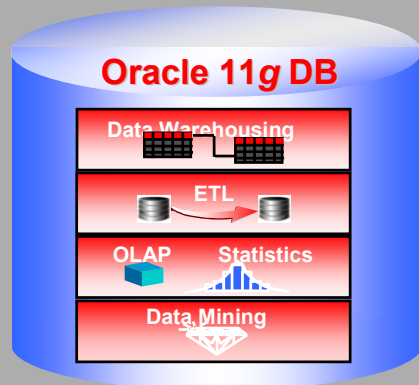


ORACLE
DATABASE **11^g**



***Predictive Analytics Using
Oracle Data Mining,
Oracle BI EE ...and More!***

ORACLE[®]



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The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

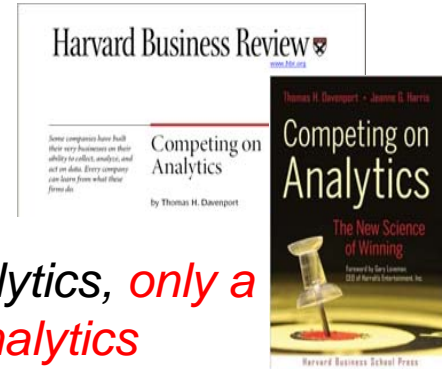
Outline

- Today's BI must go beyond simple reporting
- To succeed, companies must
 - Eliminate data movement
 - Collapse information latency
 - Deliver better BI through analytics
- Oracle Data Mining transforms the Database to an “*Analytical Database*”
 - Enables applications “*Powered by Oracle Data Mining*”
- Brief demonstrations
 1. Oracle Data Mining + OBI EE
 2. OOW 2008 Schedule Builder
 3. Oracle Sales Prospector
 4. HCM Application

Analytics: Strategic and Mission Critical

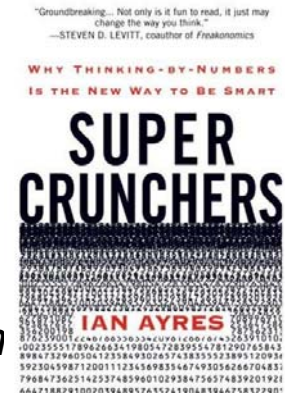
- *Competing on Analytics*, by Tom Davenport

- “Some companies have built their very businesses on their ability to collect, analyze, and act on data.”
- “Although numerous organizations are embracing analytics, **only a handful have achieved this level of proficiency. But analytics competitors are the leaders in their varied fields—consumer products finance, retail, and travel and entertainment among them.**”
- “Organizations are moving beyond query and reporting” - IDC 2006

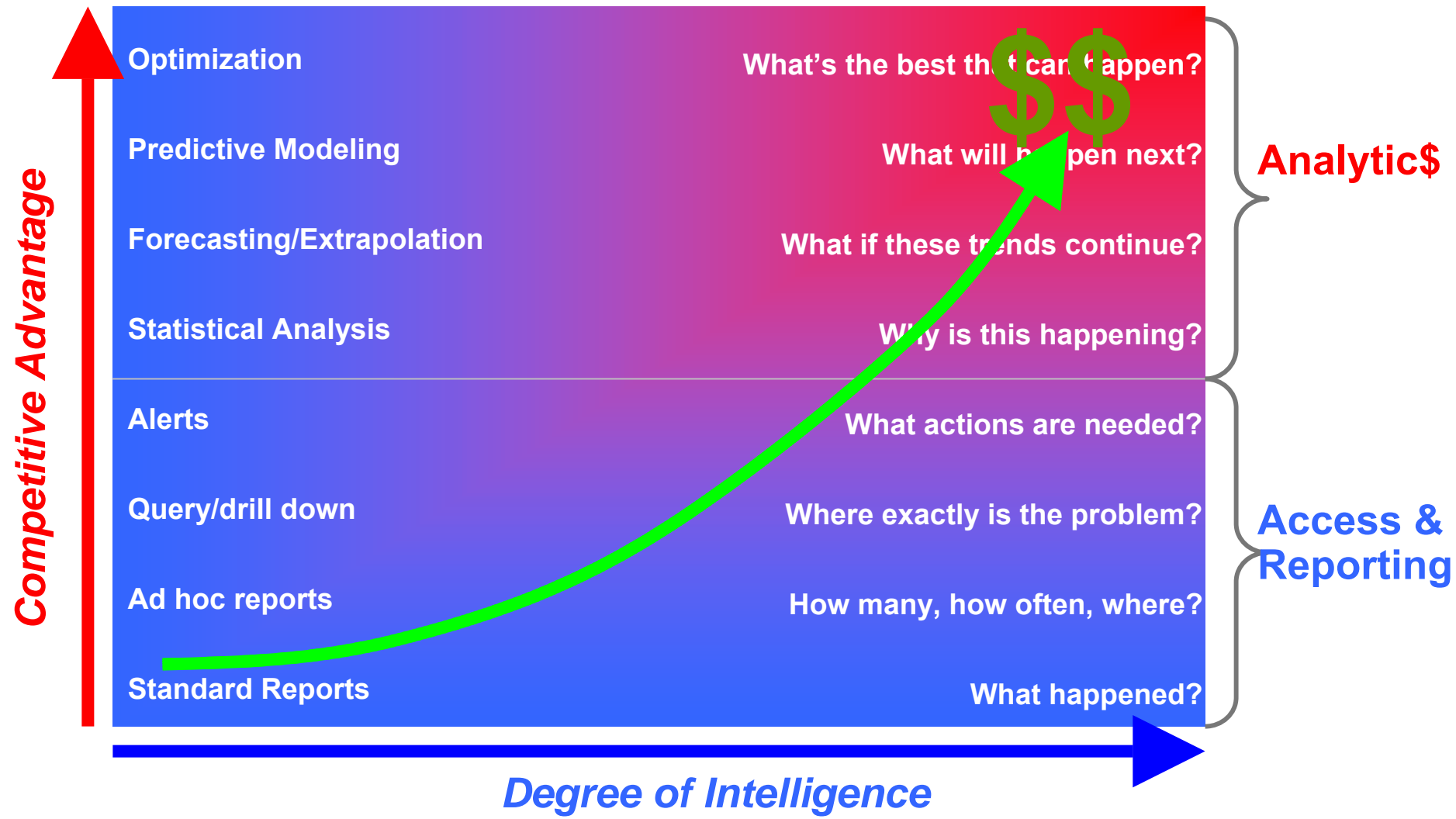


- *Super Crunchers*, by Ian Ayres

- “In the past, one could get by on intuition and experience. Times have changed. **Today, the name of the game is data.**”
—Steven D. Levitt, author of *Freakonomics*
- “**Data-mining and statistical analysis have suddenly become cool....** Dissecting marketing, politics, and even sports, stuff that complex and important shouldn't be this much fun to read.” —Wired



Competitive Advantage

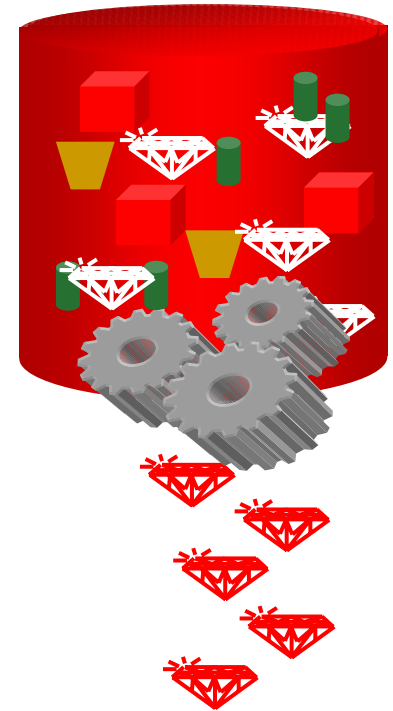




Oracle Data Mining Option

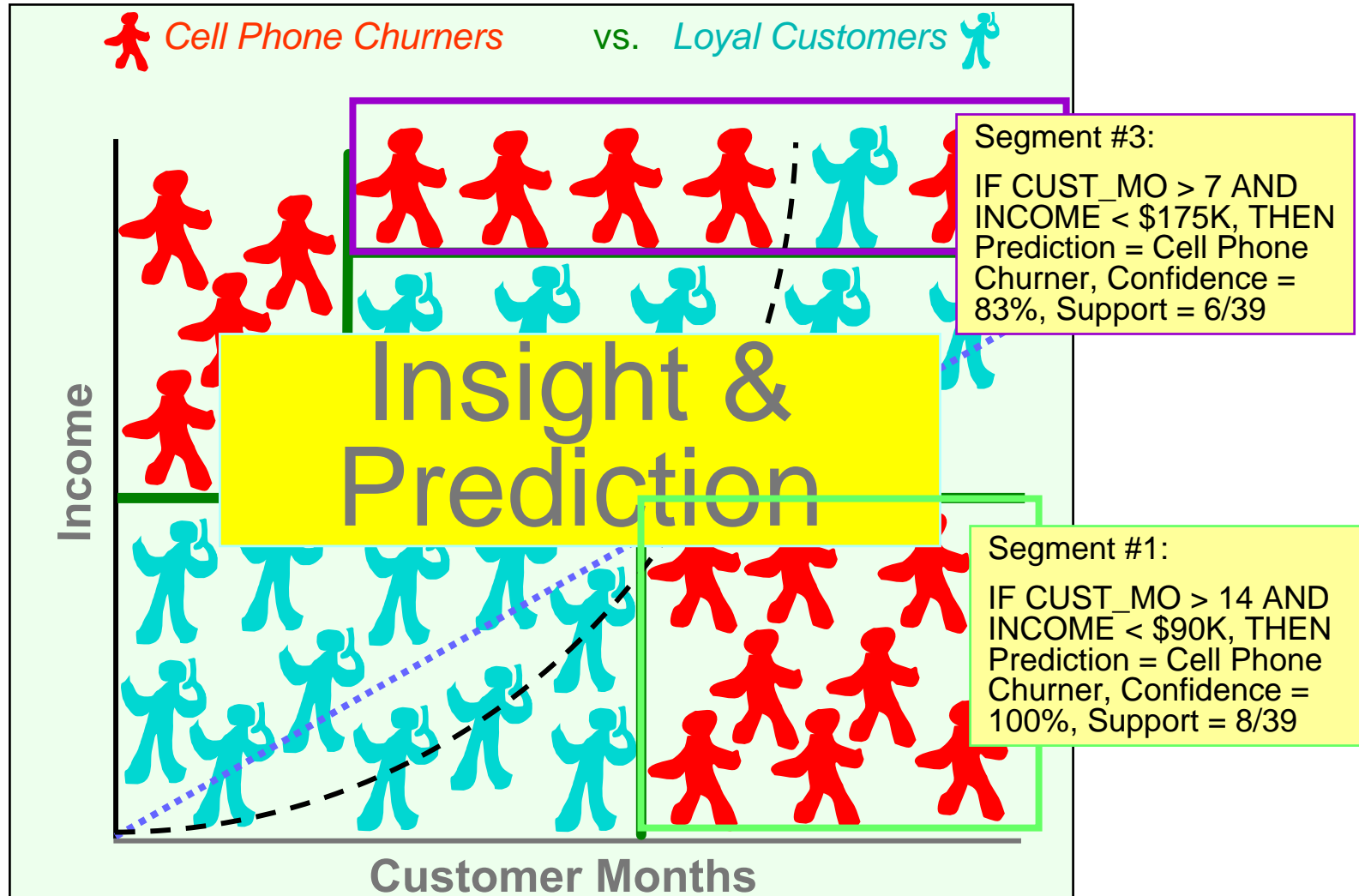
What is Data Mining? ORACLE DATABASE 11^g

- Automatically sifts through data to find hidden patterns, discover new insights, and make predictions
- Data Mining can provide valuable results:
 - Predict customer behavior (*Classification*)
 - Predict or estimate a value (*Regression*)
 - Segment a population (*Clustering*)
 - Identify factors more associated with a business problem (*Attribute Importance*)
 - Find profiles of targeted people or items (*Decision Trees*)
 - Determine important relationships and “market baskets” within the population (*Associations*)
 - Find fraudulent or “rare events” (*Anomaly Detection*)



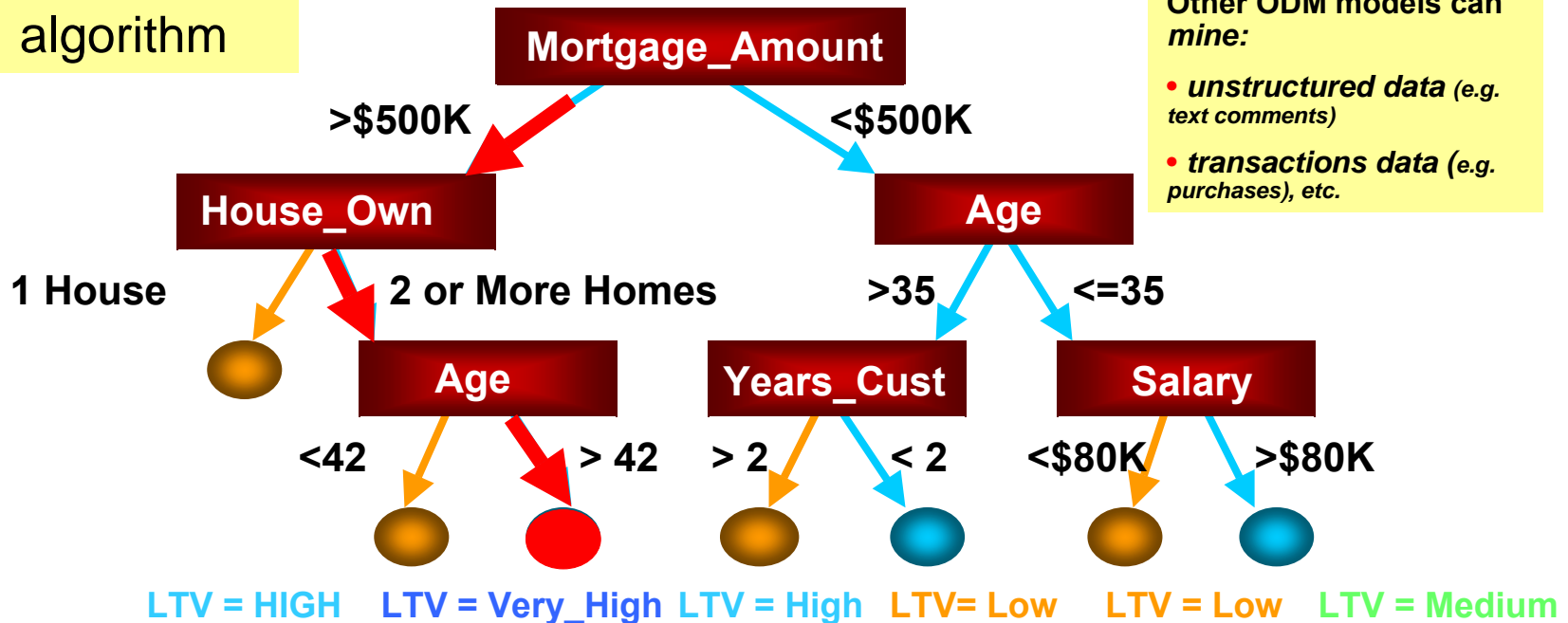
Data Mining Provides

Better Information, Valuable Insights and Predictions



Predicting High LTV Customers

Decision Tree algorithm



Simple model:
Other ODM models can mine:

- **unstructured data** (e.g. text comments)
- **transactions data** (e.g. purchases), etc.

IF (Mortgage_Amount > \$500K AND House_Own = 2 or more AND Age = >42)
THEN Probability(Lifetime Customer Value is "VERY HIGH" = 77%, Support = 15%)

Oracle Data Mining

Overview (Classification)



Cases

Input Attributes

Target

Model

<i>Historic Data</i>			<u>Respond?</u> 1 = Yes, 0 = No	
<u>Name</u>	<u>Income</u>	<u>Age</u>		
Jones	30,000	30		1
Smith	55,000	67		1
Lee	25,000	23		0
Rogers	50,000	44		0
<i>New Data</i>				
Campos	40,500	52		? 1 .85
Horn	37,000	73		? 0 .74
Habers	57,200	32		? 0 .93
Berger	95,600	34		? 1 .65

Functional Relationship:
 $Y = F(X_1, X_2, \dots, X_m)$

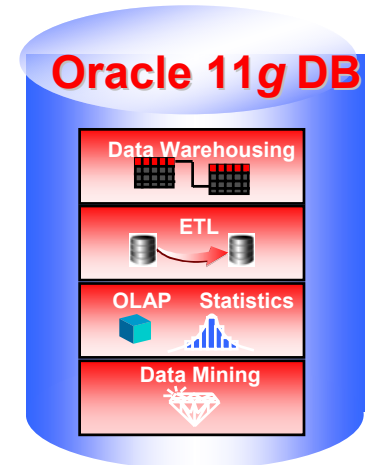


Prediction Confidence

In-Database Data Mining

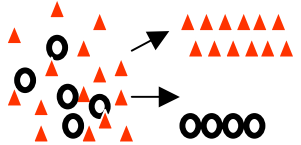
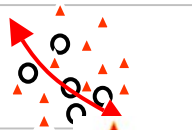
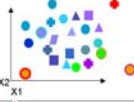


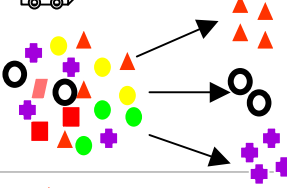
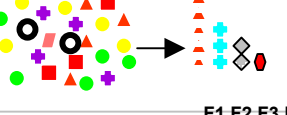
Advantages

- ODM architecture provides greater
 - Performance, scalability, and data security
- Data remains in the database
 - Fewer moving parts; shorter information latency
- Straightforward inclusion within interesting and arbitrarily complex queries
- Real-world scalability—available for mission critical apps
- Enables pipelining of results without costly materialization
- Performant and scalable:
 - Fast scoring: 2.5 million records scored in 6 seconds on a single CPU system
 - Real-time scoring: 100 models on a single CPU: 0.085 seconds



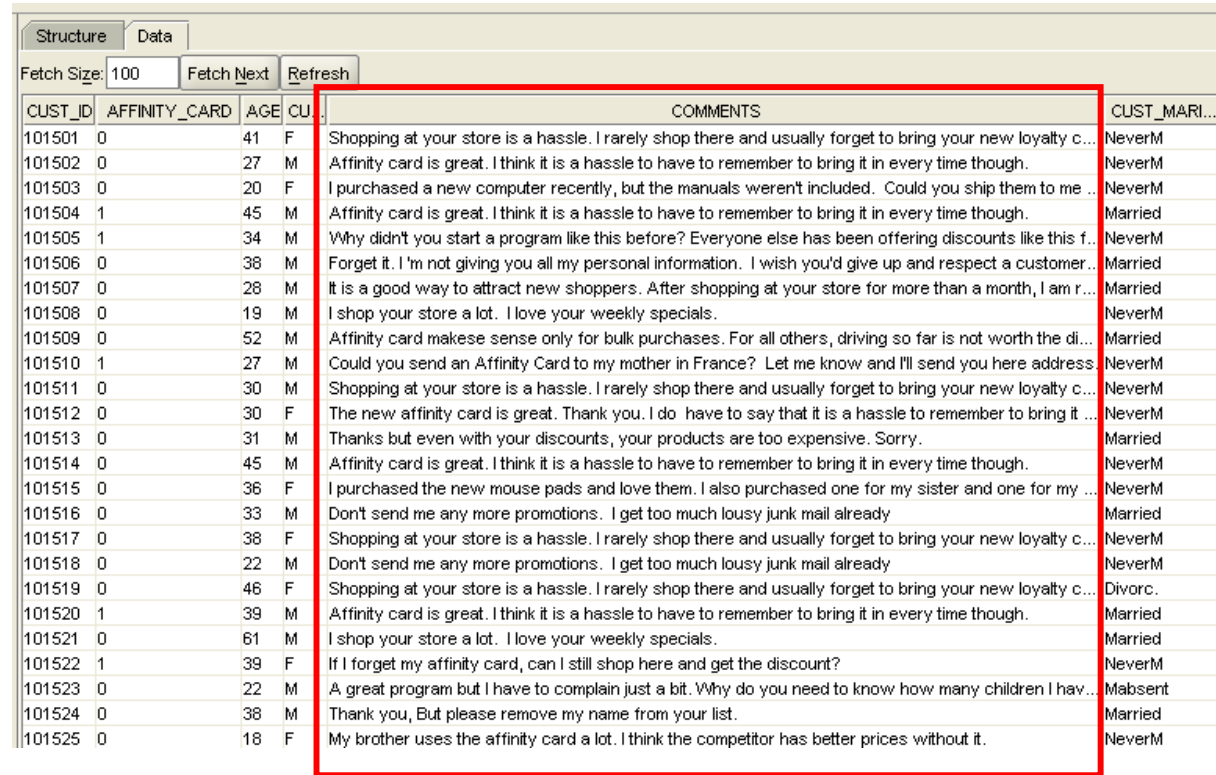
Oracle Data Mining

Algorithm Summary 11g

Problem	Algorithm	Applicability
Classification 	Logistic Regression (GLM) Decision Trees Naïve Bayes Support Vector Machine	Classical statistical technique Popular / Rules / transparency Embedded app Wide / narrow data / text
Regression 	Multiple Regression (GLM) Support Vector Machine	Classical statistical technique Wide / narrow data / text
Anomaly Detection 	One Class SVM	Lack examples
Attribute Importance 	Minimum Description Length (MDL)	Attribute reduction Identify useful data Reduce data noise
Association Rules 	Apriori	Market basket analysis Link analysis
Clustering 	Hierarchical K-Means Hierarchical O-Cluster	Product grouping Text mining Gene and protein analysis
Feature Extraction 	NMF	Text analysis Feature reduction

Oracle Data Mining and Unstructured Data

- Oracle Data Mining mines unstructured i.e. “text” data
- Include free text and comments in ODM models
- Cluster and Classify documents
- Oracle Text used to preprocess unstructured text

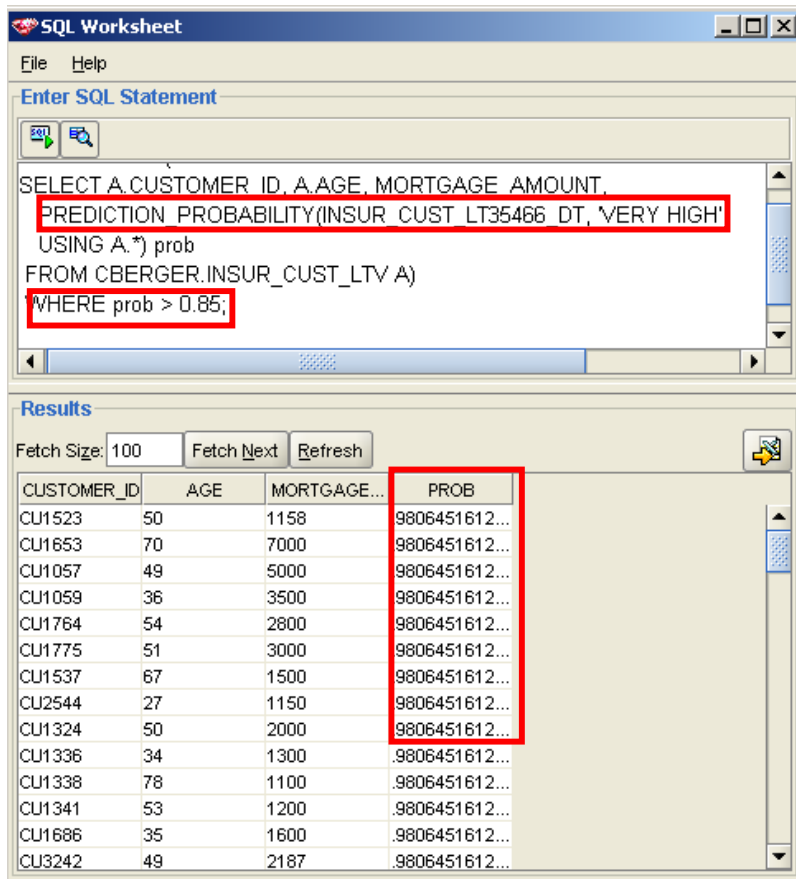


The screenshot shows the Oracle Data Mining interface with a table of customer data. The table has columns for CUST_ID, AFFINITY_CARD, AGE, GENDER, and COMMENTS. The COMMENTS column is highlighted with a red box, indicating it is the focus of the data mining process. The interface also includes tabs for Structure and Data, and buttons for Fetch Size, Fetch Next, and Refresh.

CUST_ID	AFFINITY_CARD	AGE	CU...	COMMENTS	CUST_MARI...
101501	0	41	F	Shopping at your store is a hassle. I rarely shop there and usually forget to bring your new loyalty c...	NeverM
101502	0	27	M	Affinity card is great. I think it is a hassle to have to remember to bring it in every time though.	NeverM
101503	0	20	F	I purchased a new computer recently, but the manuals weren't included. Could you ship them to me ...	NeverM
101504	1	45	M	Affinity card is great. I think it is a hassle to have to remember to bring it in every time though.	Married
101505	1	34	M	Why didn't you start a program like this before? Everyone else has been offering discounts like this f...	NeverM
101506	0	38	M	Forget it. I'm not giving you all my personal information. I wish you'd give up and respect a customer..	Married
101507	0	28	M	It is a good way to attract new shoppers. After shopping at your store for more than a month, I am r...	Married
101508	0	19	M	I shop your store a lot. I love your weekly specials.	NeverM
101509	0	52	M	Affinity card makes sense only for bulk purchases. For all others, driving so far is not worth the di...	Married
101510	1	27	M	Could you send an Affinity Card to my mother in France? Let me know and I'll send you here address.	NeverM
101511	0	30	M	Shopping at your store is a hassle. I rarely shop there and usually forget to bring your new loyalty c...	NeverM
101512	0	30	F	The new affinity card is great. Thank you. I do have to say that it is a hassle to remember to bring it ...	NeverM
101513	0	31	M	Thanks but even with your discounts, your products are too expensive. Sorry.	Married
101514	0	45	M	Affinity card is great. I think it is a hassle to have to remember to bring it in every time though.	NeverM
101515	0	36	F	I purchased the new mouse pads and love them. I also purchased one for my sister and one for my ...	NeverM
101516	0	33	M	Don't send me any more promotions. I get too much lousy junk mail already	Married
101517	0	38	F	Shopping at your store is a hassle. I rarely shop there and usually forget to bring your new loyalty c...	NeverM
101518	0	22	M	Don't send me any more promotions. I get too much lousy junk mail already	NeverM
101519	0	46	F	Shopping at your store is a hassle. I rarely shop there and usually forget to bring your new loyalty c...	Divorc.
101520	1	39	M	Affinity card is great. I think it is a hassle to have to remember to bring it in every time though.	Married
101521	0	61	M	I shop your store a lot. I love your weekly specials.	Married
101522	1	39	F	If I forget my affinity card, can I still shop here and get the discount?	NeverM
101523	0	22	M	A great program but I have to complain just a bit. Why do you need to know how many children I hav...	Mabsent
101524	0	38	M	Thank you, But please remove my name from your list.	Married
101525	0	18	F	My brother uses the affinity card a lot. I think the competitor has better prices without it.	NeverM

Example: Simple, Predictive SQL

- Select customers who are **more than 85% likely to be HIGH VALUE customers** & display their AGE & MORTGAGE_AMOUNT



The screenshot shows an SQL Worksheet window with a menu bar (File, Help) and a title bar (SQL Worksheet). Below the menu bar is a section titled "Enter SQL Statement" with a search icon. The SQL query is displayed in a text area, with several parts highlighted in red boxes: the table name "INSUR_CUST_LT35466_DT", the prediction function "PREDICTION_PROBABILITY", the alias "prob", and the filter condition "WHERE prob > 0.85;". Below the query is a "Results" section with a "Fetch Size" of 100 and buttons for "Fetch Next" and "Refresh". A table of results is displayed with columns: CUSTOMER_ID, AGE, MORTGAGE_AMOUNT, and PROB. The PROB column is highlighted in red, and the first few rows are also highlighted in red.

```
SELECT A.CUSTOMER_ID, A.AGE, MORTGAGE_AMOUNT,
PREDICTION_PROBABILITY(INSUR_CUST_LT35466_DT, 'VERY HIGH'
USING A.*) prob
FROM CBERGER.INSUR_CUST_LTV A)
WHERE prob > 0.85;
```

CUSTOMER_ID	AGE	MORTGAGE...	PROB
CU1523	50	1158	9806451612...
CU1653	70	7000	9806451612...
CU1057	49	5000	9806451612...
CU1059	36	3500	9806451612...
CU1764	54	2800	9806451612...
CU1775	51	3000	9806451612...
CU1537	67	1500	9806451612...
CU2544	27	1150	9806451612...
CU1324	50	2000	9806451612...
CU1336	34	1300	.9806451612...
CU1338	78	1100	9806451612...
CU1341	53	1200	.9806451612...
CU1686	35	1600	.9806451612...
CU3242	49	2187	9806451612...

```
SELECT * from(
SELECT A.CUSTOMER_ID, A.AGE,
MORTGAGE_AMOUNT, PREDICTION_PROBABILITY
(INSUR_CUST_LT35466_DT, 'VERY HIGH'
USING A.*) prob
FROM CBERGER.INSUR_CUST_LTV A)
WHERE prob > 0.85;
```

HCM Prediction

```
drop table HCM_SET;
exec dbms_data_mining.drop_model('HCMMODEL');

create table HCM_SET (setting_name varchar2(30), setting_value varchar2(4000));
insert into HCM_SET values ('ALGO_NAME','ALGO_SUPPORT_VECTOR_MACHINES');
insert into HCM_SET values ('PREP_AUTO','ON');
commit;
```

```
begin
dbms_data_mining.create_model('HCMMODEL', 'CLASSIFICATION',
'EMPL_DATA', 'EMPL_ID', 'CURR_EMPL', 'HCM_SET');
end;
```

```
-- accuracy (per-class and overall)
col actual format a6
select actual, round(corr*100/total,2) percent, corr, total-corr incorr, total from
(select actual, sum(decode(actual,predicted,1,0)) corr, count(*) total from
(select CURR_EMPL actual, prediction(HCMMODEL using *) predicted
from EMPL_DATA_JUNE07)
group by rollup(actual));
```

```
-- top 5 very high value, current employees most likely to leave
select * from
(select empl_id, round(prob_leave*100,2) percent_leave,
rank() over (order by prob_leave desc) rnk from
(select empl_id, prediction_probability(HCMMODEL, 'NO' using *) prob_leave
from EMPL_DATA_JUNE07
where CURR_EMPL = 'YES' and LTV_BIN = 'VERY HIGH'))
where rnk <= 5
order by percent_leave desc;
```

ACTUAL	PERCENT	CORR	INCORR	TOTAL
NO	84.04	3133	595	3728
YES	80.61	8159	1963	10122
	81.53	11292	2558	13850

Elapsed: 00:00:01.51

SQL>

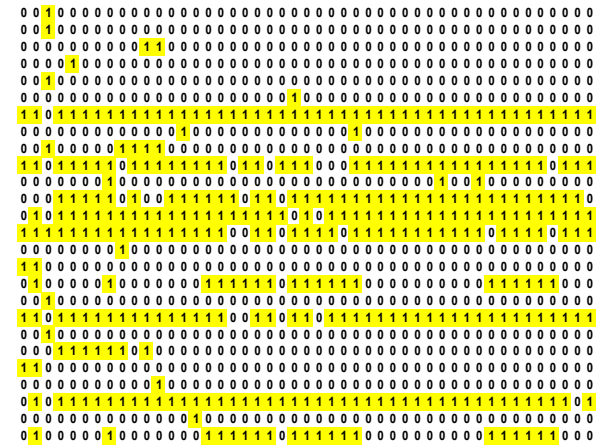
EMPL_ID	PERCENT_LEAVE	RNK
772858	96.84	1
775441	95.65	2
777992	92.1	3
773473	91.51	4
771813	90.21	5

Elapsed: 00:00:00.29

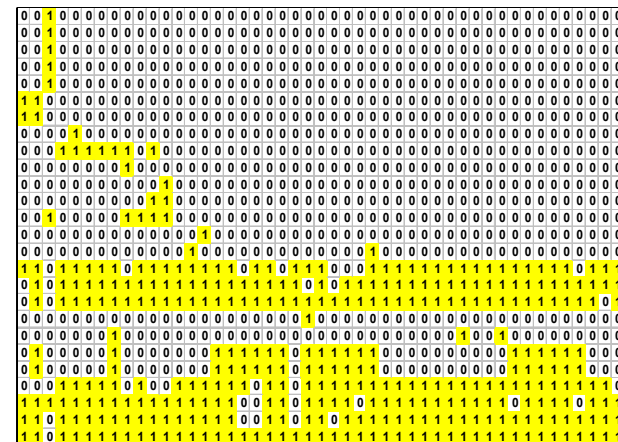
SQL>

Identify Management Mining

- Business Problem:
 - Identify roles from a set of users and privileges
 - Identify people that should and should not have a role
- Data Mining Technique(s):
 - Non-Negative Matrix Factorization, Clustering, Decision Trees, SQL
- Data
 - 2,721 unique privileges
 - 10,120 unique people
 - 1.18 million privilege-people pairs
- Results
 - 260 roles (compared with thousands in their previous approach)
 - ~ 3 min (linear scaling approach)
 - No loss or gain of privileges



Original “randomly”organized data - 23 roles



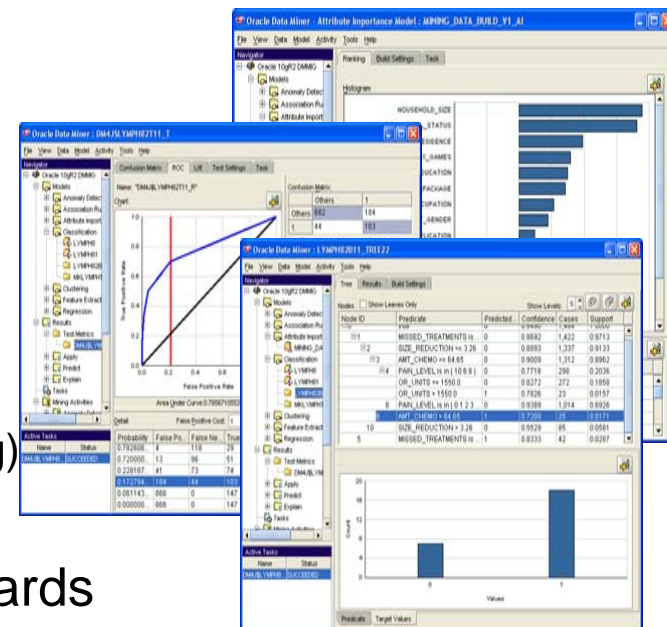
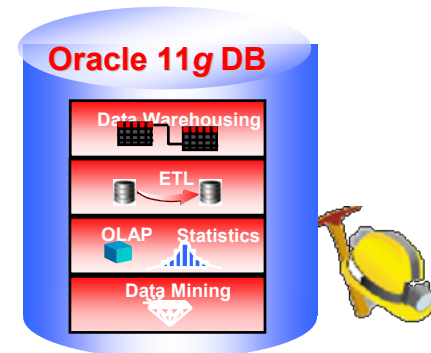
NMF organized Data - 15 roles

Roles created using row correlation (SQL)



Oracle Data Mining 11g

- Data Mining Functions (Server)
 - PL/SQL & Java APIs
 - Develop & deploy predictive analytics applications
- Wide range of DM algorithms (12)
 - Classification & regression
 - Clustering
 - Anomaly detection
 - Attribute importance
 - Feature extraction (NMF)
 - Association rules (Market Basket analysis)
 - Structured & unstructured data (text mining)
- Oracle Data Miner (GUI)
 - Simplified, guided data mining using wizards
- Predictive Analytics
 - “1-click data mining” from a spreadsheet

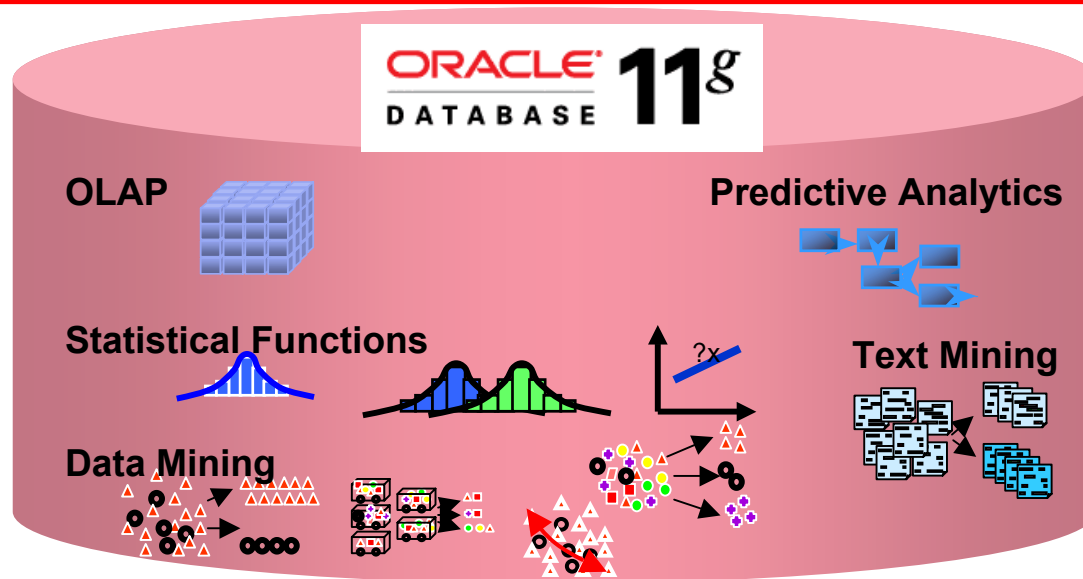


Analytical Database Changes...

****Everything****

It boils down to this:

Less data movement = **faster** analytics, and
faster analytics = **better** BI throughout the
enterprise



Integration with Oracle BI EE

The screenshot displays the Siebel Analytics Administration Tool interface, divided into three main panels: Presentation, Business Model and Mapping, and Physical. The Presentation panel shows a hierarchy for 'CD_BUYERS' with 'DIM' and 'FACT' folders. 'KEY_FACTOR' and 'IMPORTANCE' are circled in red. The Business Model and Mapping panel shows a similar hierarchy with 'Sources' and 'Sales Facts' folders. The Physical panel shows the underlying data sources, including 'Oracle_10gR2', 'Oracle_cberger', and 'CBERGER'. A red circle highlights the 'CBERGER' folder and its contents. A blue callout box points to the 'YRS_RESIDENCE' and 'AFFINITY_CARD' items in the Presentation panel, stating: "Oracle BI EE defines results for end user presentation". Another blue callout box points to the 'CBERGER' folder in the Physical panel, stating: "Oracle Data Mining results available to Oracle BI EE administrators".

Presentation

- CD_BUYERS
 - DIM
 - KEY_FACTOR
 - IMPORTANCE
 - FACT
 - RANK
 - Paint
 - Paint Exec
 - Sales_History
 - CUSTOMERS_SH_LIKELY_TO_RESPOND
 - SUPPLEMENTARY_DEMOGRAPHICS
 - CUST_ID
 - EDUCATION
 - OCCUPATION
 - HOUSEHOLD_SIZE
 - YRS_RESIDENCE
 - AFFINITY_CARD
 - BULK_PACK_DISKETTE
 - FLAT_PANEL_MONITOR
 - HOME_THEATER_PACKA
 - BOOKKEEPING_APPLICA
 - PRINTER_SUPPLIES
 - Y_BOX_GAMES
 - OS_DOC_SET_KANJI
 - COMMENTS

Business Model and Mapping

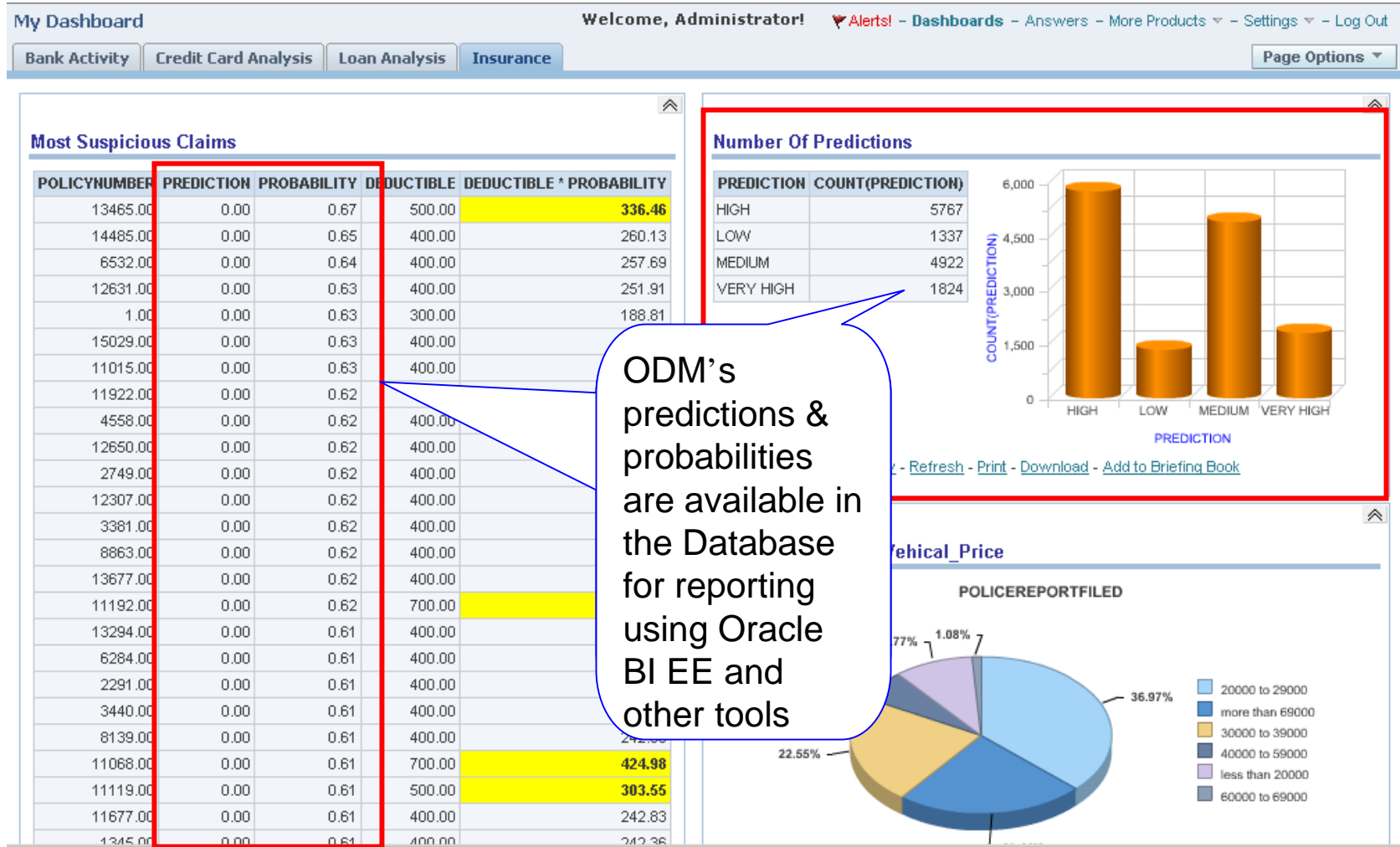
- CD_BUYERS
 - DIM
 - Sources
 - KEY_FACTOR
 - IMPORTANCE
 - FACT
 - RANK
 - Paint
 - MarketDim
 - PeriodDim
 - ProductDim
 - Markets
 - Periods
 - Products
 - Sales Facts
 - Sales_History
 - CUSTOMERS_SH_LIKELY_TO_RESPOND
 - SUPPLEMENTARY_DEMOGRAPHICS
 - Sources
 - CUST_ID
 - EDUCATION
 - OCCUPATION
 - HOUSEHOLD_SIZE
 - YRS_RESIDENCE
 - AFFINITY_CARD
 - BULK_PACK_DISKETTE
 - FLAT_PANEL_MONITOR
 - HOME_THEATER_PACKAGE
 - BOOKKEEPING_APPLICATION
 - PRINTER_SUPPLIES
 - Y_BOX_GAMES
 - OS_DOC_SET_KANJI
 - COMMENTS

Physical

- Oracle_10gR2
 - Oracle_cberger
 - cberger_pool
 - CBERGER
 - CD_BUYERS44318_SIEBEL_A
 - CD_BUYERS_APPLY394639710_A
 - CD_BUYERS_PREDICT_A
 - CDBUYER_SEGMENT_PROFILES
 - CDBUYER_SEGMENT_STATISTICS
 - CDBUYER_SEGMENTS
 - CUSTOMERS546911500_A
 - KEY_CD_BUYER_ATTRIBUTES
 - SQL_Pair
 - XLS_Fore

Example

Better Information for OBI EE Reports and Dashboards



Oracle Data Mining

- Powers Next-Generation Predictive Applications
 - Rapidly Build Applications that Automatically Mine Data
 - Code Once, Run Anywhere
 - Parallel and Distributed Processing
 - Industry Standard SQL and Java APIs
- Industry Leader in In-Database Data Mining
 - Option to the Industry Leading RDBMS—Oracle Database
 - Classification, Regression, Attribute Importance
 - Clustering, Market Basket Analysis, Anomaly Detection, Feature Extraction
 - Cutting Edge Algorithms: SVM, One-Class SVM, NMF, Scalable GLM

Oracle Data Mining

- More Information from More Data
 - Easy to use Oracle Data Miner Graphical User Interface
 - Wide Range of In-Database Data Mining Algorithms and Statistics
 - Mine Text, Transactional, and Star Schema Data
 - Mine XML, Semantic RDF, Spatial, and OLAP Data
- Eliminate Barriers Between Analysts and IT
 - Quickly Disseminate Analytical Results and Models Throughout the Organization
 - Include Real-Time Predictive Models and New Insights in SQL queries
 - Eliminate Data Movement, Maximize Security

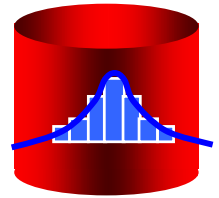


Oracle SQL Statistical Functions

(Free!)

11g Statistics & SQL Analytics

(Oracle Database EE)



• Ranking functions

- rank, dense_rank, cume_dist, percent_rank, ntile

• Window Aggregate functions

(moving and cumulative)

- Avg, sum, min, max, count, variance, stddev, first_value, last_value

• LAG/LEAD functions

- Direct inter-row reference using offsets

• Reporting Aggregate functions

- Sum, avg, min, max, variance, stddev, count, ratio_to_report

• Statistical Aggregates

- Correlation, linear regression family, covariance

• Linear regression

- Fitting of an ordinary-least-squares regression line to a set of number pairs.
- Frequently combined with the COVAR_POP, COVAR_SAMP, and CORR functions.

Note: Statistics and SQL Analytics are included in Oracle Database Standard Edition

• Descriptive Statistics

- average, standard deviation, variance, min, max, median (via percentile_count), mode, group-by & roll-up
- DBMS_STAT_FUNCS: summarizes numerical columns of a table and returns count, min, max, range, mean, stats_mode, variance, standard deviation, median, quantile values, +/- n sigma values, top/bottom 5 values

• Correlations

- Pearson's correlation coefficients, Spearman's and Kendall's (both nonparametric).

• Cross Tabs

- Enhanced with % statistics: chi squared, phi coefficient, Cramer's V, contingency coefficient, Cohen's kappa

• Hypothesis Testing

- Student t-test, F-test, Binomial test, Wilcoxon Signed Ranks test, Chi-square, Mann Whitney test, Kolmogorov-Smirnov test, One-way ANOVA

• Distribution Fitting

- Kolmogorov-Smirnov Test, Anderson-Darling Test, Chi-Squared Test, Normal, Uniform, Weibull, Exponential

• Pareto Analysis (documented)

- 80:20 rule, cumulative results table

Descriptive Statistics

- MEDIAN & MODE

> SQL

- Median: takes numeric or datatype values and returns the middle value
- Mode: returns the most common value

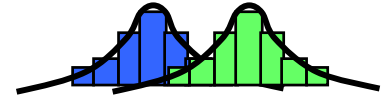
A. `SELECT STATS_MODE(AGE) from LYMPHOMA;`

B. `SELECT MEDIAN(AGE) from LYMPHOMA;`

C. `SELECT TREATMENT_PLAN, STATS_MODE(LYMPH_TYPE)
from lymphoma GROUP BY TREATMENT_PLAN;`

D. `SELECT LYMPH_TYPE, MEDIAN(SIZE_REDUCTION) from
LYMPHOMA GROUP BY LYMPH_TYPE ORDER BY
MEDIAN(SIZE_REDUCTION) ASC;`

Independent Samples T-Test (Pooled Variances)

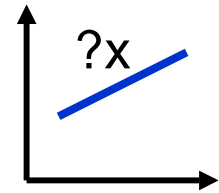


- Query compares the mean of AMOUNT_SOLD between MEN and WOMEN within CUST_INCOME_LEVEL ranges

```
SELECT substr(cust_income_level,1,22) income_level,  
       avg(decode(cust_gender,'M',amount_sold,null)) sold_to_men,  
       avg(decode(cust_gender,'F',amount_sold,null)) sold_to_women,  
       stats_t_test_indep(cust_gender, amount_sold, 'STATISTIC','F')  
       t_observed,  
       stats_t_test_indep(cust_gender, amount_sold) two_sided_p_value  
FROM sh.customers c, sh.sales s  
WHERE c.cust_id=s.cust_id  
GROUP BY rollup(cust_income_level)  
ORDER BY 1;
```

SQL Worksheet

Correlation Functions



- The CORR_S and CORR_K functions support nonparametric or rank correlation (finding correlations between expressions that are ordinal scaled).
- Correlation coefficients take on a value ranging from -1 to 1 , where:
 - 1 indicates a perfect relationship
 - -1 indicates a perfect inverse relationship
 - 0 indicates no relationship
- The following query determines whether there is a correlation between the AGE and WEIGHT of people, using Spearman's correlation:

```
select CORR_S(AGE, WEIGHT)
       coefficient,
       CORR_S(AGE, WEIGHT,
             'TWO_SIDED_SIG')
       p_value,
       substr(TREATMENT_PLAN, 1,15)
as TREATMENT_PLAN
from CBERGER.LYMPHOMA
GROUP BY TREATMENT_PLAN;
```

COEFFICIENT	P_VALUE	TREATMENT_PLAN
.1862586290028...	.019908367365...	Chemo&Radiation
-.0575579915035...	.072279268481...	Chemo_only
-.0746488538574...	.288631463930...	Experimental
-.1254971583227...	.000018140526...	Radiation

ORACLE[®] Analytics vs. SAS[®]

1. In-Database Analytics Engine

Basic Statistics (*Free*)

Data Mining

Text Mining

2. Costs (ODM: \$23K cpu)

Simplified environment

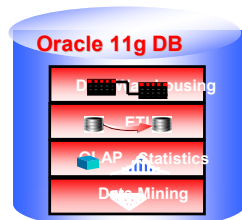
Single server

Security

3. IT Platform

SQL (standard)

Java (standard)



1. External Analytical Engine

Basic Statistics

Data Mining

Text Mining (*separate: SAS EM for Text*)

Advanced Statistics

2. Costs (SAS EM: \$150K/5 users)

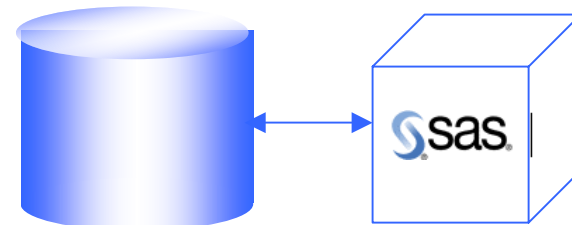
Duplicates data

Annual Renewal Fee (AUF)

(~45% each year)

3. IT Platform

SAS Code (proprietary)



ORACLE[®] Analytics vs. SAS[®]

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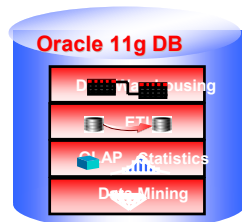
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SQL (standard)

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1. External Analytical Engine

Basic Statistics

Data Mining

Text Mining (*separate: SAS EM for Text*)

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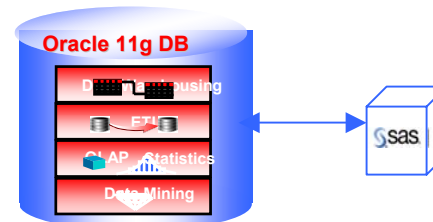
Duplicates data

Annual Renewal Fee (AUF)

(~45% each year)

3. IT Platform

SAS Code (proprietary)



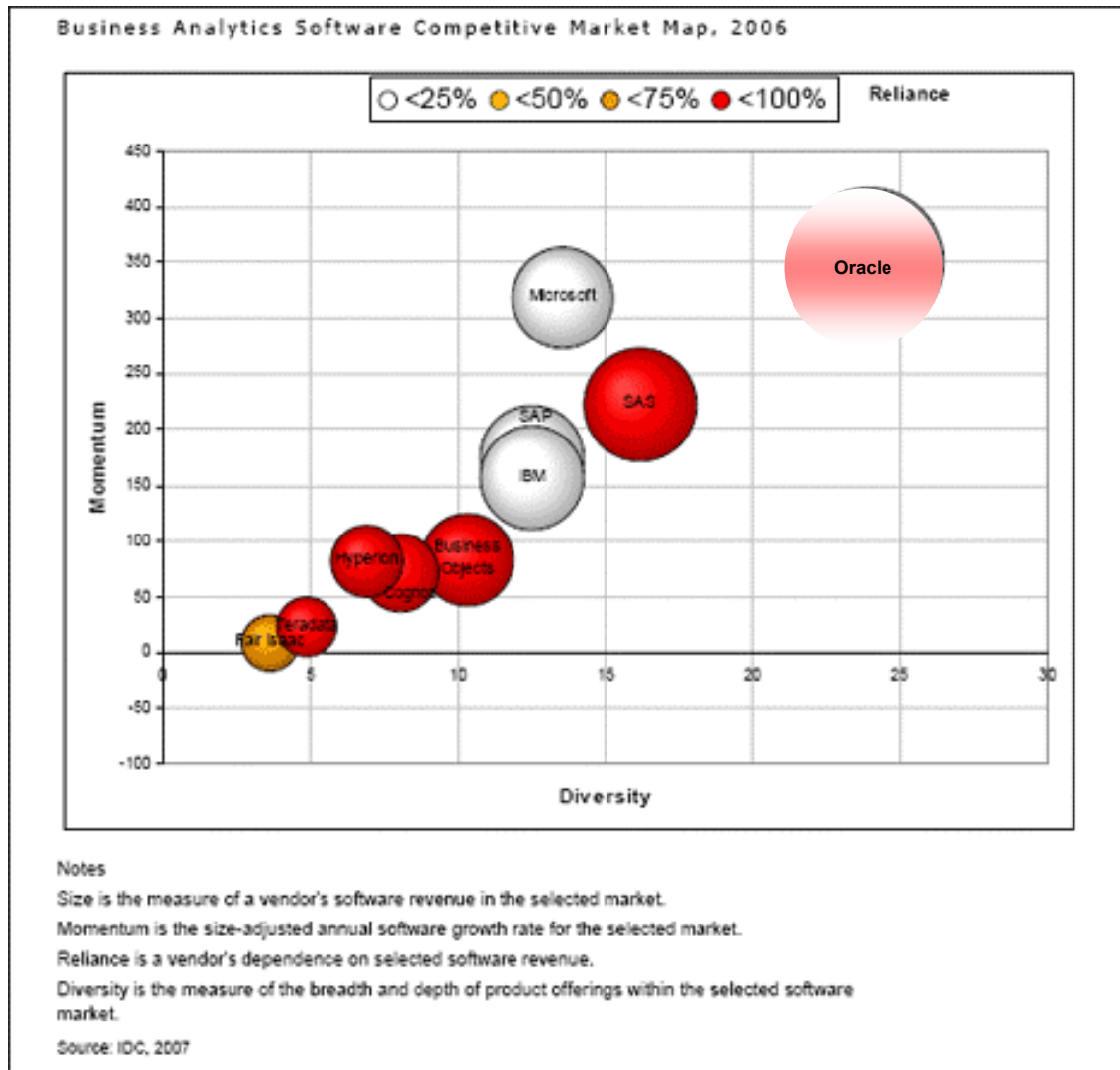
SAS In-Database Processing

3-Year Road Map



- “The goal of the SAS In-Database initiative is ... to achieve deeper technical integration with database providers..
- ..., the SAS engine often must load and extract data over a network to and from the DBMS. This presents a series of challenges:
 - ...Network bottlenecks between SAS and the DBMS constrain access to large volumes of data
 - ... the results of the SAS processing must be transferred back to the DBMS for final storage, which further increases the cost.

IDC Worldwide Business Analytics Software



http://www.oracle.com/corporate/analyst/reports/infrastructure/bi_dw/208699e.pdf

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Brief Demonstrations

1. Oracle Data Mining
2. OOW Schedule Builder
3. CRM Sales Prospector
4. HCM Application



Oracle Data Mining + OBI EE

Quick Demo: Oracle Data Mining

- Scenario: Insurance Company
- Business problem(s):
 1. Better understand the business by looking at graphs of the data
 2. Identify the factors (attributes) most associated with Customer who BUY_INSURANCE
 3. Target Best Customers
 - a. Build a predictive model to understand who will be a VERY_HIGH VALUE Customer And WHY (IF... THEN.. Rules that can describe them)
 - b. Predict who is likely to be a VERY_HIGH VALUE Customer in the future
 - c. View results in an **OBI EE Dashboard**
 - Including other business problems e.g. Fraud, Cross-Sell, etc.
 - (Entire process **can be automated** w/ PL/SQL and/or Java APIs)

Oracle Data Mining + OBI EE

Understand the Data

Oracle Data Mining helps to visualize the data

The screenshot displays the Oracle Data Miner interface. The main window shows a table of customer data with columns: CUSTOMER_ID, LAST, STA..., REGION, SEX, PROFESSION, BUY_INS..., AGE, HAS_CHILD..., LTV_BIN, SALARY, LTV. Below this, the 'Data Summarization Viewer' for 'CBERGER.INSUR_CUST_LTV' is open, showing a list of attributes with their statistics. A 'Histogram for selected attribute' window is also open, showing a horizontal bar chart for the 'AGE' attribute. The histogram shows the distribution of ages across different bins, with the highest frequency in the 25.2 - 33.6 range.

Name	Mining...	Attribu...	Average	Max	Min	Variance	Ni
AGE	numerical	NUMBER	37.34	84	0	214.23	0
BANK_FUNDS	numerical	NUMBER	2,562.97	105,000	0	23,068,...	0
BUY_INSURANCE	categori...	VARCH...					0
CAR_OWNERSHIP	categori...	NUMBER	0.93	1	0	0.06	0
CHECKING_AMOUNT	numerical	NUMBER	1,068.71	24,760	25	10,100,...	0
CREDIT_BALANCE	numerical	NUMBER	2,793.31	571,088	0	341,598,...	0
CREDIT_CARD_LIMITS	numerical	NUMBER	1,266.43	5,000	500	673,981.1	0
CUSTOMER_ID	categori...	VARCH...					0
FIRST	categori...	VARCH...					0
HAS_CHILDREN	categori...	NUMBER	0.49	1	0	0.25	0
HOUSE_OWNERSHIP	categori...	NUMBER	0.8	2	0	0.26	0
LAST	categori...	VARCH...					0
LTV	numerical	FLOAT	22,260.43	47,501.75	0	46,480,...	0
LTV_BIN	categori...	VARCH...					0
MARITAL_STATUS	categori...	VARCH...					0
MONEY_MONTHLY_OVERDRA...	numerical	FLOAT	53.63	93.64	-77.34	9.42	0
MONTHLY_CHECKS_WRITTEN	numerical	NUMBER	4.55	18	0	23.59	0
MORTGAGE_AMOUNT	numerical	NUMBER	2,005.7	90,000	0	10,274,...	0
N_MORTGAGES	categori...	NUMBER	0.8	2	0	0.26	0
N_OF_DEPENDENTS	numerical	NUMBER	2.06	6	0	2.4	0
N_TRANS_ATM	numerical	NUMBER	2.87	8	0	3.48	0
N_TRANS_KIOSK	numerical	NUMBER	1.95	10	0	3.66	0
N_TRANS_TELLER	numerical	NUMBER	1.8	9	0	2.17	0
N_TRANS_WEB_BANK	numerical	NUMBER	1,331.31	45,000	0	3,873,1...	0
PROFESSION	categori...	VARCH...					0

Group	Value(s)	Bin Count	% of Total
0	< 8.4	250	2.5
1	8.4 - 16.8	0	0.0
2	16.8 - 25.2	1940	19.37
3	25.2 - 33.6	2241	22.38
4	33.6 - 42	2011	20.08
5	42 - 50.4	1819	18.16
6	50.4 - 58.8	884	8.83

Oracle Data Mining + OBI EE

Target the Right Customers

Oracle Data Miner guides the analyst through the data mining process

New Activity Wizard - Step 3 of 4: Data Usage

Review Data Usage Settings

Select the target column, and review the column settings. You can change the column settings to better match your understanding of the data. The default settings have been determined for each column based on the activity type and the characteristics of the data. The options of changing input and mining type vary based on the algorithm chosen. Click Help for more details.

[Data Summary](#)

Name	Alias	Target	Input	Data Type	Mining Type	Sparsity
CBERGER.INSUR_C...		<input type="radio"/>	<input checked="" type="checkbox"/>			
AGE	AGE	<input type="radio"/>	<input checked="" type="checkbox"/>	NUMBER	numerical	<input type="checkbox"/>
BANK_FUNDS	BANK_FUNDS	<input type="radio"/>	<input checked="" type="checkbox"/>	NUMBER	numerical	<input type="checkbox"/>
BUY_INSURANCE	BUY_INSURANCE	<input checked="" type="radio"/>	<input checked="" type="checkbox"/>	VARCHAR2	categorical	<input type="checkbox"/>
CAR_OWNERSHIP	CAR_OWNERSHIP	<input type="radio"/>	<input checked="" type="checkbox"/>	NUMBER	categorical	<input type="checkbox"/>
CHECKING_AMOU...	CHECKING_AMOU...	<input type="radio"/>	<input checked="" type="checkbox"/>	NUMBER	numerical	<input type="checkbox"/>
CREDIT_BALANCE	CREDIT_BALANCE	<input type="radio"/>	<input checked="" type="checkbox"/>	NUMBER	numerical	<input type="checkbox"/>
CREDIT_CARD_LI...	CREDIT_CARD_LI...	<input type="radio"/>	<input checked="" type="checkbox"/>	NUMBER	numerical	<input type="checkbox"/>
CUSTOMER_ID	CUSTOMER_ID	<input type="radio"/>	<input type="checkbox"/>	VARCHAR2	categorical	<input type="checkbox"/>
FIRST	FIRST	<input type="radio"/>	<input type="checkbox"/>	VARCHAR2	categorical	<input type="checkbox"/>
HAS_CHILDREN	HAS_CHILDREN	<input type="radio"/>	<input checked="" type="checkbox"/>	NUMBER	categorical	<input type="checkbox"/>
HOUSE_OWNERS...	HOUSE_OWNERS...	<input type="radio"/>	<input checked="" type="checkbox"/>	NUMBER	categorical	<input type="checkbox"/>
LAST	LAST	<input type="radio"/>	<input type="checkbox"/>	VARCHAR2	categorical	<input type="checkbox"/>
LTV	LTV	<input type="radio"/>	<input checked="" type="checkbox"/>	NUMBER	numerical	<input type="checkbox"/>
LTV_BIN	LTV_BIN	<input type="radio"/>	<input checked="" type="checkbox"/>	VARCHAR2	categorical	<input type="checkbox"/>
MARITAL_STATUS	MARITAL_STATUS	<input type="radio"/>	<input checked="" type="checkbox"/>	VARCHAR2	categorical	<input type="checkbox"/>
MONEY_MONTHLY_...	MONEY_MONTHLY_...	<input type="radio"/>	<input checked="" type="checkbox"/>	NUMBER	numerical	<input type="checkbox"/>
MONTHLY CHEC...	MONTHLY CHEC...	<input type="radio"/>	<input checked="" type="checkbox"/>	NUMBER	numerical	<input type="checkbox"/>

Include All Exclude All

Help < Back Next > Finish Cancel

Oracle Data Mining + OBI EE

Targeting High Value Customers

Oracle Data Mining builds a model that differentiates HI_VALUE_CUSTOMERS from others

The screenshot displays the Oracle Data Miner interface for a mining activity named 'INSUR_CUST_LTV833819485_BA'. The interface is divided into several sections:

- Navigator:** A tree view on the left showing the project structure, including Mining Activities, Anomaly Detection, Association Rules, Attribute Importance, and Classification. The Classification folder is expanded, showing various mining activities like 'AMAZ_AFF_CARD_BA', 'AMAZ_MINING_BUILD_TEXT_BA', etc.
- Activity Configuration:** The main area shows the activity name, type (Decision Tree Mining Activity), case table (CBERGER.INSUR_CUST_LTV), unique identifier (CUSTOMER_ID), and target (CBERGER.INSUR_CUST_LTV.LTV_BIN).
- Activity Steps:** A list of steps including 'Sample', 'Split', 'Build', and 'Test Metrics', each with a brief description of its function.
- Results:** A table showing the predicted target values and confidence levels for various nodes. The table has columns for Node ID, Predicate, Predicted Value, Confidence, Cases, and Support.
- Summary:** A section at the bottom right providing overall statistics: Predicted Target Value (VERY HIGH), Support (6.17%), Confidence (56.51%), Cases (538), and Level (5).
- Split Rules:** A section showing the logical rules used for splitting the data, such as 'MORTGAGE_AMOUNT > 0.5 AND HOUSE_OWNERSHIP is in 1 AND N_OF_DEPENDENTS <= 1.5 AND HAS_CHILDREN is in 0 AND SALARY > 64588.0'.

Node ID	Predicate	Predicted Value	Confidence	Cases	Support
0	true	HIGH	0.4849	8,722	1.0000
21	MORTGAGE_AMOUNT <= 0.5	MEDIUM	0.5780	2,154	0.2470
21	MORTGAGE_AMOUNT > 0.5	HIGH	0.6200	6,568	0.7530
22	HOUSE_OWNERSHIP is in 2	VERY HIGH	0.7921	433	0.0496
60	AGE <= 20.5	LOW	0.5000	12	0.0014
23	AGE > 20.5	VERY HIGH	0.8052	421	0.0483
24	N_OF_DEPENDENTS <= 3.5	VERY HIGH	0.8991	347	0.0398
25	AGE <= 26.5	HIGH	0.5283	38	0.0044
61	HAS_CHILDREN is in 0	VERY HIGH	1.0000	12	0.0014
62	HAS_CHILDREN is in 1	HIGH	0.7692	26	0.0030
63	AGE > 26.5	VERY HIGH	0.9515	309	0.0354
64	N_OF_DEPENDENTS > 3.5	HIGH	0.6351	74	0.0085
26	HOUSE_OWNERSHIP is in 1	HIGH	0.6500	6,135	0.7034
27	N_OF_DEPENDENTS <= 1.5	HIGH	0.7774	2,879	0.3301
28	HAS_CHILDREN is in 0	HIGH	0.6519	1,086	0.1245
29	SALARY <= 64588.0	HIGH	0.8759	548	0.0628
65	TIME_AS_CUSTOMER is in (2 4 5)	VERY HIGH	0.5875	80	0.0092
66	TIME_AS_CUSTOMER is in 1	HIGH	0.9615	468	0.0537
80	SALARY > 64588.0	VERY HIGH	0.5661	538	0.0617
67	AGE <= 23.5	HIGH	0.6250	16	0.0018
68	AGE > 23.5	VERY HIGH	0.5824	522	0.0598
31	HAS_CHILDREN is in 1	HIGH	0.8533	1,793	0.2056
32	SALARY <= 79990.0	HIGH	0.8778	1,711	0.1962
69	SALARY <= 59841.0	HIGH	0.5347	346	0.0397
70	SALARY > 59841.0	HIGH	0.9648	1,365	0.1565
71	SALARY > 79990.0	VERY HIGH	0.6585	82	0.0094
33	N OF DEPENDENTS > 1.5	HIGH	0.5375	3,256	0.3733

Oracle Data Mining + OBI EE

Targeting High Value Customers

Oracle Data Mining creates a prioritized list of customer who are likely to be high value

Activity: INSUR_CUST_LTV1330924475007_AA: Result Viewer: "INSUR_CUST_LTV_A15728619_A"

File Publish Help

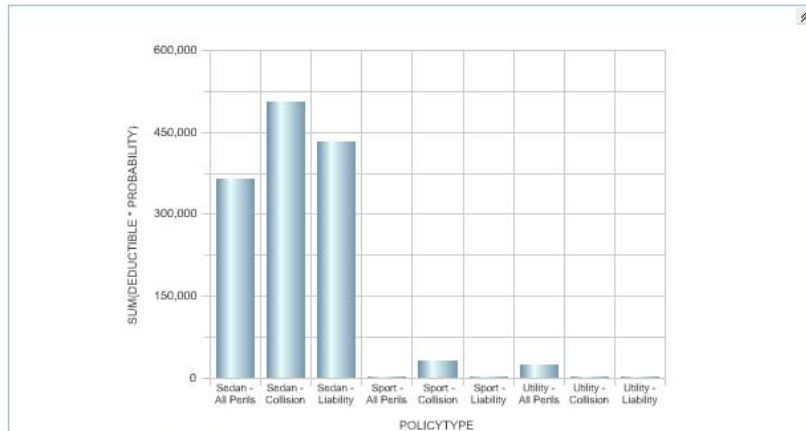
Apply Output Apply Settings Task

Apply Output Table: INSUR_CUST_LTV_A15728619_A

Fetch Size: 100 Refresh

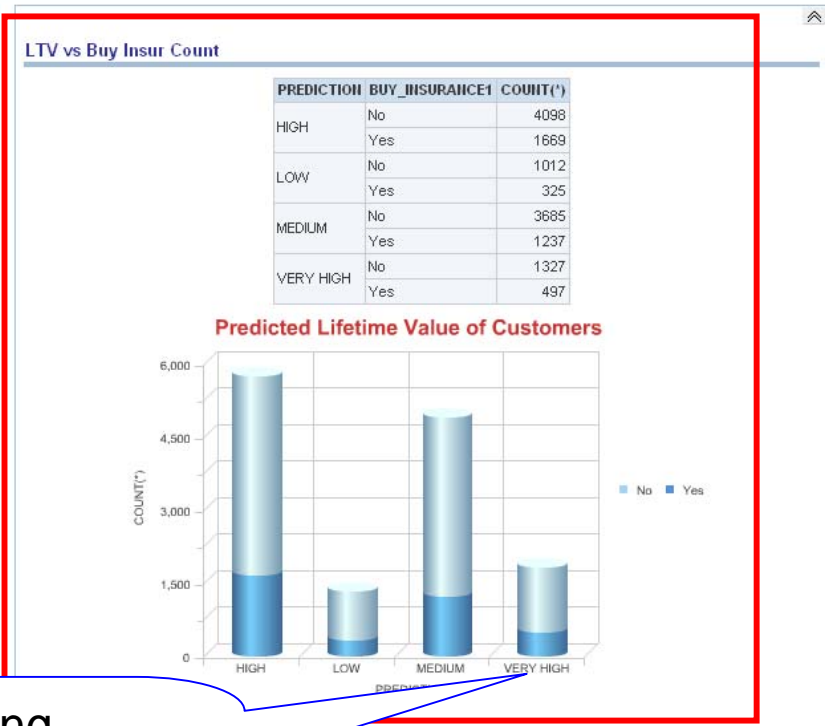
DMR\$CAS...	PREDICTION	PROBABILITY	COST	RANK	NODE	LAST	AGE1	MARITAL_STATUS1	N_MORTGAGE...
CU3111	HIGH	0.9933	0.0067	1	66	CLIFFORD	47	DIVORCED	1
CU3113	MEDIUM	0.9933	0.0067	1	48	HUMBERTO	38	SINGLE	0
CU3116	HIGH	0.9648	0.0352	1	70	EUNA	39	DIVORCED	1
CU3117	MEDIUM	0.9933	0.0067	1	48	HOYT	45	SINGLE	0
CU3119	HIGH	0.9615	0.0385	1	66	LIZBETH	42	DIVORCED	1
CU3121	HIGH	0.9615	0.0385	1	66	BORIS	46	DIVORCED	1
CU3123	HIGH	1	0	1	52	DANA	52	SINGLE	0
CU3125	MEDIUM	0.8722	0.1278	1	73	TIM	49	DIVORCED	1
CU3126	HIGH	0.9648	0.0352	1	70	LASHAWN	61	DIVORCED	1
CU3127	MEDIUM	0.8127	0.1873	1	49	BUCK	41	SINGLE	0
CU3128	MEDIUM	0.8127	0.1873	1	49	WALTON	46	SINGLE	0
CU3129	VERY HIGH	0.9515	0.0485	1	63	ALDEN	49	MARRIED	2
CU3130	VERY HIGH	0.5824	0.4176	1	68	ANGELICA	41	DIVORCED	1
CU3132	HIGH	0.9648	0.0352	1	70	LIZZETTE	34	DIVORCED	1
CU3133	HIGH	0.9648	0.0352	1	70	ISABELLA	30	DIVORCED	1
CU3134	HIGH	0.9648	0.0352	1	70	DELPHA	46	DIVORCED	1
CU3136	LOW	1	0	1	39	GEORGE	0	SINGLE	0
CU3137	HIGH	0.9648	0.0352	1	70	RAUL	39	MARRIED	1
CU3138	VERY HIGH	0.5875	0.4125	1	65	ANGELO	44	DIVORCED	1
CU3139	MEDIUM	0.9933	0.0067	1	48	GARRET	43	SINGLE	0
CU3141	MEDIUM	0.9933	0.0067	1	48	BRYON	39	SINGLE	0
CU3142	HIGH	0.9648	0.0352	1	70	TAMMI	52	DIVORCED	1
CU3143	HIGH	0.9648	0.0352	1	70	LEEANN	46	DIVORCED	1

Integration with Oracle BI EE



Deductible by Policy Type -bar chart

POLICYTYPE	SUM(DEDUCTIBLE * PROBABILITY)
Sedan - All Perils	365451.59
Sedan - Collision	505398.98
Sedan - Liability	433042.90
Sport - All Perils	1640.33
Sport - Collision	30686.23
Sport - Liability	188.68
Utility - All Perils	25113.26
Utility - Collision	
Utility - Liability	



Oracle Data Mining provides more information and better insight

[products/bi/odm/index.html](#)

Oracle Data Mining

Know More, Do More, Spend Less

Business Decision Makers

- **Make Better Decisions**
- **Extract More Value from Your Data**
- **Lower Your Total Cost of Ownership**



Data Analysts

- **Get Results Faster**
- **Get More Results**
- **Easy to Use**



Integrators and IT

- **Create More Value for Your Organization**
- **Make Your Work Easier**
- **Transform IT from a Cost to a Profit Center**



Predictive Analytics Use Case



- The cast:
 - Peter: a data mining analyst
 - Sally: a marketing manager
- Peter builds a decision tree classification model, `tree_model`
- Peter grants the ability to view/score the tree model to Sally

```
GRANT SELECT MODEL ON tree_model TO Sally;
```

- Sally inspects the model, likes it, and wants it deployed
- Sally scores the customer database using the new model and his understanding of the cost of contacting a customer and sends the new contact list to the head of the sales department

```
CREATE TABLE AS SELECT cust_name, cust_phone FROM  
customers  
WHERE prediction(Peter.tree_model cost matrix (0,5,1,0) using *) =  
'responder';
```

Real-time Prediction

with

```
records as (select
  78000 SALARY,
  250000 MORTGAGE_AMOUNT,
  6 TIME_AS_CUSTOMER,
  12 MONTHLY_CHECKS_WRITTEN,
  55 AGE,
  423 BANK_FUNDS,
  'Married' MARITAL_STATUS,
  'Nurse' PROFESSION,
  'M' SEX,
  4000 CREDIT_CARD_LIMITS,
  2 N_OF_DEPENDENTS,
  1 HOUSE_OWNERSHIP from dual)
```

```
select s.prediction prediction, s.probability probability
```

```
from (
```

```
select PREDICTION_SET(INSUR_CUST_LT68054_DT, 1 USING *) pset
from records) t, TABLE(t.pset) s;
```

**On-the-fly, single record
apply with new data (e.g.
from call center)**

PREDICTION	PROBABILITY
HIGH	.65123504738232096

Real-time Prediction Multiple Models

```
with records as (select
  178255 ANNUAL_INCOME,
  0 CAPITAL_GAIN,
  83 SAVINGS_BALANCE,
  246 AVE_CHECKING_BALANCE,
  30 AGE,
  'Bach.' EDUCATION,
  'SelfENI' WORKCLASS,
  'Married' MARITAL_STATUS,
  'Sales' OCCUPATION,
  'Husband' RELATIONSHIP,
  'White' RACE,
  'Male' SEX,
  70 HOURS_PER_WEEK,
  '?' NATIVE_COUNTRY,
  98 PAYROLL_DEDUCTION from dual)
select t.*
from (
  select 'CAR_MODEL_MODEL', s1.prediction prediction, s1.probability probability, s1.probability*25000 as expected_revenue from (
    select PREDICTION_SET(NBMODEL_JDM, 1 USING *) pset
    from records ) t1, TABLE(t1.pset) s1
  UNION
  select 'MOTOCYCLE_MODEL_MODEL', s2.prediction prediction, s2.probability probability, s1.probability*2000 as expected_revenue
  from (
    select PREDICTION_SET(ABNMODEL_JDM, 1 USING *) pset
    from records ) t2, TABLE(t2.pset) s2
  UNION
  select 'TRICYCLE_MODEL_MODEL', s3.prediction prediction, s3.probability probability, s1.probability*50 as expected_revenue from (
    select PREDICTION_SET(TREEMODEL_JDM, 1 USING *) pset
    from records ) t3, TABLE(t3.pset) s3
  UNION
  select 'BICYCLE_MODEL_MODEL', s4.prediction prediction, s4.probability probability, s1.probability*200 as expected_revenue from (
    select PREDICTION_SET(SVMCMODEL_JDM, 1 USING *) pset
    from records ) t4, TABLE(t4.pset) s4
  ) t
order by t.expected_revenue desc;
```

**On-the-fly, single record
apply with multiple
models; sort by
expected revenues**



OOW Schedule Builder

OOW 2008 Schedule Builder Recommendation Engine

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OOW 2008 Schedule Builder Recommendation Engine





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OOW 2008 Schedule Builder Recommendation Engine



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View Sessions		View Exhibition Hall		Times	Sunday, Sep 21	Monday, Sep 22	Tuesday, Sep 23	Wednesday, Sep 24	Thursday, Sep 25
Basic Search Advanced Search				8:00					
Track	All			8:30					
Product Area	All			9:00		Oracle Keynote: Charles Phillips and Chuck Rozwat	Executive Solution Session: Intelligently Communicate with	Oracle Database Solution Session: PeopleSoft Green IT	
Session Type	All			9:30					
Focus Area	All			10:00	Automatic Storage				
Session Id				10:30					
Text Search				11:00					
Speaker/Company				11:30		Executive Solution Session: Realize your Oracle Investment with the	Executive Solution Session: Optimizing Shared-Service Centers by	Executive Solution Session: CSC--At the Forefront of Thought	
<input type="button" value="Search"/> <input type="button" value="Clear Search"/>				12:00					Profitable Customer Relationships: Using Business Intelligence
Recommended Sessions more info				12:30					
9/23 09:00 S298474 High Technology Industry General Session 9/23 11:30 S298693 A Guide to Custom Look and Feel and Skin 9/23 17:00 S299792 Using Demantra Demand Planning at Cisco 9/23 17:00 S299087 Introducing Oracle Advanced Planning Com 9/24 17:00 S299106 The Value of Upgrading from Oracle Demar				13:00			Upgrading to Oracle Business Suite Release 12: Best		
All Sessions				13:30					Implement Next-Generation Loyalty Strategies in Airlines with Siebel
				14:00					
				14:30		Executive Solution Session: How to Build an Agile Foundation for	Keynote: Paul S. Ottelini, Intel and Thomas Kurian, Oracle	Keynote: Larry Ellison, Oracle and Mark Hurd, HP	
				15:00					Maximum Performance for Multimedia with Oracle SecureFiles
				15:30					
				16:00		Oracle's Vulnerability Remediation Practices: SecAlert			
				16:30					
				17:00			Using Demantra Demand Planning at Cisco	The Value of Upgrading from Oracle Demand	
				17:30		(*R) Increase			



Oracle Sales Prospector

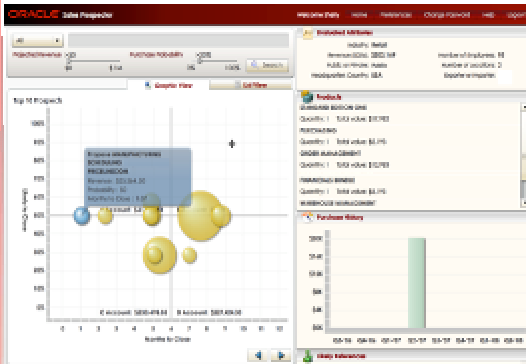
John Kim

Director, Product Mgmt

Oracle Social CRM

Social Sales Applications

Sales Prospector



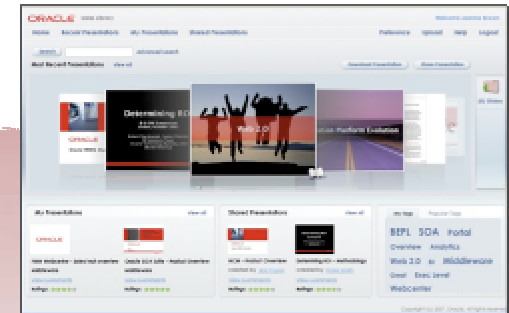
Insight on what to sell next based on analysis of buying patterns of customers with similar attributes

Sales Campaigns



Create sophisticated html campaigns in email, share and track the results of their campaigns

Sales Library



Shared library to facilitate finding and sharing of sales content; PowerPoint, Word, Excel, PDF etc

Shipped
Available Now

Social CRM

Relationships are Fundamentally Social

*Sales 'Forced'
Automation*

Forecasts for Managers

Sales 1.0

'Stick' Based Model

Transactional

Individual

**Report More
Sell Less**



**Report Less
Sell More**

Social

Collaborative

'Carrot' Based Model

Sales 2.0

Sales for Sales Reps

*Sales Productivity
Applications*

How Can I Sell More?



Oracle Sales Prospector

Predictions

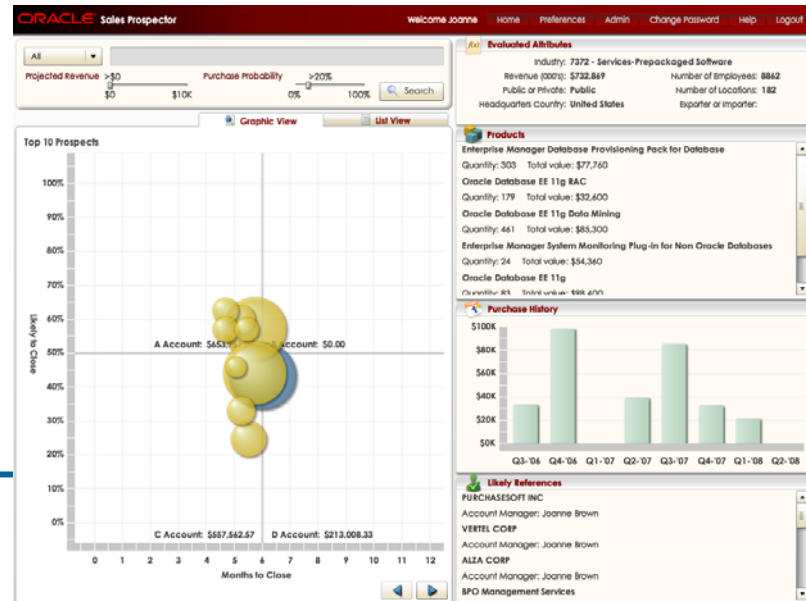
- Revenue
- Probability
- Time to close

Analysis

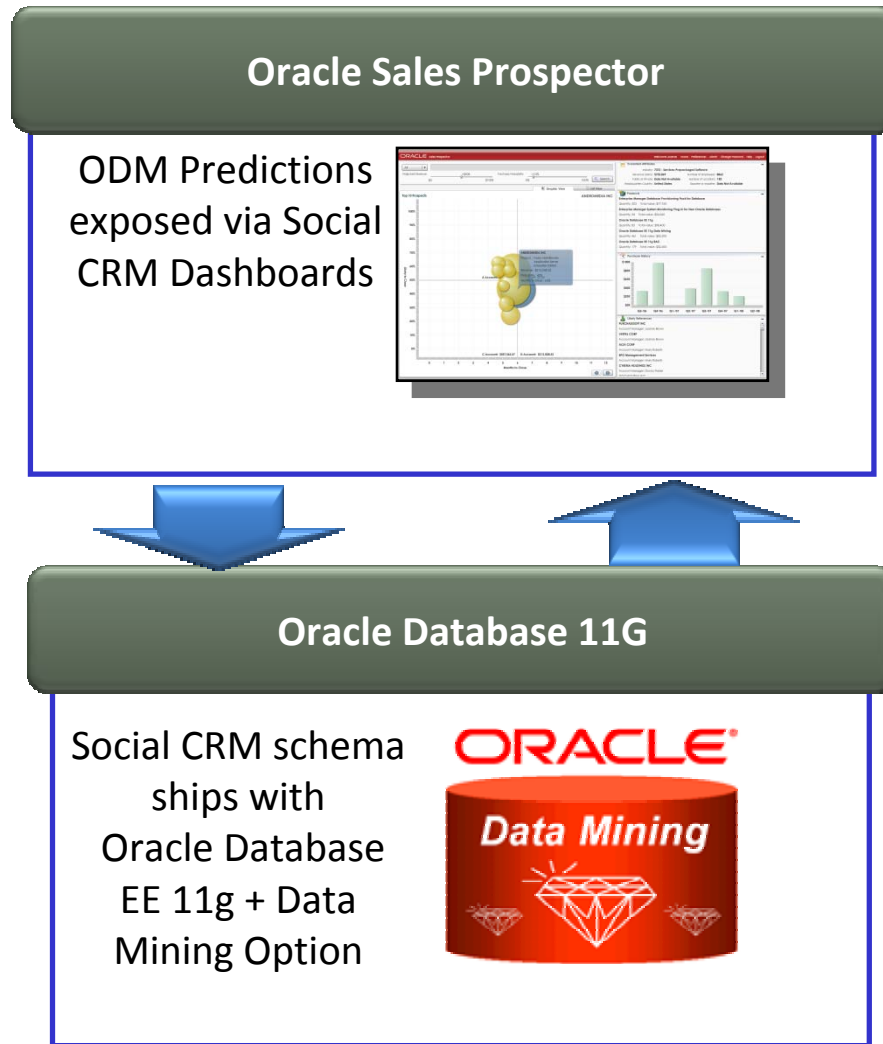
- Customer attributes
- Products owned
- Purchase history

References

- Similar customers
- Similar products

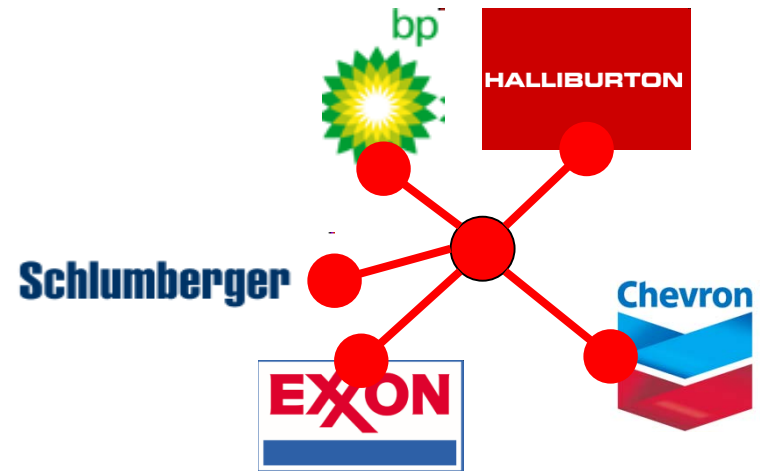


Oracle Data Mining = the Science of Selling



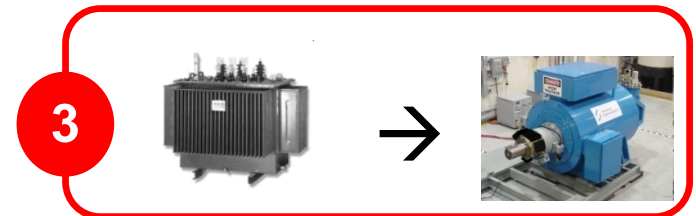
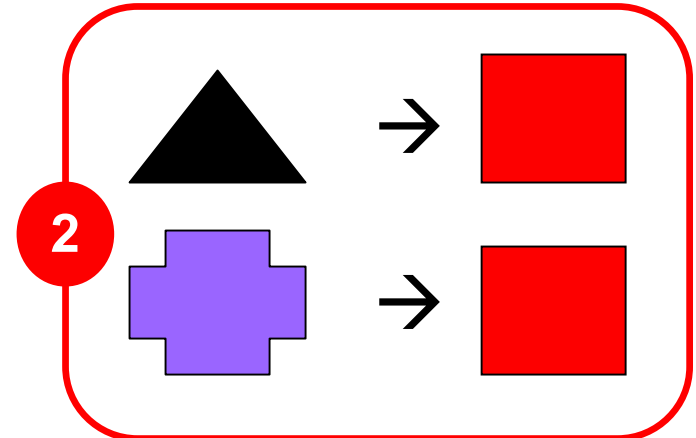
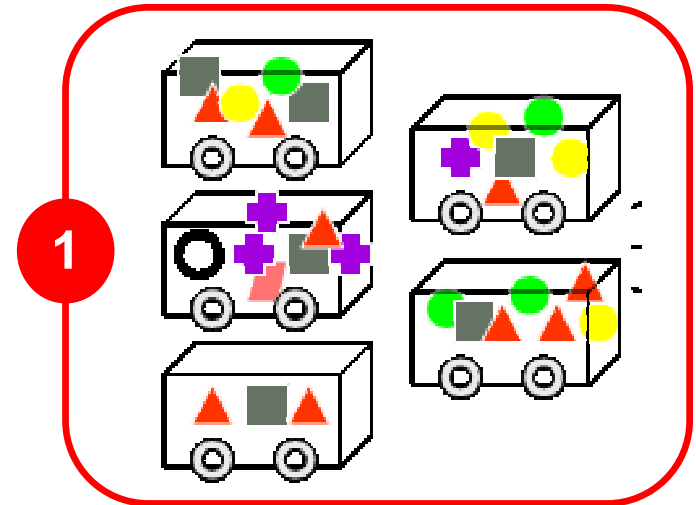
Grouping for Social Comparison

- Each customer belongs to a specific group
- Based on a combination of
 - Demographic Attributes
 - Purchasing Patterns
- Used to
 - Predict revenue
 - Predict time to close
 - Provide references



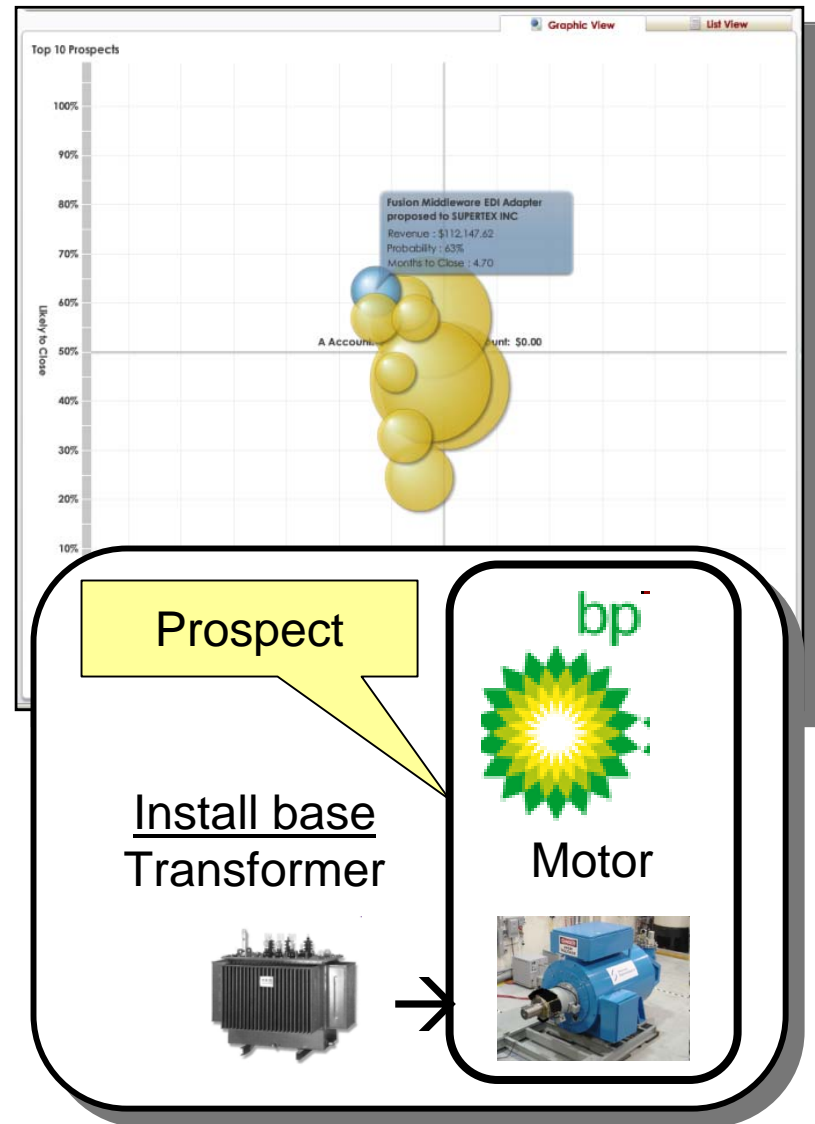
Whitespace → Next Likely Purchase

- Finds co-occurrences between items in a collection
- Based on a combination of
 - Demographic Attributes
 - Purchasing Patterns
- White Space - Used to predict product probability



Prospect Predictions

- A Prospect is a combination of a customer and a product
- Data Mining predicts which products each customer is likely to purchase based on the models

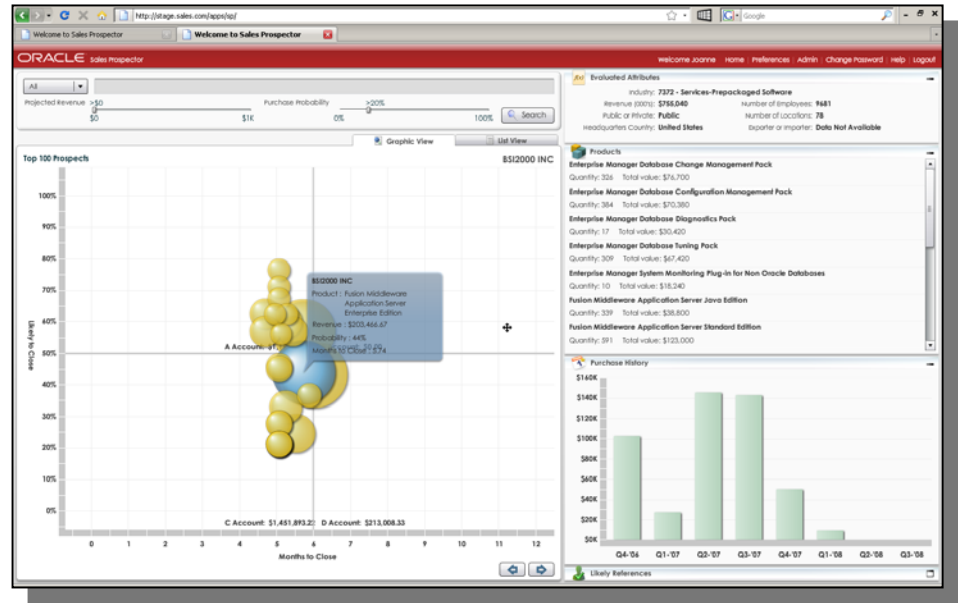




Demo – Oracle Sales Prospector

www.sales.com

A Quick Re-cap...



Fish Finder - finds you fish Oracle Sales Prospector - finds you deals

Thank You!

The screenshot shows the Oracle Sales.com website. At the top left is the Oracle logo and 'SALES.COM'. At the top right is a dropdown menu for 'Oracle Websites'. Below this is a login bar with 'username' and 'password' input fields and a 'Login' button. The main content area features the headline 'Sell More. Report Less.' above a collage of various Oracle CRM application dashboards and reports. Below the collage is a paragraph: 'Oracle Social CRM Applications leverage Web 2.0 technologies to help sales people identify qualified leads, develop effective sales campaigns and presentations, and collaborate with colleagues to close more deals quickly.' Underneath this text are five red buttons: 'Demo', 'Blog', 'Oracle Mix', 'Learn More', and 'Get Started'. At the bottom of the page, it says 'ORACLE IS THE INFORMATION COMPANY' on the left and 'About Oracle | Contact Us | Legal Notices | Terms of Use | Your Privacy Rights' on the right.

- Head on over to www.sales.com for how Oracle Data Mining powers Oracle Sales Prospector on the Science of Selling
- Come see us - the Demo Booth D10



HCM Applications Predictive Analytics

Brian Gaspar
HCM Product Strategy

Historical Perspective

The Hawthorne Project (1924-1933)

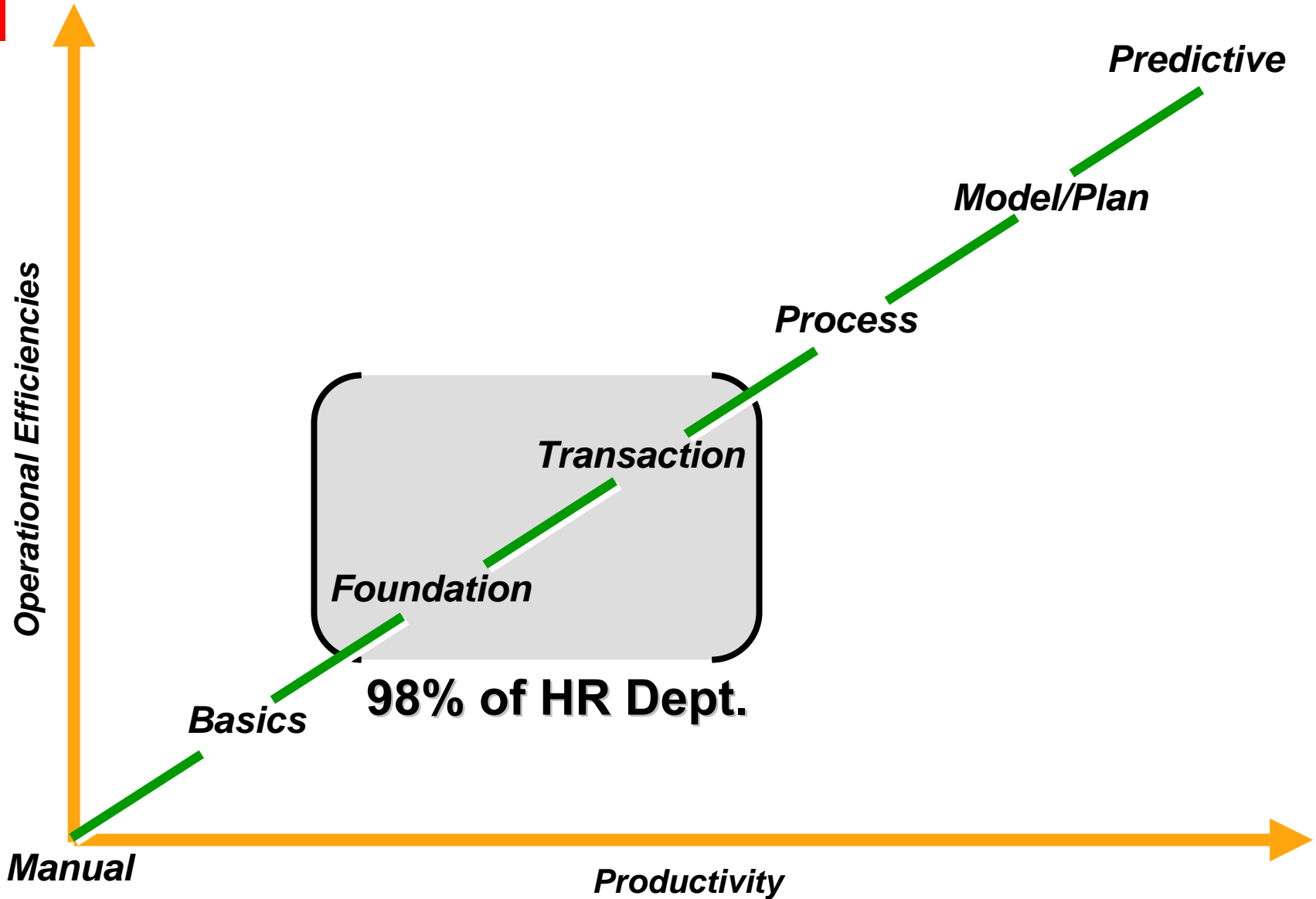
"Any company controlling many thousand workers ... tends ... to lack any satisfactory criterion of the actual value of its methods of dealing with people."

—*Elton Mayo, Harvard Business School, 1933*

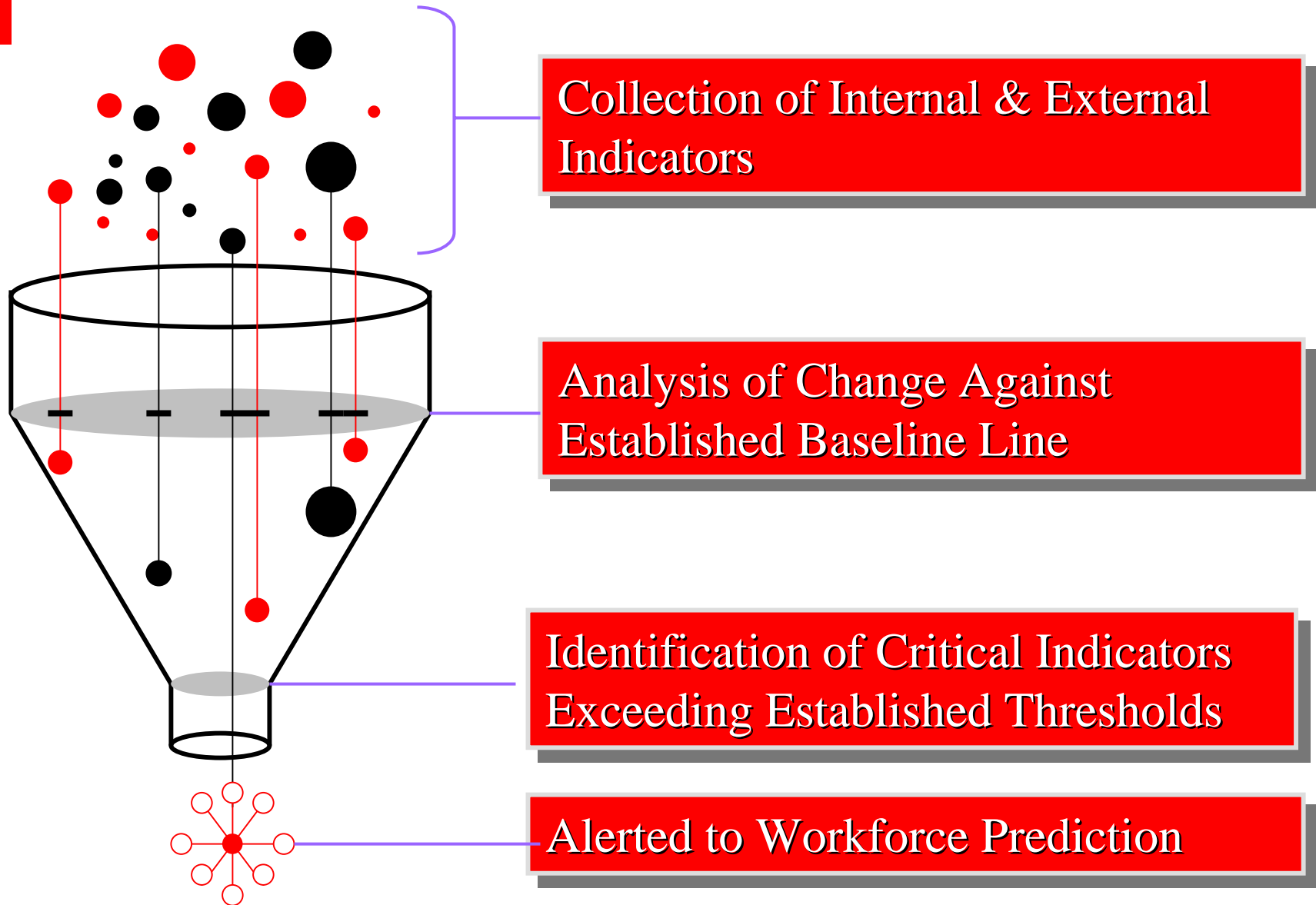


Hawthorne Effect: has been described as the reward you reap when you pay attention to people. The mere act of showing people that you're concerned about them usually spurs them to better job performance.

HCM Product Capabilities



HCM Predictive Analytics



Demo

Calendar

July 17- July 24

Monday, July 17th
12:30-13:30 **Brown Bag Sessions**

Tuesday, July 18th
14:00-15:00 **Status Check**
16:00-17:00 **Demo to Group**
17:30-18:30 **Training Review**

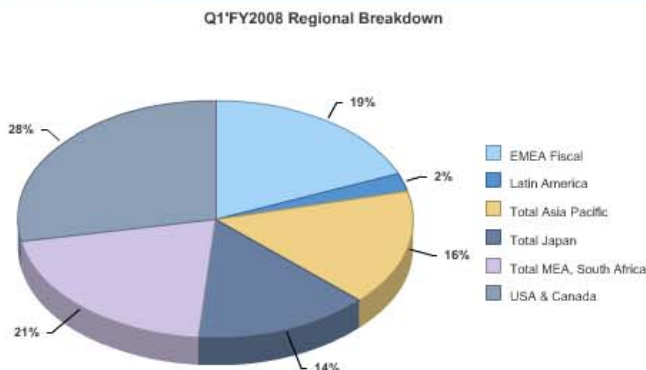
Wednesday, July 19th
Day Event **Project Plan Updates**
17:00-18:00 **Review Meeting**

Reports and Analytics

- Expenses Dashboard
- Sales Dashboard
- Finance Reports
- Manager Reports
- My Reports
- Recent

[See All Content](#)

Q1 Objective Progress

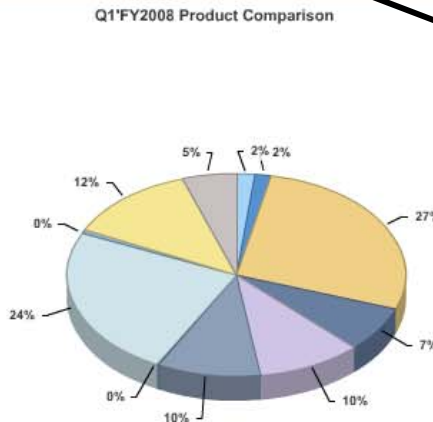
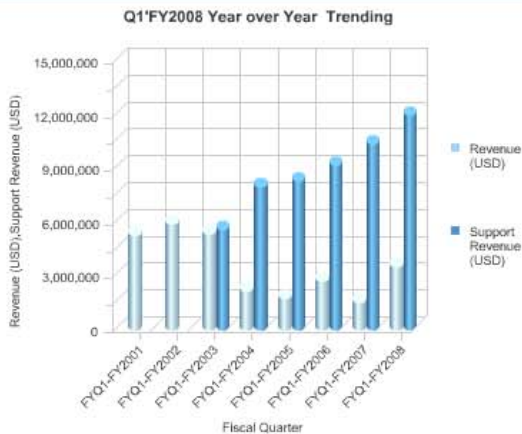


Q1'FY2008 Deals

Deal #	Revenue
11310634	\$257,774
11324581	\$733,361
11337442	\$275,851
8222847	\$288,000
8239477	\$368,640
8239808	\$281,600
8240132	\$897,510
87412	\$341,671
8746	\$605,654
89633	\$278,788
90722	\$639,597
99999	\$293,330
PPL-GL ALLOCATION	\$271,818
Grand Total	\$4,952,894

Predict & Model

Trends and Comparison



Q2 Workforce Optimization-Prediction

Q2 Sales Targets: Department about 5 Sales Reps for Q2'FY2008

Workforce Optimization-Model

- 1) **Sales Shortfall:** (-\$ 557,534) Q2'FY2008
- 2) **Deals Shortfall:** (-6) Deals Q2'FY2008
- 3) **Average Deals:** 1.3 Deals per Worker
- 4) **Worker Turnover:** 37%

Status	People	%	Revenue	%
With Sales	1005	54%	\$ 89,606,933	44%
Left Sales	697	37%	\$ 62,783,218	32%
Unknown	173	9%	\$ 48,927,797	24%
Grand Totals	1879	100%	\$ 201,317,948	100%

Turnover Details

5) **FY Sales Forecasts:** Q2 \$8M, Q3 \$8.2M, Q4 \$14.6M

Workforce Optimization-Execution

1) Redeploy from NAS Sales Team:

Betty Lockery

2) Redeploy New Hire:

Pat Miller

Task(s) Completed (2/13)

3) Retain Sales Representative: 2 Sales Team

4) Hire External Sales People: 2 Sales Reps

Candidates

Invite New

Listing

Amalia Masters (1/3) - Job: IRC1033879

How would you spend your first 30 days working for us?



Interested Not Interested



Closing Remarks

BIWA Summit 2008

Better Information—Better Results

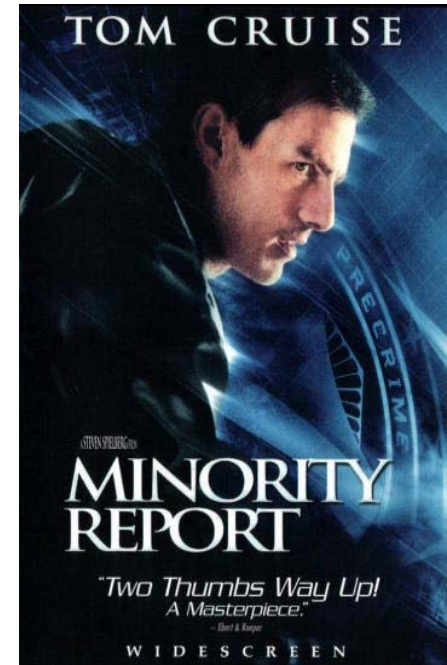
- **Dec. 2-3, 2008** in San Francisco at Oracle HQ Conference Center
- 2nd BIWA Summit—presentations available at www.oraclebiwa.org)
- Currently FREE to join BIWA
- IOUG SIG for users who share expertise and vision dedicated to mutual success in leveraging:
 - Oracle Database-centric BI, Warehousing and Analytics
- BIWA's goals include the sharing of *best practices* and *novel and interesting use cases*



Better Information Better Results
www.oraclebiwa.org

Are We There Yet?

- Data gathering devices are commonplace, even in public places, and gather your personal information
- A central data environment brings together huge amounts of information from disparate sources
- Analytical databases automatically “mine” data, discover patterns and relationships, and make predictions about the future behavior of people



More Information:

Oracle Data Mining 11g

- oracle.com/technology/products/bi/odm/index.html

Oracle Statistical Functions

- http://www.oracle.com/technology/products/bi/stats_fns/index.html

Oracle Business Intelligence Solutions

- oracle.com/bi


<http://search.oracle.com>



Contact Information: Email: Charlie.berger@oracle.com



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