




Module 8

Data Visualization



Visual representation

- Effectiveness of visuals
- Overcoming memory limitations
- Why charts are more powerful than tables

2003 Call Volume (in thousands)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
United States	1,983	2,343	2,593	2,283	2,574	2,838	2,382	2,634	2,938	2,739	2,983	3,493
Europe	574	636	673	593	644	679	593	139	599	583	602	690
	2,557	2,979	3,266	2,876	3,218	3,517	2,975	2,773	3,537	3,322	3,585	4,183

Figure 20: Tabular display of call volume data

Source: Dashboard design for real-time situation awareness, Stephen Few

Figure 21: Call volume data

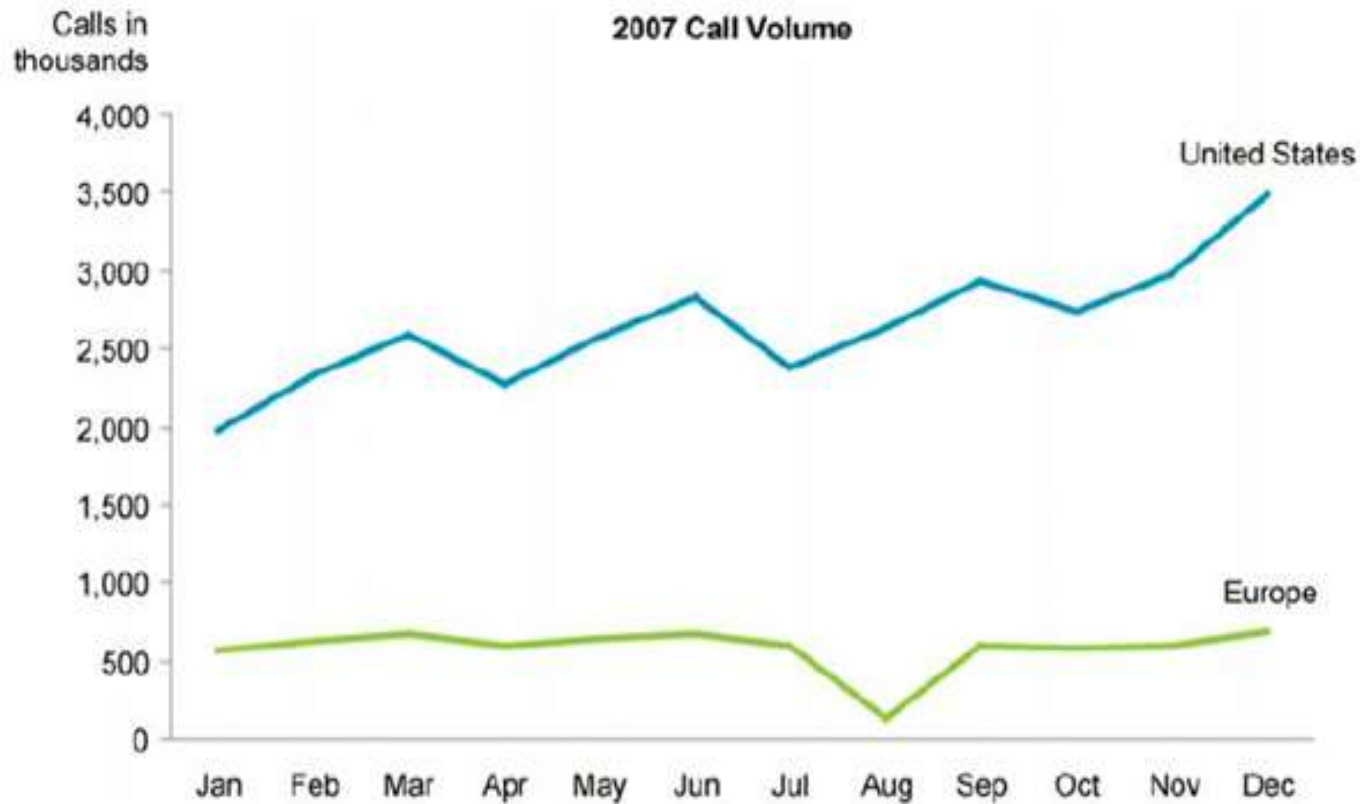
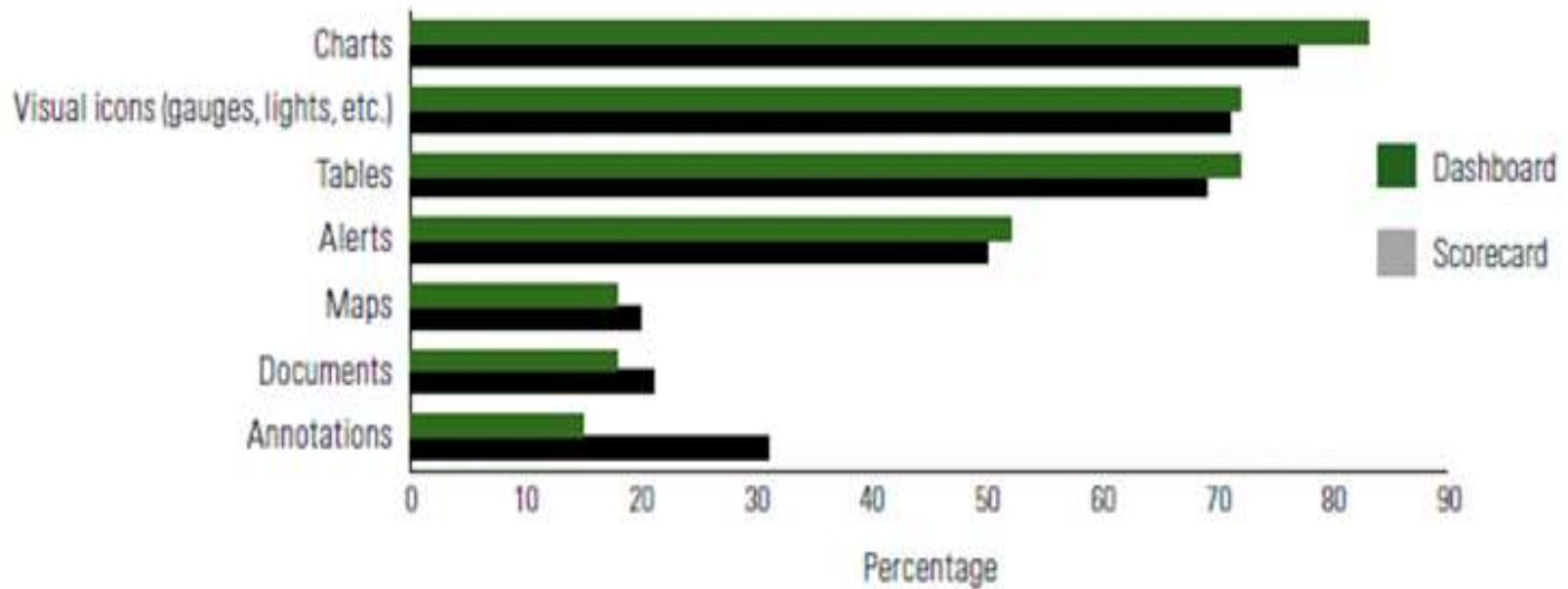


Figure 21: Same call volume data, as in Fig. 20, which highlights patterns and trends
Source: Dashboard design for real-time situation awareness, Stephen Few

Value of visualization in business decisions

- **Data visualization benefits**
- **Use of data visualization in business analysis**
- **Key to successfully using data visualization**
- **Visual display elements used by dashboards and scorecards**

Figure 22: Visual elements

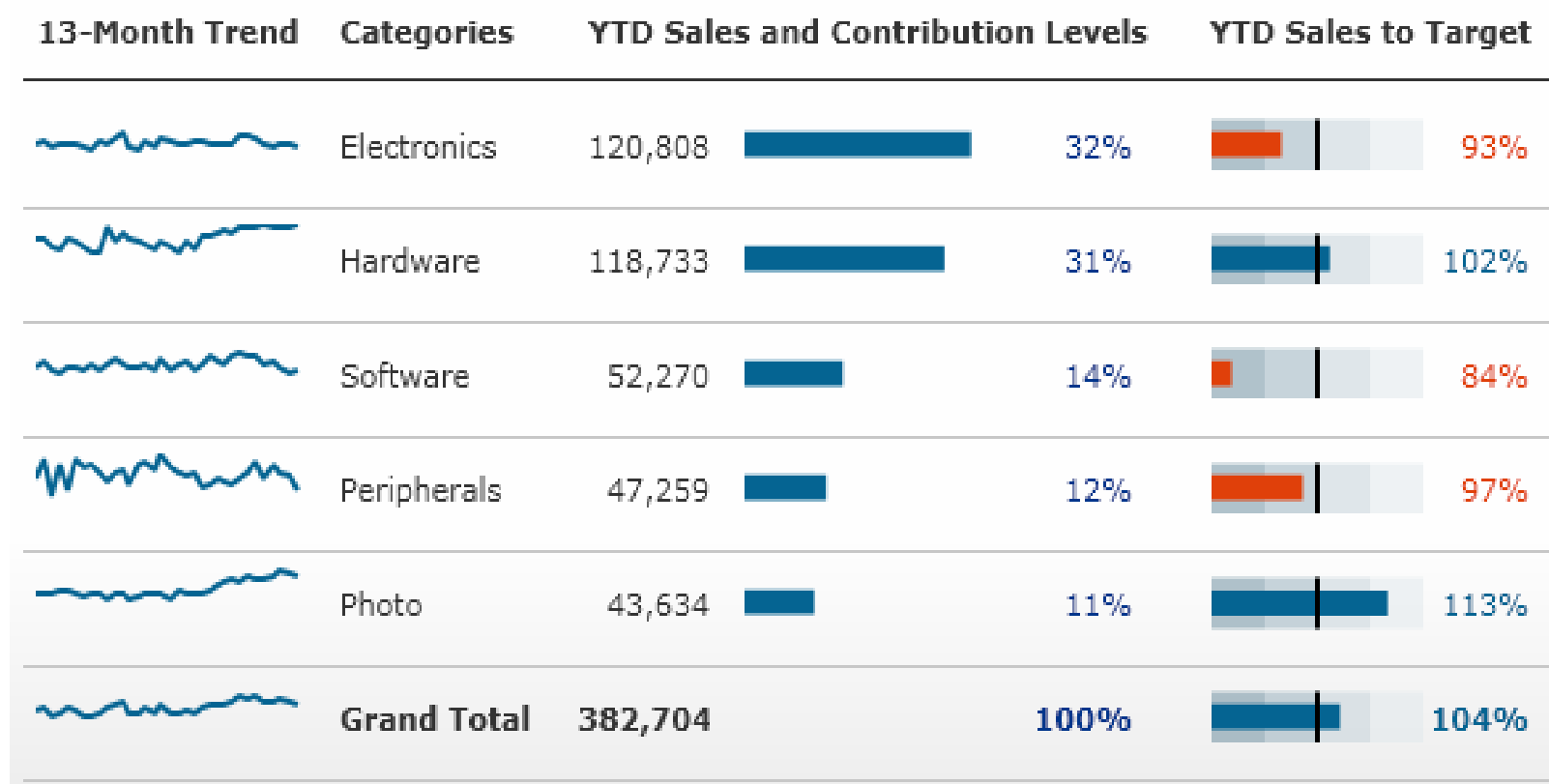


Source: Deploying dashboards and scorecards, Eckerson, TDWI

Presentation characteristics

- **Presentation media types**
- **Dashboard presentation characteristics**
- **Scorecard presentation characteristics**

Figure 23: Sparklines



Presentation characteristics

- **Report presentation characteristics**
- **Visual analysis tool characteristics**

Common forms of data visualization

- **Charts and status indicators**
 - **Popular forms of data visualization (next 3 slides show examples)**

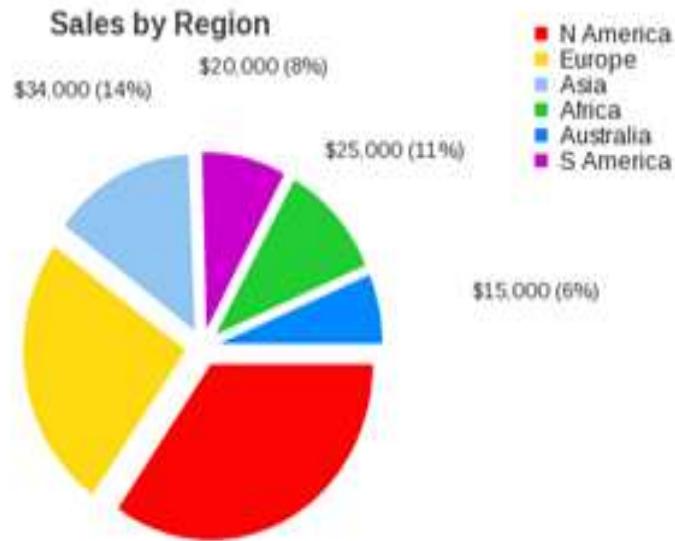
Figure 24: Line/Area combo chart



Compares sales cycles for current & previous year to demonstrate patterns & trends

Source: <http://www.dashboardinsight.com/Article.aspx?id=4148>

Figure 25: Pie chart



Pie chart displays sales distribution by region

Source: <http://www.jpowered.com/graphs-and-charts/gallery/2d-pie-chart.htm>

Status indicators

Regional Calls Scorecard (By Location)				
Call Centre	Rates		Calls To	
	Response	Status	Total	Threshold
▲ Connecticut				
North Shore	25.2 %	●	77,387	★
Sunny Vale	22.3 %	●	38,194	✓
Lakewood	25.3 %	●	12,940	✓
▲ Maine				
North Shore	22.1 %	●	83,510	★
Sunny Vale	22.3 %	●	41,616	✓
Lakewood	21.8 %	●	14,327	✓

Figure 26: Status indicators for scorecard

Status indicators display how each regional call centre is performing compared to target

Source: <http://www.dashboardinsight.com/Article.aspx?id=4148>

Advanced data visualization

- **Examples of advanced data visualization**

Leveraging data visualization: Quick analysis

Spreadsheet limitations

Revenues			
Year	Month	Revenue	%
2010			
	Jan	\$31,540	3.5
	Feb	75,430	8.3
	Mar	75,300	8.3
	Apr		
	May		
	Jun		
	Jul		
	Aug		
	Sep		
	Oct		
	Nov		
	Dec		
2009			
	Jan		
	Feb		
	Mar		
	Apr		
	May		
	Jun		
	Jul		
	Aug	88,450	9.4
	Sep	76,400	8.1

Exhibits			
Year	Month	Exhibit	Visitors
2010			
	Jan	Air-blown Glass	291
	Feb	History of Flight	560
	Mar	History of Computers	580
	Apr	John Audubon	610
	May	Teapots	540
	Jun	Art of Taxidermy	310
	Jul	Ming Dynasty	810
	Aug	African Safari	760
	Sep	Life and Times of Jane Austen	720
	Oct	Ancient Egypt	1001
	Nov	Edwardian Furniture	823
	Dec	History of Saint Nicholas	762

Figure 27: Spreadsheets separately displaying monthly sales revenue and visitor traffic

Source: <http://www.dashboardinsight.com/Article.aspx?id=4148>

How visuals overcome spreadsheet limitations



Figure 28: Line/bar combo chart

Source: <http://www.dashboardinsight.com/Article.aspx?id=4148>

- Comparing analysis speed: visuals versus spreadsheets

Using visuals effectively



Figure 29: Number of hits

Source: <http://www.dashboardinsight.com/Article.aspx?id=4148>



Figure 30: Number of web hits vs. target

Source: <http://www.dashboardinsight.com/Article.aspx?id=4148>

Using visuals effectively (continued)



Figure 31: Data for three categories

Source: <http://www.dashboardinsight.com/Article.aspx?id=4148>

Taking action

- **Why decision makers need to interact with data**