Painting with Numbers: A Different Perspective on the Craft – and the Art – of Presenting Numbers

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Workshop for BBRTNA Annual Meeting

June 21, 2016

An Introduction

- 30 years in Silicon Valley, 20 as a CFO

- Author, *Painting with Numbers: Presenting Financials and Other Numbers So People Will Understand You*

- More recently…

  – Instructor

  – Frequent workshops & speeches

  – Blog on how numbers are presented & understood

Disclaimer

- This is a sales pitch

- Everything in this workshop is obvious.

Agenda

- Overview – the Basic Premise
- The Nuts & Bolts
- The Perils of PowerPoint
- Data Visualization – What *Really* Works
  - Getting your message across
  - Avoiding negative perceptions
  - A Case Example from American Politics
- A Case Example from M&A
- Wrap-up & Summary

It's a communication skill.

OVERVIEW – THE BASIC PREMISE

Main Ideas of *Presenting* Numbers

- Not a math skill
- Not a computation skill
- Not rocket science
- A new word is born:

> **quantation** (kwŏn-tā′-shən) *n*. [English, c. 2008, from QUANTitative + communicATION.] The act of presenting numbers, such as financial results, electronically or in written form for the purpose of informing an audience.

- Think as if you were writing a memo or a position paper

Truths about Quantation

- It's a *communication* skill
- It has *rules*
- A sense of *narrative flow* is critical
- You are constantly *sending messages* to your audience
- Demonstrating *respect for your audience* is critical
- **In other words, it's just like writing, speaking, acting, mime. . .**

Do You Recognize This?

Your payment summary

		Your plan paid			You owe or already paid
XXXX	XXXXXXXXX	Amount	Sent to	Date	Amount
Randall (self)	Sonja S Declercq	$0.00			$475.00
Total:		$0.00			$475.00

Your claims up close

XXXXX

Claim for XXXX ndall (self)

Claim ID: E8YZ841QD00 Received on 10/14/13	Amount billed	Member rate	Pending or not payable (Remarks)	Applied to deductible	Your copay	Amount remaining	Plan pays	Your coinsurance	You owe C+D+E+H=I
CONSULTATIONS on 9/19/13 99245	325.00		108.18 (1)	216.82					325.00
DETERMINATION OF XXXXXXXXX 13	150.00		120.68 (1)	29.32					150.00
Sonja S Declercq									
Refer to Remarks Section			(2)						
Totals:	475.00		228.86	246.14					$475.00
	A	B	C	D	E	F	G	H	I

❗ You can find all numbered claim remarks in 'Your Claim Remarks' section.

Your Claim Remarks

General Remarks:

(1) Your plan provides benefits for covered expenses based on recognized charges for the same service. The charge for this service exceeds that amount. If there is additional information that should be brought to our attention, please let us know. [551]

(2) Your provider may have sent diagnosis codes with your claim. You may obtain these codes and their meanings by contacting us at the number listed at the top of the first page. We will also provide your treatment codes and their meanings, if they do not appear on this statement. If you have questions about your diagnosis or your treatment, please contact your provider. [H63]

How Much Does It All Matter?

Nutrition Facts
Serving Size 2/3 cup (55g)
Servings Per Container About 8

Amount Per Serving

Calories 230   Calories from Fat 40

	% Daily Value*
Total Fat 8g	**12%**
Saturated Fat 1g	**5%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 160mg	**7%**
Total Carbohydrate 37g	**12%**
Dietary Fiber 4g	**16%**
Sugars 1g	
Protein 3g	
Vitamin A	10%
Vitamin C	8%
Calcium	20%
Iron	45%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily value may be higher or lower depending on your calorie needs.

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

- Used, at least occasionally, by 50% or more of all consumers

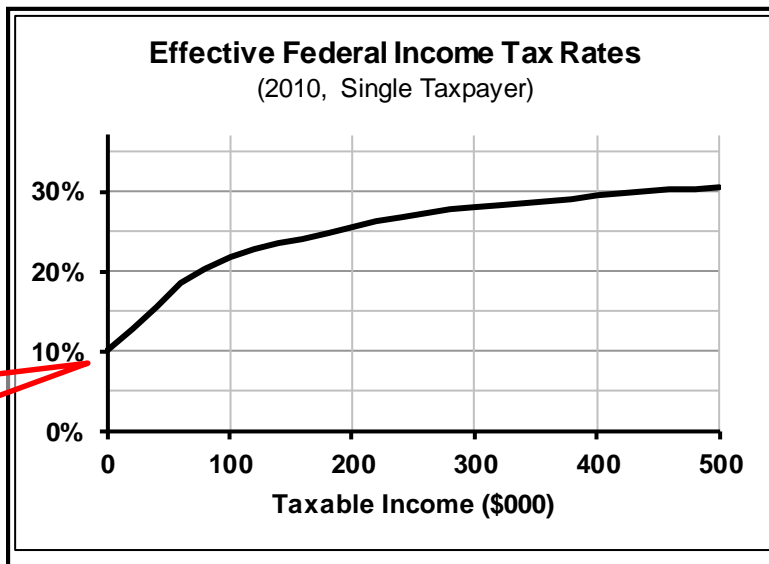# What Are the Similarities/Differences?

Schedule X—If your filing status is Single

If your taxable income is: Over—	But not over—	The tax is:	of the amount over—
$0	$8,375	.... 10%	$0
8,375	34,000	$837.50 + 15%	8,375
34,000	82,400	4,681.25 + 25%	34,000
82,400	171,850	16,781.25 + 28%	82,400
171,850	373,650	41,827.25 + 33%	171,850
373,650	....	108,421.25 + 35%	373,650

One individual taxpayer

2010 Income Tax (Single Taxpayer)

Taxable Income ($)	Income Tax ($)	Marginal Tax Rate	Effective Tax Rate
–	–	10%	10.0%
25,000	3,331	15%	13.3%
50,000	8,681	25%	17.4%
75,000	14,931	25%	19.9%
100,000	21,709	28%	21.7%
125,000	28,709	28%	23.0%
150,000	35,709	28%	23.8%
175,000	42,867	33%	24.5%
200,000	51,117	33%	25.6%
225,000	59,367	33%	26.4%
250,000	67,617	33%	27.0%
275,000	75,867	33%	27.6%
300,000	84,117	33%	28.0%
325,000	92,367	33%	28.4%
350,000	100,617	33%	28.7%
375,000	108,894	35%	29.0%
400,000	117,644	35%	29.4%

Effective Federal Income Tax Rates
(2010, Single Taxpayer)

Overall visual impression

Detail over a wide range, plus Effective Tax Rate

Taxable Income ($000)

Why Is All This Important to YOU?

- Your audience's time
  - . . . and how they spend it on your reports
- Getting your message across
- Numbers raise the stakes
- How you are perceived as…
  - A professional
  - A leader
  - straightforward & honest

Yes, there *is* a grammar!

THE NUTS & BOLTS

Please Comment on This Company
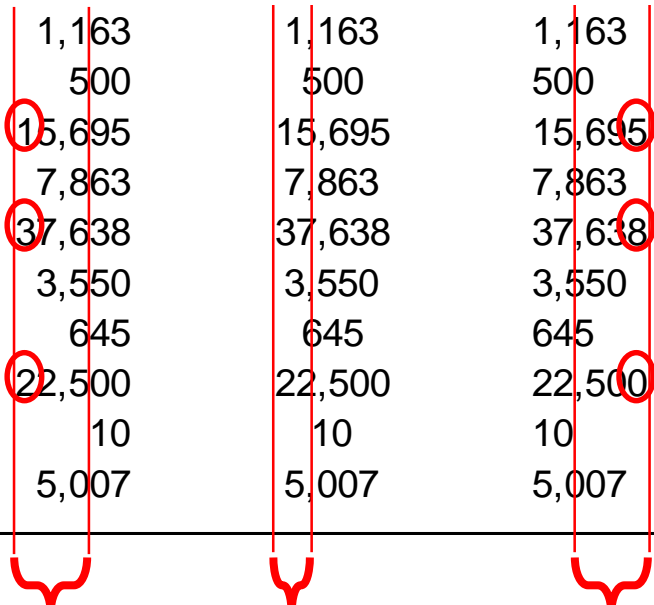
VASTCo -- MCMXCVIII-MMIII Financial Highlights

(in $M)	MCMXCVIII	MCMXCIX	MM	MMI	MMII	MMIII
Revenues	DCXCIX	CML	MCDXCIII	MMCXXXVIII	MMCMX	MMMCMXCVIII
Expenses	DCLXII	DCCC	MCCVII	MDCXXXIX	MMCCCXLV	MMMCCCXLIII
Operating Profit	XXXVII	CL	CCLXXXVI	CDXCIX	DLXII	DCLV

VASTCo -- 1998-2003 Financial Highlights

(in $000)	1998	1999	2000	2001	2002	2003
Revenues	699	950	1,493	2,138	2,910	3,998
Expenses	662	800	1,207	1,639	2,348	3,343
Operating Profit	37	150	286	499	562	655

Why Right-Justify Numbers?

Corporate Sales, by Product

Product	Version A Sales	Version B Sales	Version C Sales
Alpha	1,163	1,163	1,163
Bravo	500	500	500
Charlie	15,695	15,695	15,695
Delta	7,863	7,863	7,863
Echo	37,638	37,638	37,638
Foxtrot	3,550	3,550	3,550
Golf	645	645	645
Hotel	22,500	22,500	22,500
India	10	10	10
Juliet	5,007	5,007	5,007

Deadly Sin #1

Not right-justifying a column of numbers

What Do Negative Numbers Mean?

VASTCo -- 2002 Results, Actual vs. Budget

Version A

(in $000)	← 2002 →		
	Actual	**Budget**	**Var.**
Revenues	2,910	2,800	110
Expenses			
Sales & Marketing	1,387	1,125	262
Research & Development	550	580	(30)
General & Administrative	411	395	16
Operating Profit	562	700	(138)

Version B

	← 2002 →		
	Actual	**Budget**	**Var. F(U)**
	2,910	2,800	110
	1,387	1,125	(262)
	550	580	30
	411	395	(16)
	562	700	(138)

What's the difference?

Which version do you prefer?

Now, 'Where's Waldo' Has Its Place. . .

. . . But Not in Quantation

Making the Audience's Life Easy

- Easy access

- Easy to print

- Easy to read

- Responsive to their requests/questions

- CONSISTENCY

What's Wrong with This Report?

VASTCo -- 2006 Income Statement

(in $000)	2006 __Total__
Licenses	16,785
Services	6,120
Total Revenues	**22,905**
Cost of Sales	2,982
Gross Profit	**19,923**
Sales & Marketing	7,568
Research & Dev.	4,477
General & Admin.	3,191
Total Oprg. Exps.	15,236
Operating Profit	**4,687**

VASTCo -- 2006 Income Statement

(in $000)	2006 __Total__	vs. Budget 2006 __Total__	Var. F(U)	vs. Prior Year 2005 __Total__	Y/Y Change
Licenses	16,785	16,000	785	12,365	4,420
Services	6,120	5,940	180	4,436	1,684
Total Revenues	**22,905**	**21,940**	**965**	**16,801**	**6,104**
Cost of Sales	2,982	2,600	(382)	2,372	610
Gross Profit	**19,923**	**19,340**	**583**	**14,429**	**5,494**
Sales & Marketing	7,568	7,510	(58)	5,775	1,793
Research & Dev.	4,477	4,542	65	2,840	1,637
General & Admin.	3,191	3,138	(53)	2,815	376
Total Oprg. Exps.	15,236	15,190	(46)	11,430	3,806
Operating Profit	**4,687**	**4,150**	**537**	**2,999**	**1,688**

Deadly Sin #7

Presenting numbers with ***no context*** whatsoever – no comparison to prior periods, to plan/budget, to competitors, or to anything else

Excel Offers Many Choices for Tables

- Fonts
- Font size
- White space
- Text effects
- Colors
- Cell borders
- Cell shading
- Artwork
- Comments

Use them...

- **Meaningfully**
- **Consistently**
- **Effectively**

Consistency. . . Why?

- Every choice can have a purpose/meaning
- Professional look-and-feel
- Minimize confusion
- Audience familiarity
- Presenter familiarity (i.e., *your* sanity)
- Efficiency
- Personal style & brand

Every Visual Effect Should Have a Purpose

VASTCo -- 2006 Income Statement, Actuals thru Q3 & Outlook for the Year

(in $000)	Actual Results			Best			Outlook for the Year			
	Q1	**Q2**	**Q3**	**YTD Tot.**	**Case**	**F(U)**	**Q4**	**06 TOT.**	**Case**	**F(U)**
Licenses	3,948	4,116	4,284	**12,348**	11,792	556	4,500	16,848	16,000	848
Services	1,438	1,499	1,561	**4,498**	4,321	177	1,620	6,118	5,940	178
Total Revenues	**5,386**	**5,615**	**5,845**	**16,846**	**16,113**	**733**	**6,120**	**22,966**	**21,940**	**1,026**
Cost of Sales	701	731	760	**2,192**	1,899	(293)	765	**2,957**	**2,600**	**(357)**
Gross Profit	**4,685**	**4,885**	**5,084**	**14,654**	**14,214**	**440**	**5,355**	**20,009**	**19,340**	**669**
Sales & Marketing	1,794	1,856	1,928	**5,579**	5,517	(61)	2,019	**7,598**	**7,510**	**(88)**
Research & Dev.	1,035	1,082	1,153	**3,270**	3,312	42	1,191	**4,461**	**4,542**	**81**
General & Admin.	769	790	805	**2,363**	2,313	(50)	825	**3,188**	**3,138**	**(50)**
Total Oprg. Exps.	3,597	3,728	3,887	**11,212**	11,142	(70)	4,035	**15,247**	**15,190**	**(57)**
Operating Profit	**1,088**	**1,156**	**1,198**	**3,442**	**3,072**	**370**	**1,320**	**4,762**	**4,150**	**612**

Cell borders

Best Case in BLUE

White space

Totals in **BOLD**

Outlook in *ITALICS*

Deadly Sin #3

Using visual effects for any reason *other than clarifying, distinguishing, or adding meaning* to information

Appreciate the Contradictions

- Content "goodness" characteristics
  - Complete
  - Accurate
  - Useful
- Are all three possible? Why or why not?
- If not, which one(s) do you choose?

When the stakes are *really* high

THE PERILS OF POWERPOINT

What Is the Single Biggest Challenge with PowerPoint Slides?

NOT ENOUGH SPACE

Some Dismal PPT Quantation Facts

- The number of digits fitting legibly on a PPT screen is about **one-tenth** the number that can fit on a sheet of paper or a laptop screen:

	Rows	Columns	
PPT Screen	10	8	(but fewer significant digits)
Paper/Laptop	30	15	(in Landscape)

- The 8H Rule

- ***You cannot violate the laws of optics***

This Is 44 Points

- ## 32 points (1st level PPT default)
  - ## 28 points (2nd level PPT default)
    - ### 24 points (3rd level PPT default)
      - #### 20 points (smallest PPT default)
        - 16 points – We're getting smaller
          - 12 points – The quick brown fox, default in Word
            - 10 points – This is the default you get in Excel

Deadly Sin #17

"I know most of you can't read the numbers on this slide, but. . ."

In PowerPoint's Default Master Slide Settings, the TITLE Takes Up 20% of the Slide's Real Estate. That Is a Whole Lot of Space to Waste When You're Giving an Important Presentation and Every Square Inch Counts

- So use your slide titles wisely!

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Use Your Slide Titles Wisely

- You have a range of choices – e.g.:
  - **Income Statement**
  - **VASTCo Q3 '14 Income Statement**
  - **Q3 '14 Results on Track with Q1 & Q2**
  - **We're Headed for a Blowout '14!**

  Which title would you choose? Why?

- Consider consistency of tone, professionalism

Some Additional Free Advice

- Be familiar with the material
  - If you're presenting, it's *your* presentation
  - Little things matter, such as
    - Interim vs. final
    - Audited vs. unaudited
    - Source of info (system, department)
- Don't just read off the numbers
- Try the Stand-Alone Test
- Pluses & minuses of handing out hardcopy beforehand

Why Quantation in PPT is Important

- If you're giving a presentation, the stakes are probably high

- Numbers pose a special presentation challenge

- The rewards of doing it well are great

Are you being clear? Or is it just "pretty"?
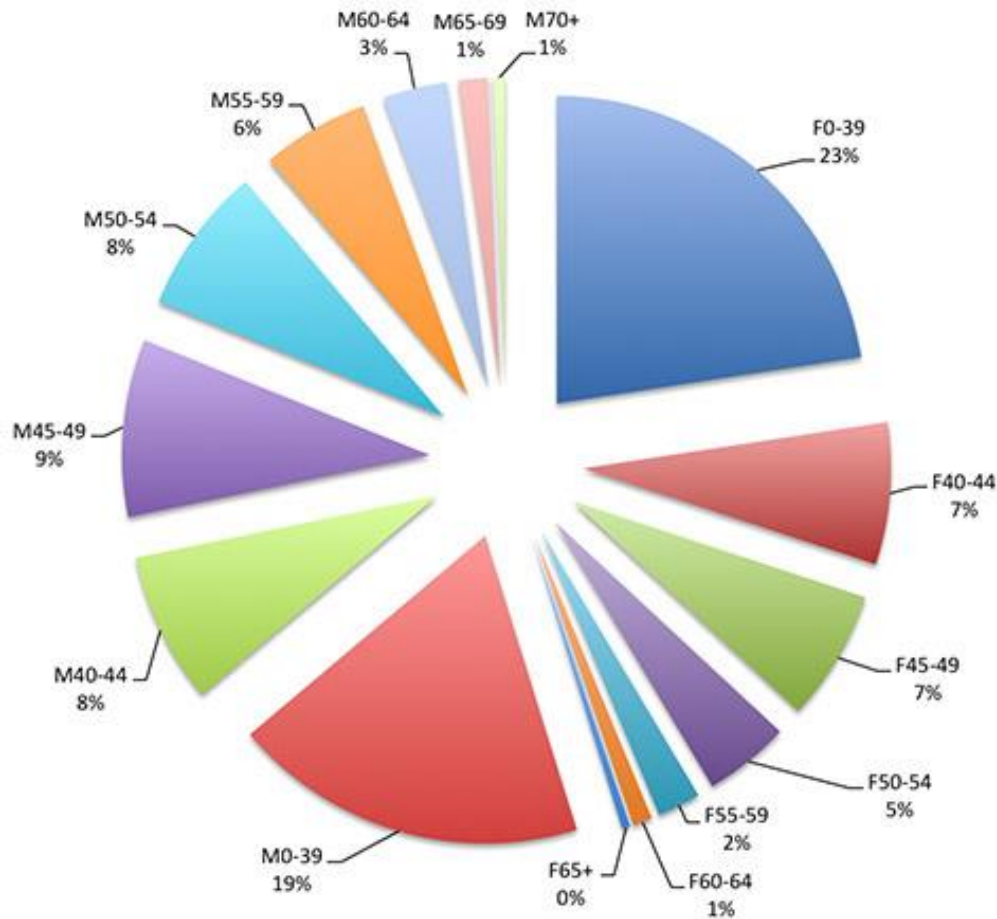
GRAPHS – GETTING YOUR MESSAGE ACROSS

Graphs Work Best When…

- You're trying to demonstrate a trend or a pattern
  - . . . or the absence thereof
- There are too many numbers to show

- ***If neither of the above, consider carefully whether a graph will be useful***

What Is This Graph Saying?

Boston Marathon 2015 Mix of 26,610 Finishers by Age Group
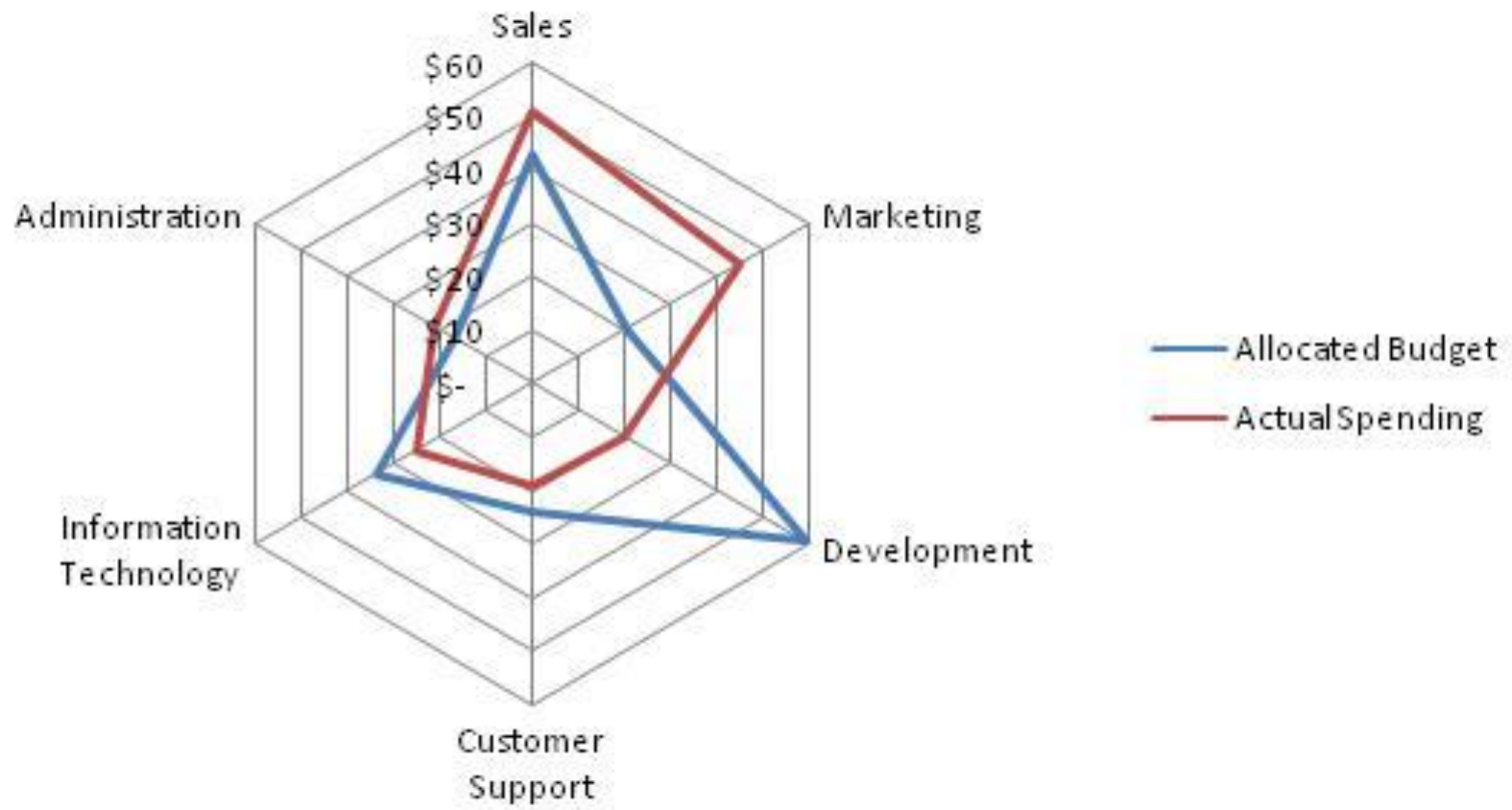By Raymond Britt and RunTriMedia

- M60-64 3%
- M65-69 1%
- M70+ 1%
- M55-59 6%
- M50-54 8%
- M45-49 9%
- M40-44 8%
- M0-39 19%
- F65+ 0%
- F60-64 1%
- F55-59 2%
- F50-54 5%
- F45-49 7%
- F40-44 7%
- F0-39 23%

- Graphs don't always deliver

Deadly Sin #10

Using a *pie chart.*

Radar Charts, the Newest Chartjunk!

OK, OK, Let's Try Again

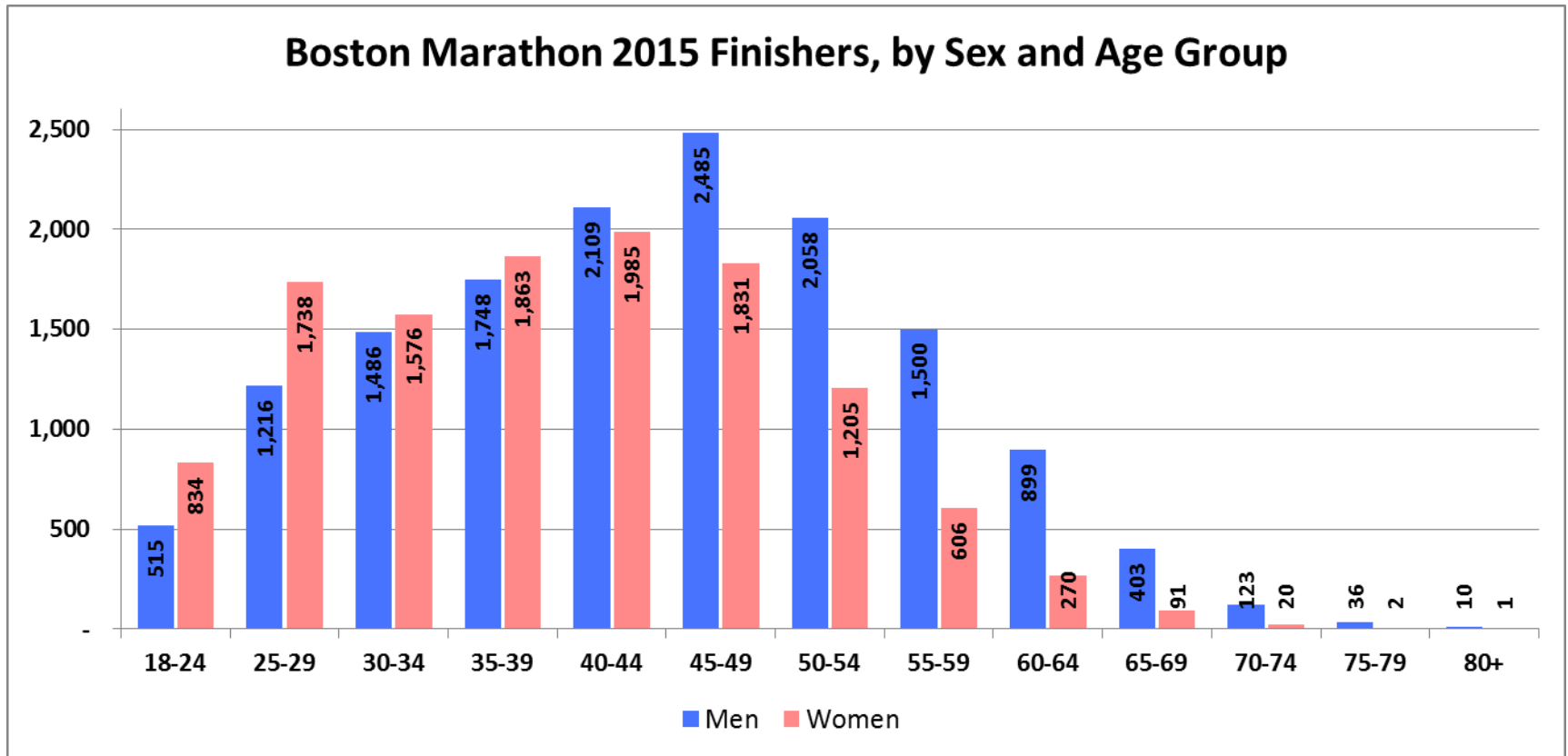**Boston Marathon 2015 Finishers, by Sex and Age Group**
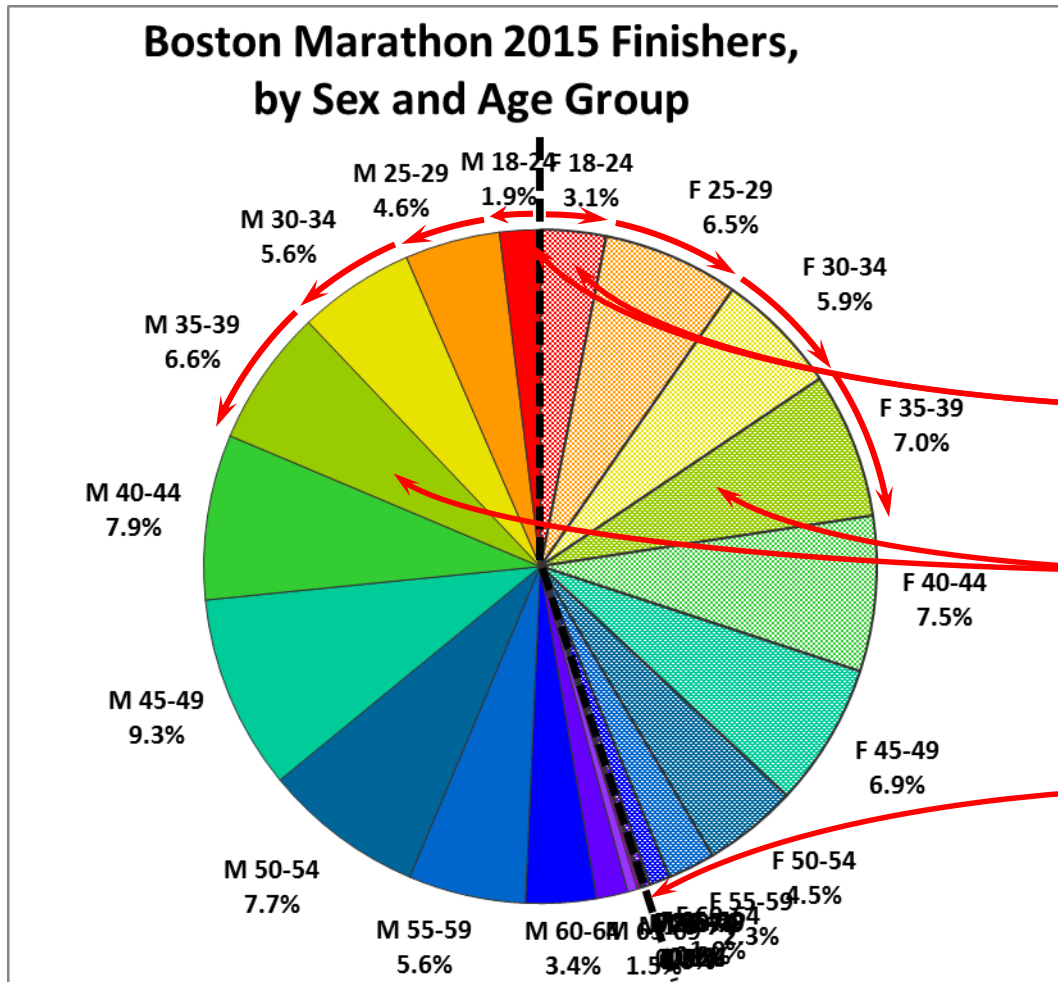
- This was a LOT of work!

Data *re-sorted* so both M & F data points start at 12:00

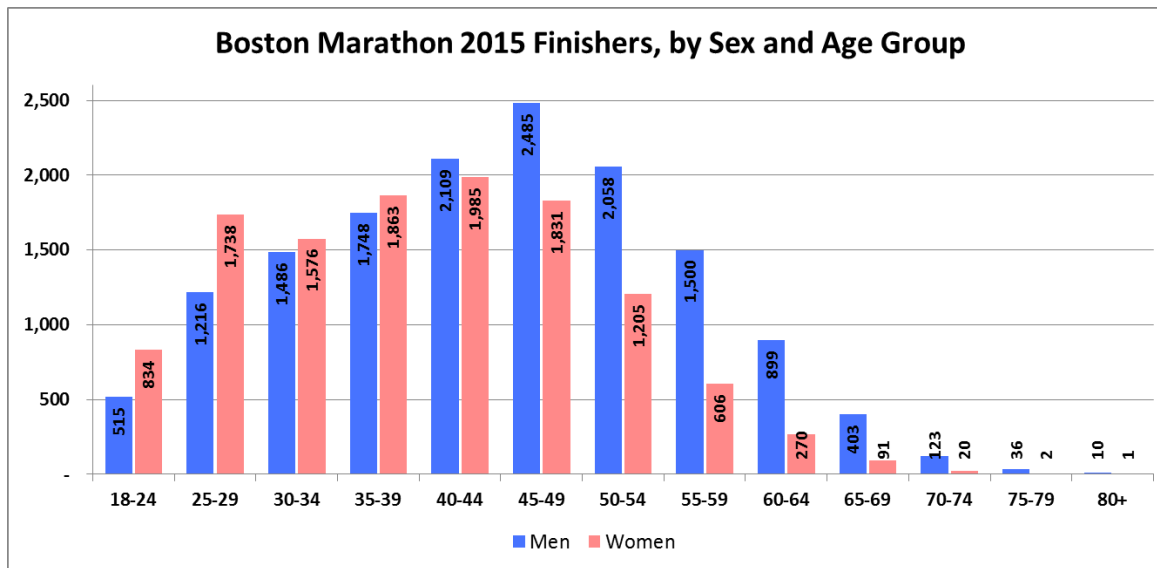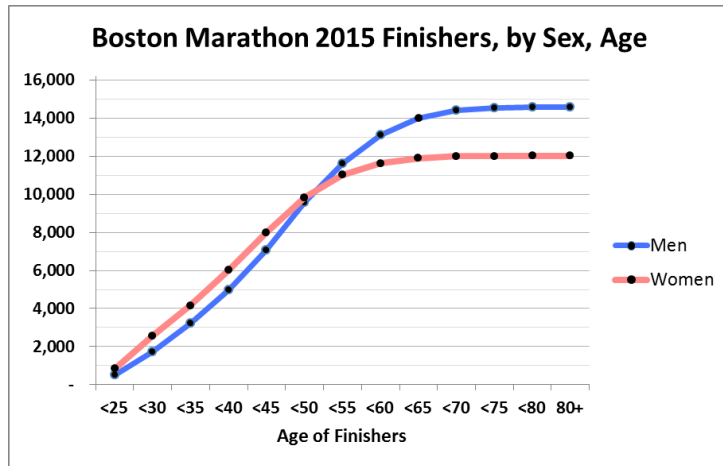*Color scheme* of M & F data points for same age group coordinated

Artwork added to compare M total vs. F total

Easier to Create... AND More Meaningful

Boston Marathon 2015 Finishers, by Sex and Age Group

- Which graph says more to you?

A Different Set of Questions...

Boston Marathon 2015 Finishers, by Sex, Age

Boston Marathon 2015 Finishers, by Sex and Age Group

- This graph shows:
  - Total M, F
  - *Overall* M/F mix
- Prior graph shows:
  - M/F mix *in each age group*
  - Overall age distribution of M, W
- A *table* would do all of the above

Tables Often Tell Us More

Boston Marathon 2015 Finishers, by Sex and Age Group

Age Group	Finishers, in Each Age Group						Cumulative Finishers					
	Men		Women		Total		Men		Women		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
18-24	515	3.5%	834	6.9%	1,349	5.1%	515	3.5%	834	6.9%	1,349	5.1%
25-29	1,216	8.3%	1,738	14.5%	2,954	11.1%	1,731	11.9%	2,572	21.4%	4,303	16.2%
30-34	1,486	10.2%	1,576	13.1%	3,062	11.5%	3,217	22.1%	4,148	34.5%	7,365	27.7%
35-39	1,748	12.0%	1,863	15.5%	3,611	13.6%	4,965	34.0%	6,011	50.0%	10,976	41.2%
40-44	2,109	14.5%	1,985	16.5%	4,094	15.4%	7,074	48.5%	7,996	66.5%	15,070	56.6%
45-49	2,485	17.0%	1,831	15.2%	4,316	16.2%	9,559	65.5%	9,827	81.7%	19,386	72.9%
50-54	2,058	14.1%	1,205	10.0%	3,263	12.3%	11,617	79.6%	11,032	91.8%	22,649	85.1%
55-59	1,500	10.3%	606	5.0%	2,106	7.9%	13,117	89.9%	11,638	96.8%	24,755	93.0%
60-64	899	6.2%	270	2.2%	1,169	4.4%	14,016	96.1%	11,908	99.1%	25,924	97.4%
65-69	403	2.8%	91	0.8%	494	1.9%	14,419	98.8%	11,999	99.8%	26,418	99.3%
70-74	123	0.8%	20	0.2%	143	0.5%	14,542	99.7%	12,019	100.0%	26,561	99.8%
75-79	36	0.2%	2	0.0%	38	0.1%	14,578	99.9%	12,021	100.0%	26,599	100.0%
80+	10	0.1%	1	0.0%	11	0.0%	14,588	100.0%	12,022	100.0%	26,610	100.0%
TOTAL	14,588	100.0%	12,022	100.0%	26,610	100.0%						

NOTE: Cells shaded blue if Men > Women, and pink if Women > Men
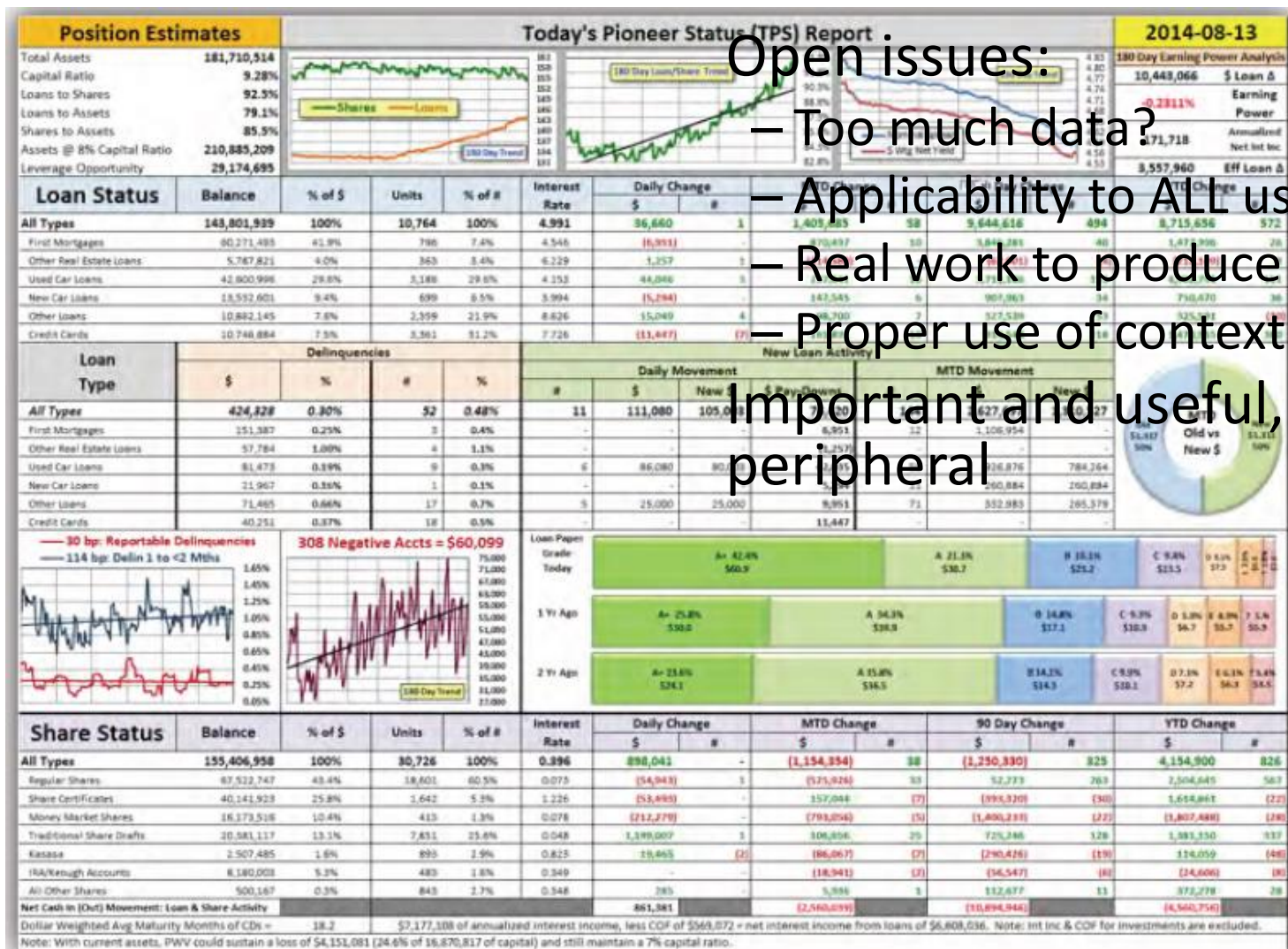
Well, OK, There Is *One*…

An Award-Winning Dashboard
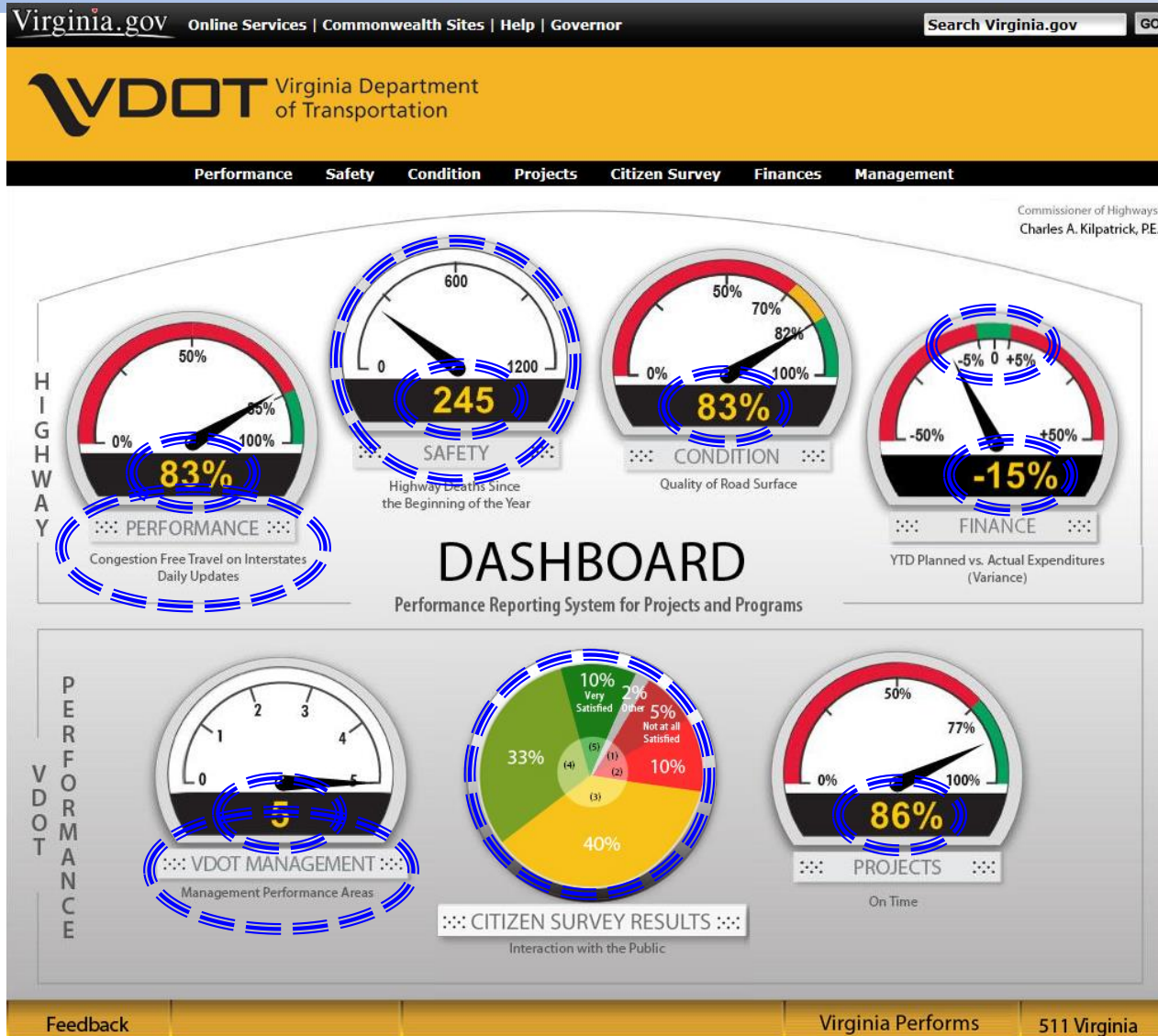
Concerns:

– Small amount of data (only 7 data points)

– Meaning of metrics ("VDOT management"?)

– Meaning of red/yellow/ green color coding

– Total lack of context

- Over time?

- vs. goals?

Another Dashboard…

Open issues:
– Too much data?
– Applicability to ALL users?
– Real work to produce
– Proper use of context

Important and useful, but peripheral

Excel Graphs: Many Choices

- Scaling the vertical axis
- Scaling the horizontal axis
- Graph variable on horizontal or vertical axis?
- Colors and patterns
- Different emphasis on different elements
- Gridlines and tickmarks
- Data labels (or callouts)
- Adding the data table itself
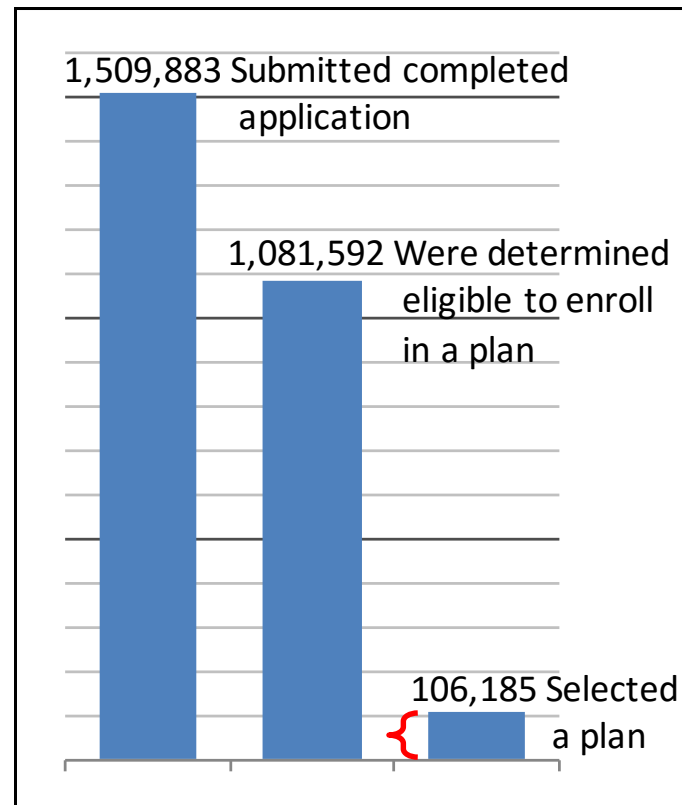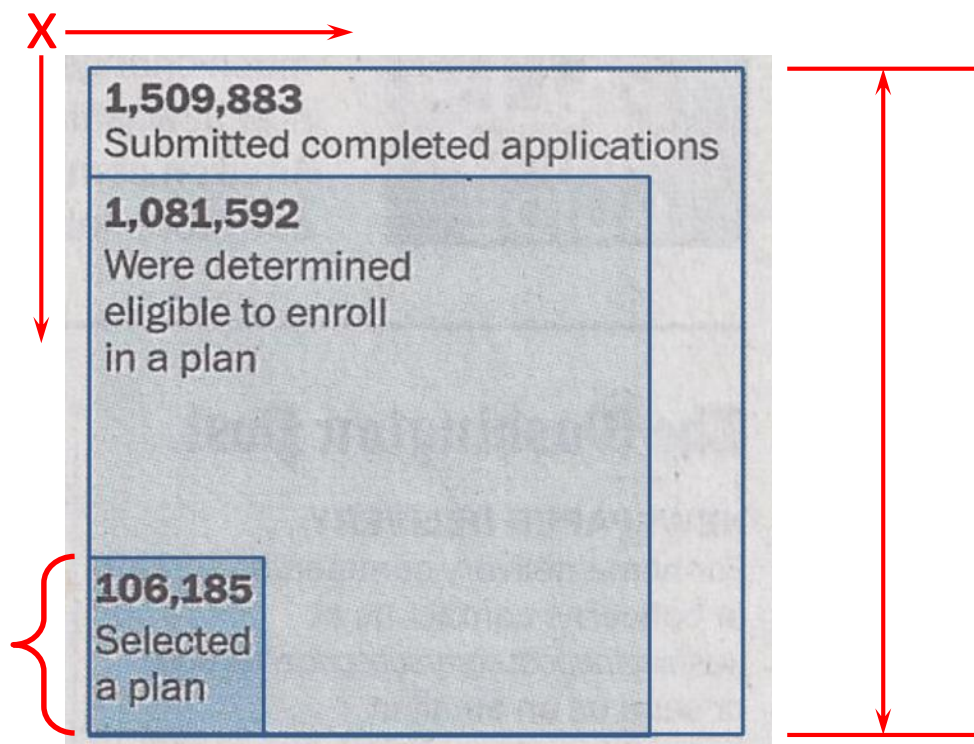- Adding a second vertical axis
- Series lines

Even more choices than for tables

Are you being ethical?
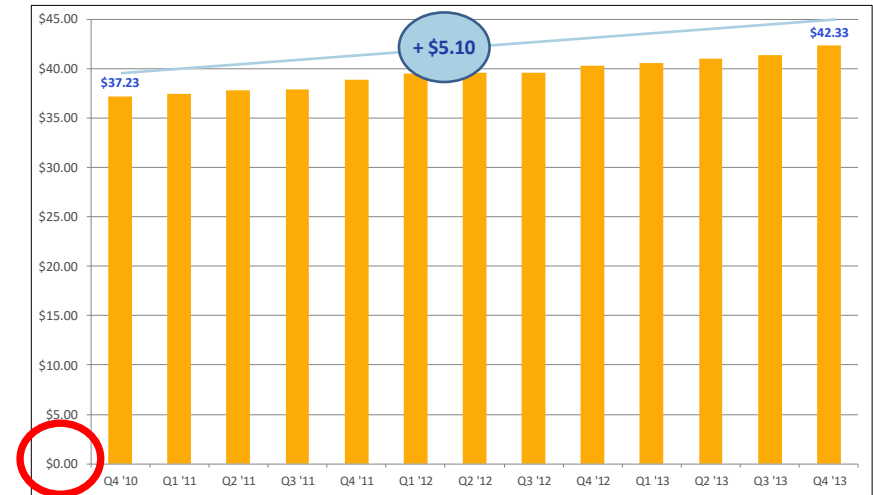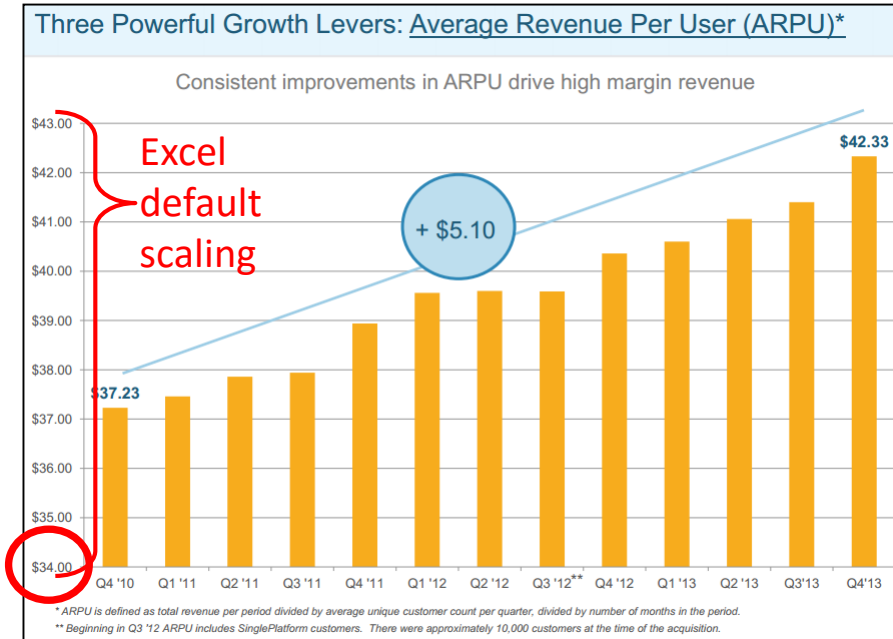Will you be given a chance to explain yourself?

GRAPHS –
THE *PERCEPTIONS*

An Unusual Presentation Choice

- Are both of these graphs correct?
- Who created the left-hand graph? Why?

Was This Really Necessary?

What drove the choice?

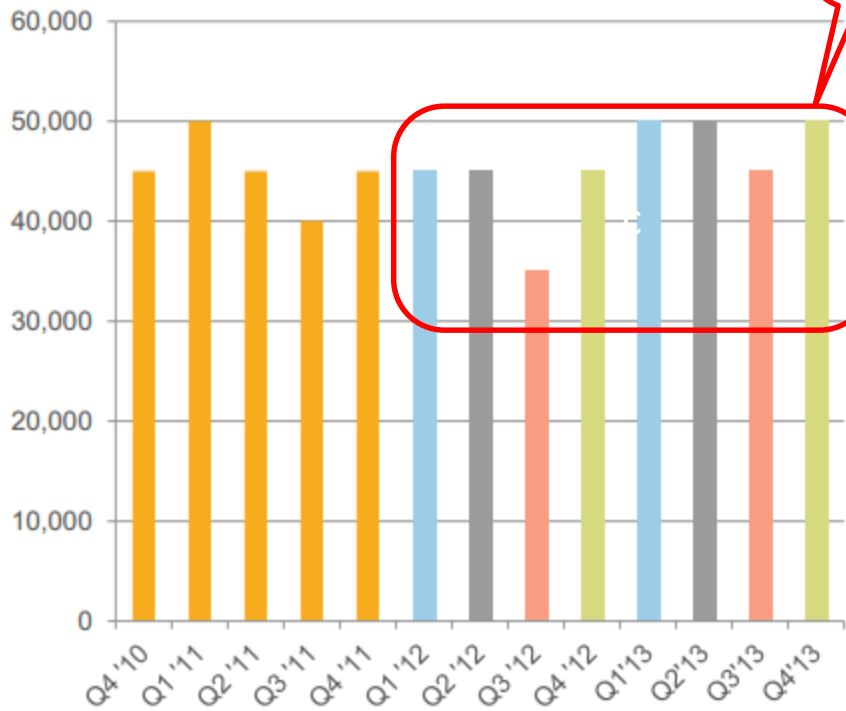# Bolten's Law Says...

(Corollary #3):

$$W_s = \frac{1}{H}$$

where:

W_s = audience's willingness to share opinion

H = harshness of opinion they're forming

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Cherry-Picking Your Metrics
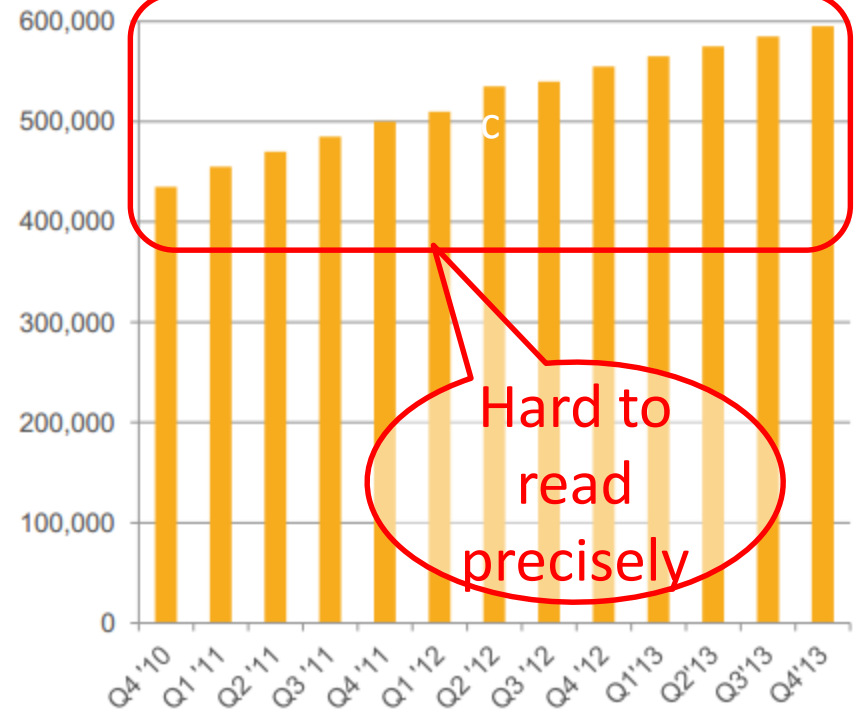
Fine Print AND Cherry-Picking
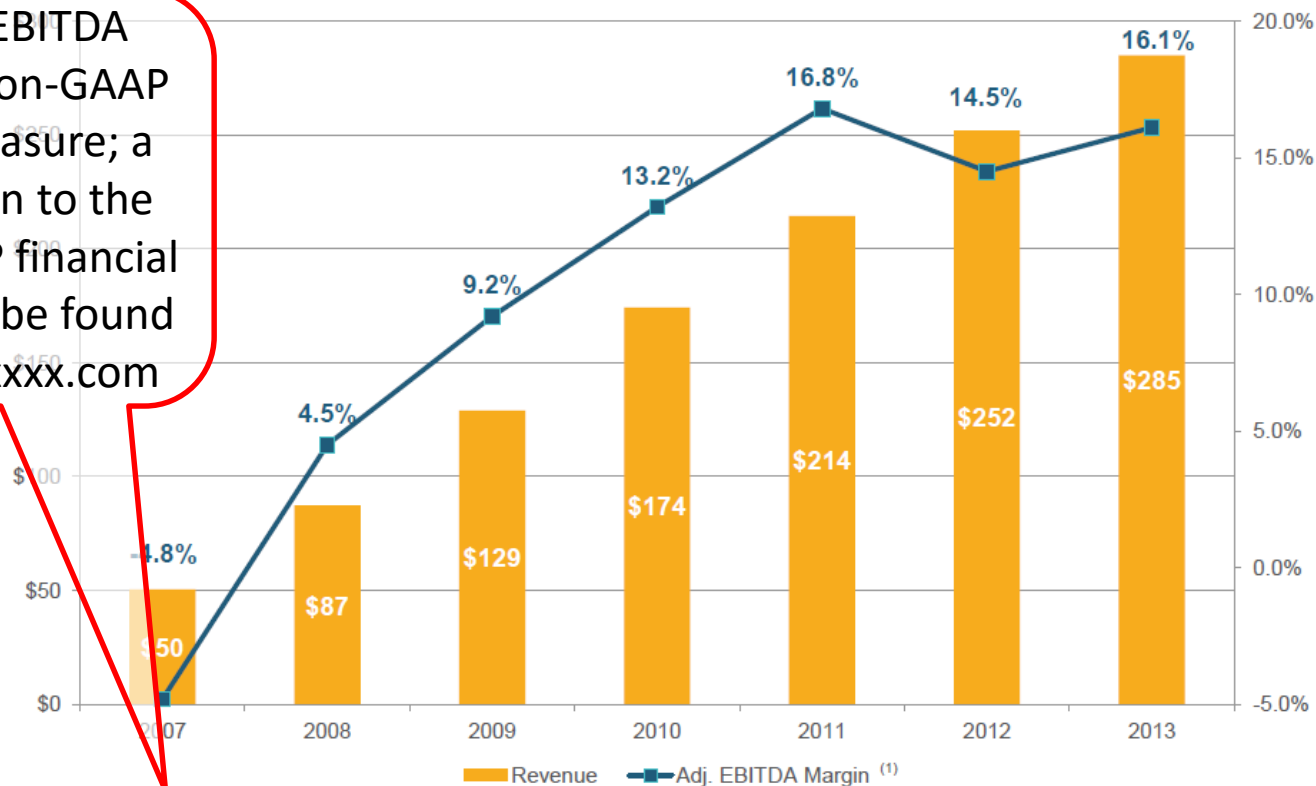
Bolten's Law Gets Worse…

(Corollary #4):

If your audience is aware that a presentation tactic <u>could be</u> sleazy, they will conclude that it <u>is</u> sleazy.
This perception applies to the presenter as well as to his/her content.

My, but we are a fickle nation!

A CASE EXAMPLE FROM AMERICAN POLITICS

U.S. Elections: Mythology or Fact?

- Mid-term elections are exciting!

- What is the conventional wisdom?

  – The president's party does badly in the House of Representatives

- What would we really like to know?

How *The Washington Post* Saw It
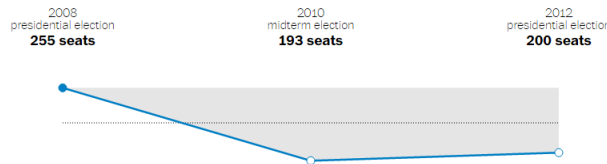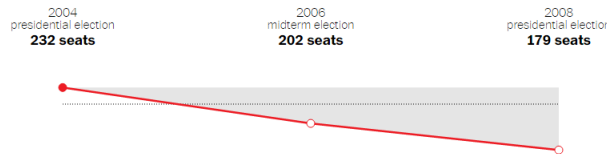
- Seats in U.S. House of Representatives

- Red = Republican seats, Blue = Democrat seats

- Elections back to Eisenhower, but only 2-3 terms/screen

What do you think of this ?

The Best Infographic Ever

# of troops

Location

Latitude & Longitude

Distance traveled

Direction of march
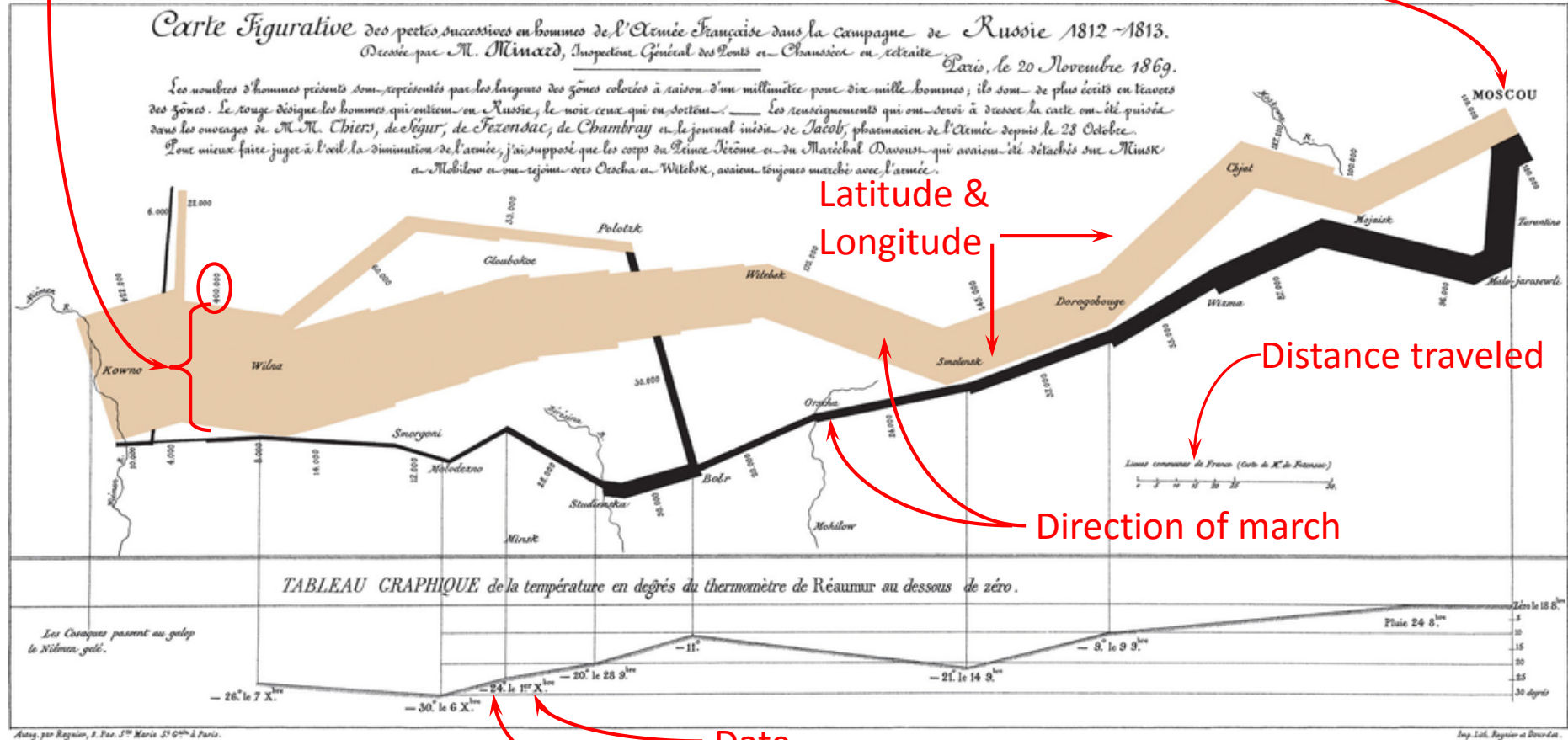
Date
Temperature

(by Minard, via Tufte)

How I Saw It
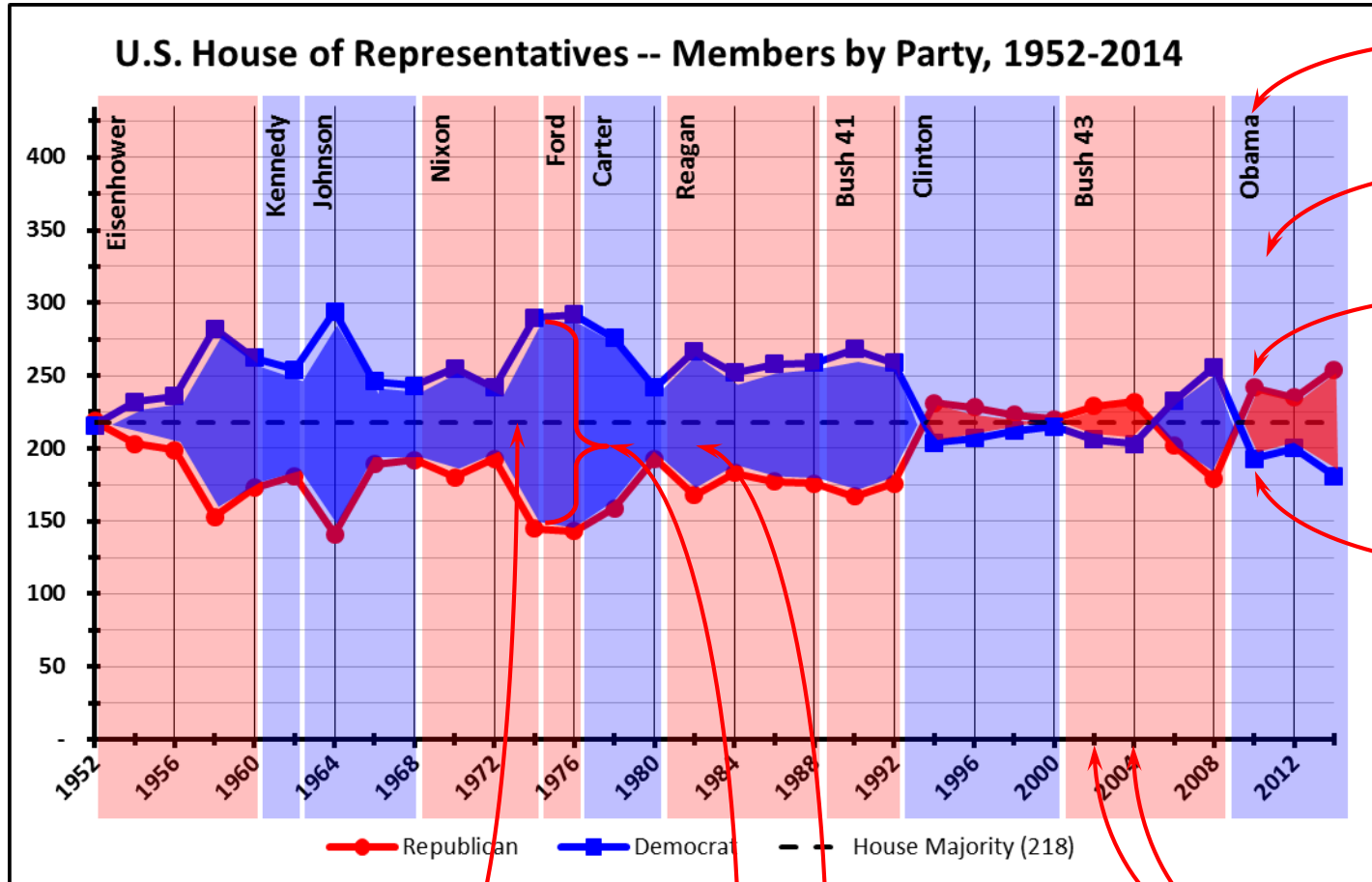
U.S. House of Representatives -- Members by Party, 1952-2014

© 2016 Randall Bolten

A Graph That Answers a Single Question

How the President's Party Fared in U.S. House Elections, 1954-2014
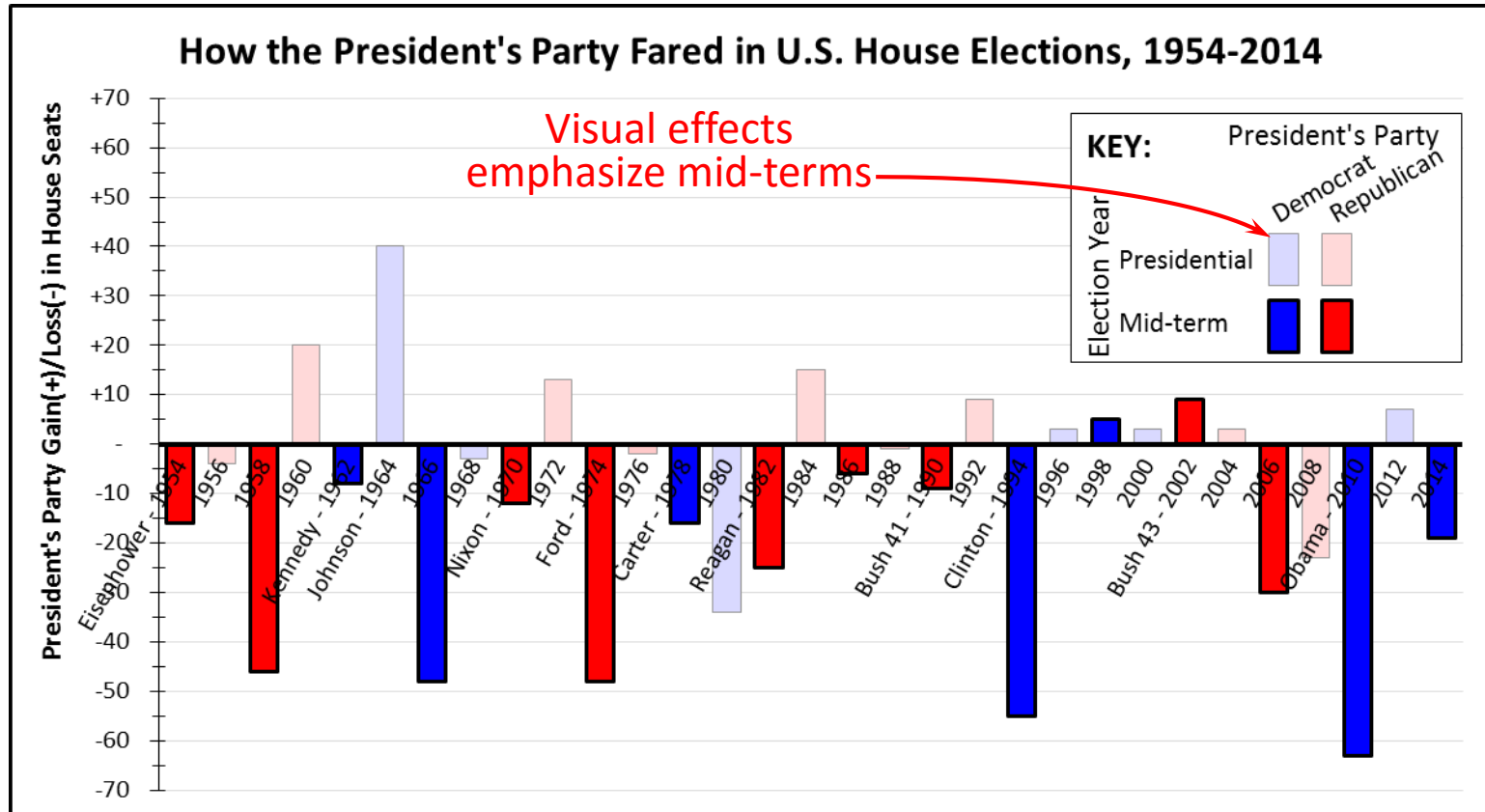
President's party lost seats in 14 of 16 mid-terms!

Would a Table Work Better?

| Year | President | | House of Representatives | | | | Pres's |
			Majority	Rep.	Dem.	Swing	Swing
1952	Truman	D	3 R	219	216		
1954	*Eisenhower*	*R*	*29 D*	*203*	*232*	*16 D*	*- 16 R*
1956	Eisenhower	R	37 D	199	236	4 D	- 4 R
1958	*Eisenhower*	*R*	*129 D*	*153*	*282*	*46 D*	*- 46 R*
1960	Eisenhower	R	89 D	173	262	20 R	+ 20 R
1962	*Kennedy*	*D*	*73 D*	*181*	*254*	*8 R*	*- 8 D*
1964	Johnson	D	153 D	141	294	40 D	+ 40 D
1966	*Johnson*	*D*	*57 D*	*189*	*246*	*48 R*	*- 48 D*
1968	Johnson	D	51 D	192	243	3 R	- 3 D
1970	*Nixon*	*R*	*75 D*	*180*	*255*	*12 D*	*- 12 R*
1972	Nixon	R	49 D	193	242	13 R	+ 13 R
1974	*Ford*	*R*	*145 D*	*145*	*290*	*48 D*	*- 48 R*
1976	Ford	R	149 D	143	292	2 D	- 2 R
1978	*Carter*	*D*	*117 D*	*159*	*276*	*16 R*	*- 16 D*
1980	Carter	D	49 D	193	242	34 R	- 34 D
1982	*Reagan*	*R*	*99 D*	*168*	*267*	*25 D*	*- 25 R*
1984	Reagan	R	69 D	183	252	15 R	+ 15 R
1986	*Reagan*	*R*	*81 D*	*177*	*258*	*6 D*	*- 6 R*
1988	Reagan	R	83 D	176	259	1 D	- 1 R
1990	*Bush 41*	*R*	*101 D*	*167*	*268*	*9 D*	*- 9 R*
1992	Bush 41	R	83 D	176	259	9 R	+ 9 R
1994	*Clinton*	*D*	*27 R*	*231*	*204*	*55 R*	*- 55 D*
1996	Clinton	D	21 R	228	207	3 D	+ 3 D
1998	*Clinton*	*D*	*11 R*	*223*	*212*	*5 D*	*+ 5 D*
2000	Clinton	D	5 R	220	215	3 D	+ 3 D
2002	*Bush 43*	*R*	*23 R*	*229*	*206*	*9 R*	*+ 9 R*
2004	Bush 43	R	29 R	232	203	3 R	+ 3 R
2006	*Bush 43*	*R*	*31 D*	*202*	*233*	*30 D*	*- 30 R*
2008	Bush 43	R	77 D	179	256	23 D	- 23 R
2010	*Obama*	*D*	*49 R*	*242*	*193*	*63 R*	*- 63 D*
2012	Obama	D	35 R	235	200	7 D	+ 7 D
2014	*Obama*	*D*	*73 R*	*254*	*181*	*19 R*	*- 19 D*
Averages 1954-2014:			**50 D**	**192**	**243**	**1.1 R**	**-11.0**

Considerations:

- Comprehensibility
- Impact
- Completeness
- Precision
- Compactness

Mid-terms in **bold italics**, presidentials in plain text

Uses D/R instead of blue/red

© 2016 Randall Bolten

Data Visualization: Only for Graphs?

Year	President		House of Representatives				Pres's Swing
			Majority	Rep.	Dem.	Swing	
1952	Truman	D	3 R	219	216		
1954	*Eisenhower*	*R*	*29 D*	*203*	*232*	*16 D*	*- 16 R*
1956	Eisenhower	R	37 D	199	236	4 D	- 4 R
1958	*Eisenhower*	*R*	*129 D*	*153*	*282*	*46 D*	*- 46 R*
1960	Eisenhower	R	89 D	173	262	20 R	+ 20 R
1962	*Kennedy*	*D*	*73 D*	*181*	*254*	*8 R*	*- 8 D*
1964	Johnson	D	153 D	141	294	40 D	+ 40 D
1966	*Johnson*	*D*	*57 D*	*189*	*246*	*48 R*	*- 48 D*
1968	Johnson	D	51 D	192	243	3 R	- 3 D
1970	*Nixon*	*R*	*75 D*	*180*	*255*	*12 D*	*- 12 R*
1972	Nixon	R	49 D	193	242	13 R	+ 13 R
1974	*Ford*	*R*	*145 D*	*145*	*290*	*48 D*	*- 48 R*
1976	Ford	R	149 D	143	292	2 D	- 2 R
1978	*Carter*	*D*	*117 D*	*159*	*276*	*16 R*	*- 16 D*
1980	Carter	D	49 D	193	242	34 R	- 34 D
1982	*Reagan*	*R*	*99 D*	*168*	*267*	*25 D*	*- 25 R*
1984	Reagan	R	69 D	183	252	15 R	+ 15 R
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1990	*Bush 41*	*R*	*101 D*	*167*	*268*	*9 D*	*- 9 R*
1992	Bush 41	R	83 D	176	259	9 R	+ 9 R
1994	*Clinton*	*D*	*27 R*	*231*	*204*	*55 R*	*- 55 D*
1996	Clinton	D	21 R	228	207	3 D	+ 3 D
1998	*Clinton*	*D*	*11 R*	*223*	*212*	*5 D*	*+ 5 D*
2000	Clinton	D	5 R	220	215	3 D	+ 3 D
2002	*Bush 43*	*R*	*23 R*	*229*	*206*	*9 R*	*+ 9 R*
2004	Bush 43	R	29 R	232	203	3 R	+ 3 R
2006	*Bush 43*	*R*	*31 D*	*202*	*233*	*30 D*	*- 30 R*
2008	Bush 43	R	77 D	179	256	23 D	- 23 R
2010	*Obama*	*D*	*49 R*	*242*	*193*	*63 R*	*- 63 D*
2012	Obama	D	35 R	235	200	7 D	+ 7 D
2014	*Obama*	*D*	*73 R*	*254*	*181*	*19 R*	*- 19 D*
Averages 1954-2014:			**50 D**	**192**	**243**	**1.1 R**	**-11.0**

Heat map ranges:

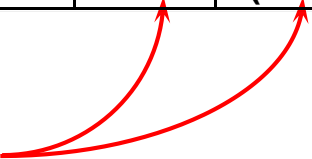|	
1 - 40	1 - 10
41 - 80	11 - 25
> 80	> 25

Heat map uses Conditional Formatting
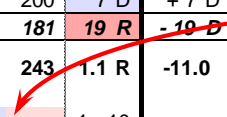
Using Key Indicators to Zero In

President's Party Avg. Gain(Loss)

(Δ in House Seats, 1954-2014)

President's Party	Type of Election Year		
	Pres'd't'l	Midterm	BOTH
Republican	3.3	(20.3)	**(8.5)**
Democrat	2.7	(29.1)	**(14.5)**
BOTH	**3.1**	**(24.2)**	**(11.0)**

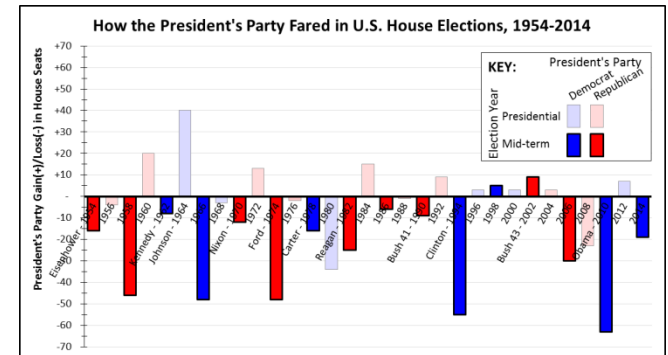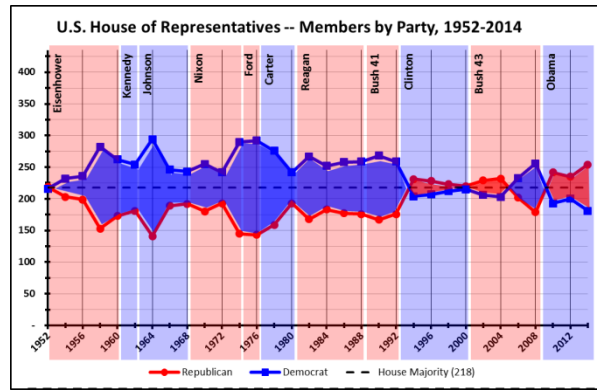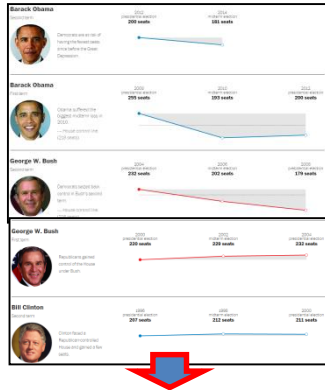Large, statistically significant difference

Learning something new?

Re-Characterizing the Data

"Dynasty" – continuous period of single-party presidency

Presidential "Dynasty"			U.S. House Members			
			Start		End	
			Rep.	Dem.	Rep.	Dem.
1952 - 1960	Eisenhower	R	219	216	173	262
1960 - 1968	Kennedy/Johnson	D	173	262	192	243
1968 - 1976	Nixon/Ford	R	192	243	143	292
1976 - 1980	Carter	D	143	292	193	242
1980 - 1992	Reagan/Bush 41	R	193	242	176	259
1992 - 2000	Clinton	D	176	259	220	215
2000 - 2008	Bush 43	R	220	215	179	256
2008 - 2016	Obama	D	179	256	254	181

Now. . . *Is there a pattern?*

So Many Ways to Look at It...

The Lesson from This Exercise

- Many ways to present numbers:
  - Tables vs. graphs
  - B&W vs. color
  - A little vs. a lot
  - Raw data vs. derived values (i.e., ratios, etc.)
- The right choice depends on…
  - What you want your audience to see
  - Complete picture vs. specific point
  - How effective each choice will be
  - *Not* on cognitive preferences

A CASE EXAMPLE FROM M&A

The Evolution of a Great Report

Setting the stage:

- VASTCo, a potential acquisition target

- Three product lines

- Sales forecasting system looks out 6+ years

- Potential acquirer is picky and analytical

What We're Starting With:

VERSION A

VASTCo Sales Pipeline, by Product and Year

Licenses	2013	2014	2015	2016	2017	2018
Product A	1897632	1485799	1080147	805246	448330	167044
Product B	530432	400816	348272	208144	146656	72584
Product C	319256	439966	652596	426570	409248	256734
Services						
Product A	354424	347811	290813	296920	203638	97632
Product B	23576	87067.2	77500.8	63044.8	43960	24204
Product C	64424	88704	115546	72311.2	57019.2	23604

1. Look Like a Professional

VERSION B

Added pipeline total

Dimensionality

Distinguished col. headings

Indents for readability

Boldface key rows, columns

Added Lic, Svcs totals

Borders to highlight total

COMMAS!

Provide source

White space for visual separation

VASTCo Sales Pipeline, by Product and Year (in $)

	Pipeline @ 12/31/12		Revenue Year				
		2013	**2014**	**2015**	**2016**	**2017**	**2018**
Licenses							
Product A	**5,884,198**	1,897,632	1,485,799	1,080,147	805,246	448,330	167,044
Product B	**1,706,904**	530,432	400,816	348,272	208,144	146,656	72,584
Product C	**2,504,370**	319,256	439,966	652,596	426,570	409,248	256,734
Total Licenses	**10,095,472**	**2,747,320**	**2,326,581**	**2,081,016**	**1,439,960**	**1,004,234**	**496,362**
Services							
Product A	**1,591,238**	354,424	347,811	290,813	296,920	203,638	97,632
Product B	**319,353**	23,576	87,067	77,501	63,045	43,960	24,204
Product C	**421,608**	64,424	88,704	115,546	72,311	57,019	23,604
Total Services	**2,332,199**	**442,424**	**523,582**	**483,859**	**432,276**	**304,618**	**145,440**

Source: Probability-weighted amounts from Vastco sales forecasting system

2. Less Is More

VERSION C

VASTCo Sales Pipeline, by Product and Year
(in $000)

| | Pipeline @ 12/31/12 | ←— Revenue Year —→ | | | |
		2013	2014	2015	2016+
Licenses					
Product A	5,884	1,898	1,486	1,080	1,421
Product B	1,707	530	401	348	427
Product C	2,504	319	440	653	1,093
Total Licenses	**10,095**	**2,747**	**2,327**	**2,081**	**2,941**
Services Total	**2,332**	**442**	**524**	**484**	**882**
Total Revenues	**12,428**	**3,190**	**2,850**	**2,565**	**3,823**

Source: Probability-weighted amounts from Vastco sales forecasting system

Consolidated out-years

Numbers in 000s

Only Total for Svcs.

Added Total Revs. row

3. Help the Reader Connect

VERSION D

VASTCo Sales Pipeline, by Product and Year (in $000)

	Pipeline @ 12/31/12			←—— Revenue Year ——→			
	Total	**Svcs.**	**Lics.**	**2013**	**2014**	**2015**	**2016+**
Product A	**7,475**	1,591	**5,884**	1,898	1,486	1,080	1,421
Product B	**2,026**	319	**1,707**	530	401	348	427
Product C	**2,926**	422	**2,504**	319	440	653	1,093
TOTAL	**12,428**	**2,332**	**10,095**	**2,747**	**2,327**	**2,081**	**2,941**
				442	524	484	882
				3,190	**2,850**	**2,565**	**3,823**

Licenses

Services

Source: Probability-weighted amounts from Vastco sales forecasting system

Added Total Pipeline detail

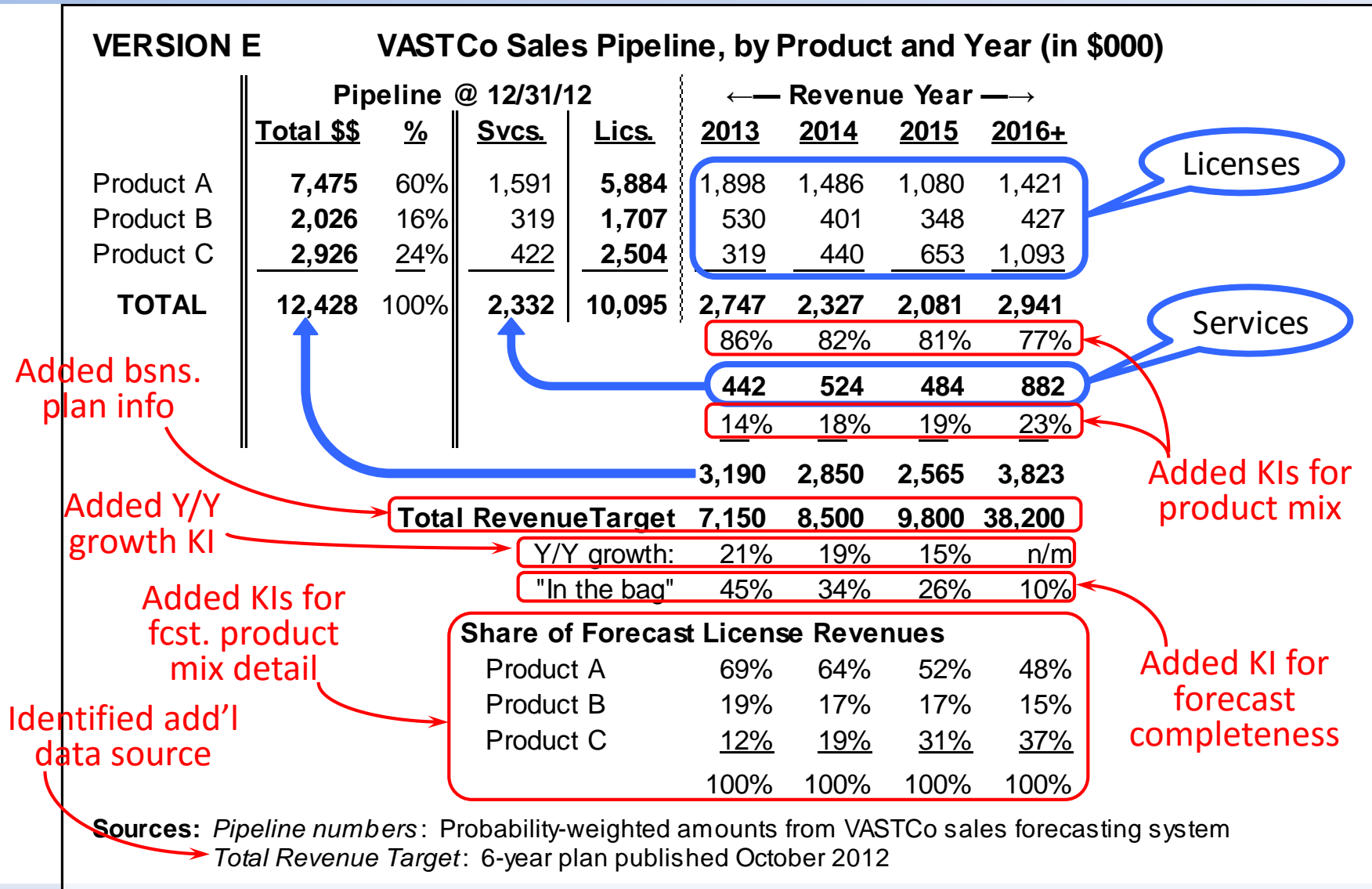Added Svcs. Pipeline detail

Artwork to tie totals by year & by revenue type

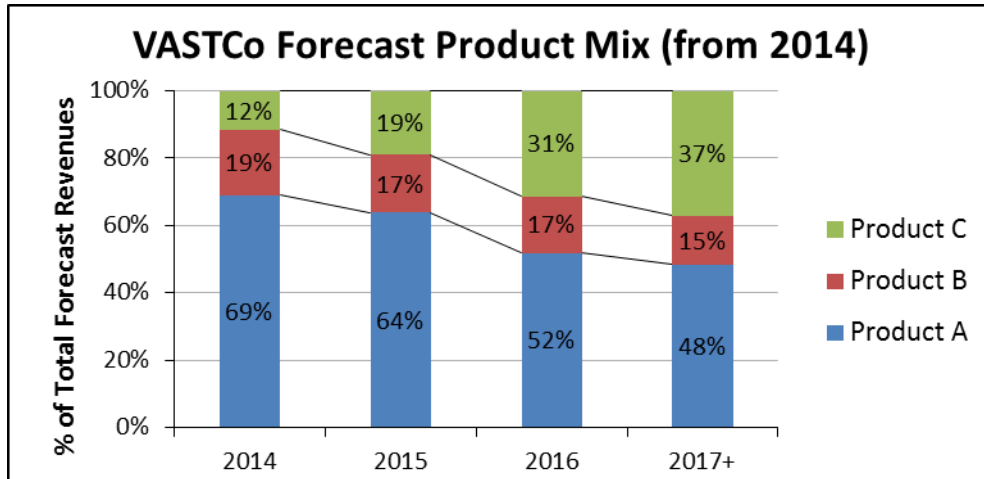Artwork to identify bsns. line detail

What Might You Want to Know?

- Is the company growing?

- Are the forecasts solid?

- What is the mix?

  - Products A, B, C

  - Licenses vs. Services

- What is the product mix *trend*?

4. Add Meaning & Context

VERSION E   **VASTCo Sales Pipeline, by Product and Year (in $000)**

	Pipeline @ 12/31/12				←— Revenue Year —→			
	Total $$	**%**	**Svcs.**	**Lics.**	**2013**	**2014**	**2015**	**2016+**
Product A	**7,475**	60%	1,591	**5,884**	1,898	1,486	1,080	1,421
Product B	**2,026**	16%	319	**1,707**	530	401	348	427
Product C	**2,926**	24%	422	**2,504**	319	440	653	1,093
TOTAL	**12,428**	100%	**2,332**	**10,095**	**2,747**	**2,327**	**2,081**	**2,941**
					86%	82%	81%	77%
					442	**524**	**484**	**882**
					14%	18%	19%	23%
					3,190	**2,850**	**2,565**	**3,823**
Total RevenueTarget					7,150	8,500	9,800	38,200
Y/Y growth:					21%	19%	15%	n/m
"In the bag"					45%	34%	26%	10%

Licenses

Services

Added KIs for product mix

Added bsns. plan info

Added Y/Y growth KI

Added KI for forecast completeness

Added KIs for fcst. product mix detail

Share of Forecast License Revenues

		2013	2014	2015	2016+
Product A		69%	64%	52%	48%
Product B		19%	17%	17%	15%
Product C		12%	19%	31%	37%
		100%	100%	100%	100%

Identified add'l data source

Sources: *Pipeline numbers*: Probability-weighted amounts from VASTCo sales forecasting system
Total Revenue Target: 6-year plan published October 2012

Add Some Graphs

What Brought Us. . .

From here:

VERSION A

VASTCo Sales Pipeline, by Product and Year

Licenses	2013	2014	2015	2016	2017	2018
Product A	1897632	1485799	1080147	805246	448330	167044
Product B	530432	400816	348272	208144	146656	72584
Product C	319256	439966	652596	426570	409248	256734
Services						
Product A	354424	347811	290813	296920	203638	97632
Product B	23576	87067.2	77500.8	63044.8	43960	24204
Product C	64424	88704	115546	72311.2	57019.2	23604

. . .

To here:

VERSION E   VASTCo Sales Pipeline, by Product and Year (in $000)

	Pipeline @ 12/31/12				←— Revenue Year —→			
	Total $$	%	Svcs.	Lics.	2013	2014	2015	2016+
Product A	7,475	60%	1,591	5,884	1,898	1,486	1,080	1,421
Product B	2,026	16%	319	1,707	530	401	348	427
Product C	2,926	24%	422	2,504	319	440	653	1,093
TOTAL	12,428	100%	2,332	10,095	2,747	2,327	2,081	2,941
					86%	82%	81%	77%
					442	524	484	882
					14%	18%	19%	23%
					3,190	2,850	2,565	3,823
Total Revenue Target					7,150	8,500	9,800	38,200
Y/Y growth:					21%	19%	15%	n/m
"In the bag"					45%	34%	26%	10%

(Licenses) (Services)

Share of Forecast License Revenues

	2013	2014	2015	2016+
Product A	69%	64%	52%	48%
Product B	19%	17%	17%	15%
Product C	12%	19%	31%	37%
	100%	100%	100%	100%

Sources: *Pipeline numbers*: Probability-weighted amounts from VASTCo sales forecasting system
Total Revenue Target: 6-year plan published October 2012

VASTCo Forecast Product Mix (from 2014)

	2014	2015	2016	2017+
Product C	12%	19%	31%	37%
Product B	19%	17%	17%	15%
Product A	69%	64%	52%	48%
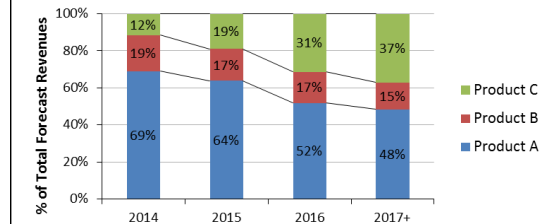
VASTCo Plan, Deals in Forecast, 2014-2019

(Plan Revenues / "In the Bag") — years 2014–2019

??
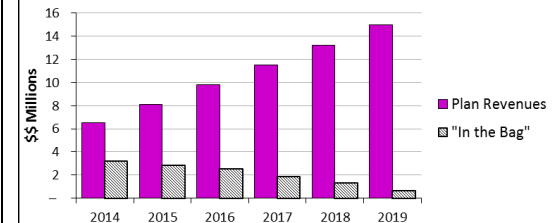
Think As If You Were Writing

- Grammatically correct, looks good, mistake-free

- Edit out extraneous information

- Lay-out information to take advantage of reader's natural flow

- Add information providing meaning and context

- Use pictures (or aphorisms, or executive summary) to emphasize key takeaways

Comparable Skills

Writing

- Margins, headings, typeface
- Paragraphs
- Editing, shortening
- Grammar, spelling, diction
- Narrative flow
- Distinct, effective style
- Summary, recap

Quantation

- Page Setup, Styles
- Visual organization
- Omission, precision
- Check formulas, justify, underscores, etc.
- Left-to-right & top-to-bottom, key indicators/ratios
- Consistency, good choices
- Top line, bottom line, row & column emphasis, recaps, dashboards

WRAP-UP

What Does Communication Require?

- Knowledge of the grammar

- A sense of narrative flow

- Appreciating and respecting your audience

- ***Quantation is no exception!***

Choices, Choices, Choices

- Always have a reason for a choice

- Be respectful of *consistency*, for the sake of your audience and your sanity

- ***Every one of your choices matters***

- Taken together, they matter A LOT

How Much Does It All Matter? (2)

Current

Proposed

There Is Much to Quantation

Rules and Habits:

- Using *Arabic numerals* effectively
- The *looks*
- The *words*
- Making *graphs* comprehensible
- Presenting *key indicators/ratios*
- Using *graphs effectively*
- Numbers in *PowerPoint*
- Using spreadsheets efficiently *and quickly*
- *CONSISTENCY!*
- Thinking as if you were *writing*

The Other Stuff:

- Treating your audience with *respect* and *compassion*
- Designing the *Management P&L*
- Using *graphs ethically*
- Choosing *key indicators/ratios* wisely & efficiently
- Demonstrating professionalism
- Incentive compensation
- Uses other than financial reports

Avoid the "Don'ts"

THE DEADLY SINS OF QUANTATION

quantation (kwŏn-tā'-shən) n. [English, c. 2008, from QUANTitative + communicATION.] The act of presenting numbers, such as financial results, electronically or in written form for the purpose of informing an audience.

The Sins of Presentation. . .

1. *Not right-justifying* a column of numbers
2. Basing column width or row height on the *length of the caption*
3. Using visual effects for any reason *other than clarifying, distinguishing, or adding meaning* to information
4. *Unclear, imprecise*, or (worst of all) *incorrect* row and column captions
5. *No title or timestamp* (date *and* time) on printed spreadsheets
6. In a package with more than one multiple-time-period report, presenting *some reports in forward and some in reverse chronological order*
7. Presenting numbers with *no context* whatsoever – no comparison to prior periods, to plan/budget, to competitors, or to anything else
8. *Omitting totals* where they would be appropriate, or *presenting totals* where they aren't appropriate
9. *Shrinking font size* in order to fit a report onto a single page, or creating a "single page" *with the help of Scotch tape*
10. Using a *pie chart* – period

The Sins of Behavior. . .

11. Publishing a spreadsheet with a *basic error* that should have been *easy to detect*
12. To print the finished report, requiring your audience to *do more than just click the "Print" icon*
13. "Well, I can see why you reached that conclusion, but that's because you didn't review the whole package."
14. "Oh, is *that* what you wanted? We have all that information – all you had to do was ask."
15. "Gee, no one has ever had a problem with this report before."
16. "I never intended for anyone else to use this spreadsheet."
17. "I know most of you can't read the numbers on this slide, but. . ."

And the *deadliest sin* of all. . .

18. **"I'm more focused on content than on presentation."**

From *Painting with Numbers: Presenting Financials and Other Numbers So People Will Understand You*
© 2009-14 Randall Bolten
http://www.painting-with-numbers.com/

Sins of Presentation

Sins of Behavior

Embrace the "Dos"

THE ART OF QUANTATION

quantation (kwŏn-tā´-shən) *n.* [English, c. 2008, from QUANTitative + communicATION.] The act of presenting numbers, such as financial results, electronically or in written form for the purpose of informing an audience.

1. Design your reports to fit on *one page*.
2. *Right-justify* your numbers.
3. Present numbers with a level of *precision* appropriate for the report and the audience.
4. Use *white space* to help your audience organize and understand your information.
5. Use *text effects* (**boldface**, *italics*, color, etc.), and other visual effects (cell borders, boxes, lines, shapes, cell comments, etc.) to highlight significant numbers and create distinctions between different types of information. But *don't overuse* them!
6. *Words are important*. Use them precisely, succinctly, comprehensibly, and in a way that enables your numbers to shine through.
7. *Organize the rows and columns* of your reports in a way that helps your audience intuitively grasp your information and is appropriate for their natural reading flow.
8. *Respect your audience's time*. Make it easy for them to see what the report is about and when it was prepared, to find what they need quickly, and to print the pages.
9. Respect the *space limitations* of a *PowerPoint slide*. Preview the slides in the venue.
10. *Be consistent*. A standard look-and-feel for your quantation enables you to get your work done faster, makes it easier for your audience to read and understand your information, *and enhances your personal brand*.
11. It is more blessèd to be a *fast user of Excel* than a power user.
12. Design your reports as if you were preparing *for a board of directors meeting*, even if you're not. You will develop good habits that will become second nature.
13. You will always face trade-offs when trying to make your reports *complete, accurate*, and *useful* to your audience. *You cannot achieve all three*, so make the trade-offs intelligently, based on your audience's needs and capabilities.
14. Use *graphs* instead of tables to *highlight trends and other patterns*. But don't overuse graphs – they are *not* a substitute for the numbers themselves, to be used merely because of personal preferences or alleged differences in cognitive style.
15. Use *key indicators* (i.e, ratios) to add meaning and context to your raw numbers.
16. When giving an *oral presentation* that includes quantation, *be familiar with the numbers* and their origin. Don't act like you've never seen the numbers before.
17. *Solicit feedback aggressively*. The audience's silence is *not* golden.
18. Be known as someone who *understands your business and your subject matter* as well as the people for whom you are generating the information.

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1. *One page*
2. *Right-justify*

17. *Solicit feedback*
18. *Be professional*

The Main Ideas

- ***Quantation*** (i.e., presenting numbers) is a *communication* skill, not a math skill

- There are ***rules***
    - Just like writing and speaking

- Countless **choices**; each one matters

- How we communicate **sends messages** about ourselves; quantation is no exception
    - How your *staff* communicates reflects on you as their leader

THANK YOU!