Don’t be blinded by new data visualisation software

Andrew Le Breuilly
ASC – The future is now!
Making sense of your sight

Adopt a “less is more” technique to focus attention

Use a guided-analytical approach to encourage insight discovery

Be an architect, not a builder
Making sense of your sight

Iconic memory → Short term memory → Long term memory
How many fives appear below?

4324234923425458787290
3802842750943850128070
8432502874350832470928
3407909843275098432740
8437528364123648932749
How many fives appear below?

4324234923425458787290
3802842750943850128070
8432502874350832470928
3407909843275098432740
8437528364123648932749
Attributes of iconic memory

Orientation
Shape
Added marks
Enclosure

Line width
Line length
Size
2-D position

Intensity
Hue
Direction
Flicker
There are limits....
How much bigger is circle B compared to circle A?
Are the sales of Pinot Grigio smaller, larger, or the same as Sauvignon Blanc?
Are the sales of Pinot Grigio smaller, larger, or the same as Sauvignon Blanc?

Breakdown of sales by grape variety:
- Cabernet Sauvignon
- Chardonnay
- Merlot
- Pinot Grigio
- Sauvignon Blanc
- Semillon

Bar chart showing sales percentages:
- Cabernet Sauvignon
- Chardonnay (highest)
- Merlot
- Pinot Grigio
- Sauvignon Blanc
- Semillon
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- **Iconic memory**
- **Short term memory**
- **Long term memory**
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Maximise the Data Ink Ratio

Data Ink Ratio = \frac{\text{Amount of ink for data}}{\text{Amount of ink on page}}

### Sales Summary by Region
1st Quarter, 2016
Regions are Sorted by Revenue

<table>
<thead>
<tr>
<th>Region</th>
<th>Revenue</th>
<th>% of Total Revenue</th>
<th>Expenses</th>
<th>Profit</th>
<th>% of Total Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>$75,904,604.00</td>
<td>31.06%</td>
<td>$40,988,486.16</td>
<td>$34,916,177.84</td>
<td>22.31%</td>
</tr>
<tr>
<td>Canada</td>
<td>$51,527,694.00</td>
<td>21.09%</td>
<td>$17,534,715.96</td>
<td>$34,982,978.04</td>
<td>21.75%</td>
</tr>
<tr>
<td>Western U.S.</td>
<td>$42,660,178.00</td>
<td>17.46%</td>
<td>$11,944,849.84</td>
<td>$30,715,328.16</td>
<td>19.63%</td>
</tr>
<tr>
<td>Eastern U.S.</td>
<td>$33,977,385.00</td>
<td>13.91%</td>
<td>$7,135,250.84</td>
<td>$26,842,134.15</td>
<td>17.15%</td>
</tr>
<tr>
<td>Central U.S.</td>
<td>$26,139,598.00</td>
<td>10.70%</td>
<td>$3,920,939.70</td>
<td>$22,218,658.30</td>
<td>14.20%</td>
</tr>
<tr>
<td>Asia</td>
<td>$14,135,278.00</td>
<td>5.78%</td>
<td>$6,360,875.10</td>
<td>$7,774,402.90</td>
<td>4.97%</td>
</tr>
<tr>
<td>Total (or Avg)</td>
<td>$244,344,737.00</td>
<td>100.00%</td>
<td>$87,885,117.61</td>
<td>$156,504,619.39</td>
<td>100.00%</td>
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<tr>
<td>Eastern U.S.</td>
<td>33,977,385</td>
<td>13.9%</td>
<td>7,135,251</td>
<td>17.2%</td>
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<td>5.0%</td>
</tr>
<tr>
<td>Total (or Avg)</td>
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<td>100.0%</td>
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Different types of visualisation need different approaches

<table>
<thead>
<tr>
<th></th>
<th>Infographic</th>
<th>Dashboard</th>
<th>Explorer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Audience</strong></td>
<td>Broad audiences</td>
<td>Decision Makers</td>
<td>Analyst</td>
</tr>
<tr>
<td><strong>Decision</strong></td>
<td>Identify one or two key points</td>
<td>Guided Analytics</td>
<td>Hypothesis testing</td>
</tr>
<tr>
<td><strong>Functionality</strong></td>
<td>Visually appealing</td>
<td>Defined structure based on business relevance</td>
<td>Categorize and filter data in many ways</td>
</tr>
</tbody>
</table>
Encourage insight with guided analytics

Modular approach to creating intuitive, insightful and scalable dashboards

**Intuitive** – Simple enough for new users to immediately become familiar and understand

**Scalable** – Provide good performance at all levels of analysis and irrespective of data volumes.

**Insightful** - Prescribe key information but still allow users to interactively pursue deeper insights
Give the reader what they want, when they want it

A worked example

16.1M units

Growth since 1 year ago ▼ 10.5%

• Use a BAN to show the latest KPI
• Highlight the change from a year ago
• Show the change
• Display a sparkline to show how the trend has changed over time
• Breakdown of the most important dimension of the data
• Use colour to indicate what you need to look at first
• Create intuitive tooltips to help the user get more understanding from the data
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Be an architect, not a builder
Teach to design dashboards, not to build

Skills required to create a great dashboard

- Subject Matter Expert
- Dashboard Creator
- Dashboard Designer
One page strategy for dashboard design

An approach that we use to speed up the dashboard production

Teach to identify:

- The purpose of the dashboard
- The key comparisons
- The sources of data
- The filters, dimensions and measures
- Business logic that needs to be considered
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Further reading

The visual display of quantitative information
Edward Tufte

Information dashboard design
Stephen Few

Show me the numbers
Stephen Few

The design of everyday things
Donald Norman