Business School
UNIVERSITY OF COLORADO DENVER

Information Systems Program

Business Intelligence Concepts, Tools, and Applications

Week 3: Data Visualization and Dashboard Design

Lesson 3: Performance Dashboards

Performance Dashboards

- Learning Objectives
  - Define and understand the purpose of dashboards
  - Review examples in order to understand common characteristics and types of dashboards
  - See how industry leaders have successfully deployed dashboards
  - List attributes of metrics included in dashboards
  - Practice creating dashboards

ENTERPRISE-GRADE
BUSINESS INTELLIGENCE

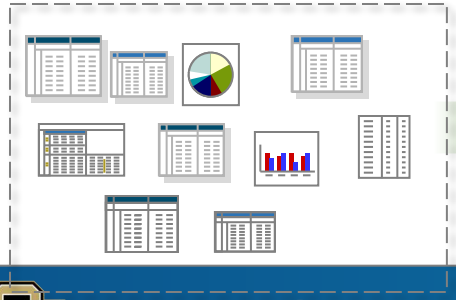
Produce and publish trusted analytics to elevate performance

Dashboards Combine Many Reports into a Single, Easy to Understand, Dashboard Application

Dozens of Reports
Frequently Used Together

Business Dashboards
Consolidates Dozens of Reports

Multi-layout Dashboard Book
Consolidates Multiple Independent Dashboard Designs



Performance Dashboards
Common Characteristics

- Use of visual components to highlight data and exceptions that require action.
- Transparent to the user, meaning that they require minimal training and are extremely easy to use
- Combine data from a variety of systems into a single, summarized, unified view of the business
- Enable drill-down or drill-through to underlying data sources or reports
- Present a dynamic, real-world view with timely data
- Require little coding to implement/deploy/maintain

Dashboard Types

Scope

- ***Broad:*** Displaying information about the entire organization
- ***Specific:*** Focusing on a specific function, process, product, etc.

Business role

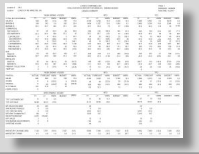
- ***Strategic:*** Provides a high-level, broad, and long-term view of performance
- ***Tactical:*** measure the business's progress according to related trends, in accordance with each strategic initiative
- ***Operational:*** Provides a focused ,near-term, and operational and business processes view of performance

Time horizon

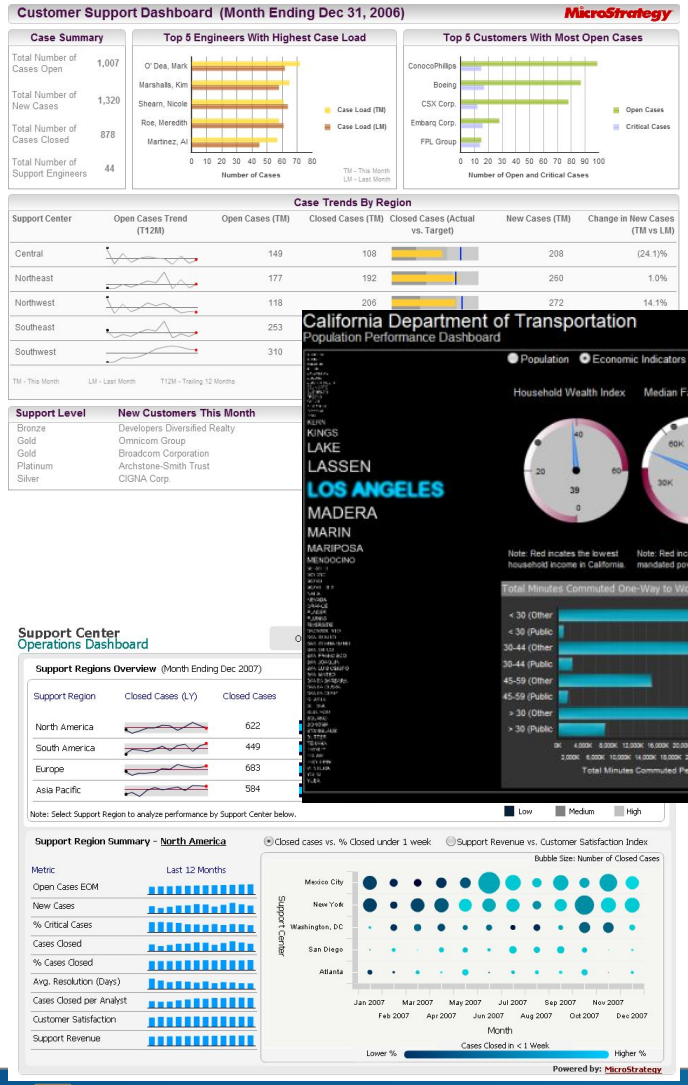
- ***Historical:*** Looking backwards to track trends
- ***Snapshot:*** Showing performance at a single point in time
- ***Real-time:*** Monitoring activity as it happens
- ***Predictive:*** Using past performance to predict future performance

Source; Adopted from: A Guide to Creating Dashboards People love to use, translating Delicious Data into a Beautiful Design Version 2.0. May 2015

Industry Leaders Have Deployed Successful Dashboards at Unparalleled Scale

Retail		900 Store Managers One large DashboardApp distributed daily Content: Store Ops, KPI performance, benchmarking
Retail		3,000 Retail Managers Dashboard delivered daily Content: Manage inventory, improve margins
Government		Open to public access 40+ million Medicare hospital admissions data, growing every month Content: Detailed insights into Medicare spending per State
Financial Services		15,000 Branch Managers One large DashboardApp delivered daily Content: Production data, Customer data, Financial
Financial Services		2,000 Bank branches employees Dashboard delivered daily Content: Banking and retail operations
Food & Beverage		4,000 Store Managers 30,000 DashboardApps delivered daily Content: Store operations

Pervasive Personalized Scorecards and Dashboards for Monitoring Performance



Dashboards

- Consume Information Easily With Gauges And Dials
- Integrated View of Data Across the Enterprise

Scorecards

- Use Formal Scorecard Methodologies
- Drill Down to View Group/ Employee Performance Scorecards

Action items to consider before you start

- Define the type of data you are working with.
- Consider timeliness of this information, and how frequently the dashboard itself will be updated.
- Find out about users.
- Evaluate the suitability of the BI platform for the design and deployment of the dashboards

From: How to Create Compelling Business Dashboards - Complete Guide-

What to include on your dashboard

- Define your dashboard functionality
- Don’t sacrifice substance over style
- Know your users’ requirements
- Validate their information requirements
- Select a right metric
- Select the right visual representation

From: How to Create Compelling Business Dashboards - Complete Guide-

What Makes a perfect metric?

- Actionable
  - Metric involves a specific and repeatable action that can be linked to the observed data
- Transparent
  - Metric involves relatively simple calculations, making it easy for users to follow them
- Accessible
  - Metric involves data which is easy accessible, and simple to maintain
- Recognizable
  - There is a clear, distinct, and consistent understanding of what the metric means throughout the whole dashboard

Source: Stephen Few, Information Dashboard Design 2013, A Guide to Creating Dashboards People love to use, Juice, 2009-2010.

Example of Metrics

Sales	• Bookings • Billings • Pipeline (anticipated sales) • Number of orders • Order amounts • Selling prices	Fulfilment	• Number of days to ship • Backlog • Inventory levels
Marketing	• Market share • Campaign success • Customer demographics	Manufacturing	• Number of units manufactured • Manufacturing times • Number of defects
Finance	• Revenues • Expenses • Profits	Human resources	• Employee satisfaction • Employee turnover • Count of open positions • Count of late performance reviews
Technical support	• Number of support calls • Resolved cases • Customer satisfaction • Call durations		

Adopted from: Stephen Few, Information Dashboard Design 2013

Ensure Metrics are Comparable

- Time comparison
  - Allows for representing trends in data, and making comparisons against points in the past, or even against future forecasts.
- Cross comparison
  - Allows for analyzing certain variables in relation to one another, to see if there is any correlation between them.
- Goal comparison
  - Allows for charting progress against predetermined goals and targets.

Adopted from **Stephen Few, Information Dashboard Design 2013**

The Five Keys to Successful Information-Driven Applications

1. Information Rich and Self Contained

Very high Information Density

Minimal trips back to server

Multiple sources – structured and unstructured

2. Actionable and Built Around A User Workflow

Guided Workflows and advanced visualizations

100% Interactive

Transact within application

3. Mass Personalized Distribution

Auto role driven customization through any media

High volume scalability

In-memory performance

5. Mobile Optimized

Native Mobile Interfaces

Build once, Deploy many times

Full use of all mobile sensors

4. Real-time Insight

Act in real-time

Event driven triggers

Fine tune strategy with feedback

Action Items for Selecting Metrics

- Start by defining what your dashboard is trying to achieve.
- Avoid concentrating on style over substance.
- Gain an insight into what it is that your users want.
- Assess what information is really necessary.
  Know the components of a ‘perfect metric’.
- Make sure that these metrics allow for meaningful comparison.

Adopted from A Guide to Creating Dashboards People love to use, Juice, 2009-2010.