

Advice on designing graphs

As a follower of Stephen Few, I always like to place a number of his illustrations in my book. Each time Stephen points out an omission or two in my work. His recent comments were very insightful. For your benefit I will share some content from the book.

Besides the rules for dashboards there are additional rules for graphs used in reports. Exhibit 10.2 lists advice with graphs, utilizing Few's wisdom, and some better-practice solutions I have observed over the years.

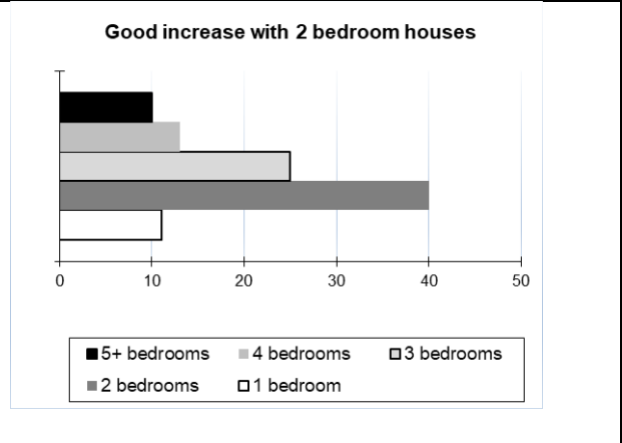
Exhibit 10.2 Advice on designing graphs

<p>Avoid displaying excessive detail or precision: Graphs should summarise the information and be a big picture view. The graph should have no more than a five-point scale and be in rounded numbers, e.g., 40 instead of 40,000.</p>	<p>Good increase in new housing stock</p> <p>000's</p> <p>Legend: ■ 0-2 bedrooms ■ 3 bedrooms □ 4+ bedrooms</p>
<p>Always start the scale at zero: Often to emphasize a point the press will show an exchange rate between a very narrow band say US\$ to Euro between a five cents range magnifying the movement. Few is adamant that this may mislead and give rise to a poor decision. Better to express the graph starting the scale from zero.</p>	<p>Expense to revenue ratio trending toward target</p> <p>Legend: — Actual — Target</p>

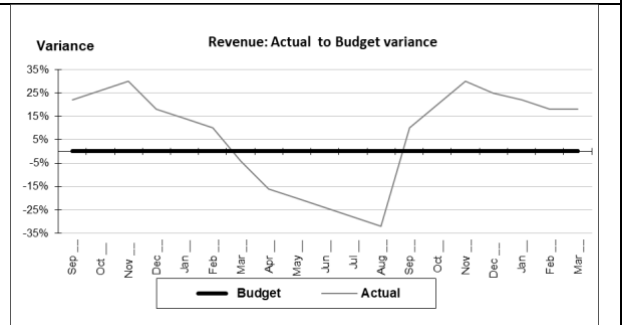
Avoid using these graphs: The following graphs should be banned from use:

- pie charts
- radar graphs
- 3D graphs

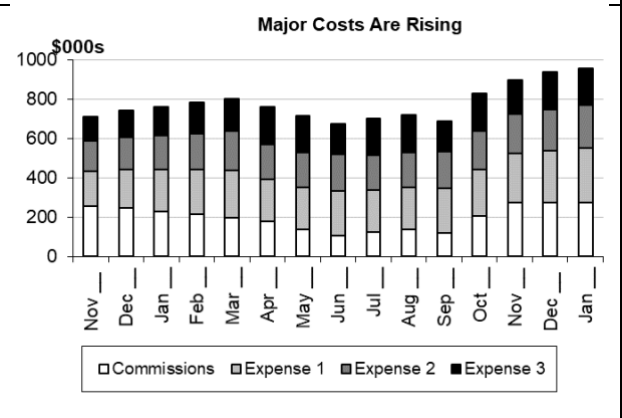
Few points out that it is far better to use a horizontal bar graph instead of a pie chart. In the horizontal bar graph the magnitude between highest and lowest is clearly seen as are the values.



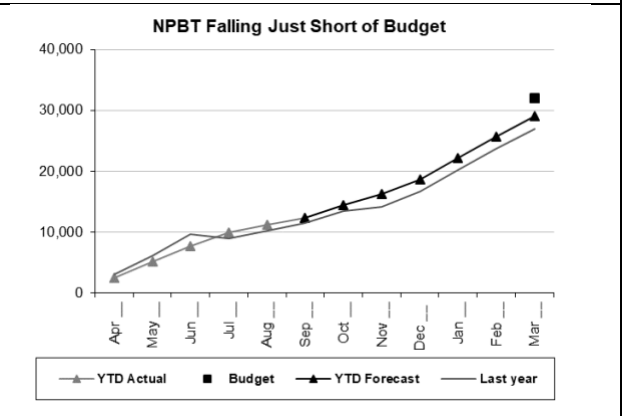
Make one data series the baseline: Few also points out the benefit of making one data series the baseline and showing the other as a variance to it. For example, actual shown against a budget, which is on the baseline.



Show a minimum of 15 months' trend analysis: Trend analysis is required, going back at least 15 months to ensure any seasonality in the operations is captured. This gives the ability to compare the performance in last three months against the same period last year.

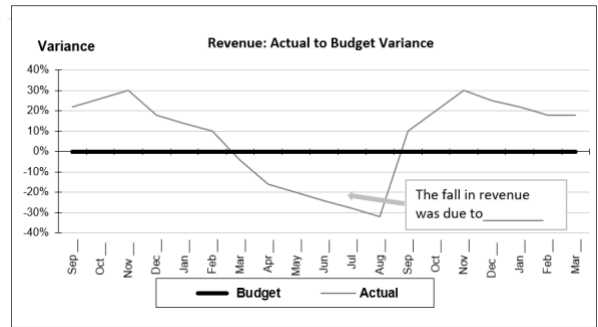


Avoid using a year-to-date budget line: When showing the annual budget simply show the annual figure. Avoid showing the year-to-date budget line as this is an arbitrary apportionment of the annual planning number that was wrong in any case.



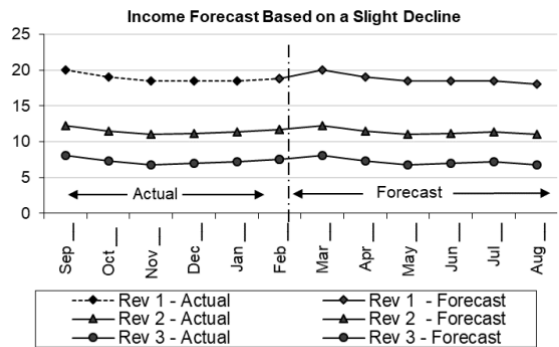
Explain turning points:

Key turning points on graphs should be explained by a note on the graph'



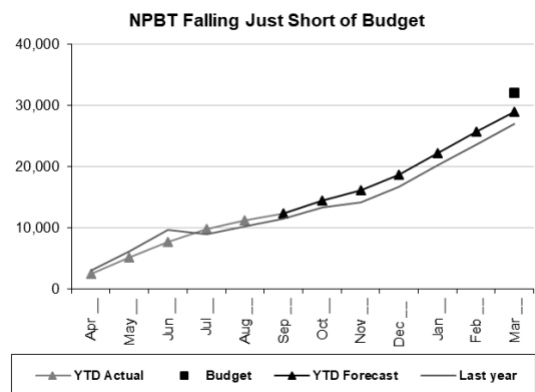
Use up to five gridlines and a light-yellow background:

The gridlines on the graph should be limited to around five lines. I always make these a medium tone of gray. Black on yellow is the best combination for clarity, so when using color graphs, make the graph background a light yellow.



Use the graph title to say something important:

Like a journalist, you need to treat the graph title as an important headline. If you cannot think of a good headline maybe, you should use a different graph.



I have just designed a weekly team progress report for a baggage handling team at an airport. The key features in this report include:

1. Looking back at the last 13 weeks gives some meaningful trend analysis.
2. Using sparklines gives you more room to show data.
3. Focusing on the top three products often accounts for over 40% of sales.
4. Including bad debts in a sales report reminds staff that collection involves everybody
5. Showing the top three sales staff helps set the benchmark of top performance
6. Training needs to be looked at weekly if you want to maintain a well-trained sales force.

	Performance measure	Last 13 weeks	Last week	Weekly target	Today as at __A.M.
Top three products	Sales revenue _____		245 ●	275	55
	Gross profit margin _____		33%	28%	25%
	Sales revenue _____		185 ●	155	15
	Gross profit margin _____		31%	32%	35%
	Sales revenue _____		95	87	10
	Gross profit margin _____		52%	45%	44%
All other products	Sales revenue all other products		450	410	65
	Gross profit margin _____		28% ●	30%	32%
Commissions	Amount of sales commission		120	135	20
Bad debts	Amounts written off as uncollectable		0	0	0
Staff	Sales made by top three sales staff				
	_____		55	40	12
	_____		49	40	15
	_____		41	40	2
	Sales by remaining sales staff		29	32	9
Training		Date of next training		Annual training target	Date of last training
	Pat Carruthers	15-Sept-__		8 days	26 months
	Sam cane	15-Sept-__		8 days	8 months
	Juliet Smith	15-Sept-__		8 days	26 months
	Tom Peterson	Non scheduled		5 days	4 months
	Sam Drucker	Non scheduled		5 days	1 month
The decline in sales for product 1 are due to discounting by ____.					
Gross profit margin on product 2 has dropped due to _____. This is a one-off event and we expect it recover on future sales.					
The _____ product range has had to be heavily discounted to reduce excess inventory. It is likely that this will have to continue and a paper is being prepared for the next executive meeting to determine if production should cease.					

Exhibit 10.10 Example of a weekly sales report to management