Performance Dashboards: Measuring, Monitoring, and Managing Your Business

tdwi
THE DATA WAREHOUSING INSTITUTE

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- Eckerson has 17 years of industry experience and has covered data warehousing and business intelligence since 1995.
- Eckerson is the author of many in-depths reports, a columnist for several business and technology magazines, and a noted speaker and consultant.
- Eckerson has recently written a book titled, *Performance Dashboards: Measuring, Monitoring, and Managing Your Business* (Wiley & Sons, 2005).
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Course Agenda

1. Evolution of Performance Dashboards
2. Why Performance Dashboards?
3. What are Performance Dashboards?
4. Architecting Performance Dashboards
5. Case Studies
7. Costs of Deployment
8. How to Build Effective Metrics
9. How to Design Effective Dashboard Screens
10. Criteria for Evaluating Dashboard Products

Appendices

- A - Performance Dashboard Trends
- B- Readiness Assessment
- C - How to Ensure Adoption
- D - Performance Dashboard Market Segmentation
- E – Sample Metrics Report

Evolution of Performance Dashboards

The Business Challenge

Decision makers suffer from…

- too much data….
- too little information…
- delivered too late…

to make effective decisions.

Evolution of a Solution

The search for the perfect “business insight system”:

- 1980s
  - *Executive information systems (EIS)*
  - *Decision support systems (DSS)*
- 1990s
  - *Data warehousing (DW)*
  - *Business intelligence (BI)*
- 2000s
  - *Dashboards and scorecards*
  - *Performance management*
- 2010+??

Two Metaphors

Dashboard

+

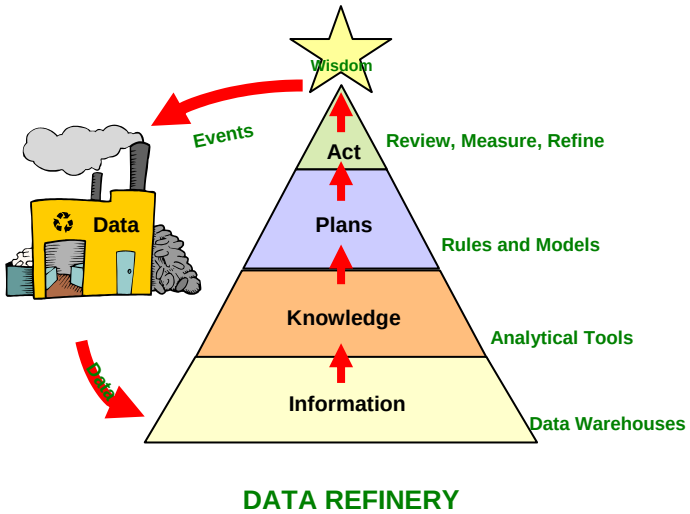
Performance Chart

=

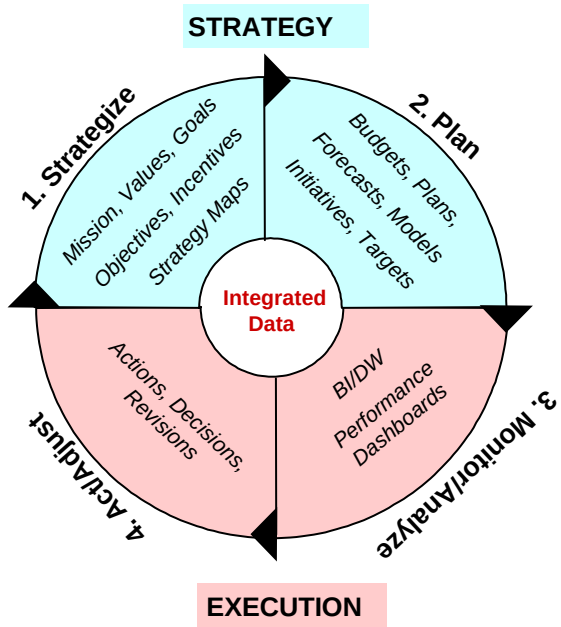
Performance Dashboard

Two Disciplines

Business Intelligence + *Corporate Performance Management* =

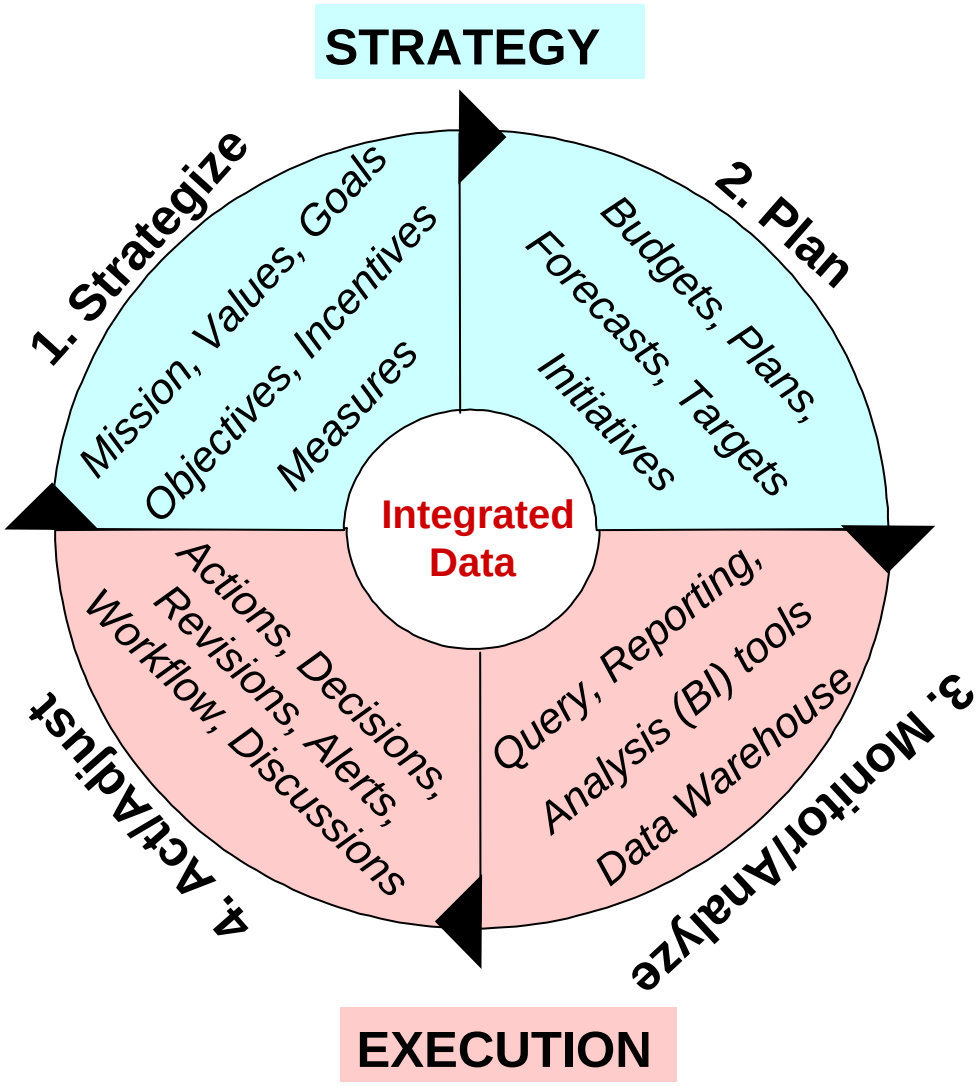


DATA REFINERY

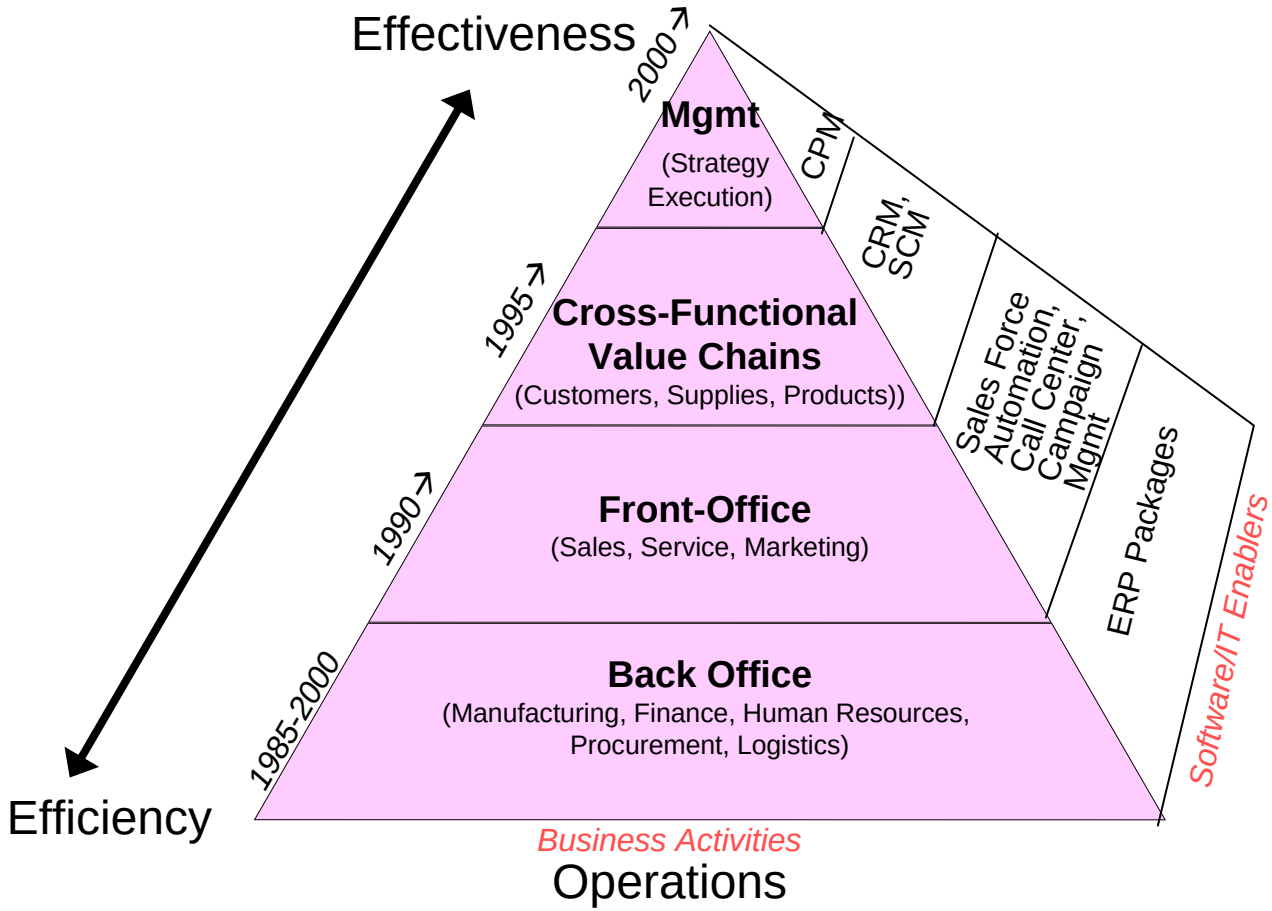


Performance Dashboards

Corporate Performance Management

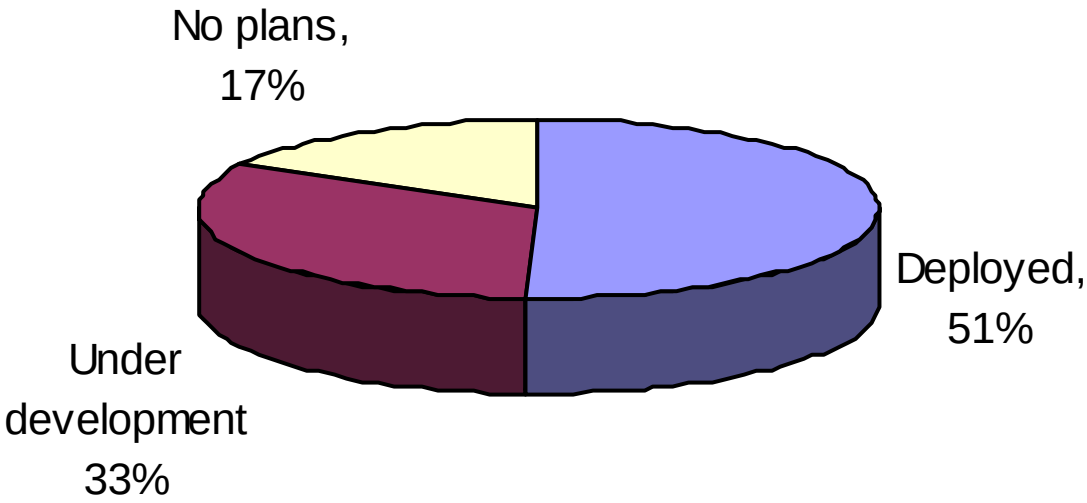


Waves of Software Automation



Why Performance Dashboards?

Status of Performance Dashboards



From Wayne Eckerson, "Development Techniques for Creating Analytic Applications," TDWI, 2005.

Business Week Cover Story - February 13, 2006

What's On Your Dashboard?

Steve Ballmer
MICROSOFT

Ballmer requires his top officers to bring their dashboards with them into one-on-one meetings. Ballmer zeroes in on such metrics as sales, customer satisfaction, and status of key products under development.

Ivan Seidenberg
VERIZON

Seidenberg and others can choose from more than 300 metrics to put on their dashboards, from broadband sales to wireless defections. Managers pick the metrics they want to track, and the dashboard flips the pages 24 hours a day.

Jeff Immelt
GENERAL ELECTRIC

Many GE executives use dashboards to run their day-to-day operations, monitoring profits per product line and fill rates for orders. Immelt occasionally looks at a dashboard. But he relies on his managers to run the businesses so he can focus on the big picture.

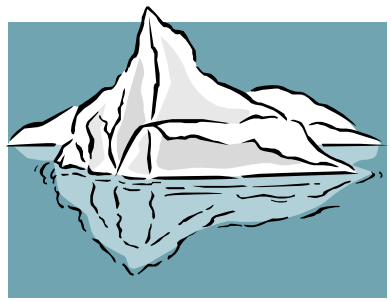
Larry Ellison
ORACLE

A fan of dashboards, Ellison uses them to track sales activity at the end of a quarter, the ratio of sales divided by customer service requests, and the number of hours that technicians spend on the phone solving customer problems.

Tactical Drivers

Resonates with users

- *Monitors status of several areas on one screen*
- *Graphical view of key metrics*
- *Alerts users to exception conditions*
- *Click to analyze and drill to detail*
- *Customized views based on role*
- *Personalized views based on interest*
- *No training required!*



Tactical Drivers (cont.)

Rich data

- *Blends data from multiple sources*
- *Both detailed and aggregated*
- *Both historical and real-time*

Empowers workers

- *Focuses users on what's really important*
- *Shows them how their contributions count*
- *Motivates with goals, competition, & incentives*
- *Drives proactive intervention*

Strategic Drivers

Aligns the business

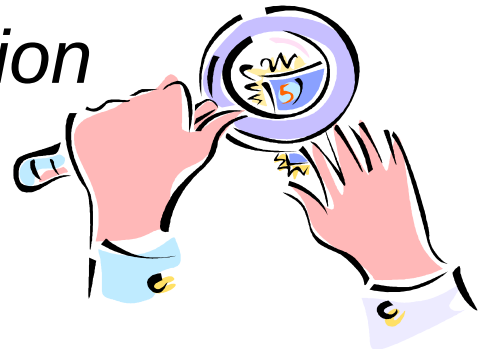
- *Everyone uses the same data*
- *Everyone uses the same metrics*
- *Everyone works toward the same strategy*

Improves communication

- *Tool for communicating strategy*
- *Managers & staff - collaboration*
- *Among departments - coordination*

Improves visibility and compliance

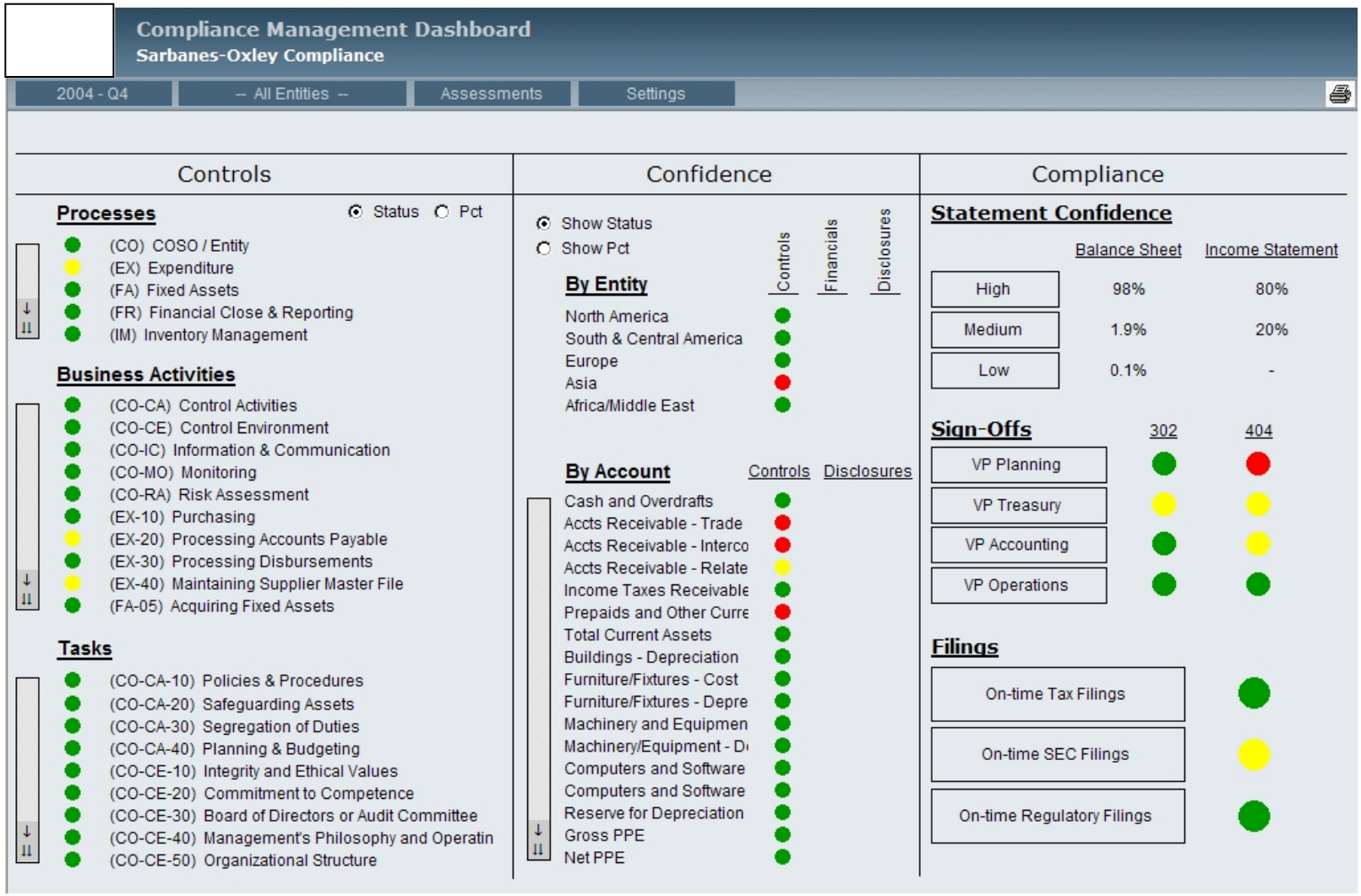
- *Fewer surprises*



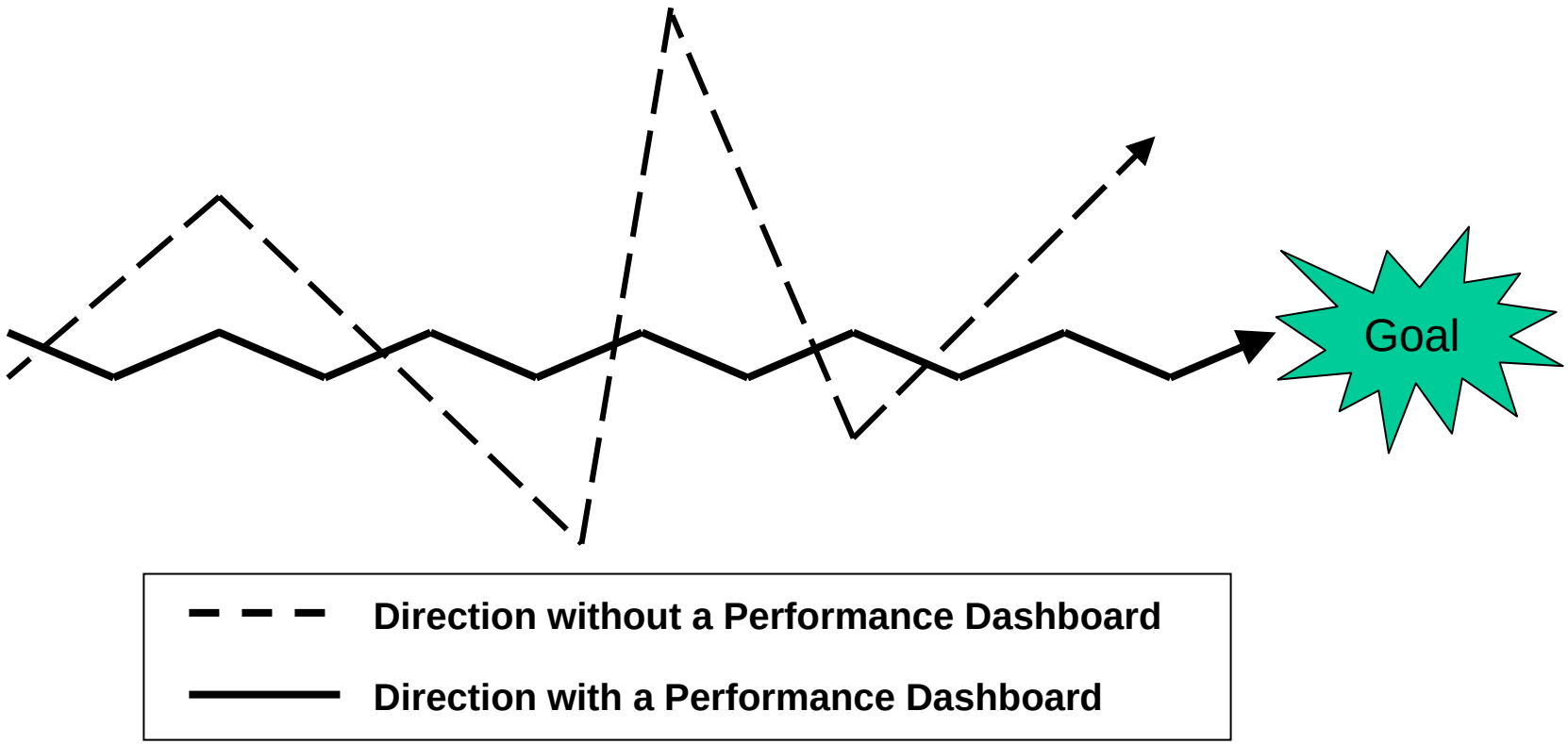
Strategic Drivers - The “Five Cs”

- Communicate
- Compare
- Collaborate
- Coordinate
- Congratulate

Agent of Organizational Change



Charting a Course



What are Performance Dashboards?

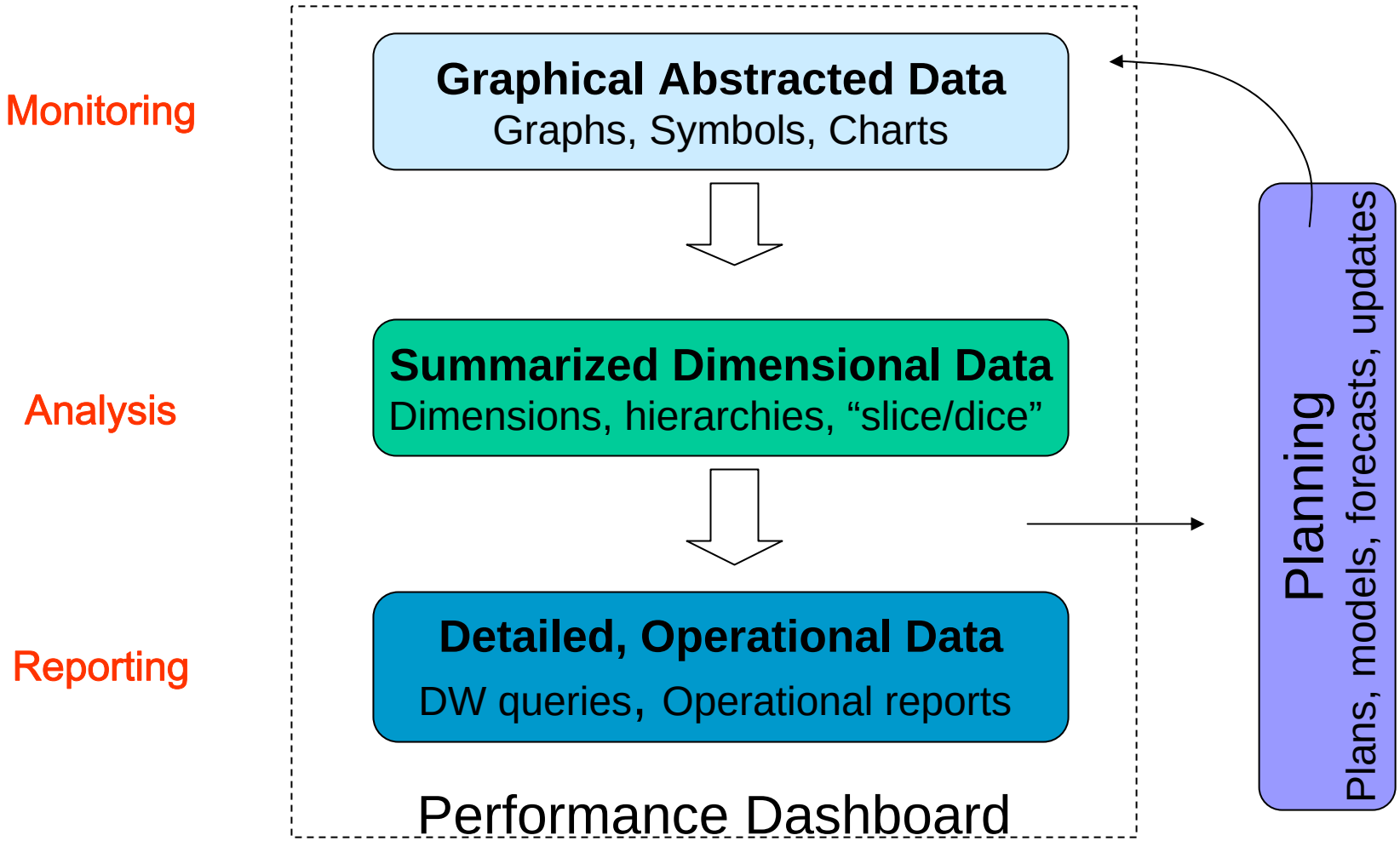
The “Three Threes”

- Three Applications
- Three Layers
- Three Types

Three Applications

	Monitoring	Analysis	Collaboration
Purpose	Convey performance status & trends at a glance	Analyze exceptions and find root cause	Collaborate, plan, and ACT
Elements	- Multi-paneled screens - Graphical metrics (i.e. dials, gauges, symbols) - Charts and tables - Status, trend, and threshold indicators - Color-coded, conditional formatting - Alerts: Web-based, email, other	- Drill down/up hierarchies - Pivot and swap out dimensions - Drill through to operational data - Time series, segmentation, predictive, and other analyses - Reporting	-Telephone -Meetings - Email (notification) - Annotations - Threaded discussions - Recommended analysis, actions - Publish to server - Workflow - Triggers, Updates

Three Layers of Information



Dashboard Usage

"Our executives will drill one or two levels down before they call someone who can fix the problem, while our managers will often drill three or four layers down before they make a call."

– *Thomas Tomlinson, director of BI for Bull Moose Tube, a steel manufacturer in Chesterfield, MO.*

Dashboards vs Scorecards

- Distinct?
- Synonymous?
- Both?

Rule of thumb:

Use whatever term business users prefer!

Dashboards vs Scorecards

	Dashboard	Scorecard
		
Purpose	Measures current activity	Charts progress
Users	Executives, managers, staff	Executives, managers, staff
Updates	"Right time" feeds	Periodic snapshots
Data	Events	Summaries
Queries	Run against remote systems	Run against local data mart
Display	Charts	Symbols

Dashboards and scorecards are
visual interfaces for ***monitoring*** business performance

Three Types

	Operational	Tactical	Strategic
Focus	Monitor operations	Optimize process	Execute strategy
Emphasis	Monitoring	Analysis	Collaboration
Users	Supervisors+	Managers+	Executives+
Scope	Operational	Departmental	Enterprise
Information	Detailed	Detailed/Summary	Summary
Updates	Intra-day	Daily/Weekly	Monthly/Quarterly
"Looks like a…"	"Dashboard"	"BI Portal"	"Scorecard"

Pretenders to the throne

- *Too Flat*

"A prettified spreadsheet"

- *Too Isolated*

"Another spreadmart"

- *Too Manual*

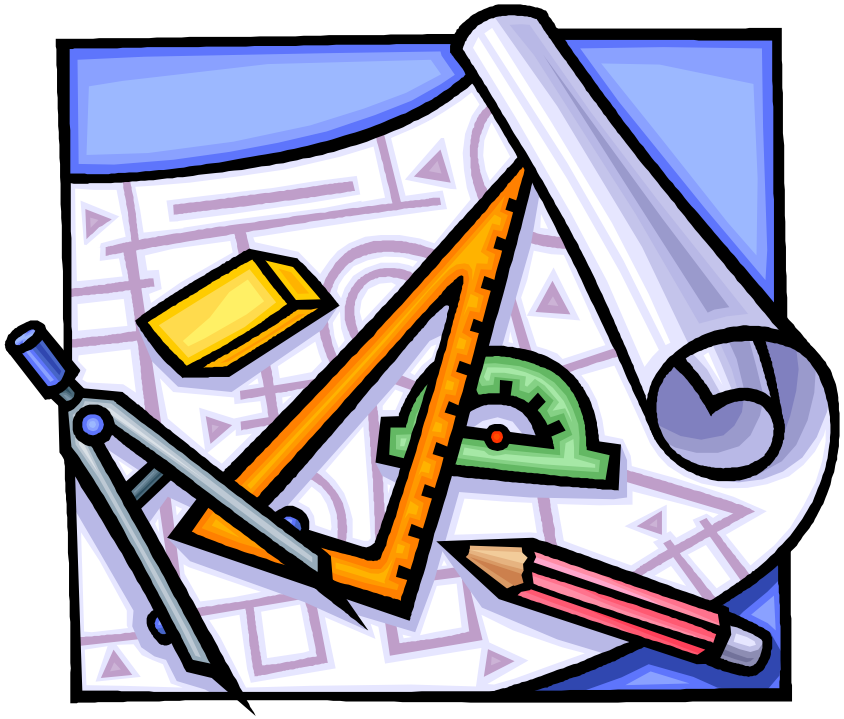
"Not scalable or sustainable"

- *Too Cheap*

"You get what you pay for!"

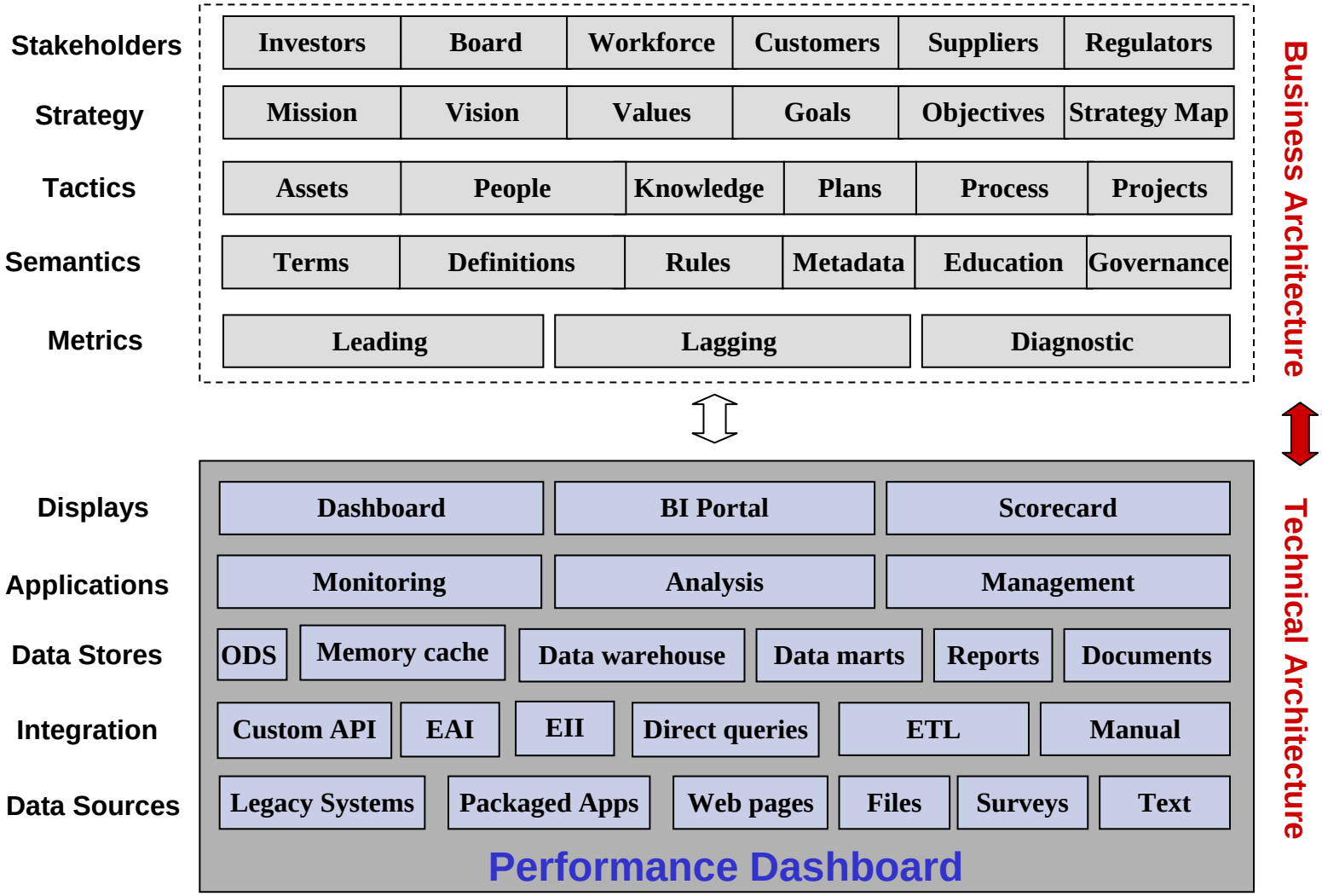
How Do You Architect a Performance Dashboard?

Three Architectures

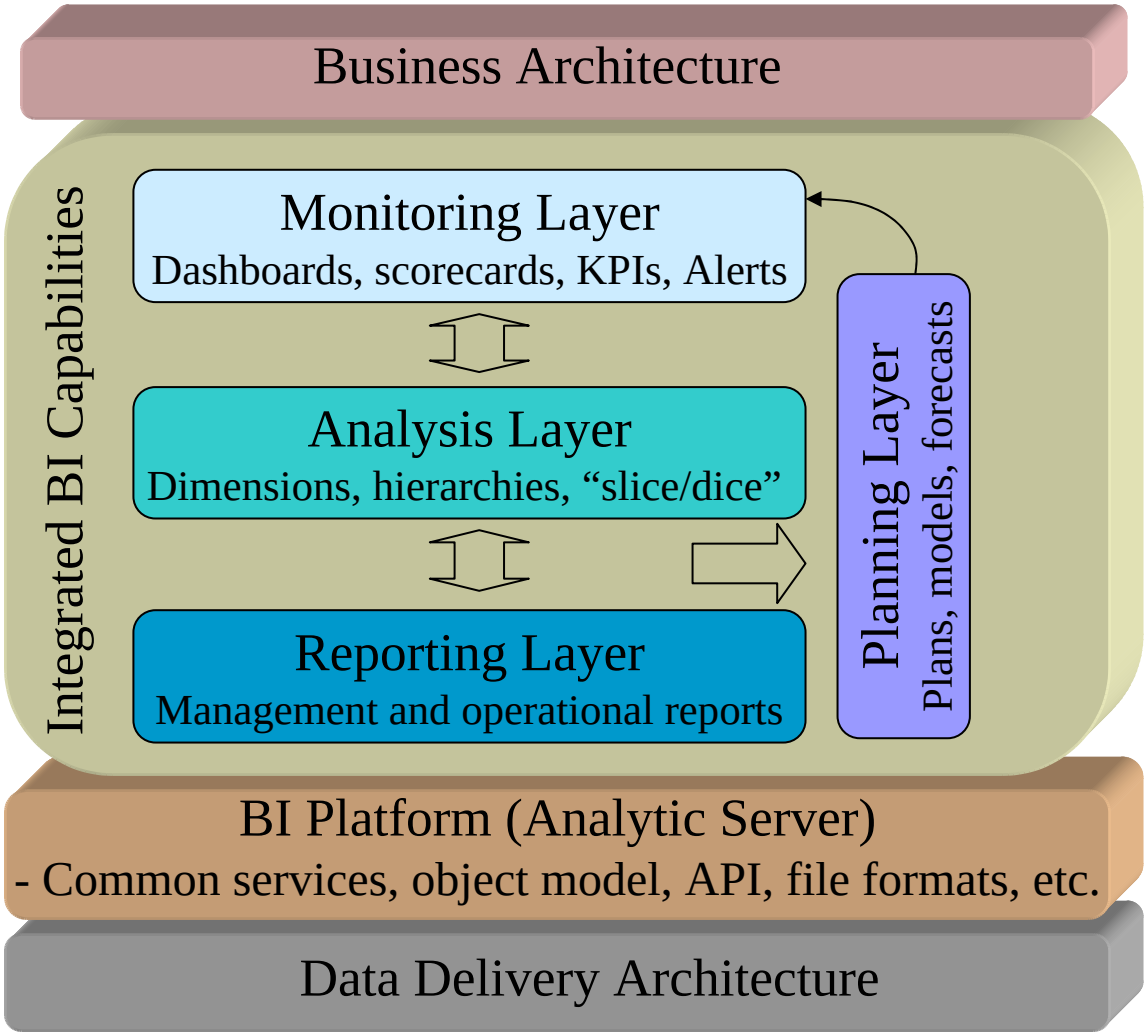


Business Architecture
BI Architecture
Data Architecture

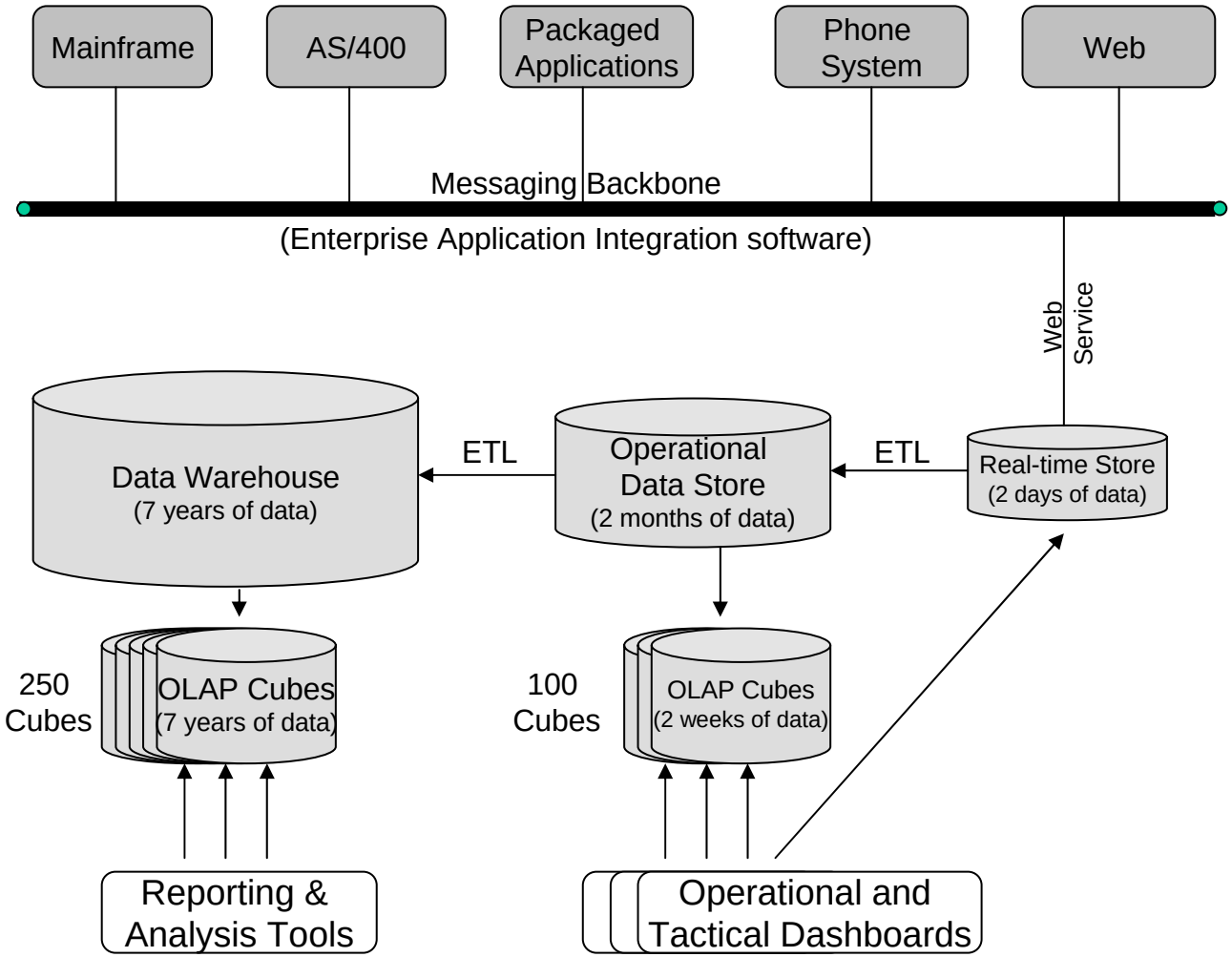
Business architecture



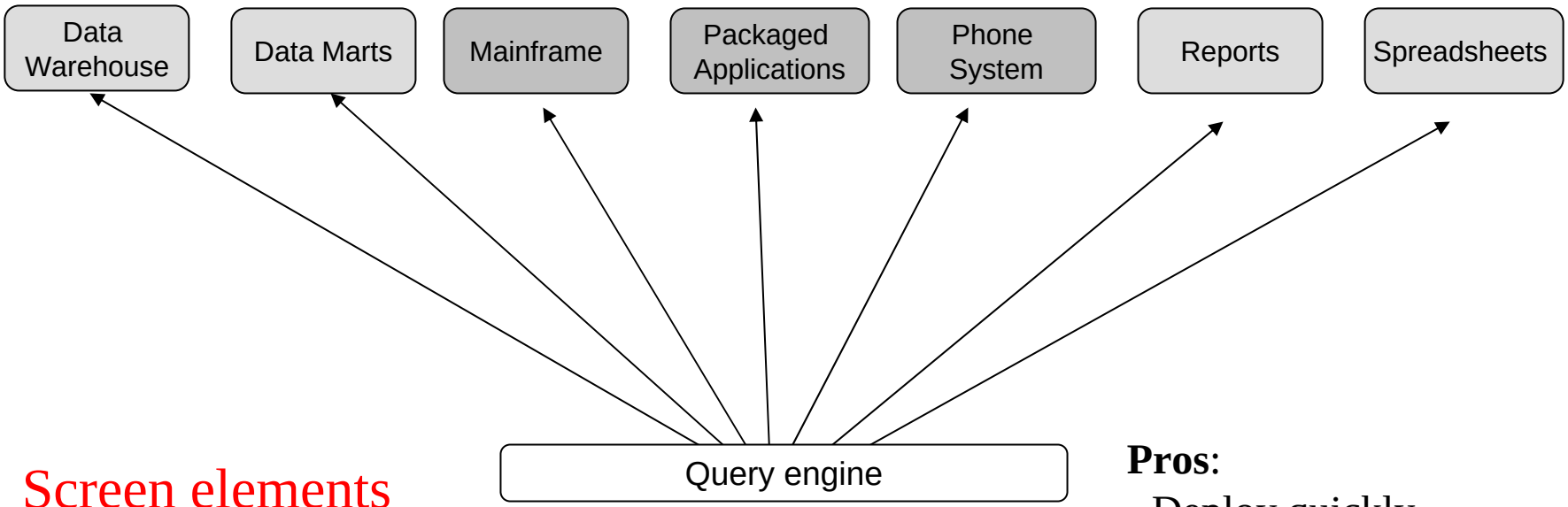
BI Architecture



Data Architecture – Quicken Loans



Direct Query Architecture

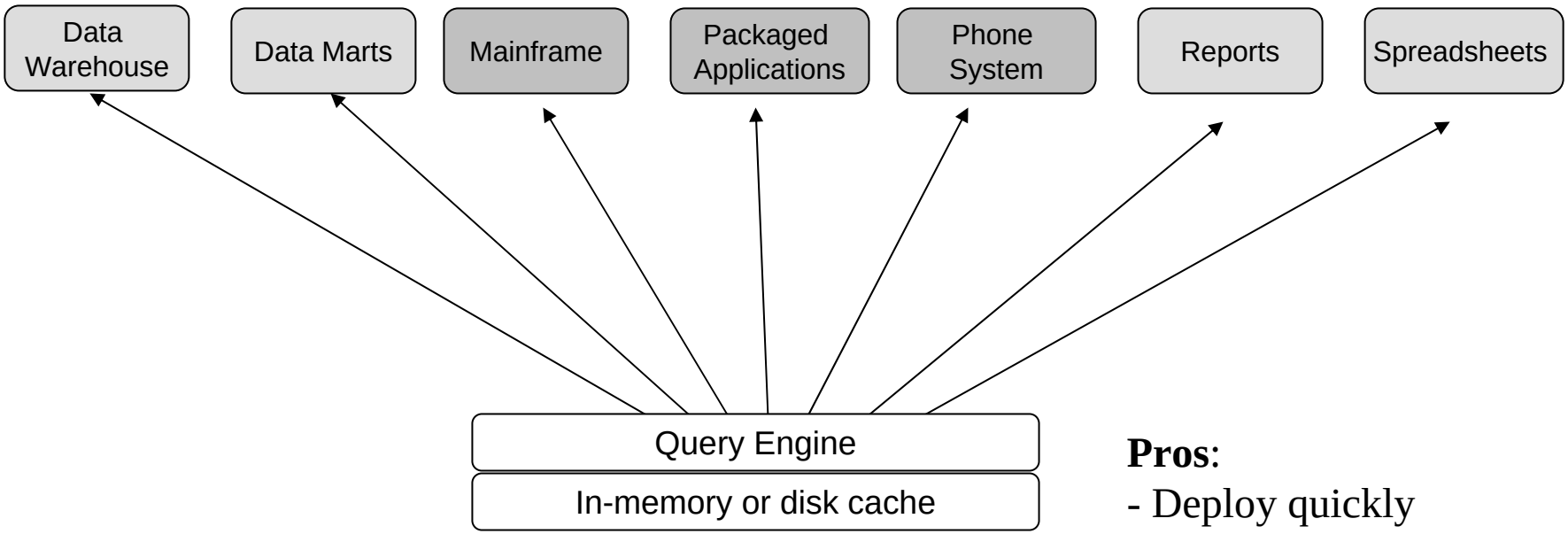


Screen elements linked directly to individual queries

Pros:
- Deploy quickly
- Low cost

Cons
- No depth, limited drill down
- No dimensions
- Hard-wired queries

Query and Cache Architecture

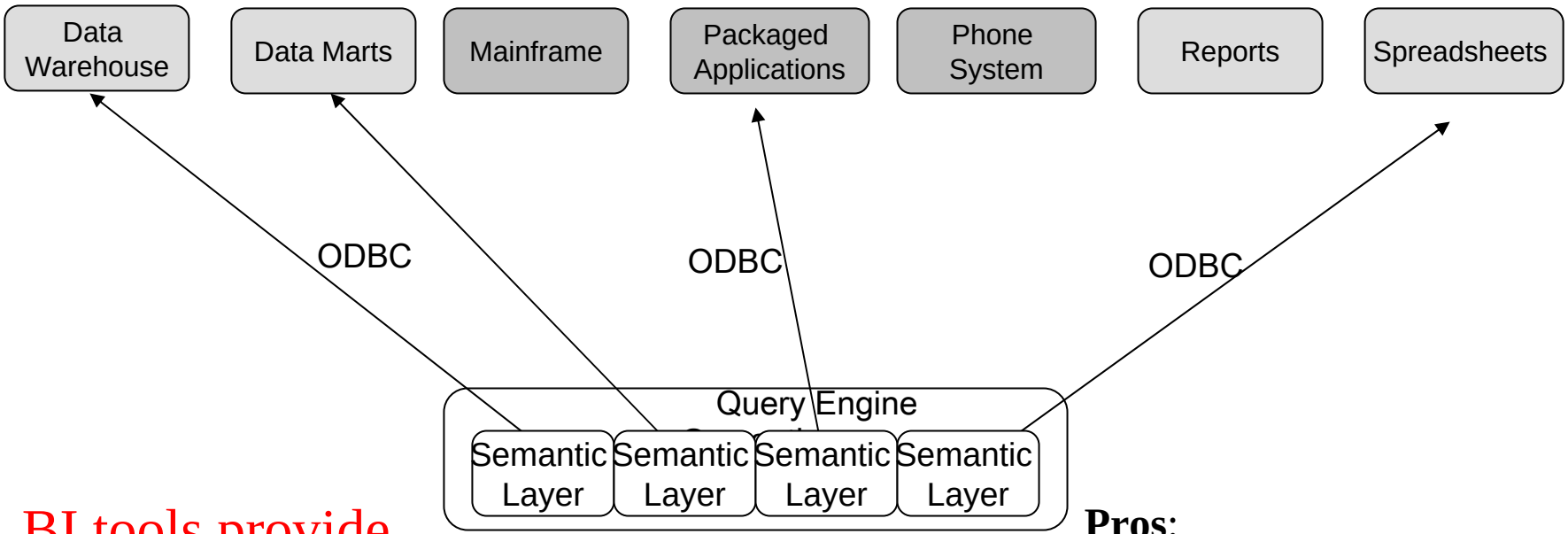


Queries populate a queryable cache

Pros:
- Deploy quickly
- Fast response
- Rapid navigation

Cons
- Static data sets

BI Semantic Layer

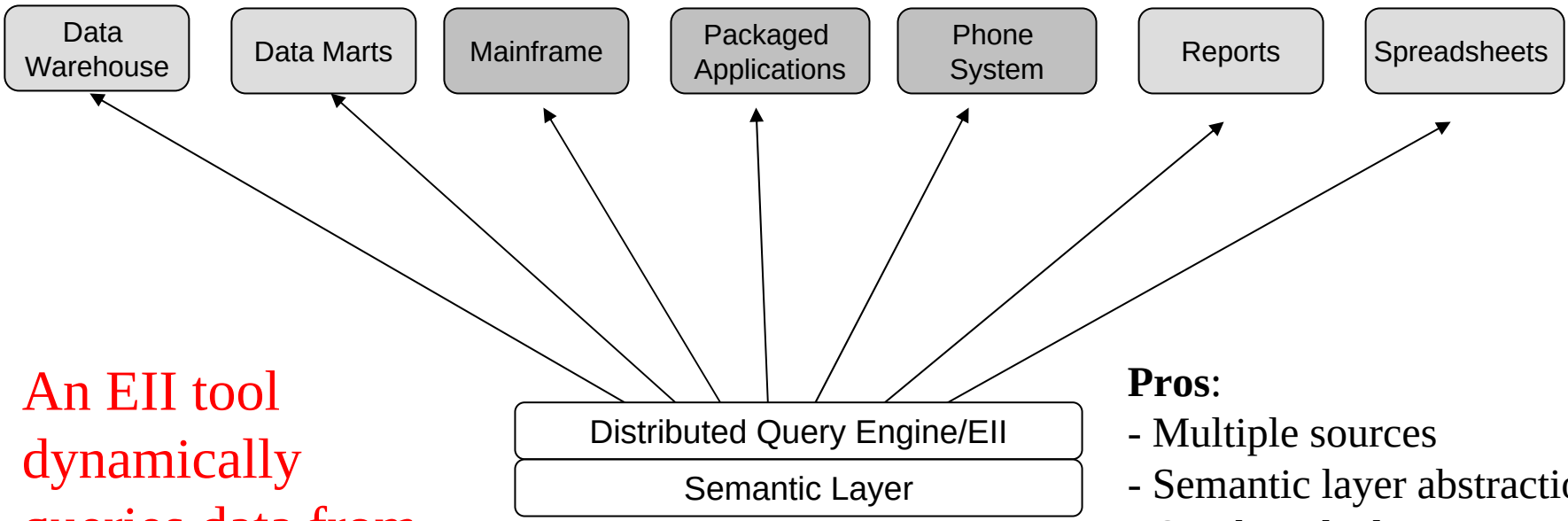


BI tools provide query objects that represent a database in business terms for users.

Pros:
- Abstract query objects
- Dimensionalized views

Cons
- Generic ODBC connections
-Primarily historical data in DW

Federated Query Architecture

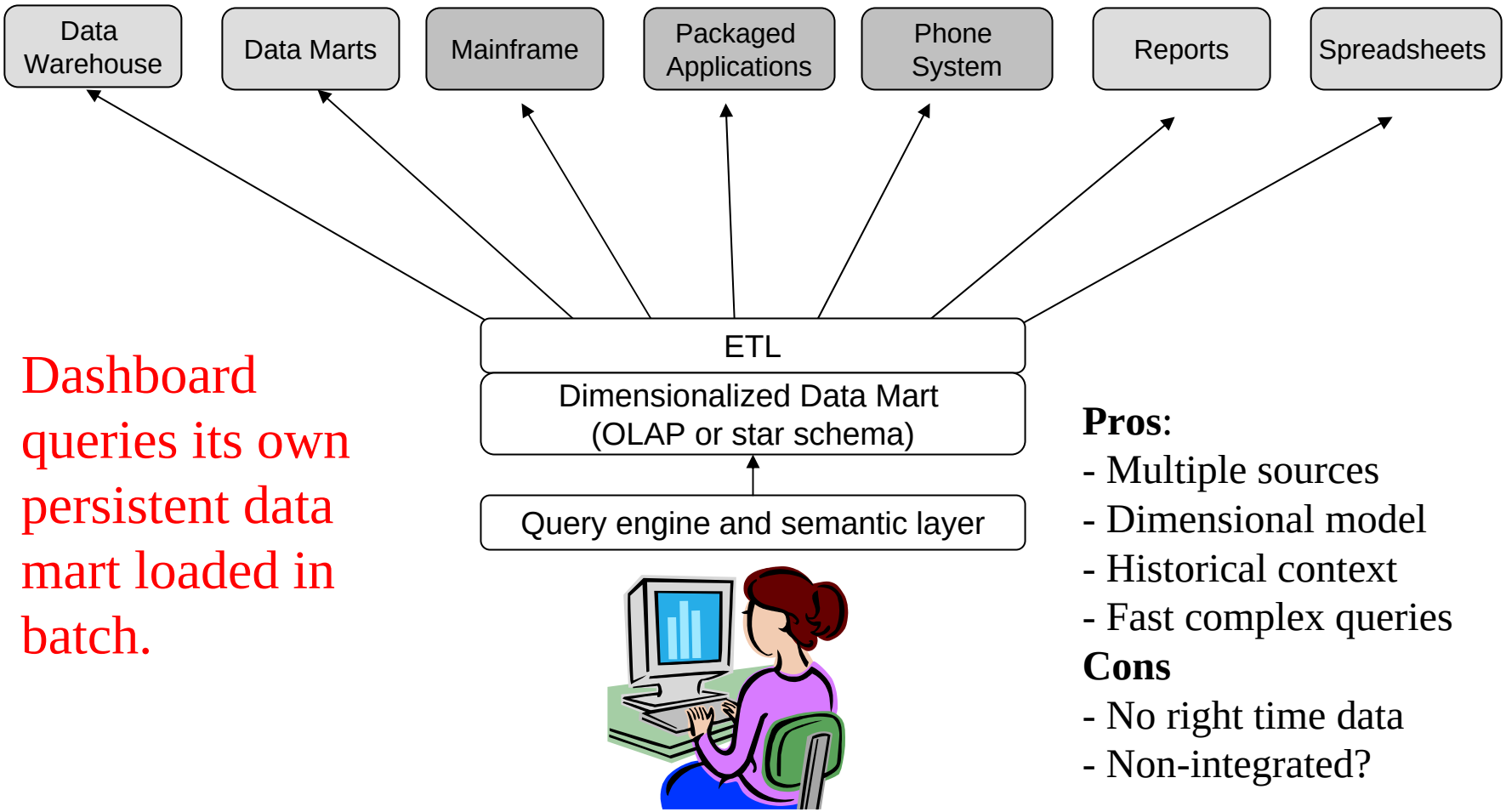


An EII tool dynamically queries data from multiple sources to populate screen elements.

Pros:
- Multiple sources
- Semantic layer abstraction
- Quick to deploy
- Prototype before you persist

Cons
- No history
- Data quality issues
- Complexity

Data Mart Architecture

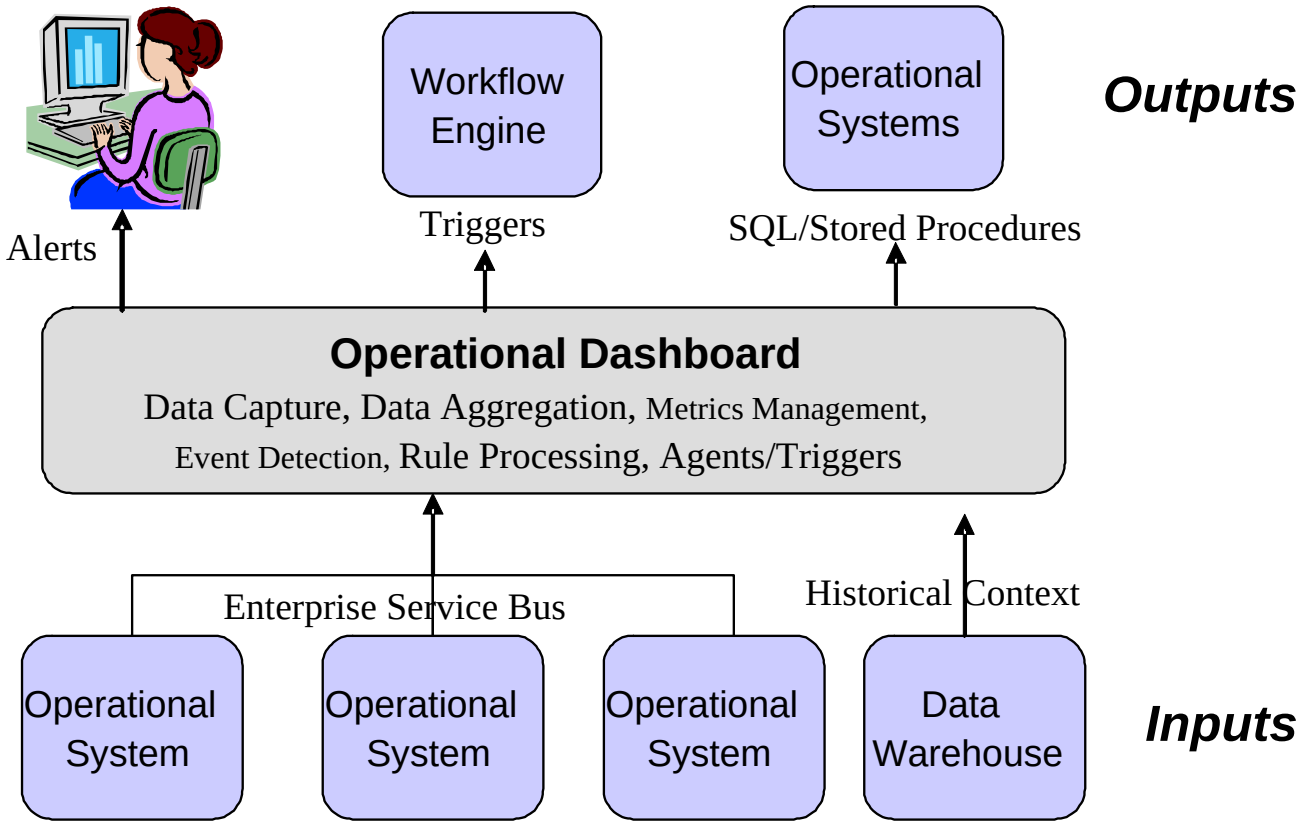


Dashboard queries its own persistent data mart loaded in batch.

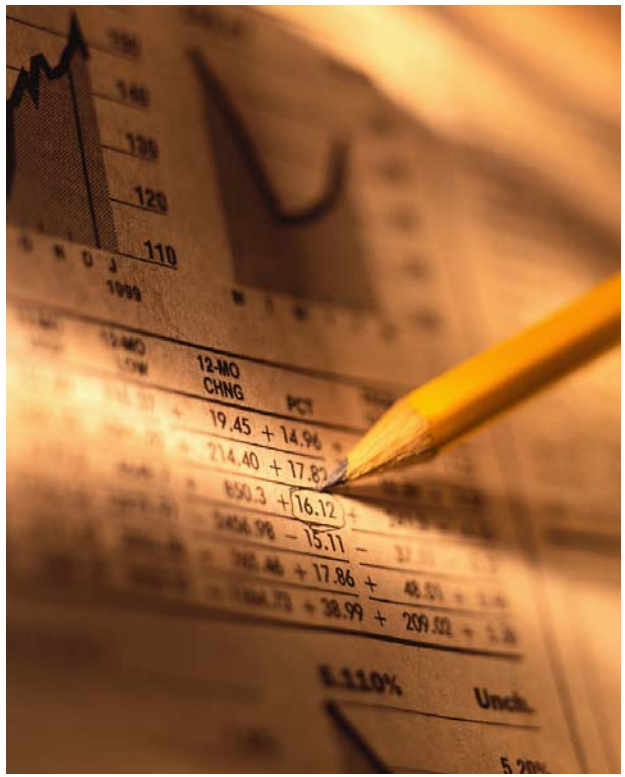
Pros:
- Multiple sources
- Dimensional model
- Historical context
- Fast complex queries

Cons
- No right time data
- Non-integrated?

Event-driven Architecture



“Manual” Architecture



Use when….

- Data doesn’t exist
- Strategy is short-term
- Want to prototype the KPIs
- Executives can’t wait

But don’t be fooled…

- Permanent prototypes
- No scale, depth, value
- Reputations on the line!

Performance Dashboard Case Studies

Operational Dashboard Case - Quicken Loans

- The largest U.S.-based online lender
  - *$12 billion in loans in 2004, 2,500 employees*
  - *Sells mortgages via call center and Web*
- Web Call Center in Livonia, Michigan
  - *500+ "mortgage lenders" on one giant floor*
  - *Disruptions costs millions of dollars an hour*

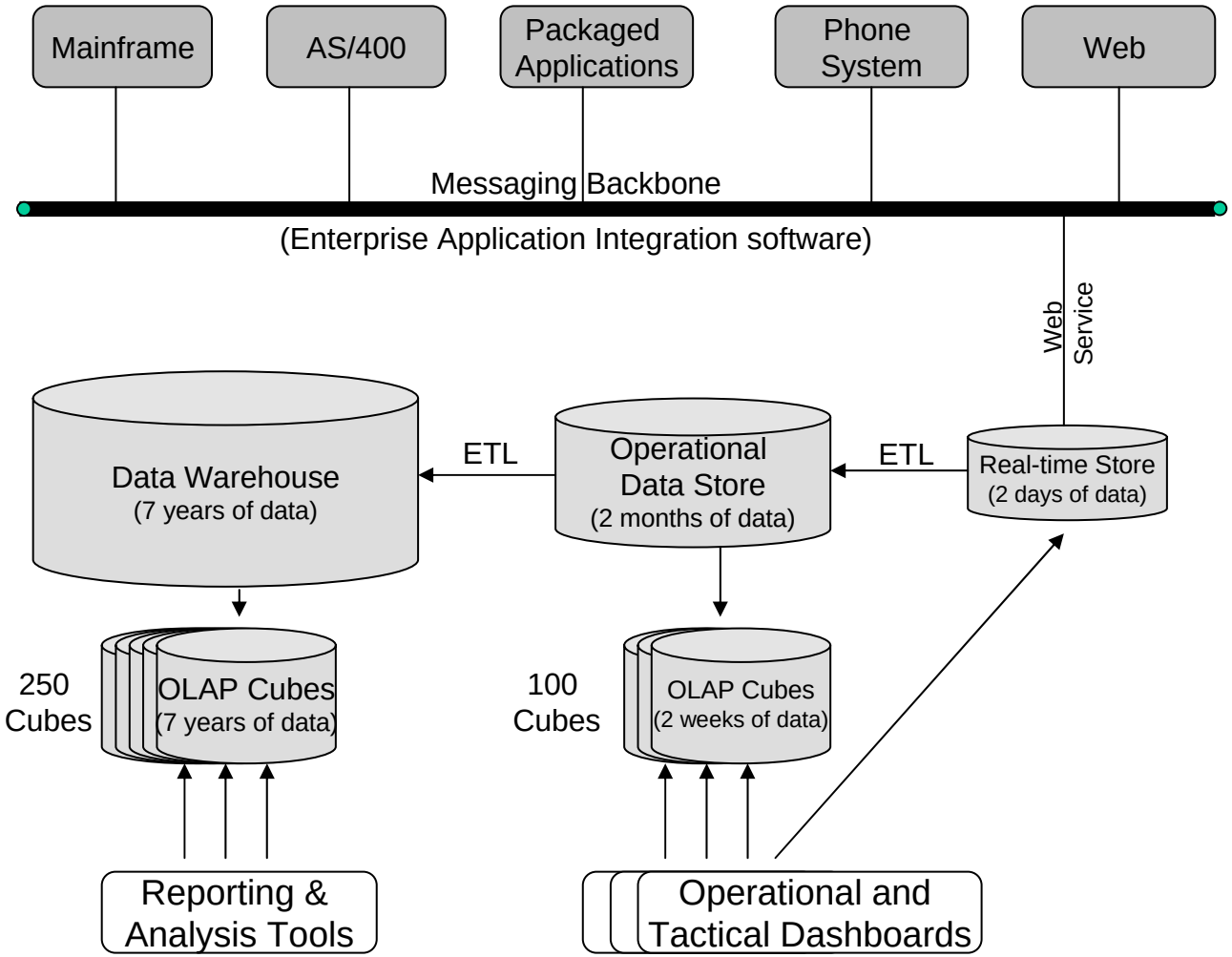
Situation

- Company philosophy/culture
  - *What gets measured, gets approved*
  - *Leverage "velocity as a competitive problem"*
- Information systems – pre-2002
  - *Reports run off operational systems*
    - Run slowly, Deliver obsolete data
  - *Disjointed data for historical analysis*
    - Took three weeks to do 18-24 month analysis
  - *Executives and users very frustrated!*
- Negative view of data warehousing/OLAP

Solution

- Right-time data warehousing architecture
  - *1 year at $1 million*
  - *Trickle fed OLAP cubes*
  - *Existing ESB*
- Different dashboards for different users
  - *Dashboard ticker – mortgage specialists*
  - *Kanban reports – Sales managers, TV monitors*
  - *Managerial dashboards – Call center managers*
  - *Analytical dashboards/BI tools – Analysts*
- Metrics
  - *Phone statistics, Number and quality of leads, Sales pipeline, Web traffic, Commissions, products mix*

Quicken Loans Architecture

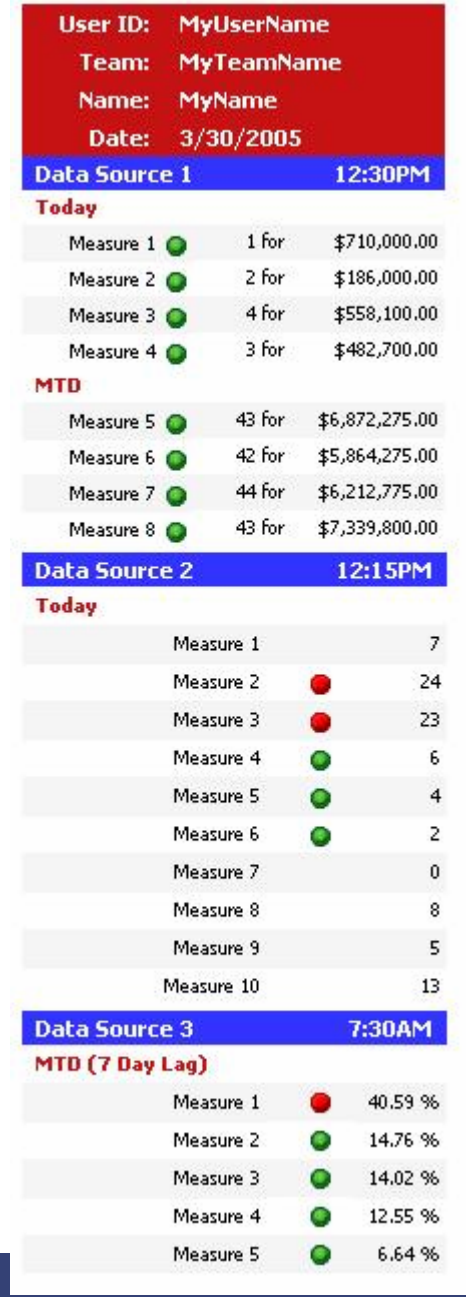


Dashboard Ticker

Personal and group metrics updated daily

Personal and group metrics updated instantly

Personal forecasts updated every 15 minutes



User ID:	MyUserName	
Team:	MyTeamName	
Name:	MyName	
Date:	3/30/2005	
Data Source 1		**12:30PM**
Today		
Measure 1	1 for	$710,000.00
Measure 2	2 for	$186,000.00
Measure 3	4 for	$558,100.00
Measure 4	3 for	$482,700.00
MTD		
Measure 5	43 for	$6,872,275.00
Measure 6	42 for	$5,864,275.00
Measure 7	44 for	$6,212,775.00
Measure 8	43 for	$7,339,800.00

Data Source 2		**12:15PM**
Today		
Measure 1		7
Measure 2		24
Measure 3		23
Measure 4		6
Measure 5		4
Measure 6		2
Measure 7		0
Measure 8		8
Measure 9		5
Measure 10		13

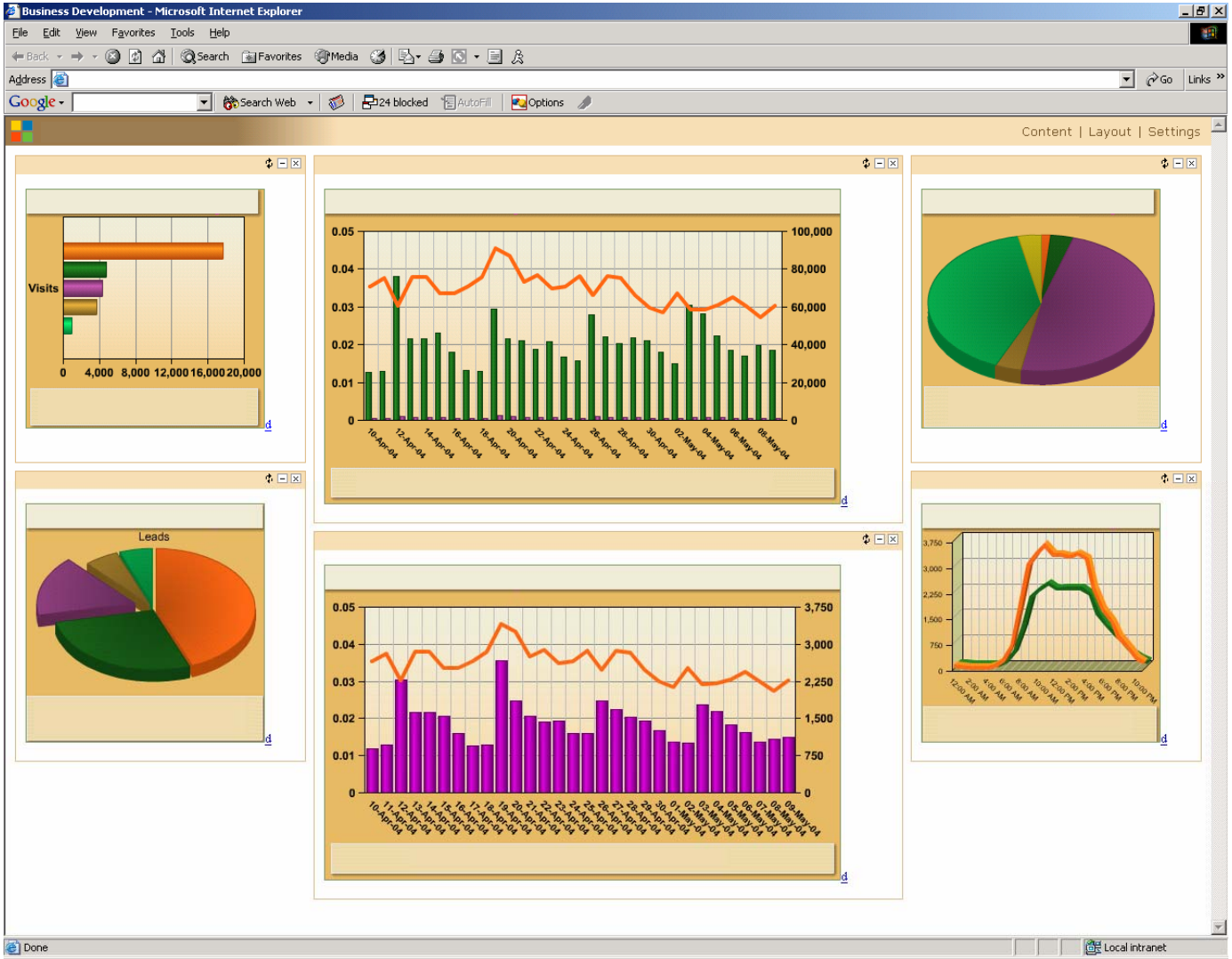
Data Source 3		**7:30AM**
MTD (7 Day Lag)		
Measure 1		40.59 %
Measure 2		14.76 %
Measure 3		14.02 %
Measure 4		12.55 %
Measure 5		6.64 %

Kanban Report

Date: 17-Dec-04

	Metric 1	Metric 2	Metric 3	Metric 4	Metric 5	Metric 6	Metric 7	Metric 8	Metric 9
Employee 1	1,187	855	25	23	21	9	4	8	20
Employee 2	86	86	1	2	7				
Employee 3	63	59	3		2	1	1	1	8
Employee 4	25	25	2	2	1	1		1	
Employee 5	102	61	3	5					
Employee 6	52	42	2	3					2
Employee 7	165	81	3	1					
Employee 8	196	111	2	1					
Employee 9	59	57		5	3			4	1
Employee 10	100	49	3		1				
Employee 11	99	93	1		3		1		3
Employee 12	48	43	1		1	5			2
Employee 13	44	39	3		1		1	1	
Employee 14	46	45	1	2	1	1			
Employee 15									
Employee 16	28	18		2	1	1	1		4
Employee 17	74	46						1	

Managerial Dashboard



Tactical Dashboard Case
International Truck and Engine

- $9.7 billion manufacturer of trucks, buses, diesel engines, and parts based in Illinois
- Key business issues:
  - *Market reality: Global competition, new regulations, emerging markets*
  - *Goals: 1) $15b in revenues 2) reduced costs, 3) improved quality, 4) reduced risk*

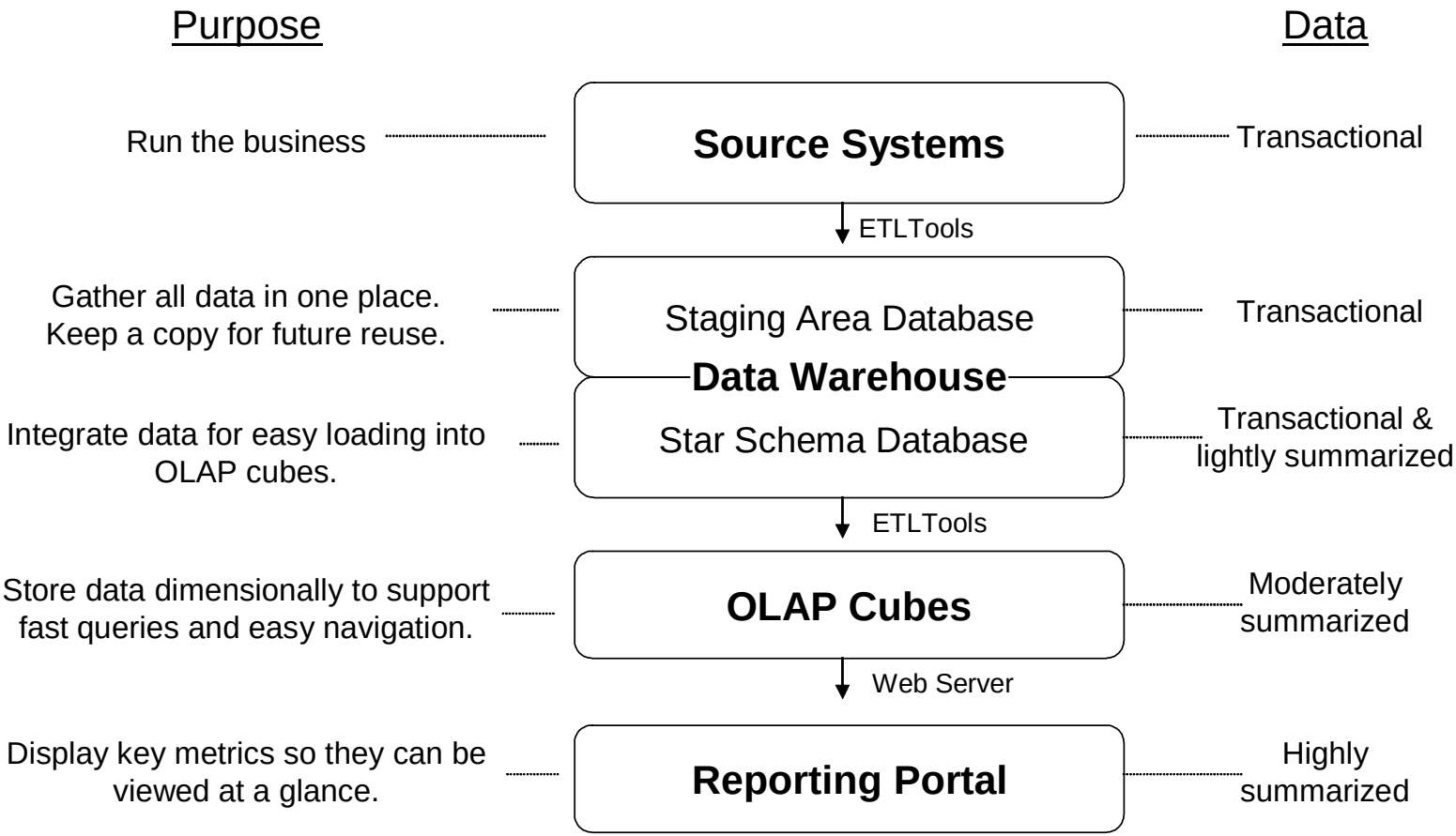
Situation

- Finance department goals in 2001:
  - *Provide access to financial information any time*
  - *Focus on analysis rather than data collection*
  - *Deliver proactive rather than reactive analysis*
  - *Use financial data as a predictive tool for decisions*
- Programs
  - *Accelerate closing of books*
  - *Standardize company's information infrastructure*
  - *Replace legacy systems with packaged applications*
  - *Implement a Web-based "reporting portal."*

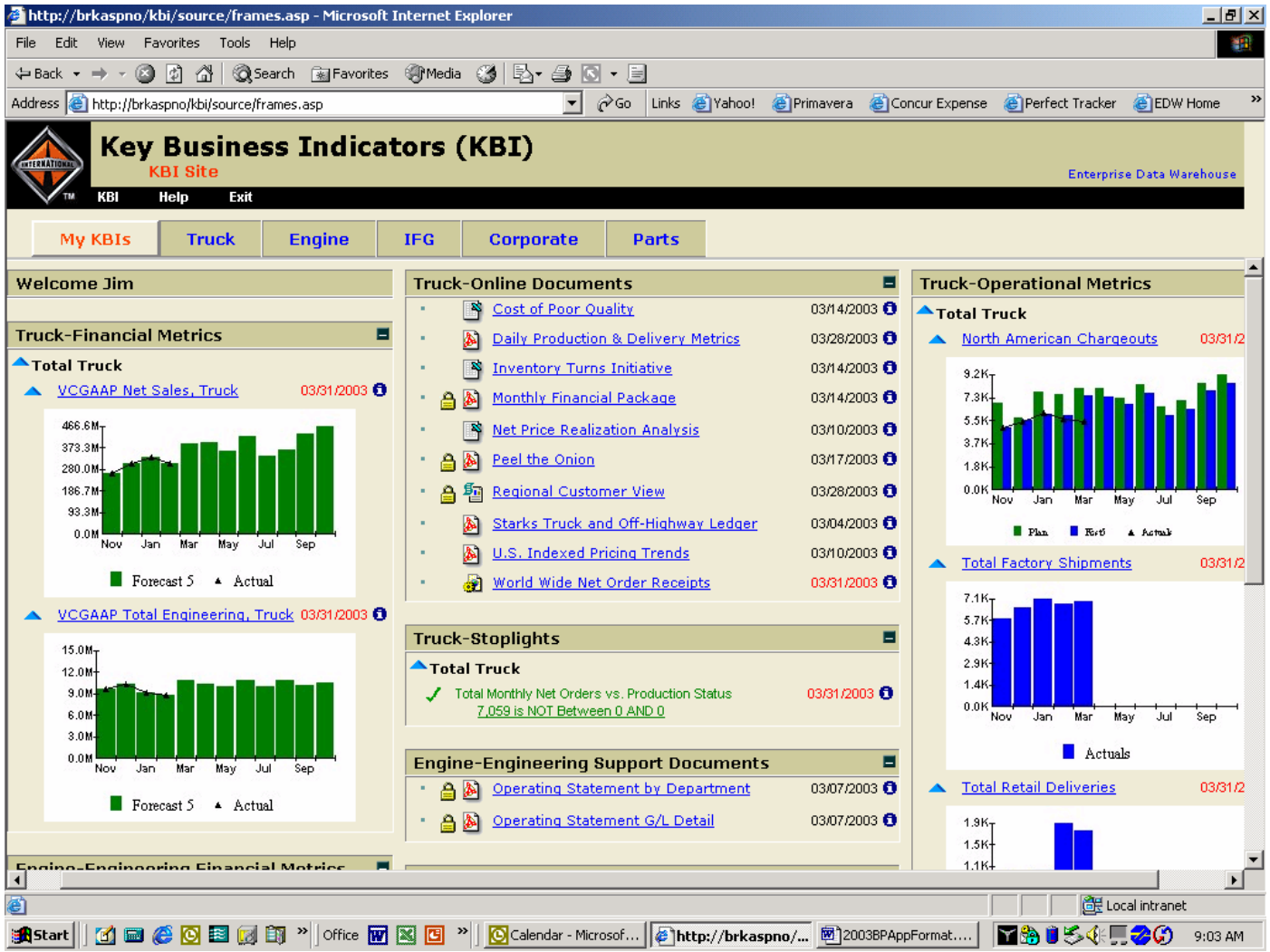
KBI Portal

- Purpose
  - *Deliver actionable information to financial analysts*
- Scope
  - *Spans 32 source systems across five divisions*
  - *130 key business indicators, updated daily*
  - *Supports 500 financial executives, managers, and analysts*
- Upshot
  - *Bridges gulf between finance and operations*
  - *Replaces hodge-podge of paper reports*
  - *Saves analysts time creating custom reports*
  - *Shuts down dozens of reporting systems*

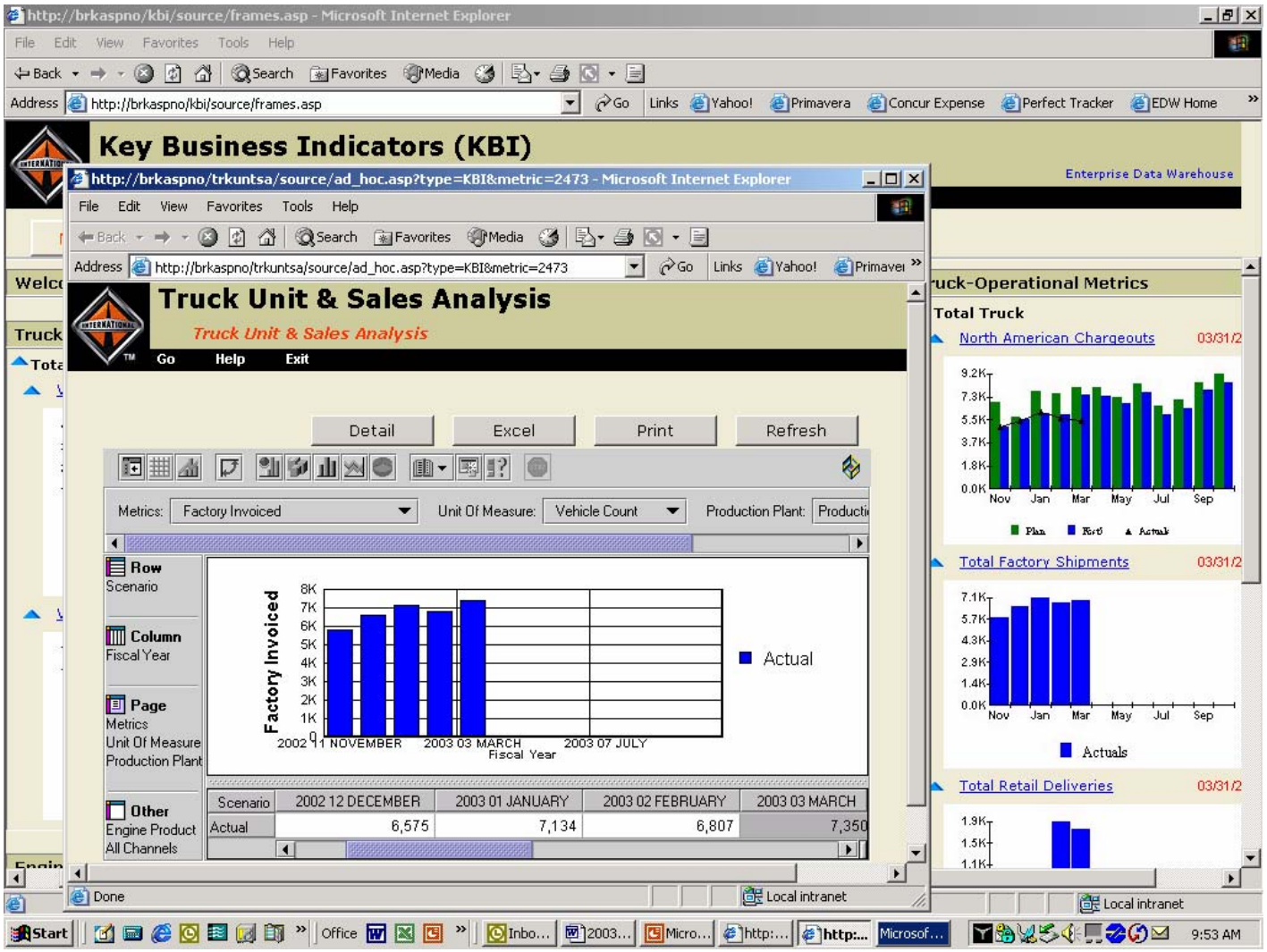
Architecture



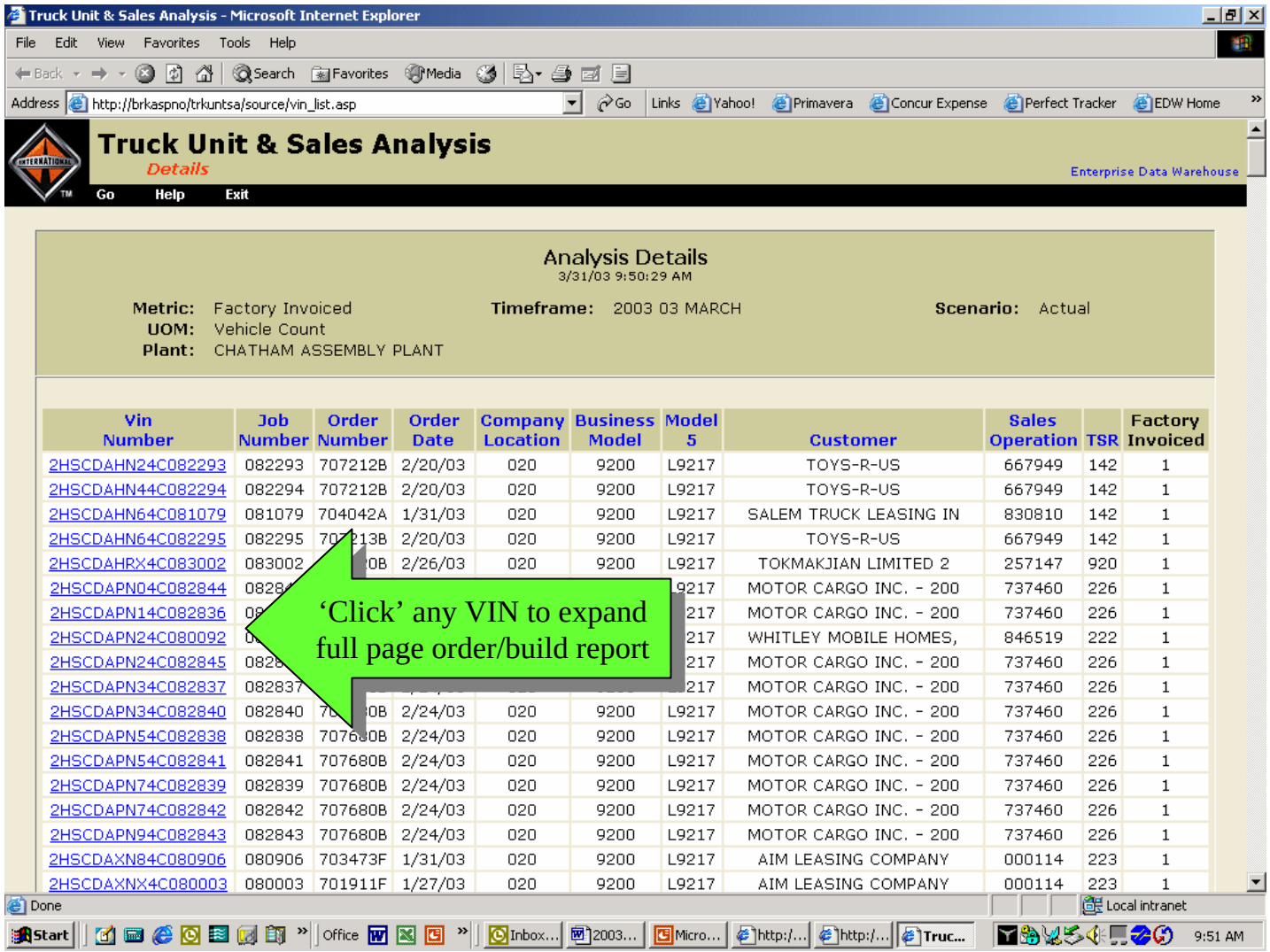
Monitoring Layer



Analysis Layer



Detail Transaction Layer



Vin Number	Job Number	Order Number	Order Date	Company Location	Business Model	Model 5	Customer	Sales Operation	TSR	Factory Invoiced
2HSCDAHN24C082293	082293	707212B	2/20/03	020	9200	L9217	TOYS-R-US	667949	142	1
2HSCDAHN44C082294	082294	707212B	2/20/03	020	9200	L9217	TOYS-R-US	667949	142	1
2HSCDAHN64C081079	081079	704042A	1/31/03	020	9200	L9217	SALEM TRUCK LEASING IN	830810	142	1
2HSCDAHN64C082295	082295	707213B	2/20/03	020	9200	L9217	TOYS-R-US	667949	142	1
2HSCDAHRX4C083002	083002	0B	2/26/03	020	9200	L9217	TOKMAKJIAN LIMITED 2	257147	920	1
2HSCDAPN04C082844	0828					9217	MOTOR CARGO INC. - 200	737460	226	1
2HSCDAPN14C082836	08					217	MOTOR CARGO INC. - 200	737460	226	1
2HSCDAPN24C080092	0					217	WHITLEY MOBILE HOMES,	846519	222	1
2HSCDAPN24C082845	0828					217	MOTOR CARGO INC. - 200	737460	226	1
2HSCDAPN34C082837	082837					217	MOTOR CARGO INC. - 200	737460	226	1
2HSCDAPN34C082840	082840	70	0B 2/24/03	020	9200	L9217	MOTOR CARGO INC. - 200	737460	226	1
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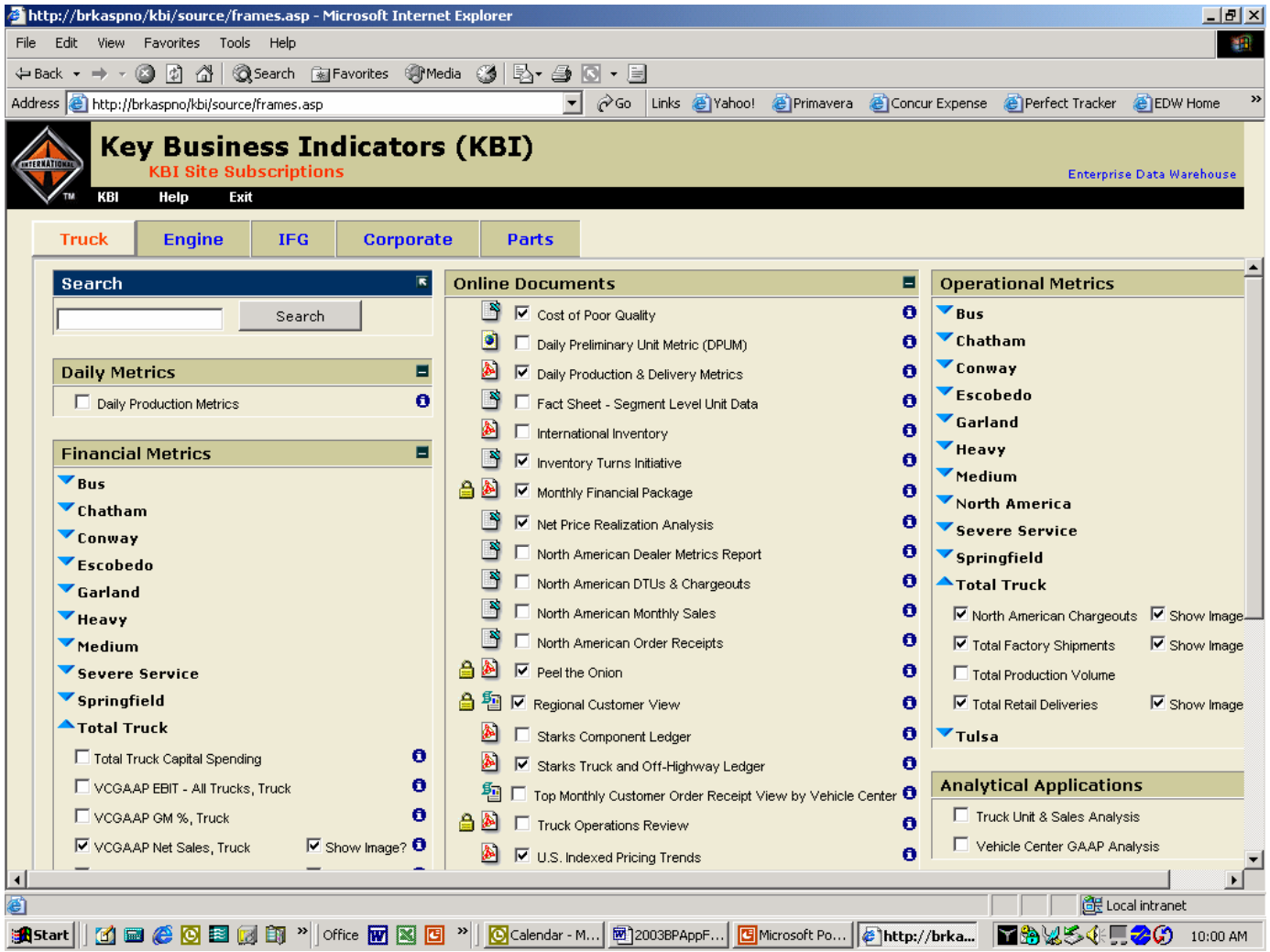
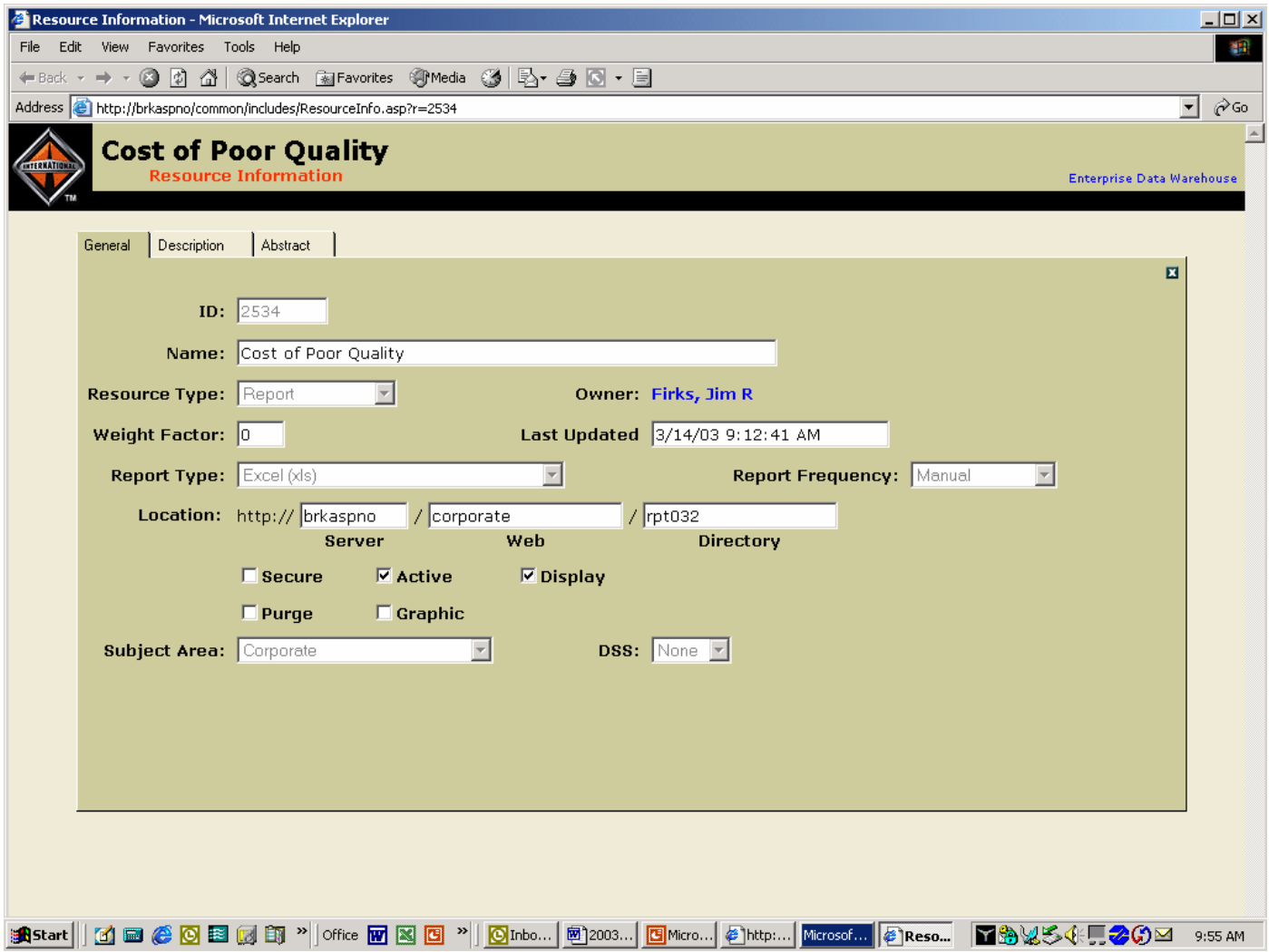
2HSCDAXN84C080906	080906	703473F	1/31/03	020	9200	L9217	AIM LEASING COMPANY	000114	223	1
2HSCDAXNX4C080003	080003	701911F	1/27/03	020	9200	L9217	AIM LEASING COMPANY	000114	223	1

Personalization



Metadata



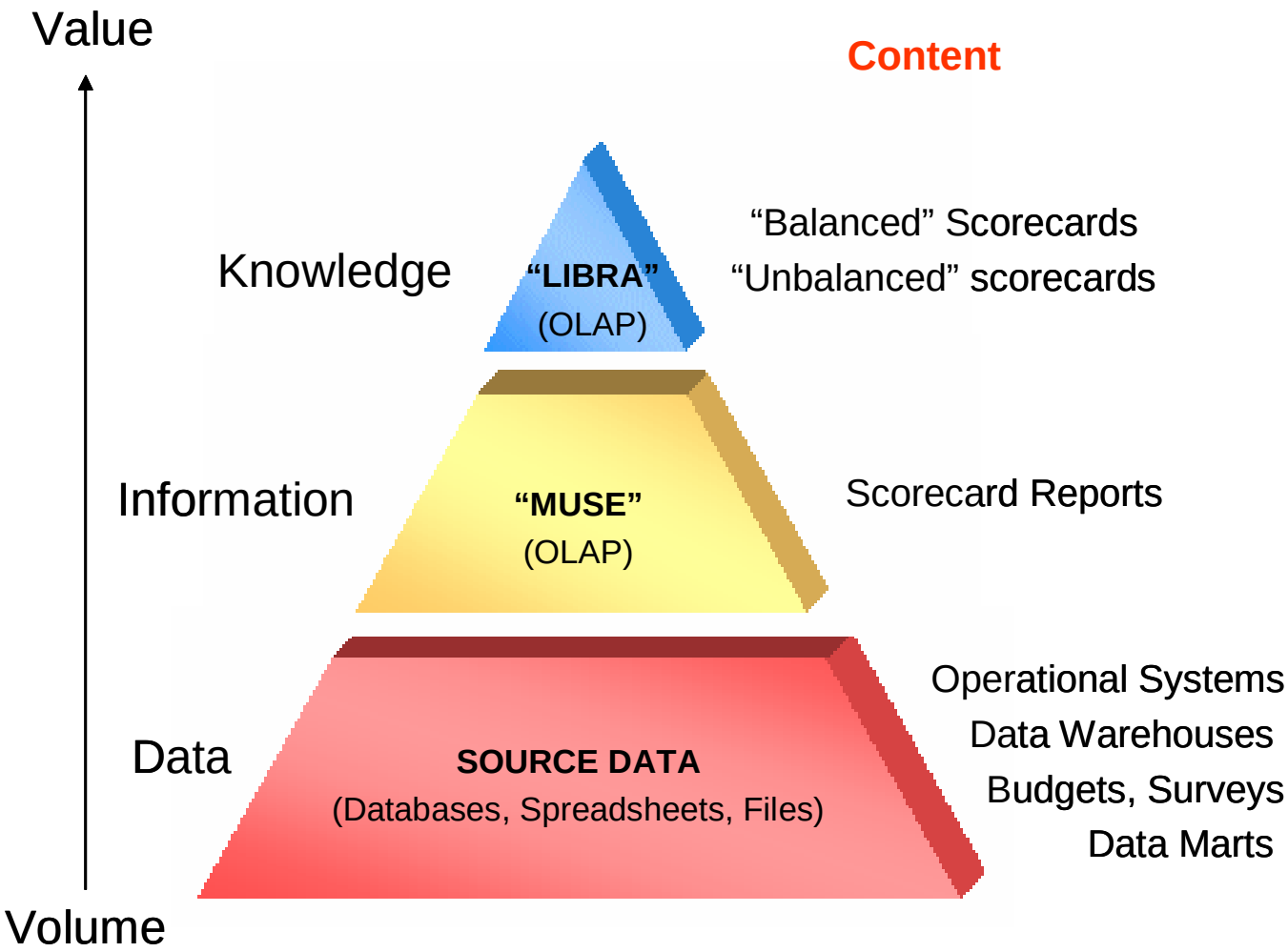
Strategic Dashboard Case
Hewlett-Packard TSG

- HP Technology Services Group
  - *Provides consulting, support services, and software globally for HP*
  - *$12 billion division of Hewlett Packard*
- Situation
  - *Dozens of overlapping reporting systems with inconsistent metrics*
  - *No consistent means of measuring regional and business unit performance against company objectives and holding individuals accountable*

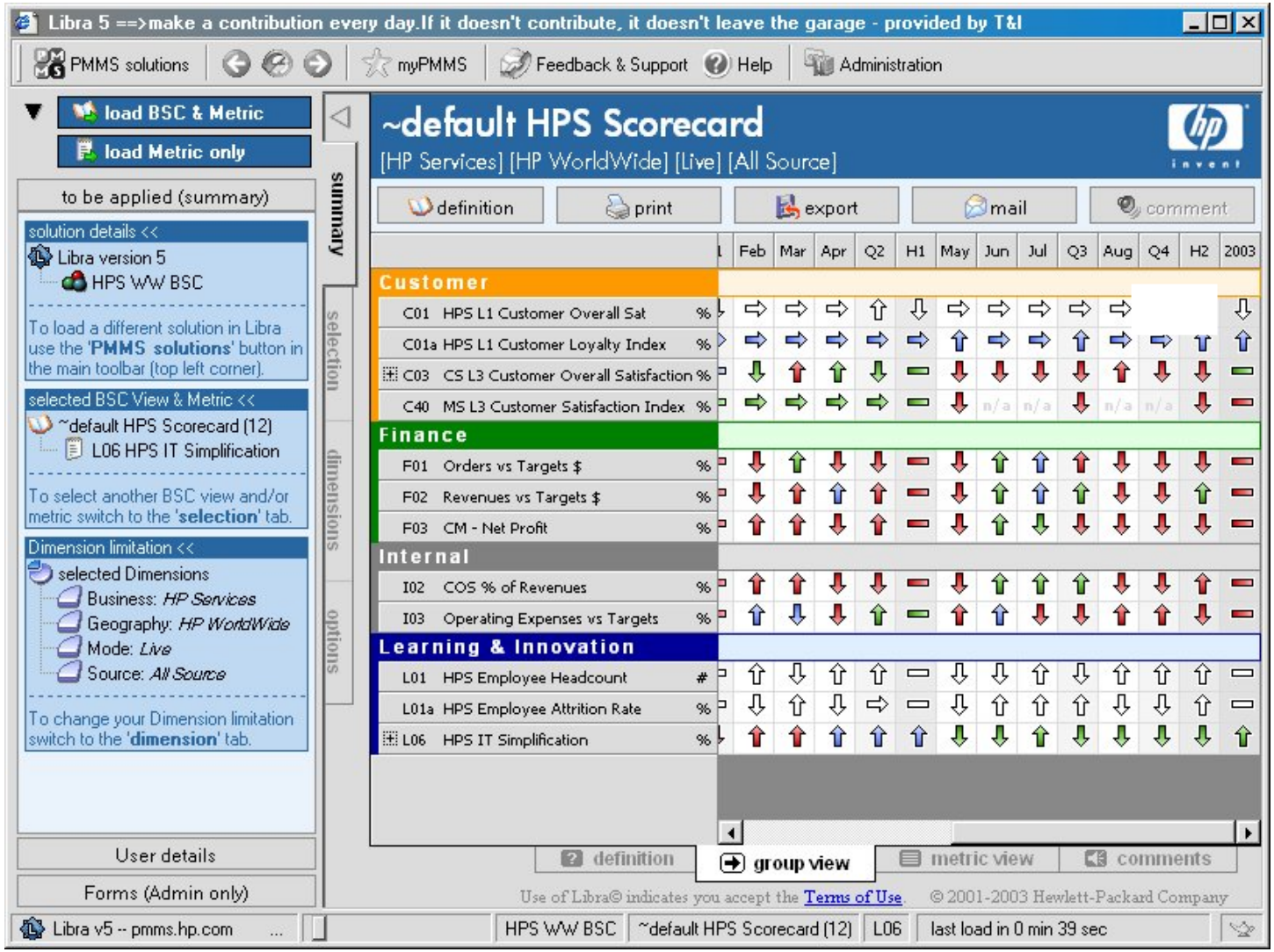
Solution

- HP Performance Measurement and Management System (PMMS)
  - *Executive scorecard (LIBRA) deployed to EMEA region in 2001, then globally thereafter*
  - *Cascaded down multiple levels in each region*
  - *Implemented unified reporting system underneath (MUSE)*
- Upshot: $26 million cost-savings in 3 years on $1m expenditure
  - *$8.6 million – Shut down dozens of report systems*
  - *$10.6 million – Reduced time spent looking for reports*
  - *$1.3 million - Training users on BI tools, etc.*
  - *Raised customer satisfaction scores, lowered missed service-level commitments, correlate to revenue*

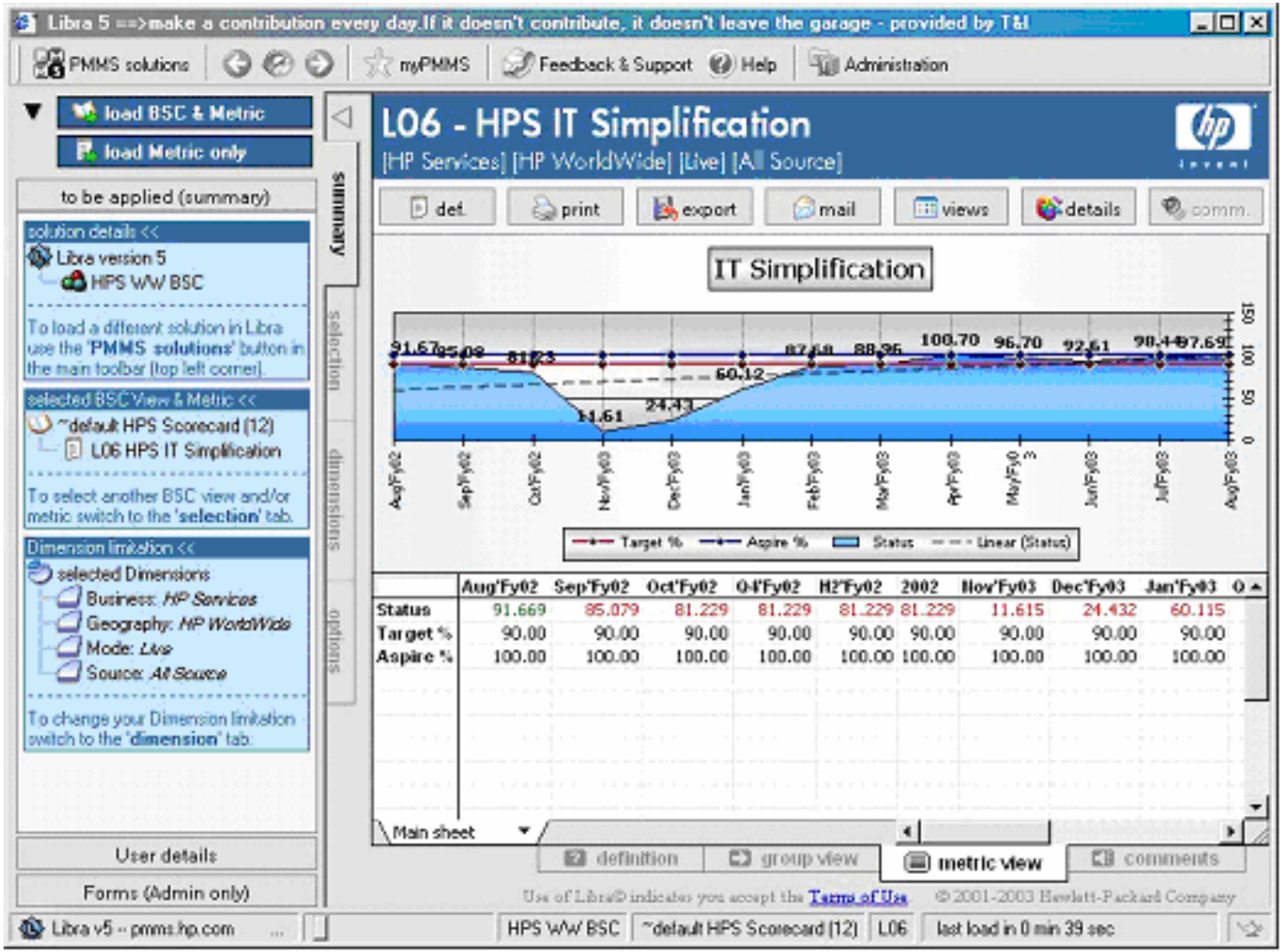
PMMS Architecture



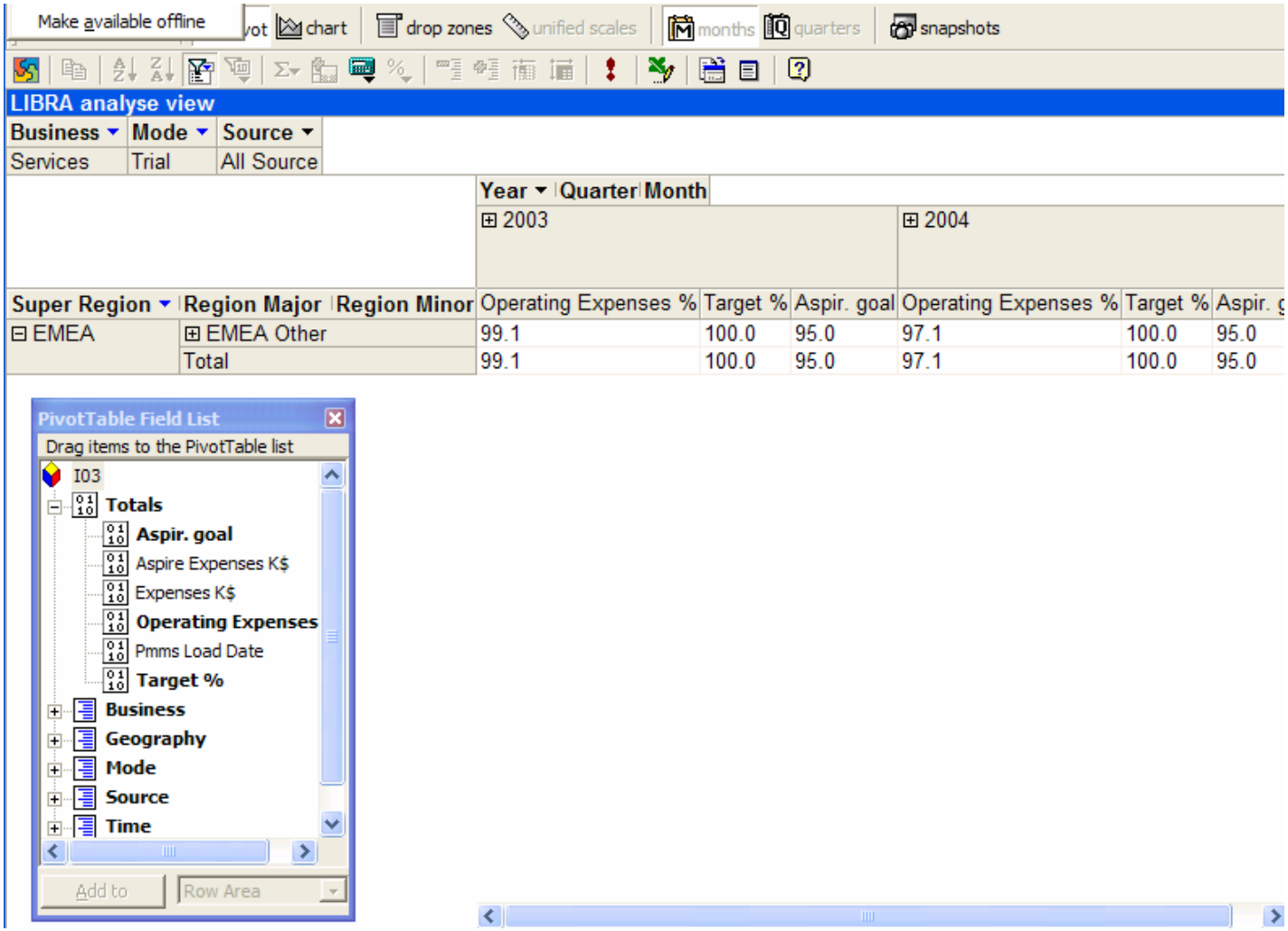
Monitoring Layer



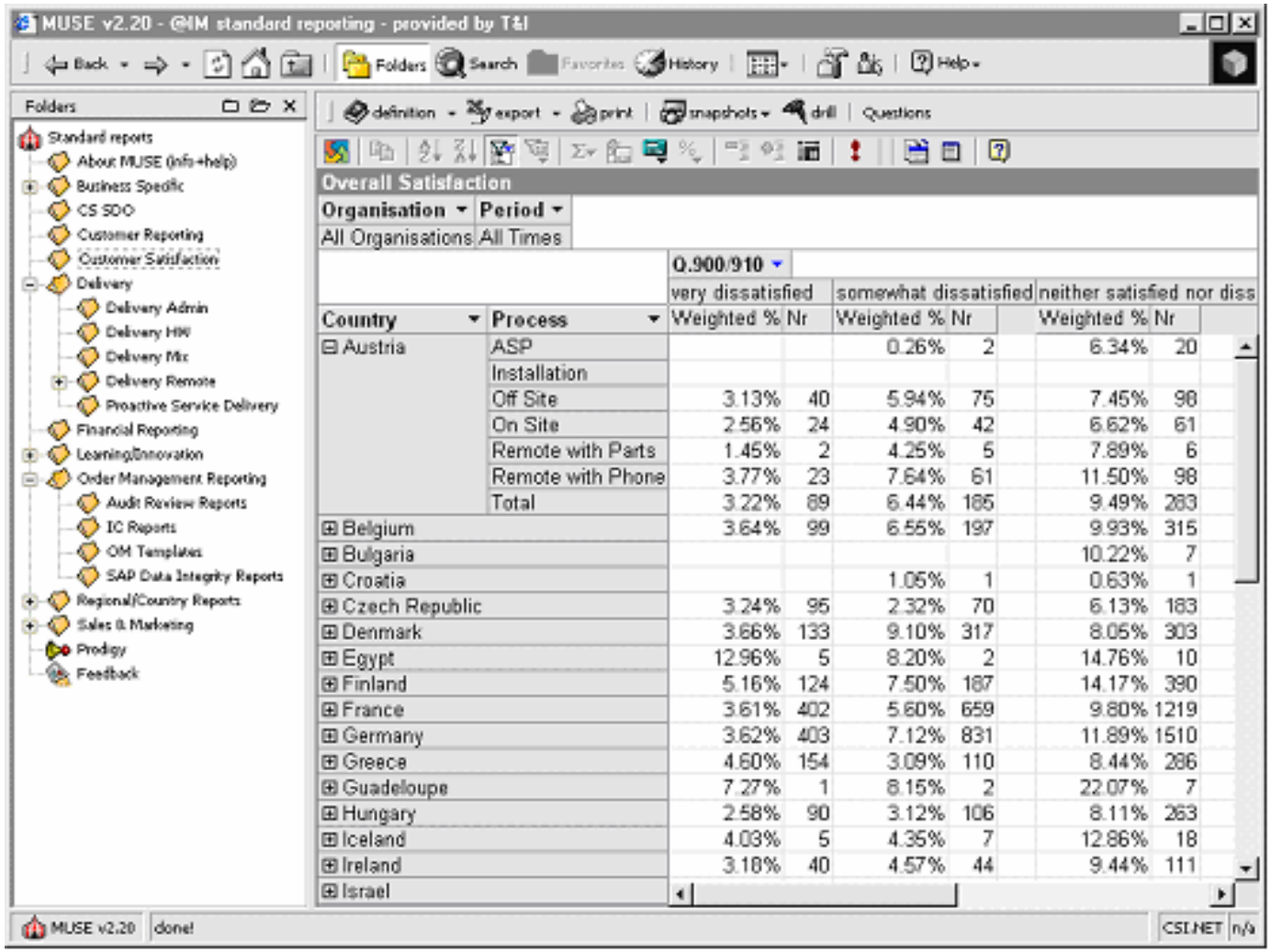
Analysis Layer



Analysis Layer (cont.)



Reporting Layer



Rohm & Haas

- Company
  - *$8 billion global chemicals manufacturer*
- Impetus
  - *CFO restructures finance to improve efficiency*
  - *Eliminate spreadmarts – offer consistent metrics*
- Time and cost
  - *First iteration: 12 months, $500k*
  - *Subsequent dashboards (12): $100k*
- Tools – Custom built
  - *SAP Portal, SAP Web Application Developer*
  - *Runs against SAP BW with Hyperion data imported*

People Data is now available for March 2006 (Apr-10)
Preliminary financials have been loaded for March 2006 (Apr-05)

Detailed Navigation
- Introduction
- Scorecard
  - **Finance**
  - People
- Top 10 Analysis
- Financial Reporting

Alert: Prior Year
View: Monthly
Month: 11/2005
Business Group: (All)
Business Unit: (All)
SBU: (All)
Region: (All)
Current Selections:

Standard GP- Detailed Drill-downs and Plan Comparisons
Sales/GP Pulse- MTD and Daily Sales
Run Rate- Quarterly Run Rate

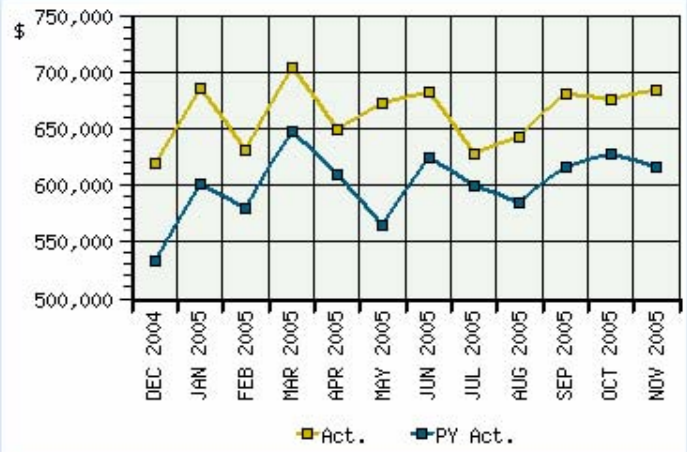
Summary View

Data in 000's. Variances: [Fav/(Unfav)]

KPI	PY% Alert	2005 Act.	2005 BP	2005 Fcst.	2004 Act.	2005 v. BP	2005 v. Fcst.	CY v. PY	% 2005 v. BP	% 2005 v. Fcst.	% CY v. PY
Volume KGS	△	246,953 KG	243,835 KG	228,907 KG	248,640 KG	3,118 KG	18,046 KG	(1,688 KG)	1.3 %	7.9 %	(0.7 %)
Net Sales	●	$ 684,313	$ 635,232	$ 659,428	$ 617,109	$ 49,082	$ 24,885	$ 67,205	7.7 %	3.8 %	10.9 %
Gross Profit	●	$ [illegible]	$ [illegible]	$ [illegible]	$ [illegible]	$ 13,149	$ 17,758	$ 37,466	6.7 %	9.3 %	21.9 %
Gross Profit %	●	[illegible] %	[illegible] %	[illegible] %	[illegible] %	(29 bp)	154 bp	275 bp			
S & A Expenses	△	$ 84,098	$ 84,280	$ 87,313	$ 83,335	$ 182	$ 3,214	($ 763)	0.2 %	3.7 %	(0.9 %)
R & D Expenses	■	$ 24,235	$ 23,255	$ 23,950	$ 21,656	($ 980)	($ 285)	($ 2,579)	(4.2 %)	(1.2 %)	(11.9 %)
OPBT	●	$ [illegible]	$ [illegible]	$ [illegible]	$ [illegible]	$ 25,735	$ 28,896	$ 39,214	35.8 %	42.0 %	67.1 %
OPBT %	●	[illegible] %	[illegible] %	[illegible] %	[illegible] %	295 bp	384 bp	480 bp			
Working Capital	△	$ 2,267,754	$ 2,322,359	$ 2,283,642	$ 2,222,780	$ 54,605	$ 15,888	($ 44,974)	2.4 %	0.7 %	(2.0 %)
Cycle Time (Days)	●	128.7	129.8	127.4	131.2	1.1	(1.3)	2.5	0.8 %	(1.0 %)	1.9 %

Trend / Periodic Comparison | Rolling 12 Months | Variance Contributors | Summary / Margin Trend
Chart Type: Rolling Year

Periodic - Net Sales CY: ☑ BP: ☐ Fcst: ☐ PY: ☑



CY v. PY Comparison - Net Sales

People Data is now available for March 2006 (Apr-10)

Preliminary financials have been loaded for March 2006 (Apr-05)

Detailed Navigation

- Introduction
- Scorecard
  - **Finance**
  - People
- Top 10 Analysis
- Financial Reporting

Alert: Prior Year

View: Monthly Month: 11/2005

Business Group: (All)

Business Unit: (All)

SBU: (All)

Region: (All)

Current Selections:

Finance Summary- Addl. Account Detail

Run Rate- Quarterly Run Rate

Summary View | Decomp: S & A Expenses | Data in 000's.

Legend

Metric	*% Alert*
2005 Act.	2004 Act.

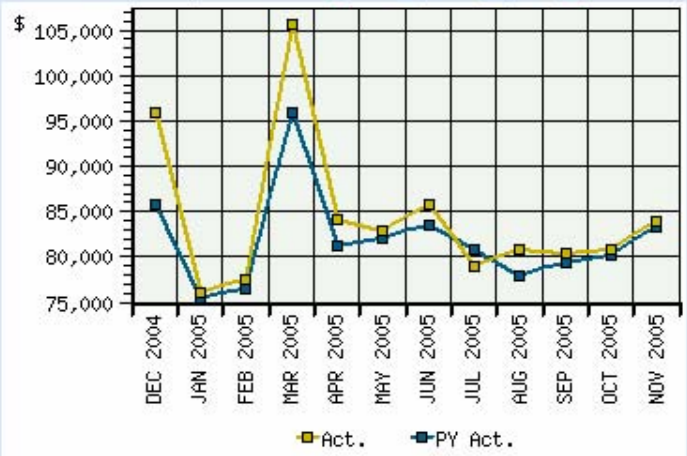
S & A Expenses	
$ 84,098	$ 83,335

Total Selling Exp.	
$ 40,321	$ 42,453

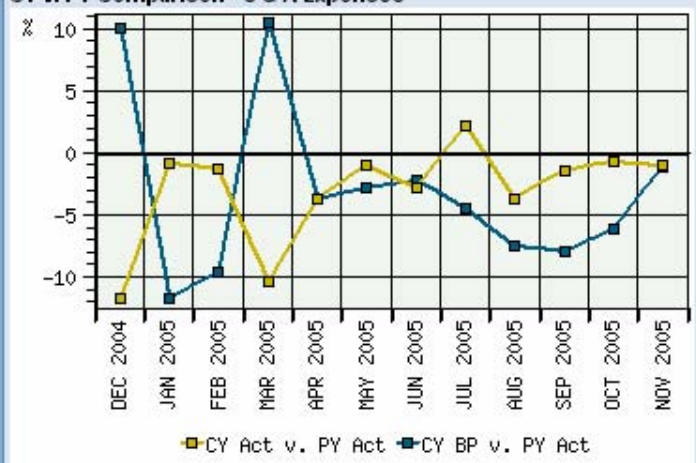
Total Admin. Exp.	
$ 43,777	$ 40,882

Trend / Periodic Comparison | Rolling 12 Months | Variance Contributors | Summary / Margin Trend | Chart Type: Rolling Year

Periodic - S & A Expenses CY: ☑ BP: ☐ Fcst: ☐ PY: ☑



CY v. PY Comparison - S & A Expenses



Railroad Company

- Impetus
  - *Automate daily performance report (paper)*
    - 120 page report, 45 measures, 4 levels, all locations
    - Reduce time spent analyzing data
- Time and Cost
  - *First iteration: 7 months and $500k*
  - *Current view: 1.5 years and $1M*
- Tools
  - *Existing: Teradata, Essbase, Alphablox, ESRI*
  - *New: Treemap software (~$2k)*

[redacted]board - Microsoft Internet Explorer

es Tools Help

Search Favorites

Corporate Dashboard

Welcome, Bart!

View myView

Dashboard | Customize | Profile

Reports & Graphs DPR (Requires Login) | Show ICP Goals | My Reports | Logout

DAILY PERFORMANCE MAP

Overview

<-15% >15%

Date: June | Date Range: | Yardstick: Last Year | All Measures: BNSF System

SAFETY		ICP VELOCITY MEASURE		TRAIN STATISTICS		CAR CYCLE	
Reportable Injuries	Injuries / 200000 Hrs	Loco Miles / Day	Coal Cycle Index	GTM	Units / Train	Velocity for Terminated Cars	Hours Per 1000 Miles
Lost & Restricted Duty Days	Lost & Rstd Days / 200000 Hrs	Merch Car Miles / Day	Ag Car Miles / Day				
Rail Equipment Accidents	Rail Eqpt Acc /Mil Train Mile	IM Stack Transit Days	IM Trailer Transit Days				Days Per Total Cycles
REVENUES & UNITS		CREW STARTS				CAR INVENTORY	
Net Revenue		Crew Starts		Number Trains Held	Avg Time Held / Train		Cars On Line
Units	Net RPU						
ON-TIME PERFORMANCE		LOCOMOTIVE		TRAIN PERFORMANCE		TERMINAL	
On-Time Performance		Velocity	Usage	% Wins - Originating Trains	% Wins - Terminating & Thru Trains	Actual Dwell Hrs (Normal)	Inventory Turnover
OTP +/- 24 Hrs	OTP > 24 Hrs Early	Utilization %	Dwell			Loads - Gath / Distr Connection	Loads - Intermediate Connection
		Availability %	MDBF			Empty - Gath / Distr Connection	Empty - Intermediate Connection

GTM
%Change: 11.04

GTM:	94,195,801
Last Year:	84,833,390
Variance:	9,362,411

Full Screen

GEOGRAPHIC DISPLAY

Please make a selection...

DPR ALL MEASURES

Daily | GTM

Geography BNSF System

Geography	06/21/06 Wed Actual	06/22/06 Thu Actual	06/23/06 Fri Actual	06/24/06 Sat Actual	06/25/06 Sun Actual	06/26/(Act
⊟BNSF System	3,052,305.84	3,232,482.01	3,275,095.61	3,472,822.12	3,424,113.33	3,038,
⊞Central	1,224,563.19	1,302,580.62	1,291,546.27	1,326,295.41	1,357,235.04	1,204,
⊞North	683,281.11	729,780.43	765,053.46	838,481.06	805,504.13	701,
⊞South	1,075,995.69	1,139,142.71	1,166,994.41	1,242,019.3	1,194,194.22	1,05(

[redacted] Goal Status - Microsoft Internet Explorer

Corporate ICP Goal Status

as of [redacted] 2006

Print

Asset Utilization (Velocity)

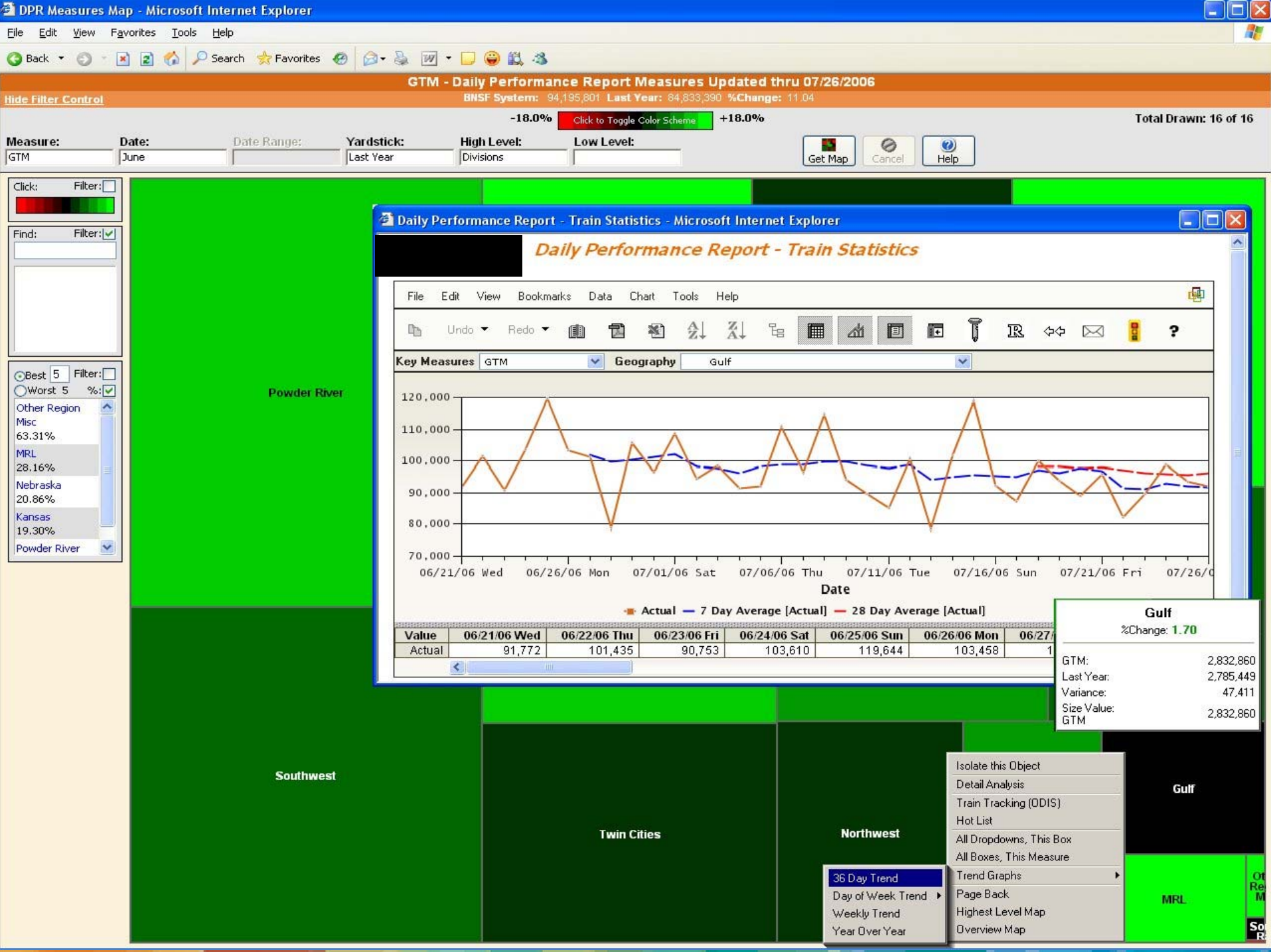
	DAILY	MTD	QTD	YTD	PERIOD	GOAL
LOCO MILES PER DAY	279.7	286.6	286.6	287.4	QTR	303
AG CAR MILES PER DAY	174.1	184.9	184.9	169.3	QTR	168.4
MERCH CAR MILES PER DAY	119.3	116.6	116.6	112.6	QTR	118.2
COAL CYCLE INDEX WEEKLY	140.0	136.5	136.5	139.8	QTR	125
INTERMODAL - STACK TRANSIT DAYS	5.4	5.1	5.1	5.3	QTR	5.2
INTERMODAL - TRAILER TRANSIT DAYS	2.8	2.7	2.7	2.7	QTR	2.6

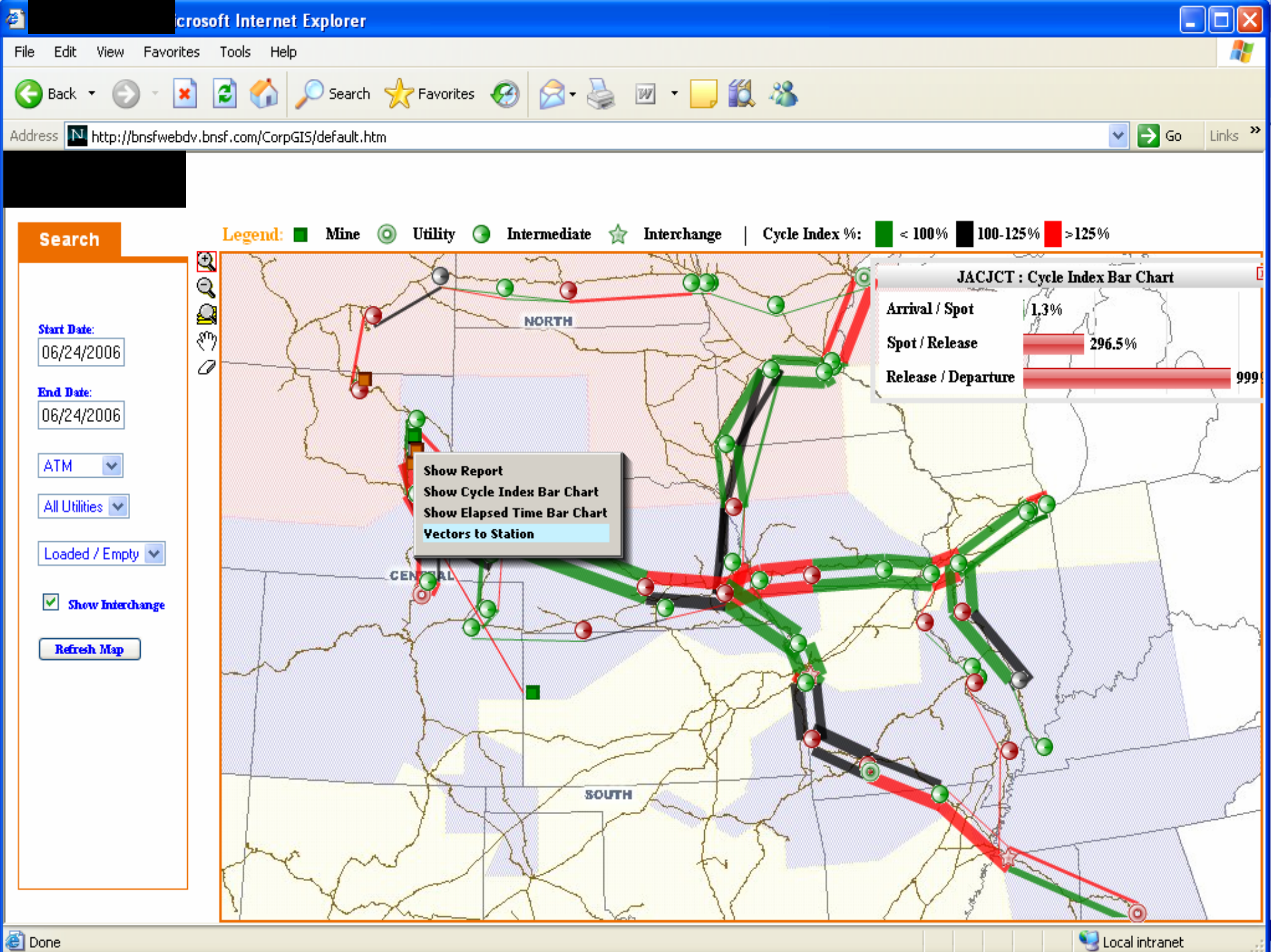
Safety

	DAILY	MTD	QTD	YTD	PERIOD	GOAL
FREQUENCY RATIO		1.6		1.32	ANNUAL	1.15
SEVERITY RATIO		11.31		27.37	ANNUAL	37.44

Done

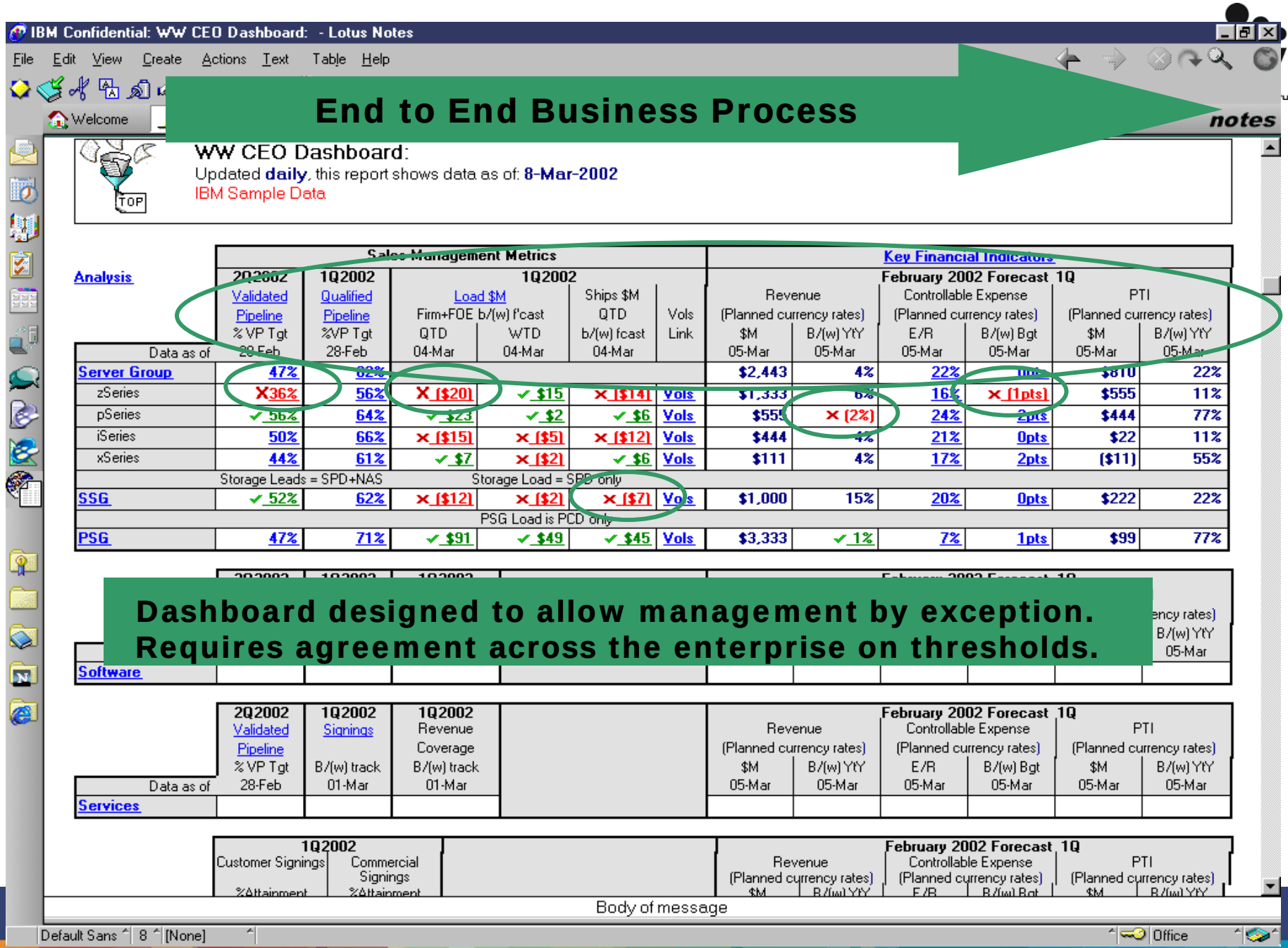
Trusted sites

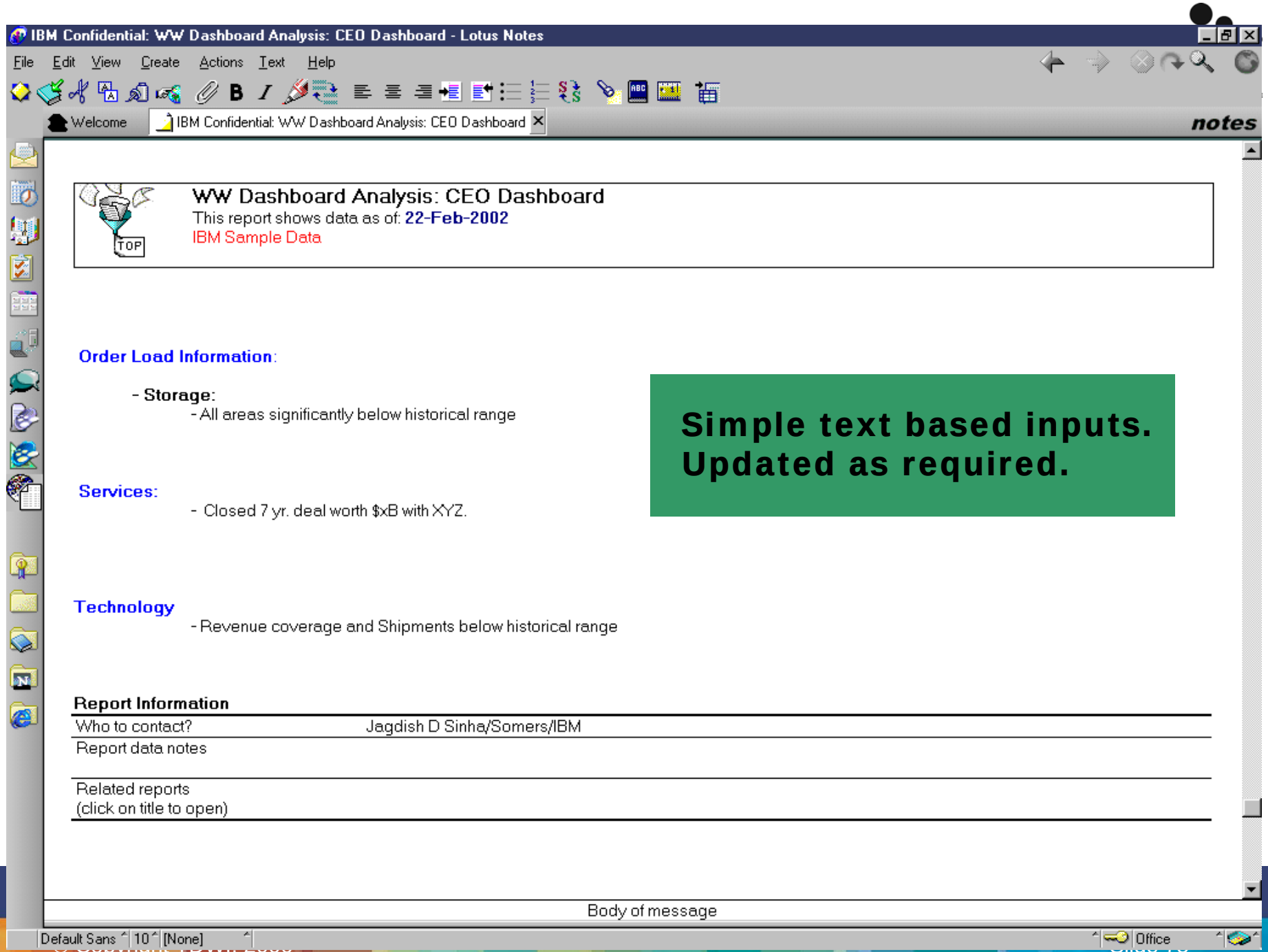

DPR Measures Map - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
GTM - Daily Performance Report Measures Updated thru 07/26/2006
Hide Filter Control
BNSF System: 94,195,801 Last Year: 84,833,390 %Change: 11.04
-18.0% Click to Toggle Color Scheme +18.0%
Total Drawn: 16 of 16
Measure: GTM
Date: June
Date Range:
Yardstick: Last Year
High Level: Divisions
Low Level:
Get Map
Cancel
Help
Click: Filter:
Find: Filter:
Best 5 Filter:
Worst 5 %:
Other Region
Misc
63.31%
MRL
28.16%
Nebraska
20.86%
Kansas
19.30%
Powder River
Daily Performance Report - Train Statistics - Microsoft Internet Explorer
Daily Performance Report - Train Statistics
File Edit View Bookmarks Data Chart Tools Help
Undo Redo
Key Measures GTM
Geography Gulf
120,000
110,000
100,000
90,000
80,000
70,000
06/21/06 Wed
06/26/06 Mon
07/01/06 Sat
07/06/06 Thu
07/11/06 Tue
07/16/06 Sun
07/21/06 Fri
Date
Actual 7 Day Average [Actual] 28 Day Average [Actual]
Value 06/21/06 Wed 06/22/06 Thu 06/23/06 Fri 06/24/06 Sat 06/25/06 Sun 06/26/06 Mon
Actual 91,772 101,435 90,753 103,610 119,644 103,458
Gulf
%Change: 1.70
GTM: 2,832,860
Last Year: 2,785,449
Variance: 47,411
Size Value: GTM 2,832,860
Powder River
Southwest
Twin Cities
Northwest
Gulf
MRL
Isolate this Object
Detail Analysis
Train Tracking (ODIS)
Hot List
All Dropdowns, This Box
All Boxes, This Measure
Trend Graphs
Page Back
Highest Level Map
Overview Map
36 Day Trend
Day of Week Trend
Weekly Trend
Year Over Year


[redacted]crosoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://bnsfwebdv.bnsf.com/CorpGIS/default.htm
Go Links
[redacted]
Search
Start Date:
06/24/2006
End Date:
06/24/2006
ATM
All Utilities
Loaded / Empty
Show Interchange
Refresh Map
Legend: Mine Utility Intermediate Interchange | Cycle Index %: < 100% 100-125% >125%
NORTH
CENTRAL
SOUTH
Show Report
Show Cycle Index Bar Chart
Show Elapsed Time Bar Chart
Vectors to Station
JACJCT : Cycle Index Bar Chart
Arrival / Spot 1.3%
Spot / Release 296.5%
Release / Departure 999
Done
Local intranet

IBM

- Impetus - 1998
  - *Dueling spreadsheets in weekly sales meetings*
- Time and cost
  - *First iteration: 6 months, $200k*
  - *Became basis of BI and EDW initiative*
    - 25,000 users, thousands of reports, 40 dashboards
- Tools
  - *Lotus Notes (email, disconnected, unstructured)*
  - *Web portal for mid-level managers*




IBM Confidential: WW Dashboard Analysis: CEO Dashboard - Lotus Notes
File Edit View Create Actions Text Help
Welcome
IBM Confidential: WW Dashboard Analysis: CEO Dashboard
notes
TOP
WW Dashboard Analysis: CEO Dashboard
This report shows data as of: 22-Feb-2002
IBM Sample Data
Order Load Information:
- Storage:
- All areas significantly below historical range
Services:
- Closed 7 yr. deal worth $xB with XYZ.
Technology
- Revenue coverage and Shipments below historical range
Simple text based inputs.
Updated as required.
Report Information
Who to contact? Jagdish D Sinha/Somers/IBM
Report data notes
Related reports
(click on title to open)
Body of message
Default Sans 10 [None]
Office

Contact Information

Wayne Eckerson

Director of Research and Services

The Data Warehousing Institute

70 Martins Lane, Hingham, MA USA

781 740-9504

weckerson@tdwi.org