suite?

- Oracle sees individual products as best in class
- Oracle's true value proposition is best in suite

Overview

- Oracle Software Fits into 1 of 3 Categories
  - Database
  - Middleware
  - Applications
- Oracle offers many industry/function specific solutions
  - Analytic Applications for business role
  - Analytic Applications for industry
  - Analytic Applications for product (ERP)
- Cloud, Cloud, Cloud
  - Lots of promise, lots of resource from Oracle

- BI and Analytic “Bundles”
- Oracle “Engineered Systems” strategy
  - Hardware and software are optimized for each other

Oracle Products

- Oracle Business Intelligence
  - BICS and DVCS (Cloud)
  - Visual Analyzer/Data Visualization
  - Data Mashup
  - Strategy and Scorecard Management
  - Mobile BI
- Oracle BI Applications, OTBIE (HCM)
- BI Publisher
- SmartView
- Oracle Data Integrator (ODI)
- Real Time Decisions
- Oracle Database EE Options
  - Advanced Analytics
    - Oracle Data Mining
    - Oracle R Enterprise
  - Oracle OLAP (new analytic views)
  - Spatial and Graph
  - In-Memory
- Essbase
- Endeca, Crystal Ball, TimesTen

Current Strategic Products (our view)

- Oracle Data Integrator
- OBI Visual Analyzer/Data Visualization
- Big Data Discovery
- Oracle R Advanced Analytics for Hadoop
- Oracle Advanced Analytics
  - Oracle Data Mining
  - Oracle R Enterprise

Legacy or Defined Use

- Informatica
- BI Publisher
- Essbase
- Endeca
- Oracle OLAP
- Times Ten
- Crystal Ball
- Discoverer

Oracle Business Intelligence Enterprise Edition (OBIEE)

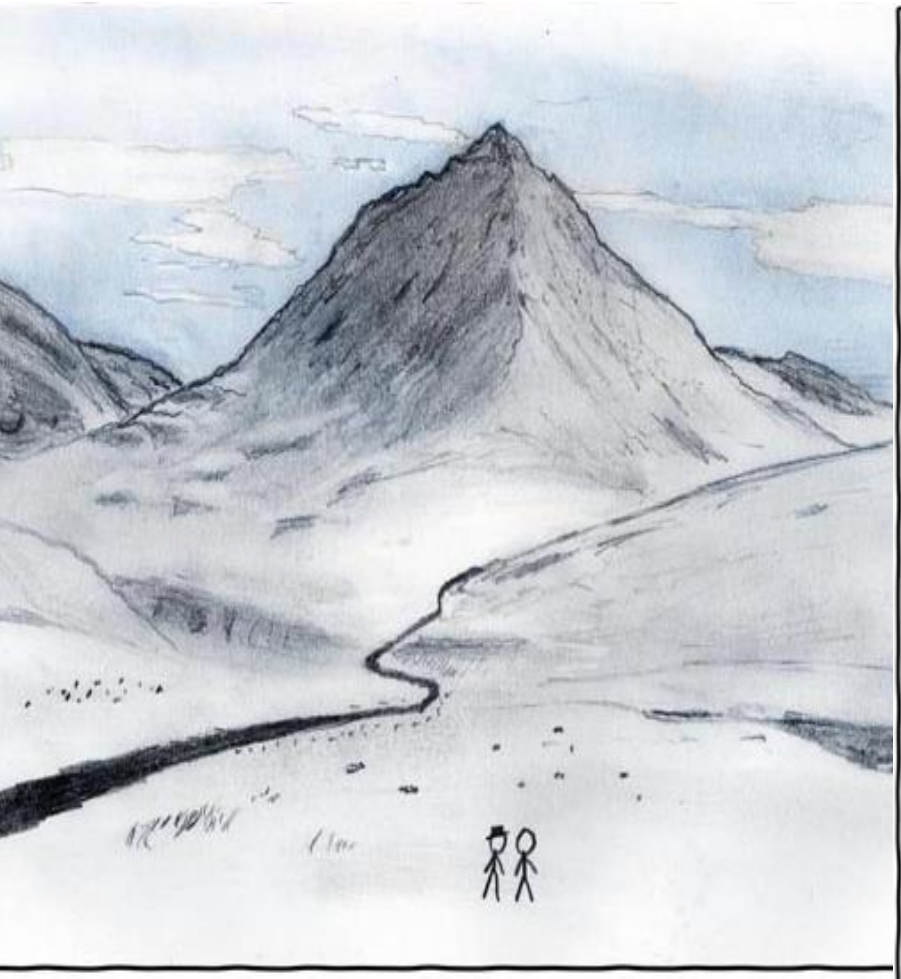
- Central Platform for the BI system
- World class BI system
  - Highly scalable
  - Highly configurable for different audiences
  - Flagship product for Oracle
- Dashboard Centric
  - Role based dashboards
  - Multiple dashboards and dashboard pages
- Unified Enterprise Information Model (single version of the truth)
- Actionable Intelligence emphasis
- End User Self-Service
- Forward Looking (e.g. Mobile)

OBIEE 12c and Vlamis Predictions

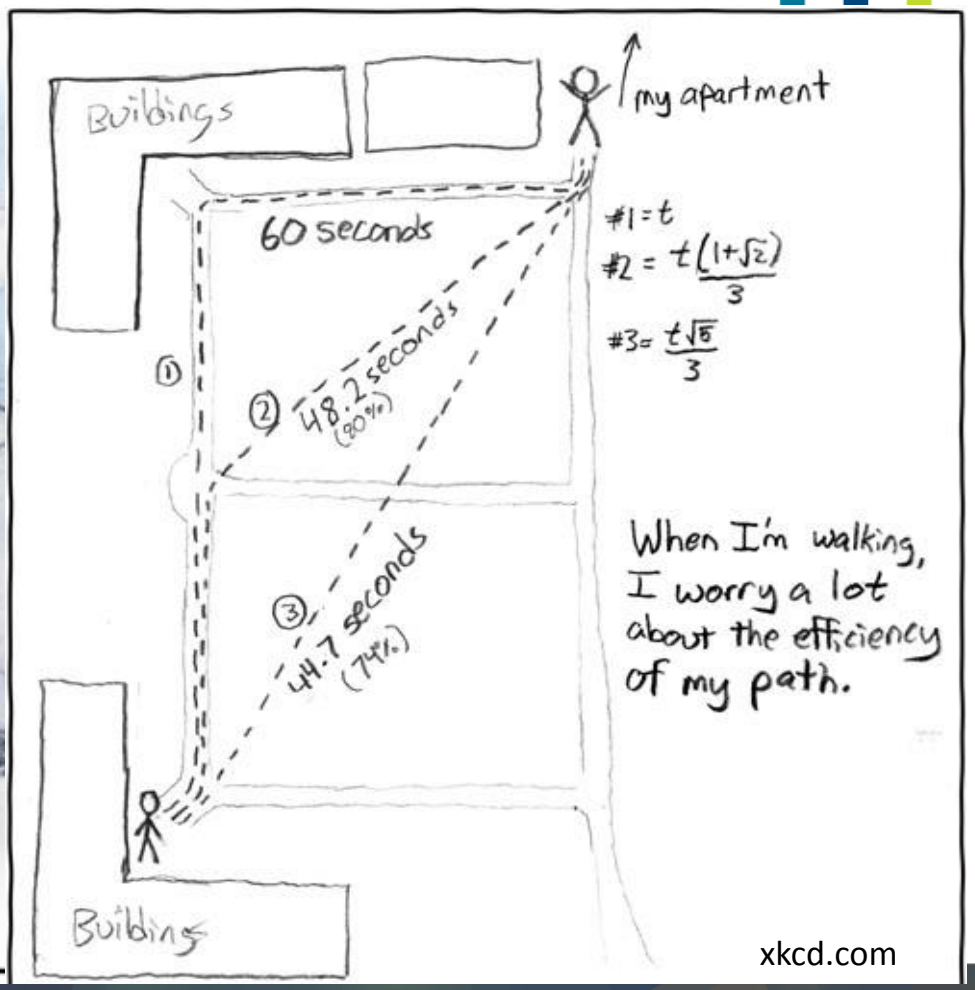
- Lots of new stuff in 12c.
- Oracle moving to ad hoc experience – chasing Tableau
- Moving from RPD to be inclusive of Mashups
- New visualizations to be added via D3
- Emphasis on mobile experience
- Movement away from MAD
- Struggle between best practices and flashy demos
- Oracle focus on cloud for delivering latest BI tech
- Emphasis on cloud at expense of engineered systems

Main Uses of BI Systems

Exploration



Explanation



Data Discovery

- Promote analytical mindset with data discovery
- Interaction with data leads to engagement
- Discovery is fundamentally individual/small team
- Use either frameworks or focused hypotheses (don't encourage discovery by wandering around)
- Recognize the advantages and dangers of BYOD (bring your own data)
  - Allows business users to be creative
  - Same plusses and minuses of Excel
  - Bring important or widely used data sets in a curated enterprise information model

Dashboard Design

- Most decisions involve coordination with many people and roles
- Should be professionally designed
- # of viewers * level of viewers * importance of data
- At least 60% should be graphs/visualizations
- Develop a dashboards standards manual
  - Consistency promotes understanding
  - Development is faster
  - Avoids major mistakes

BYOD is like Desktop Publishing

- Powerful
- Flexible
- Easy to do
- Hard to get right

OBI 12c New Components

- Visual Analyzer (additional cost)
- BI Ask (search)
- Data Mashup
- Baseline Validation Tool (BVT)
- Command Line management tool

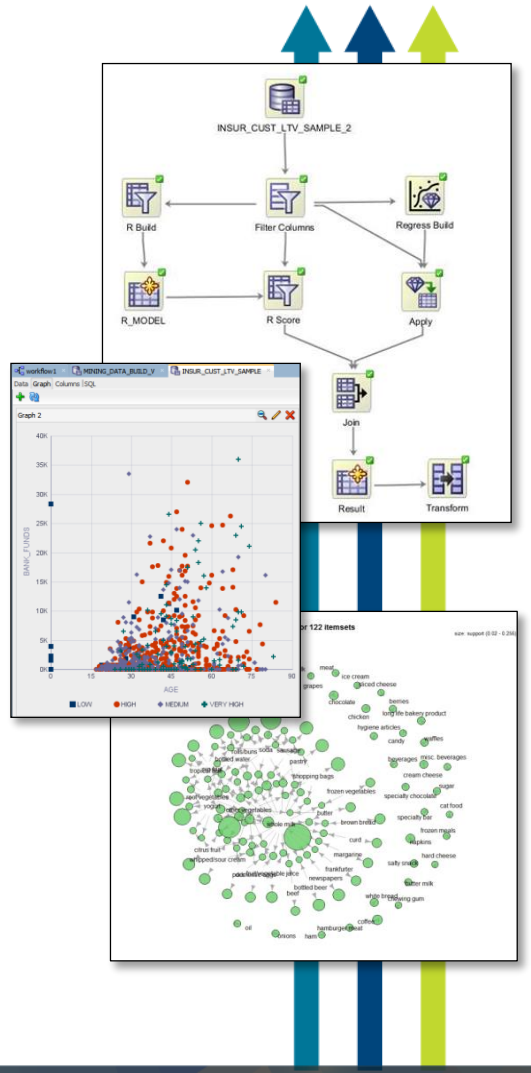
Applications

- Oracle Hyperion EPM
  - Mostly designed for corporate finance departments
  - Utilize Essbase, OBIEE, Excel, Custom Applications
  - Highly sophisticated applications for $Billion+ orgs
  - On the “long march” to Fusion
- Oracle Business Intelligence Applications (BI Apps)
  - Highly developed, focused solutions
  - Include large repository files, ETL scripts, queries, dashboards
  - Developed for business functions, industries, and products.

Oracle Advanced Analytics (OAA) DB Option

Oracle Data Mining (ODM) + Oracle R Enterprise (ORE)

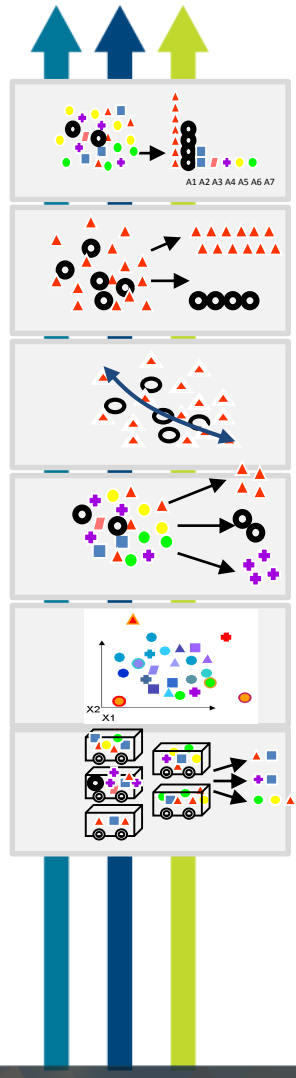
- Powerful **in-database** algorithms for **Data Mining** and **Statistical Analysis**
- ORE eliminates R's limitations (memory and speed) for **Enterprise-scale analytics**
- **Easy** to add **predictive analytics** to enterprise applications and BI
- **Fastest** way to deliver **scalable**, **enterprise-wide** predictive analytics



What is Data Mining?

***Automatically* sift through large data volumes to find hidden patterns, discover insights and make predictions**

- Identify most important factor *(Attribute Importance)*
- Predict customer behavior *(Classification)*
- Predict or estimate a value *(Regression)*
- Find profiles of targeted people or items *(Decision Trees)*
- Segment a population *(Clustering)*
- Find fraudulent or “rare events” *(Anomaly Detection)*
- Determine co-occurring items in a “baskets” *(Associations)*



What is R?

Open Source Statistical Computing & Graphics

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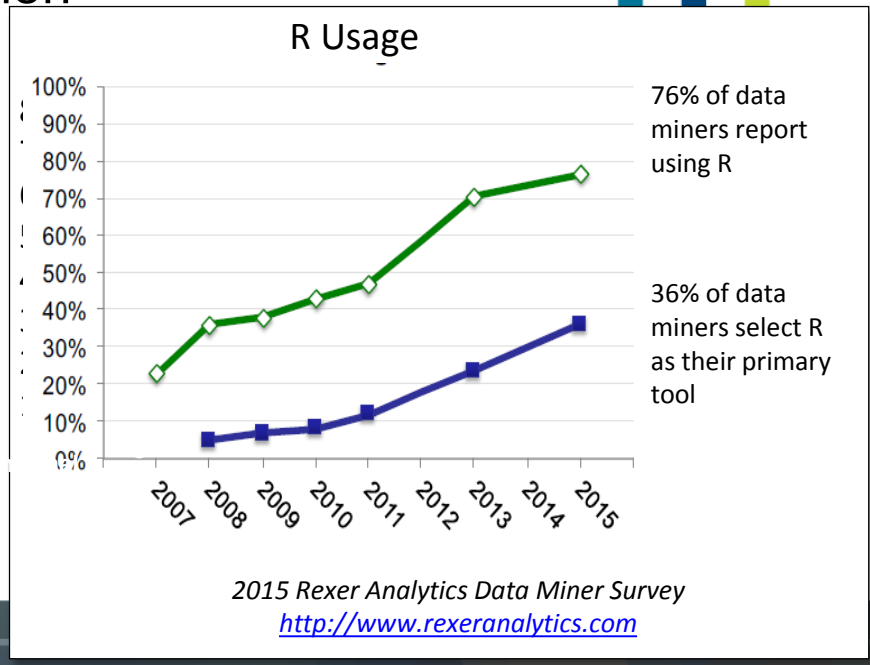
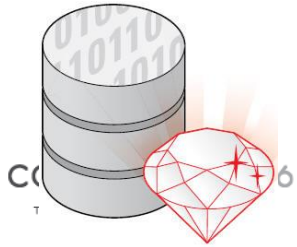
- An **Open Source** scripting language and environment for statistical computing and graphics http://www.R-project.org/
- Popular alternative to **SAS, SPSS** & other proprietary statistical environments
- 2 million+ users worldwide and growing
- Thousands of R packages available
- Taught extensively in higher education



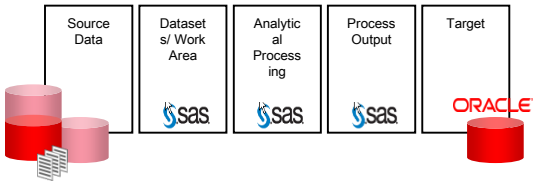
In-Database Predictive Analytics



Traditional Analytics

- Data Import
- Data Mining Model "Scoring"
- Data Preparation and Transformation
- Data Mining Model Building
- Data Prep & Transformation
- Data Extraction

Hours, Days or Weeks



Oracle Advanced Analytics

Savings

- Model "Scoring"
- Embedded Data Prep
- Model Building
- Data Preparation

Secs. Mins or Hours

Results

- Faster time for "Data" to "Insights"
- Lower TCO—Eliminates
- Data Movement
- Data Duplication
- Maintains Security

Model "Scoring"
Data remains in the Database

Embedded data preparation

Cutting edge machine learning algorithms inside the SQL kernel of Database

SQL—Most powerful language for data preparation and transformation

Data remains in the Database

Big Data Tools

- Big Data Discovery
  - World class tool, great experience
  - Somewhat expensive ($20,000 per user list price)
  - Great for analysts and data scientists
  - 150+ Oracle developers assigned
- ORAAH (Oracle R Advanced Analytics for Hadoop)
  - Very powerful, parallelized predictive analytics
  - Write in R, execute in Map Reduce and Spark
  - Extreme data science
- Oracle Big Data Spatial and Graph
  - Extreme power for spatial analytics
  - Property Graph and RTF Graph algorithms
  - Ultra extreme data science
- Big Data SQL

DEMO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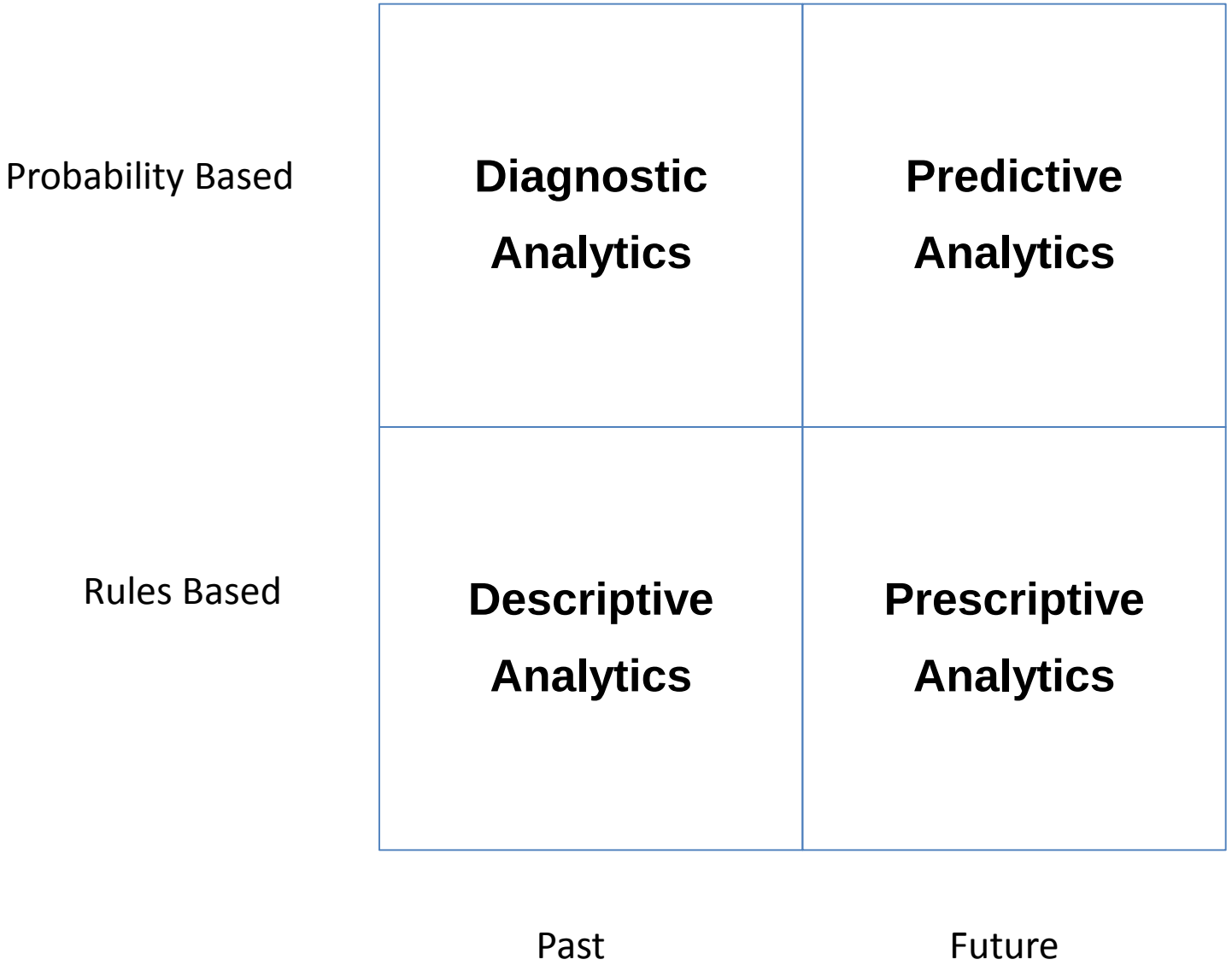
Four Realms of Analytics



4 Different Dimensions of Analytics

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Longevity of Decision

Years

Days

Crisis	Strategy
Responding	Planning

Reaction

Planned/Guided

Latency of Decision

4 Different Dimensions of Analytics

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Longevity of Decision

Years

Days

Exception Reporting **Anomaly Detection**	**Scenario Analysis** **Statistical Modeling**
Prescriptive Analytics **Real Time Decisions**	**Predictive Analytics** **Workflow Optimization**

Reaction

Planned/Guided

Latency of Decision

Analytic Data Sets are Required

- Common enterprise information model
  - Consistent definitions for analysis
  - Defined hierarchies and drill paths
  - Secure, stable, and verified
- Determine where to design and organize your CEIM
  - OBIEE repository
  - Analytic warehouse
- Siloed analytics lead to confusion and conflict

General Advice

- Download SampleApp!
- Embrace R
- Leverage Oracle Data Mining as much as possible
- Sign up for BICS (even if small)
- Don’t dismiss dashboards
- It’s all about the data, especially your own

What Product to Use Depends on:

- Skill level of users
- Skill level of technical staff
- Budget
- Strategic direction of company (analytically-minded?)
- Amount of central control desired
- Specific output format requirements

Data Comes From Where?

- Database of some sort
- Data Warehouse/Data Lake (how fed?)
- Federated sources
- Data calculated in ETL?
- Excel spreadsheets/flat files?
- API call?

How is Data Used?

- Dashboards and Reports
- Alerts and notifications
- Business Processes
- Analyses (including adhoc requests)

Where is Data Calculated?

- Excel
- Hard-coded Javascript
- Report logic (OBIEE catalog)
- Middle tier business layer (OBIEE Admin Tool and RPD file)
- ETL process
- Some sort of database
  - Logic in views
  - Options of Oracle DB EE
    - Advanced Analytics
      - Oracle Data Mining
      - Oracle R Enterprise
    - Spatial and Graph
    - In-Memory
    - Oracle OLAP
  - Essbase database
- Other (middleware, RTD, Java Process, etc.)

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Thank You!

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