Effective Presentation of Analytical Results

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Sponsor:
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Effective presentation of analytical results

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TDWI Webinar
Sponsored by Tableau Software
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Major sections of this webinar

• Understanding the decision
• Tell a good story
• Display results in tables and graphs
• Conclusions
Communicating clearly

• Most analysts spend too little time on effective presentation of analytical results.

• A modest amount of care in data presentation and documentation will save you time in the long run and help you leap ahead of the vast majority of the world’s analysts.
Know your audience

• Most analysts forget that other people don’t care nearly as much about their analysis as they themselves do.
• Think about what your audience cares about, and express your results in those terms.
• Readers are different from listeners
• Most readers will only remember a few key points from your work. Choose them wisely.
Understanding the decision
Why focus on the decision?

• All analysis supports decision making
• Going back to the decision can help the analysis stay on track
• Your institution’s decision making process matters
Don’t forget the decision maker

• Who is making the decision?
• Understand that person’s
  – *Training*
  – *Experience*
  – *Attitudes*
  – *Biases*
• Tell a story that reflects that understanding
Tell a good story: Use the Pyramid Principle

- Creating analysis is not the same as communicating about it effectively
- Knowledge generation: Scientists start with details and build to a conclusion
- Story telling: Journalists start with the conclusion, then give supporting details
- Be like a journalist!
Structured storytelling improves the decision making process
Present key results, not details

- Understand your audience
- Think about what your analysis says about the decision
- Boil down the key results to a few most important lessons
- Lead with those lessons
Writing advice

• Write short reports focusing on
  – *the key lessons*
  – *what the analysis says about the decision at hand*
• Attach appendices with details as needed
• Send report out for review well before it needs to be finalized.
Speaking advice

• Practice your talk (get feedback!)
• Speak briefly, focusing on what the analysis says about the decision
• Let audience follow up with questions
  - Anticipate questions
  - Be prepared with backup materials
Documentation

- Documentation is important for
  - giving credit where credit is due
  - leaving a trail for you to remember
  - creating a trail for others to follow
  - checking your work
- If the documentation is bad, the work probably is, too.
Documentation (p. 2)

- Give complete references to identify sources.
- Spell out the methodology so that any competent analyst in the field (especially you or someone you work with) can recreate it.
- The very best people in every field (e.g., George Carlin) are fanatics about documentation, and you should be also.
Display the results in tables and graphs

• Break up graphs and tables into two categories
  – *Those that give you insights*
  – *Those that help you tell your story to others*
• The two categories may not contain all the same items
• Tailor each graph/table to the specific purpose and audience at hand
Creating compelling figures

- Edward Tufte is the modern master, so read his books. Also see *Show Me the Numbers*, by Stephen Few (Analytics Press, 2004)
- Always focus on the data, not on fancy tricks.
- Maximize the data ink to non-data-ink ratio
- Eliminate chart junk (3d bar charts, distracting patterns)
Making compelling figures (p. 2)

- Maximize data density (avoid low data density)
- Use small multiples
- Revise and edit
- Make figures stand alone (supply a full reference on the page where they appear so that readers can track down the full report)
Example #1: Purchases by product line and buyer

Display the results
Example #2: Avoid low information density
Example #3a: Use small multiples (e.g., rainfall)

Display the results
Example #4: Bar charts, bad and good

Display the results
Example #5: Not so good

Graph shows sales of fluorescent ballasts in the US.
Example #5: much improved
Example #6 - Poor

Display the results

Reproduced with permission, courtesy of Stephen Few, Perceptual Edge (sfew@perceptualedge.com)
Example #6 - Worse

Display the results

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Example #6 - Good

But there’s one more thing to fix on this graph. What is it?
Example #7 - Poor

SlicerDicers Sales Compared to Other Product Sales

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Example #7 - Good

Sales of SlicersDicers Compared to Sales of Other Products
July - December, 2003
(SlicersDicers’ sales are displayed as black reference lines of 100%; the orange bars represent the average monthly sales percentage for July through December.)

Display the results

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Example #8: ?
(Revenue by resort and year)

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Example #9: ?
(Revenue by resort and month)

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Example #10: ?
(Revenue by product and quarter)

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Example #11: ?
(Revenue by sales channel and quarter)

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Example #12: ?
(Revenue vs. costs per month)

Display the results

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Example #13: ?
(Your guess is as good as mine)
Creating compelling tables

- Lessons are similar to making good graphs.
- Know your audience
- Make tables stand alone
- Create extensive footnotes
- Maximize the data ink to non-data-ink ratio (avoid extraneous gridlines)
- Some redundancy is good (subtotals)
Creating compelling tables (p. 2)

- Enhance readability with font, style, and orientation choices
- Use indices relative to totals and subtotals and normalize data per capita or per GDP to facilitate comparisons
- Avoid spurious precision
- Revise and edit (check for typos!)
A table that needs work

### U.S. Shipments and Imports of Lamps, 1983-1994

<table>
<thead>
<tr>
<th>Year</th>
<th>U.S. Shipments (millions of lamps)</th>
<th>Imports (millions of lamps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983</td>
<td>3615.9</td>
<td>560.9</td>
</tr>
<tr>
<td>1984</td>
<td>3723.4</td>
<td>748.7</td>
</tr>
<tr>
<td>1985</td>
<td>3472</td>
<td>862.7</td>
</tr>
<tr>
<td>1986</td>
<td>3421.3</td>
<td>920.6</td>
</tr>
<tr>
<td>1987</td>
<td>3399.4</td>
<td>999.8</td>
</tr>
<tr>
<td>1988</td>
<td>3510.2</td>
<td>1130.8</td>
</tr>
<tr>
<td>1989</td>
<td>3429.5</td>
<td>1024</td>
</tr>
<tr>
<td>1990</td>
<td>3318.5</td>
<td>1051</td>
</tr>
<tr>
<td>1991</td>
<td>3297.5</td>
<td>Data unavailable from Census Bureau</td>
</tr>
<tr>
<td>1992</td>
<td>3422.1</td>
<td>Data unavailable from Census Bureau</td>
</tr>
<tr>
<td>1993</td>
<td>3564.3</td>
<td>1372.6</td>
</tr>
<tr>
<td>1994</td>
<td>3563.3</td>
<td>1577.8</td>
</tr>
</tbody>
</table>

Note: "U.S. shipments" refers to total shipments by manufacturers located within the U.S., including units to be exported. Cold-cathode fluorescent lamps are excluded from the U.S. shipment data; Christmas tree lights are excluded from U.S. shipments as well as imports.

Source: Census Bureau current industrial reports MQ36B, various years.
An improved table

<table>
<thead>
<tr>
<th>Year</th>
<th>U.S. Shipments</th>
<th>Imports as a percentage of U.S. shipments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Millions of lamps</td>
<td>Index 1983 = 1.00</td>
</tr>
<tr>
<td>1983</td>
<td>3,616</td>
<td>1.00</td>
</tr>
<tr>
<td>1984</td>
<td>3,723</td>
<td>1.03</td>
</tr>
<tr>
<td>1985</td>
<td>3,472</td>
<td>0.96</td>
</tr>
<tr>
<td>1986</td>
<td>3,421</td>
<td>0.95</td>
</tr>
<tr>
<td>1987</td>
<td>3,399</td>
<td>0.94</td>
</tr>
<tr>
<td>1988</td>
<td>3,510</td>
<td>0.97</td>
</tr>
<tr>
<td>1989</td>
<td>3,430</td>
<td>0.95</td>
</tr>
<tr>
<td>1990</td>
<td>3,319</td>
<td>0.92</td>
</tr>
<tr>
<td>1991</td>
<td>3,298</td>
<td>0.91</td>
</tr>
<tr>
<td>1992</td>
<td>3,422</td>
<td>0.95</td>
</tr>
<tr>
<td>1993</td>
<td>3,564</td>
<td>0.99</td>
</tr>
<tr>
<td>1994</td>
<td>3,563</td>
<td>0.99</td>
</tr>
</tbody>
</table>

Average annual percentage change 1983 through 1994: -0.1% for U.S. Shipments and 9.9% for Imports

Note: “U.S. shipments” refers to total shipments by manufacturers located within the U.S., including units to be exported. Cold-cathode fluorescent lamps are excluded from the U.S. shipment data; Christmas tree lights are excluded from U.S. shipments as well as imports.

NA = Not Available

Source: U.S. Census Bureau current industrial reports MQ36B, various years

Contact: Jonathan Koomey, JGKoomey@lbl.gov. http://enduse.lbl.gov/

Filename: shipmentsandimports.xls

Date of creation: February 1996

Date of last modification: November 1997
Using graphs and tables in oral presentations

- Presenting only tables and graphs that will be engaging to the relevant audience. Don’t make your listeners figure it out, and NEVER present tables the audience can’t read.
- Data are dull only when chosen poorly and presented badly.
- Revise and edit (check for typos-make sure your data are correct, for credibility’s sake!)
Conclusions

• Know your audience
• Focus your writing and presentations on specific decisions
• Tell a good story, focusing only on a few key points
• Carefully design tables and graphs
• Get feedback along the way
Further reading


• Wall Street Journal Number Guy (Carl Bialik): <http://blogs.wsj.com/numbersguy/>
Tableau Software, Inc.

Tableau makes **rapid-fire business intelligence software**

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Demo
Questions??
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