



Information Visualization for Data Warehousing What Works and Why

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The Instructor



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Information Visualization For Data Warehousing

Course Objective

- **Problem: Effective information delivery**

- Leveraging our BI/DW systems
- Enhancing the business value proposition
 - Decreasing expenses
 - Increasing revenue



- **Solution: Actionable Visualization**

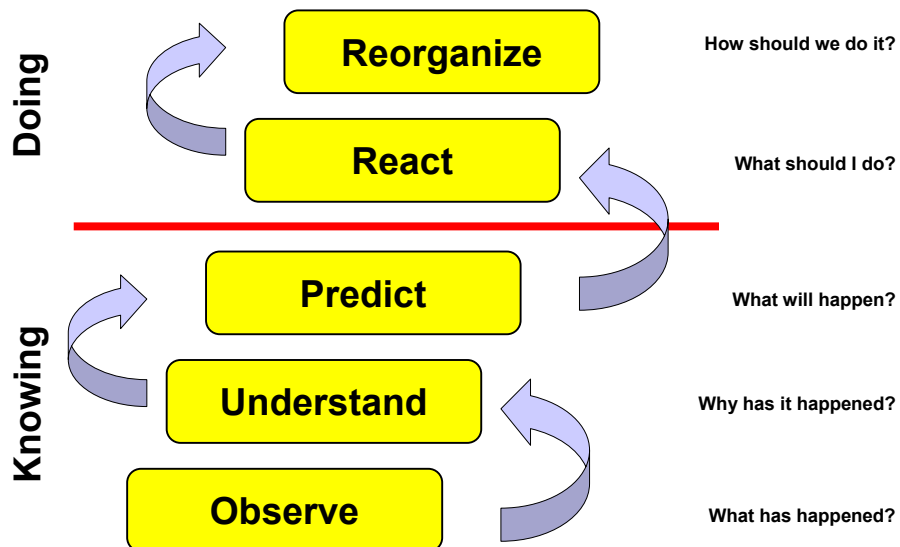
- **Data** - that is transformed and packaged into...
- **Information** - that enables us to understand...
- **Knowledge** - so that we can see what to do

- The focus is... What do I do with what I know?

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Actionable Viz Should Support...

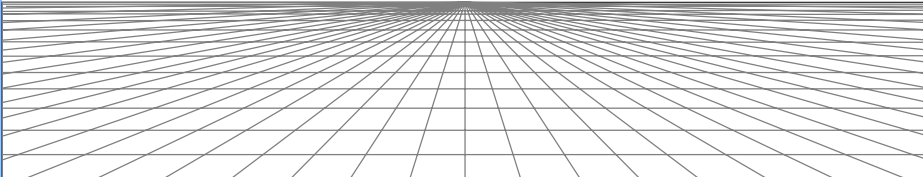
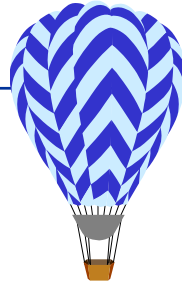


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OVERVIEW

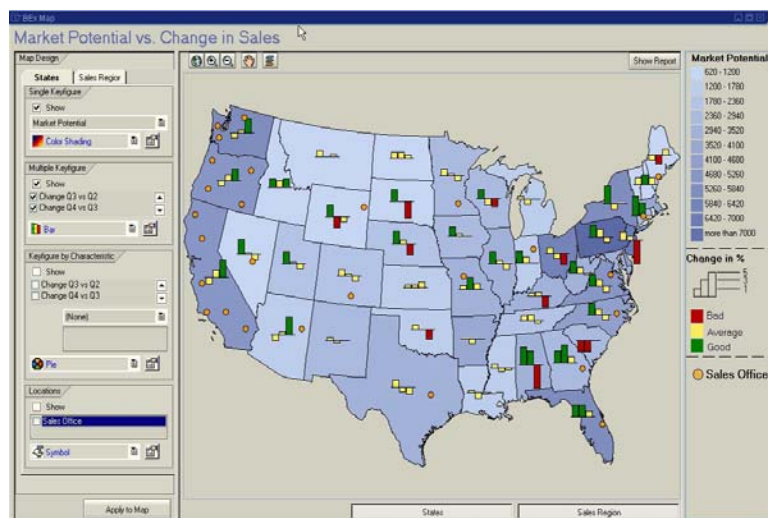
1. Sampling of InfoViz Applications
2. Overview of InfoViz Concepts
3. Designing for Actionable InfoViz
4. Survey of InfoViz Products
5. Steps for Successful InfoViz



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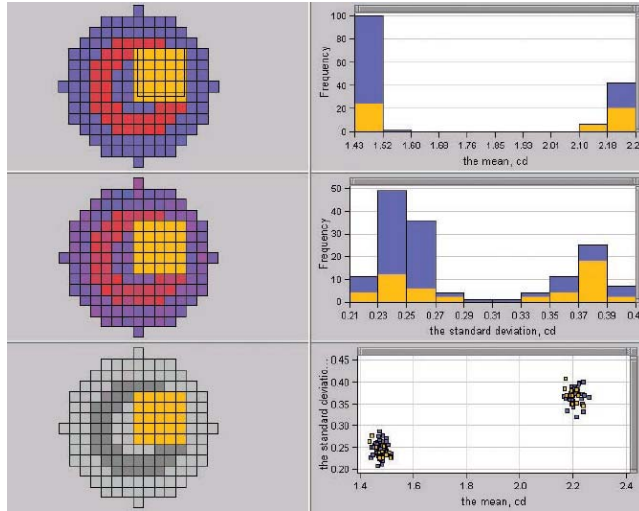
Example: Sales Force Management



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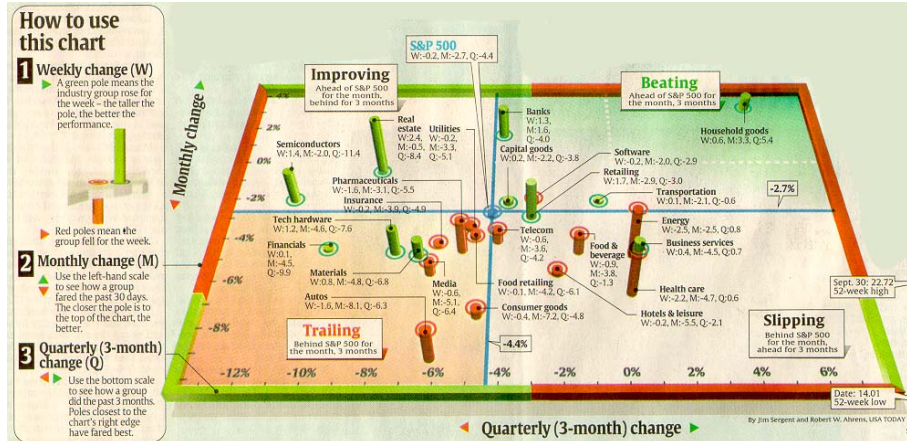
Example: Manufacturing Quality Control



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Example: Hot Stock Picks



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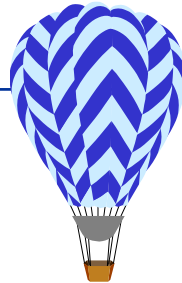
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What are Your Observations?

- **Wide diversity**
 - Almost 'wacky' in their appearance
 - Far too many options for the casual user
- **Broad applicability**
 - Across any business function
- **Large risk of information overload**
- **Huge potential**
 - If we do it right!
- **So... What works? And why?**

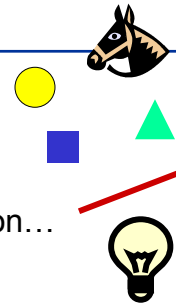
OVERVIEW

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Definition of Visualization

- **Visual representation of data**
 - Arrangement of visual symbols that conveys information to the viewer
 - Emphasizes: shapes, colors, position, motion...
 - More than textual descriptions
 - Computer-based and interactive
 - To amplify cognition (to know, be aware, make judgment)
 - Maybe...results in action impacting business
- **Scientific visualization**
 - Data that is scientific about 'physical' things; spatial
- **Information (business) visualization**
 - Data that is abstract about 'nonphysical' concepts



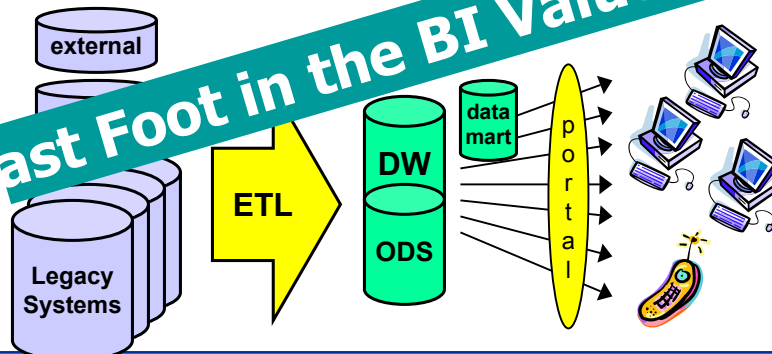
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What is Special about BI/DW?

- **Single version of reality** ⇒ Visualizing your business
- **Dimensional analysis** ⇒ Defined set of factors to consider
- **Lots of data** ⇒ Complex in quantity and in structure
- **Actionable** ⇒ Critical to strategy and operations

Fast Foot in the BI Value Chain



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Balancing the Mundane with the Wacky





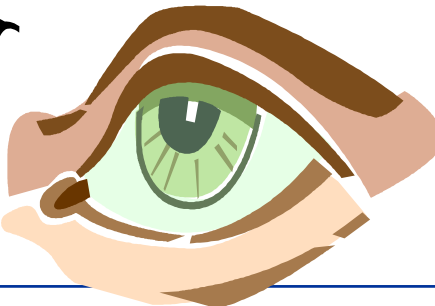
- **Mundane - Normal business graphics**
 - Most use Excel for business tables/graphs
 - Some supplement with enterprise reporting products
 - Other use BI analysis tools on dimensional pivot tables
- **Wacky - Unusual business graphics**
 - A few brave souls do the 'wacky' stuff
 - Different way to viewing the world
 - Track record for being wacky is poor



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The Five Senses

- **Sound** 
- **Smell** 
- **Touch** 
- **Taste** 
- **Sight** 

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Sight - The Human Potential

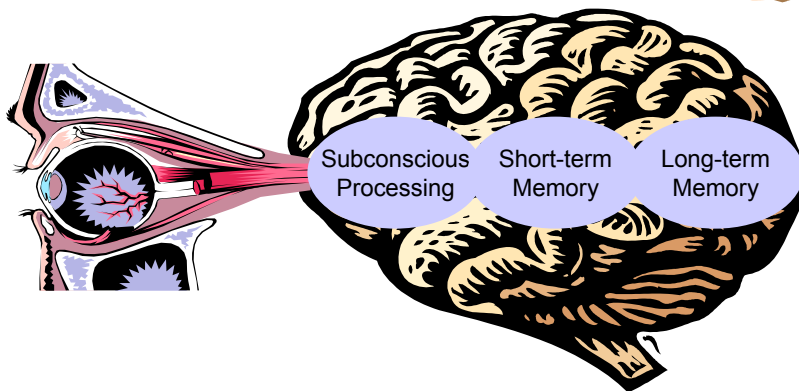


- **Visual bandwidth is enormous**
 - Megabytes per second
- **Perceptual skills are remarkable**
 - Trend, cluster, gap, outlier...
 - Color, size, shape, proximity...
- **Image storage is fast and vast**

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Sight - The Mechanics



- **Leverage the subconscious processing**
- **Chunk for the short-term memory**
- **Associate for the long-term memory**

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Sight - The Factors



- **Appearance**
 - Position, especially relative to something
 - Shape: size, orientation...
 - Color: hue, saturation...
 - Texture & Lighting
 - Stationary changes: blinking, flickering...
 - Motion: animation, direction...
- **Focus and Context**
 - Peripheral vision
- **Density**
 - Total data (megabytes) within an eye-scan
- **Interaction**
 - Overview, zoom, filter, drill-down, relate, subset...
 - Combining with other senses, especially sound

Beyond the Static Image

- **InfoViz should be more than an image!**
 - Get out of the 'photograph' thinking
 - Even more than newspapers in the Harry Potter movies
- **InfoViz as an object** (as in object-oriented modeling)
 - Rendered as many images in many ways
 - Source directly from the data warehouse
 - Has a set of attributes and methods
 - Interact by rotating, dissecting, filtering...



A Picture Is Worth...



- **“A picture is (should be) worth a thousand words.
An InfoViz is (should be) worth a thousand pictures.”**
- an old Chinese proverb - NOT!
- **Is a Picture = 10 KB?**
 - One or two pages of text; 7 minutes of talking
- **Is an InfoViz = 10 MB?**
 - Roughly a million numbers plus structure
 - Like a small multi-dimensional cube

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**For the remainder of this presentation,
contact the author. Thank you...**

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