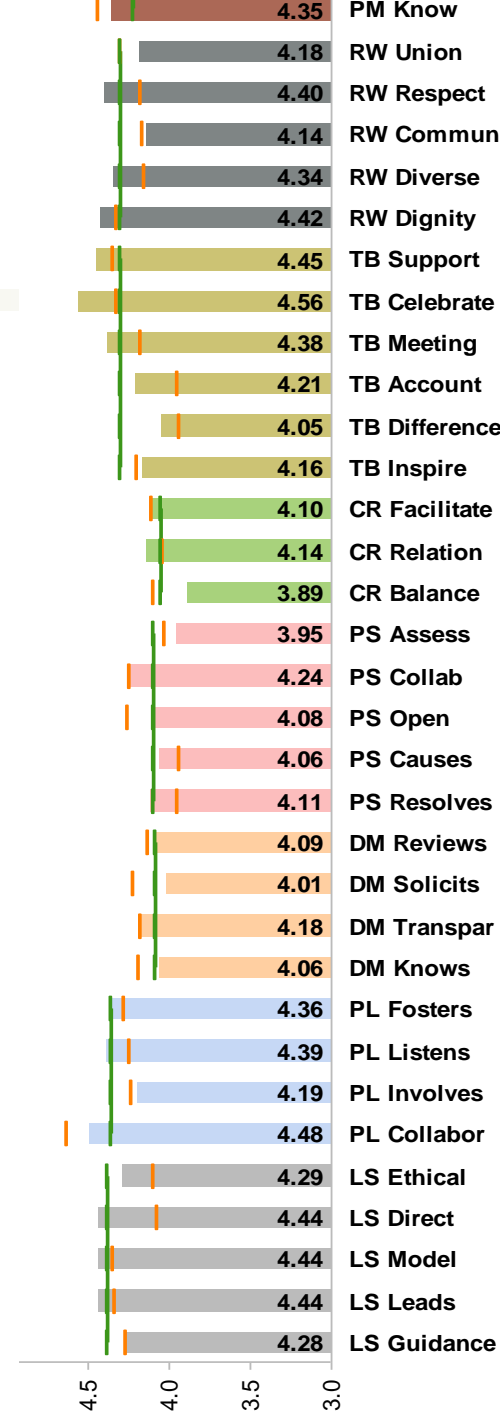


Groovy Graphics:

Creating Visuals that Really Communicate

Ralph Holcomb
Elizabeth O'Neill
2009 OPEN Annual Conference



What We'll be Talking About Today

- **Graphics 101:** a quick reminder of options and principles
- **Conventional Choices:** Bars, Lines, Pies and Scatterplots
- **Slightly More:** Webs, Two-Y Axes, and Sparklines
- **The DDT Concept:** Dashboards, Drill Downs, and Trendlines

[Today, continued]

- **Graphing Text**
- **Illustrating Concepts with Metaphors**
- **Animations**
- **Geo Mapping**
- **Future of Visuals**
- **Other ideas?**

[Graphics 101]

■ The Challenge:

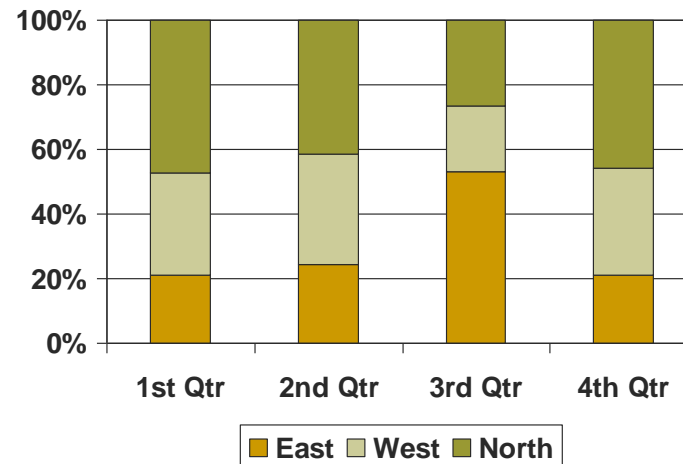
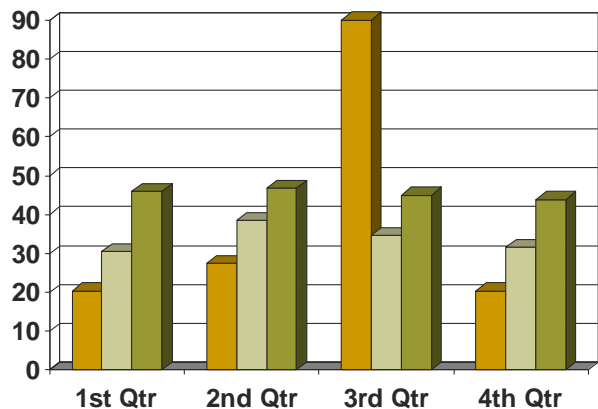
- Decisionmakers have *less time* and [possibly] *more sophistication* than ever
- Software can do more and more
- More people with less talent and creativity are making graphics

[Graphics 101]

- The Answer:
 - *Concentrate on the Eloquent Statement*
 - Show comparisons
 - Show causality
 - Reveal data at different levels of detail
 - Integrate all information
 - Provide documentation
 - Content drives methods
 - Reduce clutter

[The Toolbox: Fundamentals]

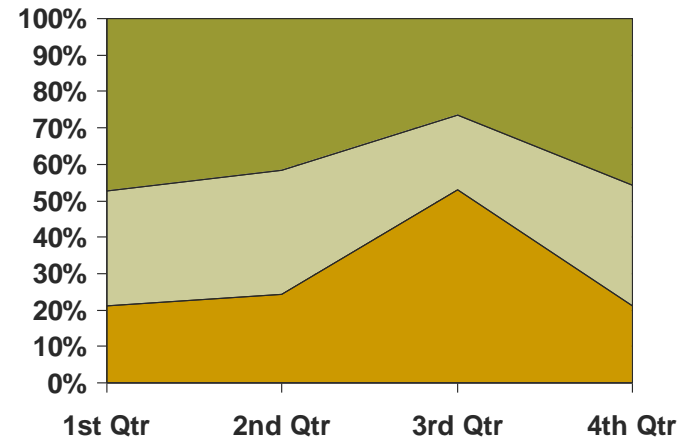
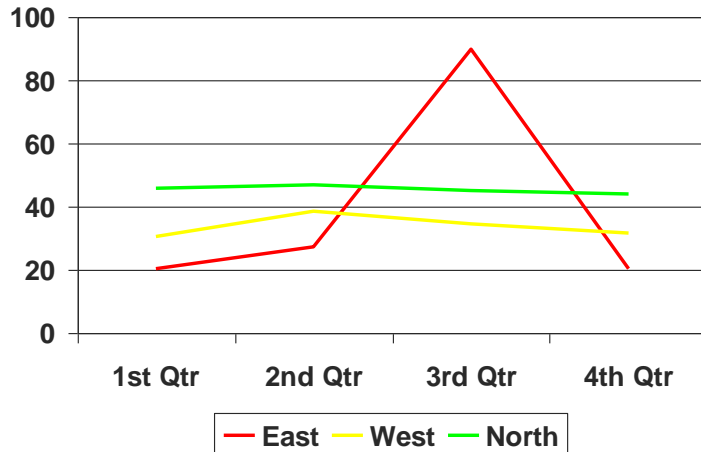
- Bar Graphs:
 - X axis is nominal
 - Y axis is ordinal, interval, or ratio: “Continuous”
 - 100% bars



[Fundamentals]

■ Line Graphs

- X axis is ordinal or higher
- Y axis is interval or ratio
- Area plots

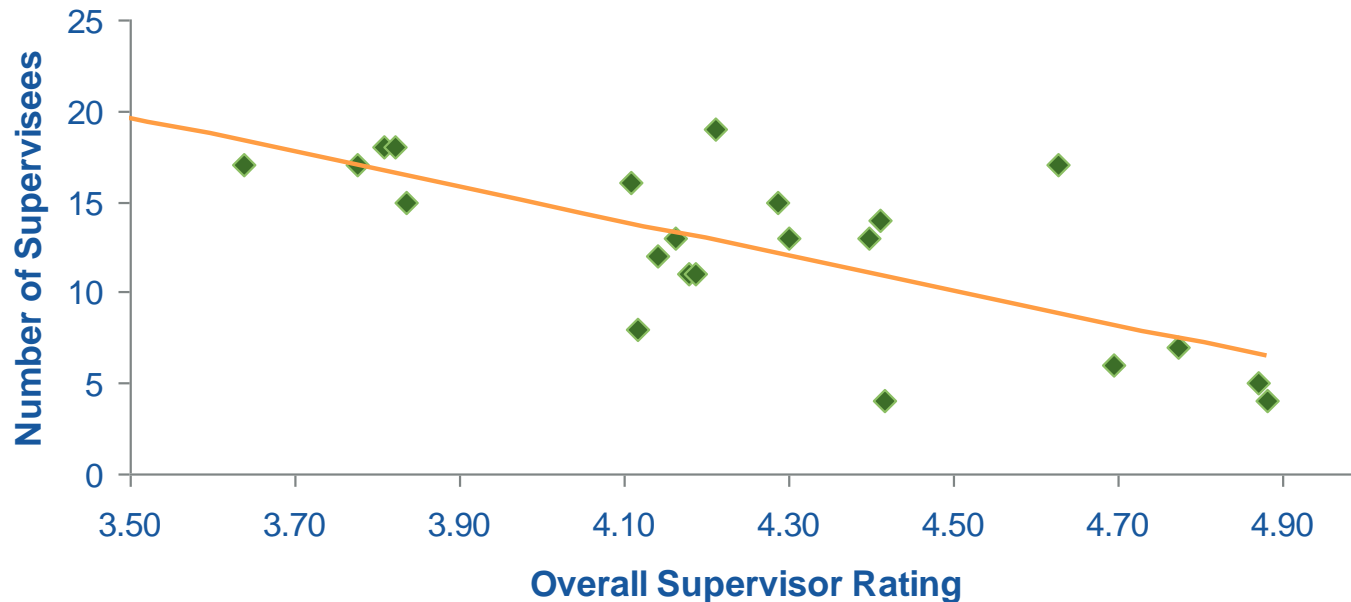


Fundamentals

■ Scatterplots

- Both X and Y axes are interval or ratio

Span of Supervision vs. Overall Rating
(one outlier eliminated)



[Fundamentals]

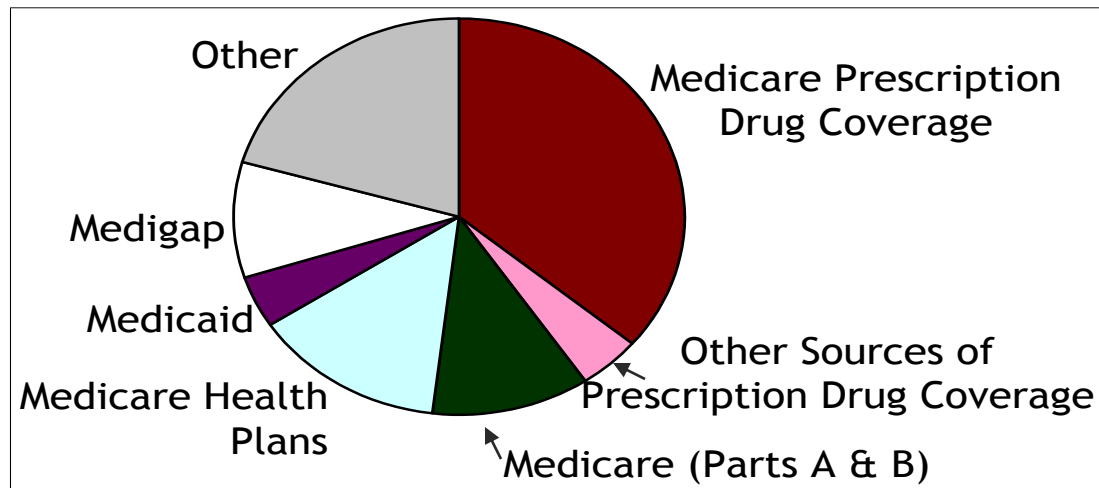
- Stem & Leaf plots
 - Summarizes small amounts of interval data
 - Visual display of mean, median, mode

```
3 | 7
6 | 689
7 | 445699
8 | 2333556778
9 | 013789
10| 0
```

[Fundamentals]

■ Pie Charts

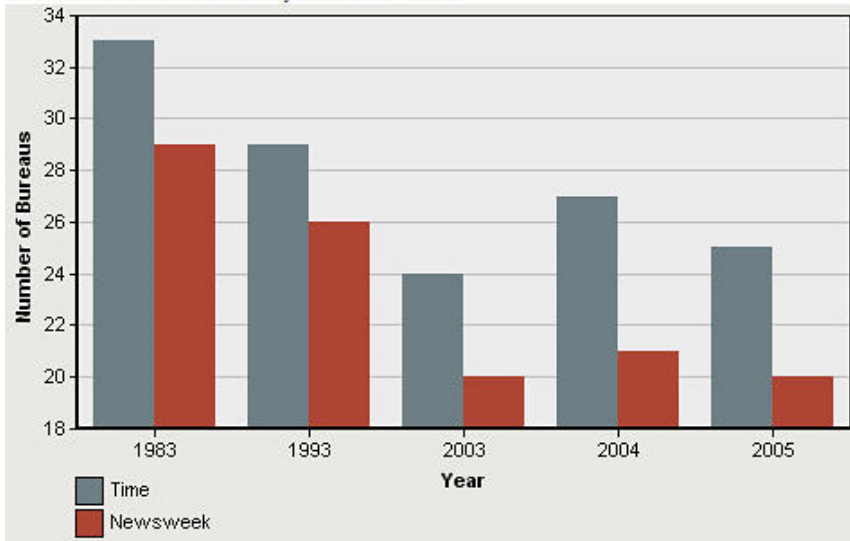
- One variable, many values
- Units equal 100%



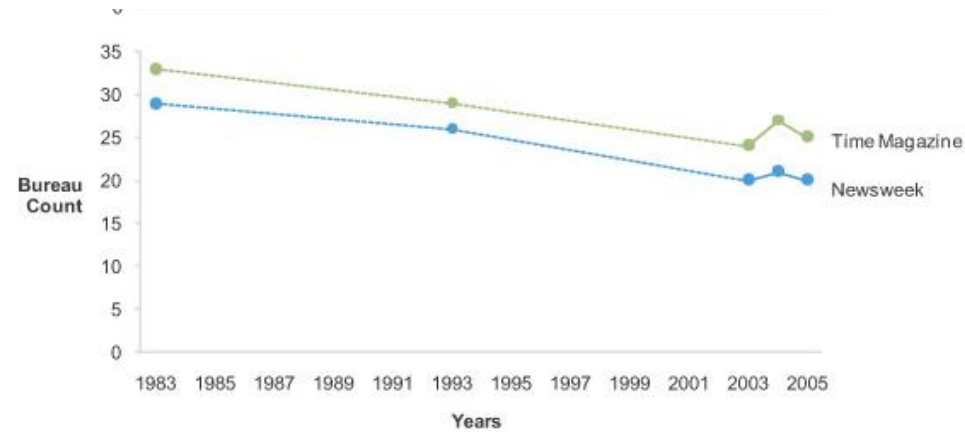
Visual Examples from Perceptual Edge

NEWS MAGAZINE BUREAUS OVER TIME

Time and Newsweek select years 1983 - 2005



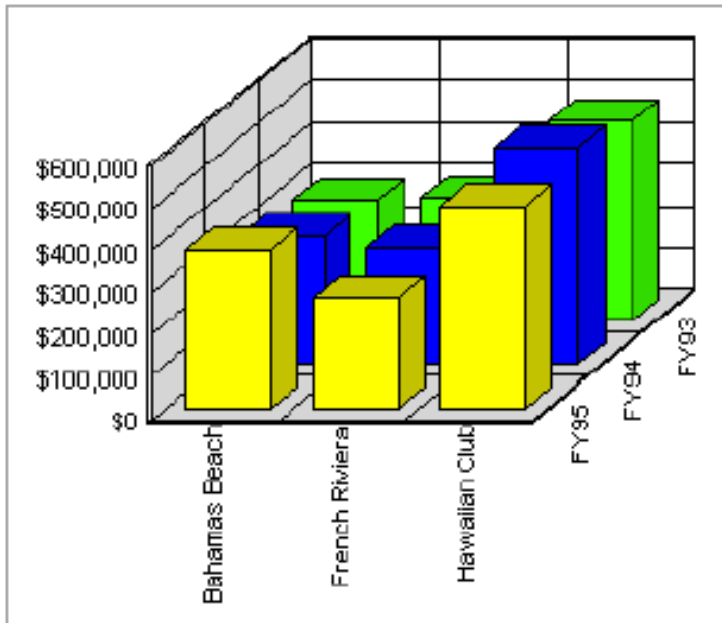
□ A



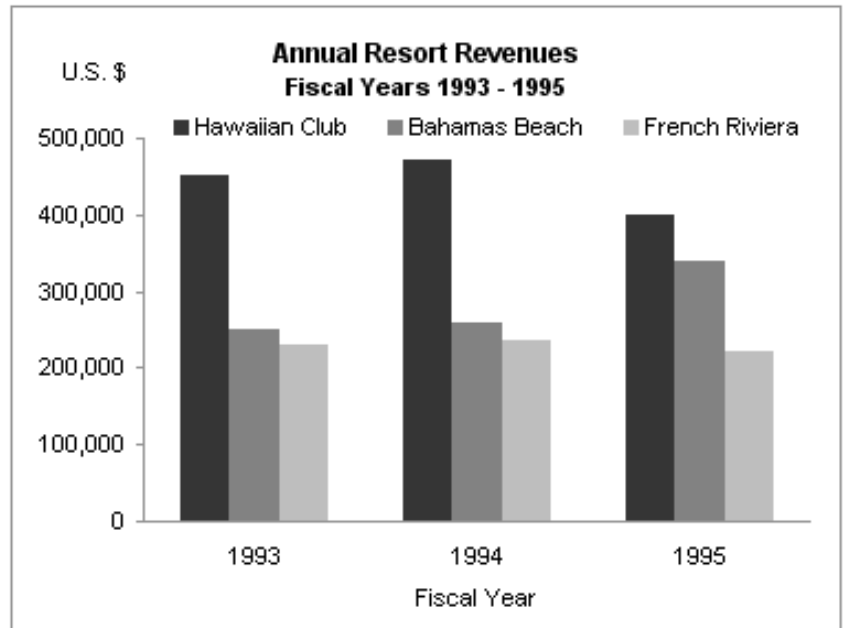
Note: A dashed line connecting two points indicates that there are years between the points for which values were not available. If the values were available, the shape of the lines might vary significantly.

□ B

Visual Examples from Perceptual Edge



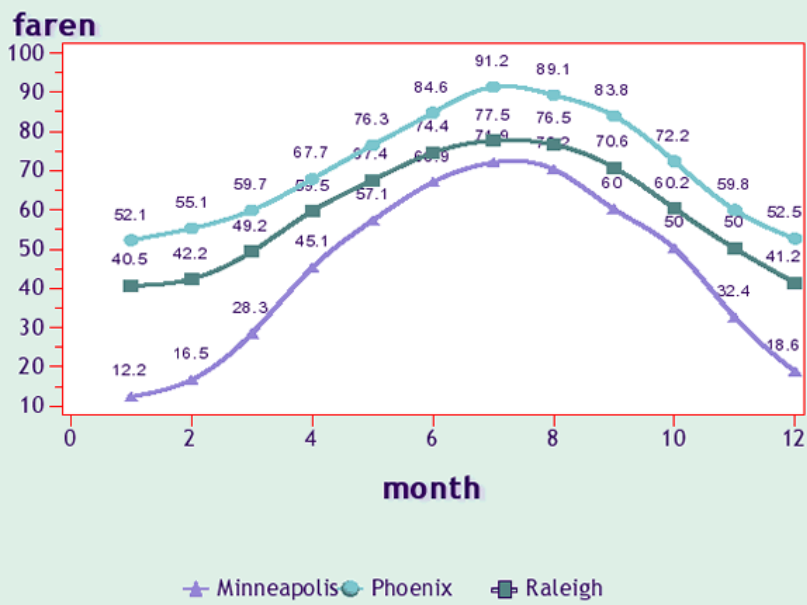
□ A



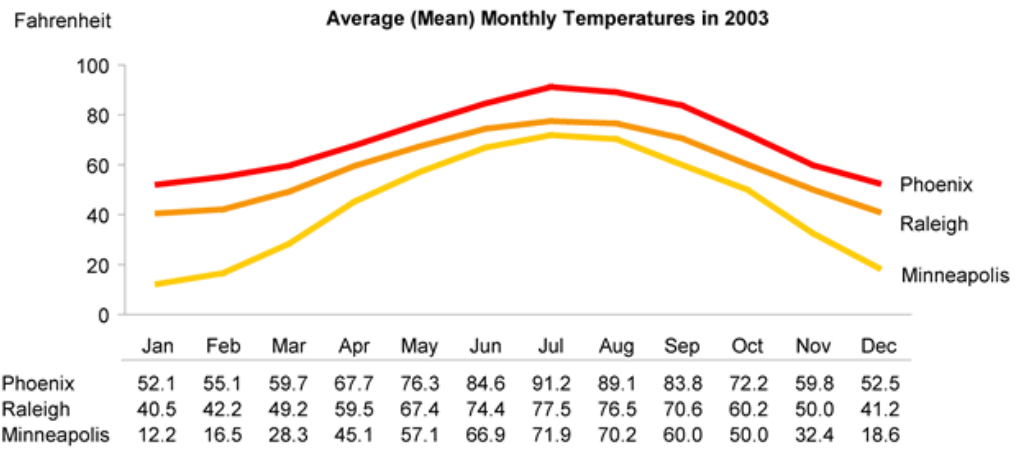
□ B

Visual Examples from Perceptual Edge

Average Monthly Temperature

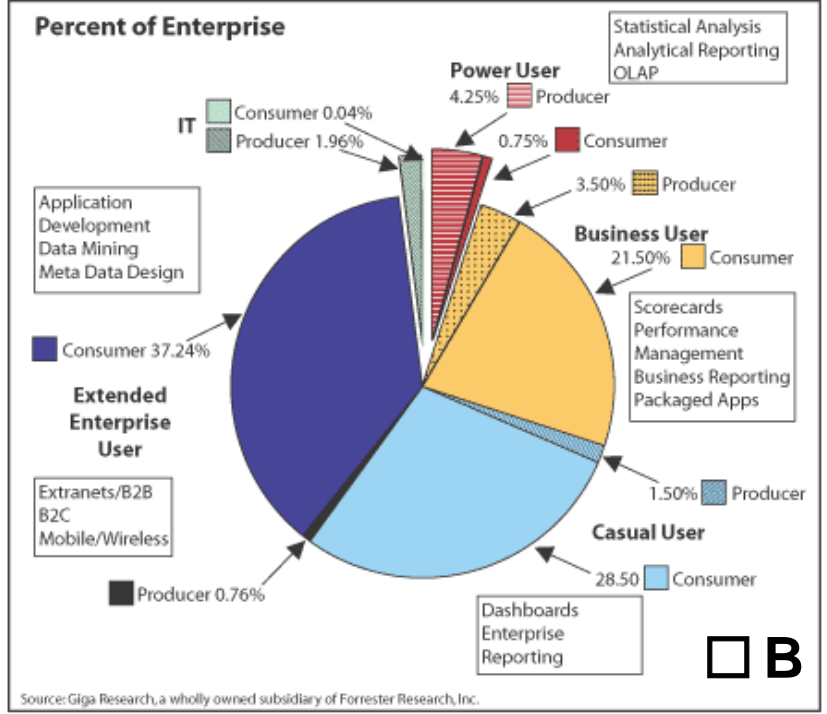
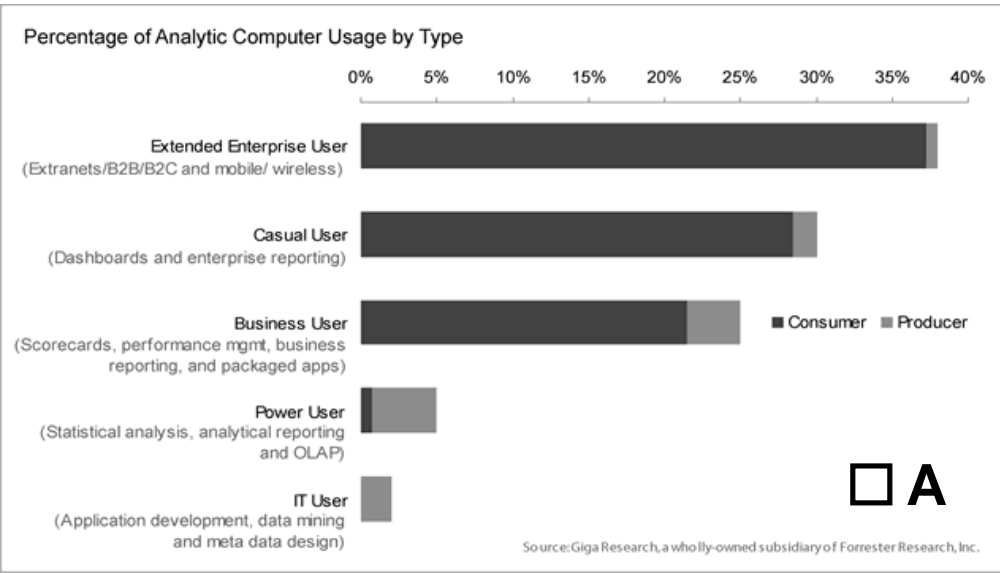


□ A

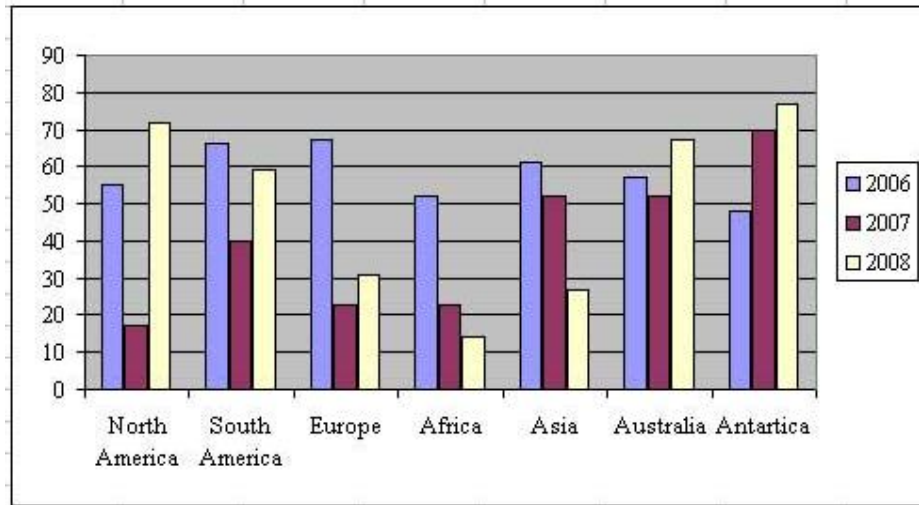


□ B

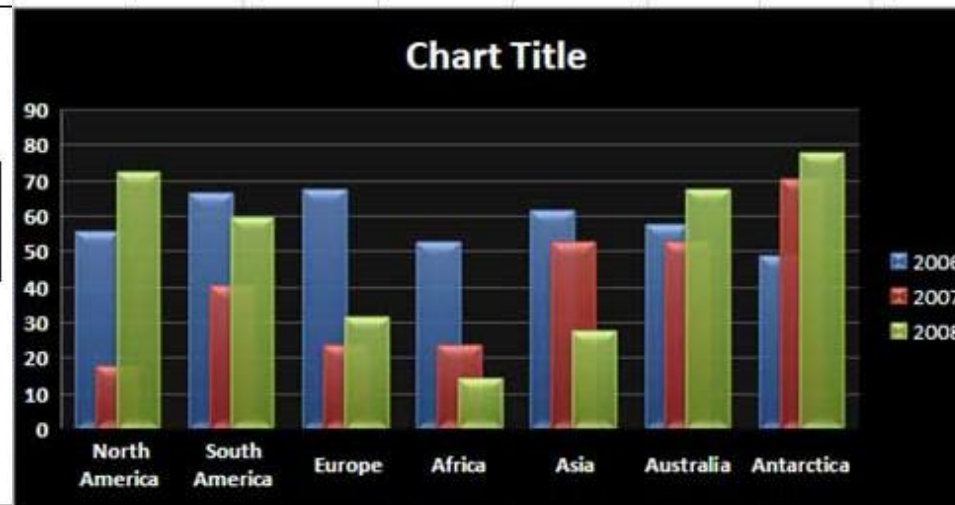
Visual Examples from Perceptual Edge



Visual Examples from Perceptual Edge



□ A



□ B

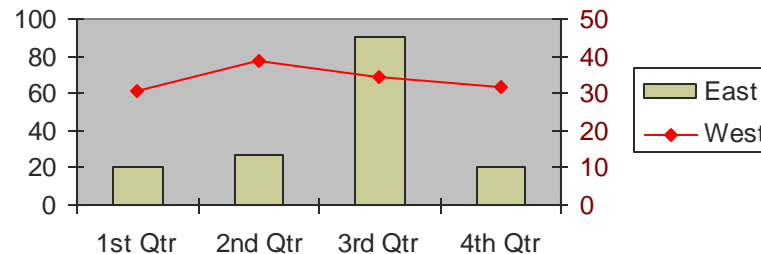
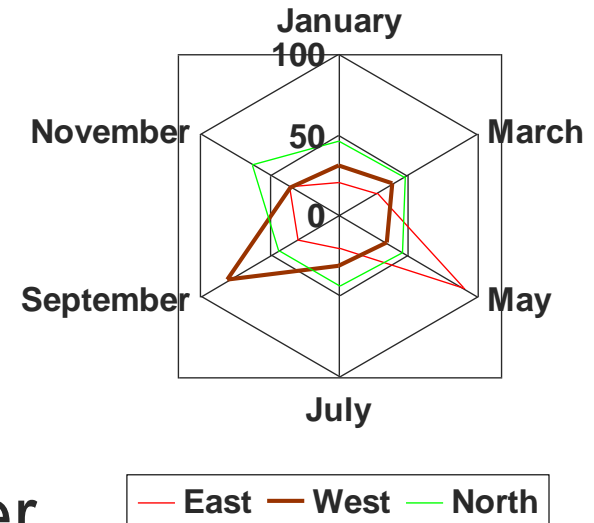
[Other Tools: 2-Y, Webs]

■ Webs: Patterns of intensity

- X is “related” nominal
- Y is ordinal or higher

■ Two-Y Axes

- X is nominal
- Y_1 and Y_2 are ordinal or higher



[Simplified Bar & Line Charts]

- Sparklines
 - X is ordinal or higher
 - Y is continuous
- Types
 - Bullet Graphs
 - Win-lose charts
 - Traffic Signals

Team	W	L	History	Percent
QPB Ballers	9	1		90%
B&N Rockets	8	2		80%
Amazon Bats	8	2		80%
Brusing Borders	5	5		50%
Power Powell's	2	8		20%
Half Price Bases	2	8		20%
Comic Cruisers	1	9		10%

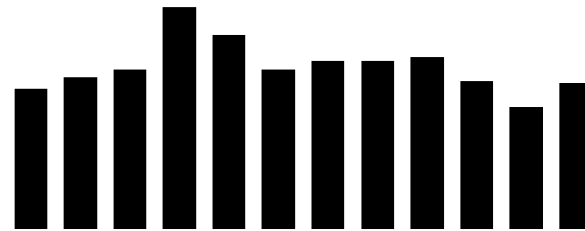
[Sparklines]

Same 12-point data set shown as:

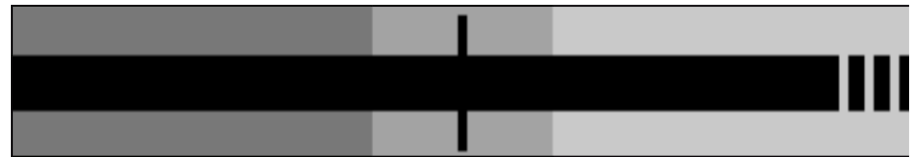
- micro line



- micro column



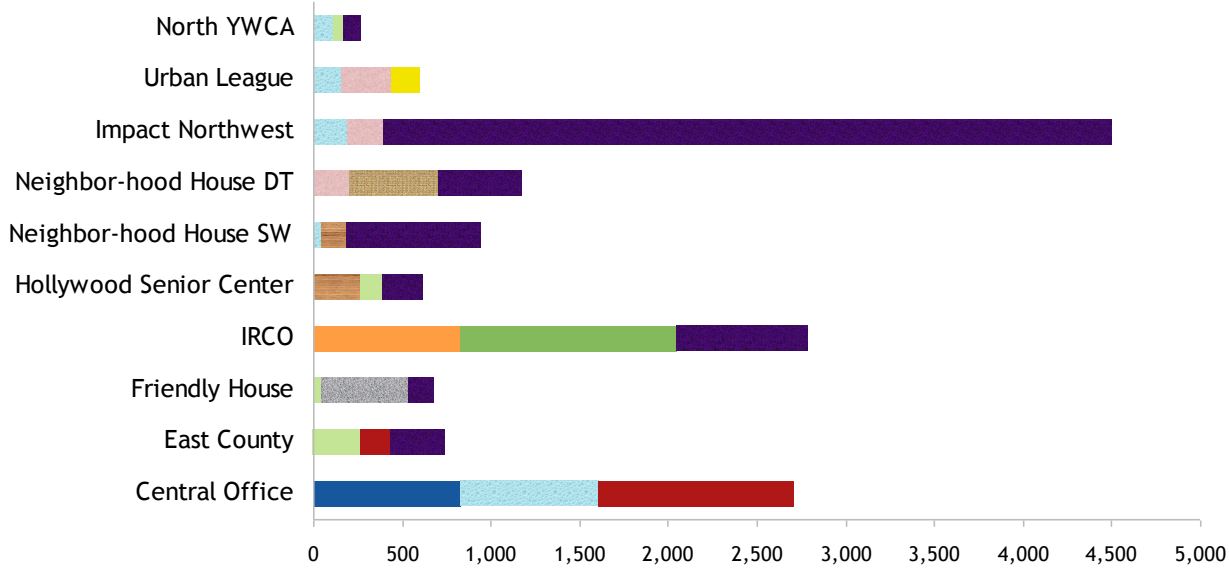
- bullet graph



- micro bar chart



[Microchart Example]



[Good Resources]

- Chart Tamer
 - MicroCharts
- Edward Tufte on Sparklines
- Stephen Few on Visual Display of data
- Excel 2010 complete with sparklines

[DDT]

- Dashboards
 - Quick groups of data presented simply
- Drill-downs
 - More data, less clutter
- Trendlines
 - Making data meaningful

[An Example of Sparklines and DDT]

- Monthly Caseload Report

Traditional Trend Report

SERVICE PROVIDED	UNDUPLICATED CLIENT COUNT												TOTAL UNDUPLICATED CLIENT COUNT
	Jul 08	Aug 08	Sep 08	Oct 08	Nov 08	Dec 08	Jan 09	Feb 09	Mar 09	Apr 09	May 09	Jun 09	
Case Management													
Family Caregiver clients	316	343	356	360	367	340	322	319	334	319	329	372	620
Older Americans Act clients	402	420	467	491	507	516	551	553	592	628	680	689	1066
Oregon Project Independence clients	791	818	807	852	829	784	759	744	692	666	590	573	1,074
Alzheimers' case managed clients	1	1	1	1	1	1	1	1	1	1	1	1	1
Incomplete Assessment clients	145	137	136	155	124	129	132	135	131	129	140	126	451
Unduplicated Total	1,640	1,692	1,736	1,816	1,781	1,733	1,718	1,718	1,727	1,707	1,717	1,711	2,668
In-Home													
Shopping Assistance	17	15	17	18	18	15	15	15	15	14	13	13	19
Personal Care	38	44	42	38	34	33	33	31	30	27	25	14	55
Clients Served by In-Home Volunteers	14	16	15	15	14	11	11	15	11	11	11	7	19
Home Care	530	517	503	499	500	482	443	474	466	443	424	379	721
Adult Day Care	3	2	5	3	4	0	2	2	2	2	0	2	5
Unduplicated Total	583	574	562	552	548	515	490	516	505	475	454	403	770
Multnomah Project Independence													
Unduplicated Total	122	101	102	103	97	97	97	96	94	85	82	80	139
Ethnic Nutrition													
JAS, Cedar Sinai	150	115	122	127	109	110							176
IRCO Latino, IRCO Immigrant, AHSC, NAYA							55	130	172	382	357	375	501
Unduplicated Total	150	115	122	127	109	110	55	130	172	382	357	375	677

Trend Report in Sparkline Dashboard

SERVICE PROVIDED	June 2008 - July 2009	UNDUPLICATED CLIENT COUNT
Case Management		
Family Caregiver clients		620
Older Americans Act clients		1066
Oregon Project Independence clients		1,074
Incomplete Assessment clients		451
Total		2,668
In-Home		
Shopping Assistance		19
Personal Care		55
Clients Served by In-Home Volunteers		19
Home Care		721
Adult Day Care		5
Total		770
Multnomah Project Independence		
Total		139
Ethnic Nutrition		
JAS, Cedar Sinai		176
IRCO Latino, IRCO Immigrant, AHSC, NAYA		501
Total		677

[More Dashboard Examples]

- IncSight Dashboard Templates

[Dashboard Resources]

- Dashboard reporting with Excel

[Geo Mapping]

- ArcGIS
- GPS Visualizer
 - Google Maps

[Graphing Text]

- Word Clouds
 - Size matters
 - Position, less so
 - Clickable words

First Supervisor



[Textual Illustration]

- Wordle example in a database:
www.batchblue.com
- Wordle

[Using Words]

- “Zen Stones”

[Graphically Illustrating Concepts]

- Finding the Right Metaphor
 - Hurdles
 - Funnels
 - Triangles
 - Billiard balls
 - Other?

Metaphors...



Hoffman Bridge, Linn County



Bridging to a Sustainable Future: The Long Term Care System Redesign



**Oregon Association of
Area Agencies on Aging
March 2009**

[Animated Metaphors]

- Less is more
- How to animate your graphs using PowerPoint

Illustrating Concepts:

The Client



1990s

2006

2003

2009

Fiscal

The Community

Funding cuts →

← Fewer jobs for service workers

Impact on the community →

→ Oregon's tax base reduced



\$1 → \$2.70

\$6 m → \$16.2 m



[The Future of Groovy Graphics]

- [Hans Rosling TED Lecture](#)
- [Hans Rosling Web Site](#)
- [Tufte on Wavefields](#)
- [Immigration Trends NY Times](#)

[Questions? Comments?]

