Session 100 PD, Effective Presentation and Data Visualization Techniques

Moderator:
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Presenters:
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Key Takeaways From Eddie’s Talk

- **Avoid putting too much text on any given slide**
  - Don’t feel like you have to show more words and numbers to impress
  - Avoid using your slides as a teleprompter
  - Break up wordy slides into more slides with less text on each slide

- **Creating slides with less text is harder**
  - Takes more effort, time, and planning
  - Woodrow Wilson was asked how long it takes him to create speeches: “If it is a 10-minute speech it takes me all of 2 weeks to prepare it; if it is a 30-minute speech it takes me a week; if I can talk as long as I want to it requires no preparation at all. I am ready now.”

- **How to avoid overly wordy slides:**
  - Let yourself create wordy slides naturally
  - Create a new PowerPoint and use the original for reference
  - Whittle it down
  - Use the original wordy version as the basis for handouts
  - Handouts do not have to match the slides in your presentation

- **Images increase memorability**
  - Picture superiority effect ([https://en.m.wikipedia.org/wiki/Picture_superiority_effect](https://en.m.wikipedia.org/wiki/Picture_superiority_effect))
  - Images are more likely to evoke emotion, which greatly increases memorability
  - The older people get, the more that imagery aids memory
    - The median age in the workforce is increasing—your audience is getting older!
  - Research presented in the book *Brain Rules* by Dr. John Medina indicates that people will only remember 10% of what they heard 3 days after a talk. If images are used, memorability rises to 65%

- **Images are bad sometimes**
  - Pictures that are obviously stock photographs or overly generic, especially if you use too many of them
  - Poor quality images that are pixelated, low-resolution, badly resized, or badly aligned on the slide
  - Images that have no obvious relationship with the message or text on a slide. Audience will miss the message while trying to connect image with the message.

- **Identify your “idea worth spreading” (TED style)**
  - Central theme of your entire presentation

- **Planning is important**
Your work begins as soon as you know you are going to present
Just start taking notes as thoughts arrive
  ■ Carry a notebook
  ■ Jot down notes in your phone
Use mind maps to organize ideas
Draft a linear outline
Write a script
  ■ Useful for timing yourself

Practice tips from Akash Karia’s *How to Design TED Worthy Presentation Slides*
Practice out loud
Practice at normal speed
Practice at double the speed
Practice at half your speaking pace

Connect/engage with the audience
Be comfortable enough to engage your audience and talk to them as though they are real people
When you connect, people listen. They engage. They remember what you say

More tips not covered in Eddie’s talk

Qualities of good slide text
Use one line per bullet if possible
Use active voice in text (avoid passive voice since it’s much harder to read)
You don’t have to use bullets -- single lines are fine
Reveal bullets one at a time to focus audience on the current point

General design tips
Create a consistent look and feel—use the same font, theme, etc. throughout
Limit animations and effects to only those necessary to focus the audience

Use simple graphs and charts
Show only the essential pattern
Eliminate anything that isn’t necessary
Avoid detailed axes
Avoid too many lines or bars

Use tables only if a comparison is needed
Eliminate all but necessary totals
Provide more detail in handouts or spreadsheets later
If your table as one very important number, just show that number on the slide
  ■ You can always provide additional detail later in handouts, spreadsheets, etc.

Additional Things to Read or Watch:
• Don McMillan’s “Life After Death PowerPoint” on YouTube (https://youtu.be/MjcO2ExtHso)
• Akash Karia’s book How to Design TED Worthy Presentation Slides
  ○ Short, concise book loaded with practical tips on slide design, practice tips, and much more
• Watch any TED talk at ted.com to pick up on general themes used by highly polished speakers
• TED tips for better slide decks: http://blog.ted.com/10-tips-for-better-slide-decks/

Key Takeaways From Roger’s Talk

• The goal of data visualization should be to tell a story with your data. What ideas are you trying to communicate? How can one use your data visualizations to help make informed decisions?
• If you are trying to do a comparison, experiment with using a bar chart instead of using a pie chart.
• Use colors in your visualizations to emphasize your main point(s)
• 3D graphics can really distract your audience.
• Instead of putting three metrics into one combo chart, try stacking three charts together.
• If you are creating an excel dashboard, allow your end user to interact with the data and discover trends on their own.
• If you have very granular BIG data, go beyond static visualizations. Instead make your data move with animations.
2016 SOA Annual Meeting & Exhibit

Session 100: Effective Presentation & Data Visualization Techniques
October 25, 2016

J. Eddie Smith, IV, FSA
Director, The Infinite Actuary

Roger Rosales, FSA, CERA
Assistant Actuary, The Standard
• People tend to put every word they are going to say on the PowerPoint slide. Although this eliminates the need to memorize your talk, ultimately this makes your slides crowded, wordy and boring. You will lose your audience’s attention before you reach...
• ...the bottom of your first slide.
Why do we like to put so much on our slides?
F
Friction Points
- IT will take more control or move further away from support
- Neither IT nor actuarial will see
- Actuarial will need to do more controls
- Who will maintain the new technologies?
- Are business users being given the right tools?
- Actuaries need an experimental environment to explore new approaches
- Need for an organizational, data architecture and strategy
- Actuarial will need IT to create multiple environments for the new technologies and actuaries need training to use them correctly.
- Increase number of vendors and poor vendor management
- Actuaries needs to convince IT of their increase needs for high performance computing and new hardware and software.
- Emerging technologies will make the departments to interact more effectively

New Demands
- Actuarial will need newer technologies
- Actuarial will need more processing power
- Actuarial system will be more connected with other systems in the enterprise
- Role clarification is needed and trust needs to be established.
- Need for new complex reports and financial data

New Technologies
- High performance computing will be difficult to deploy with the existing model
- SaaS model to avoid running around IT
- Increase number of vendors
- IT won’t service actuarial initiatives

Lack of a Proven Model
Less text is better
Less text is harder
“I didn't have time to write a short letter, so I wrote a long one instead.”

—Mark Twain
“If it is a 10-minute speech it takes me all of 2 weeks to prepare it; if it is a 30-minute speech it takes me a week; if I can talk as long as I want to it requires no preparation at all. I am ready now.”

—Woodrow Wilson
In actuarial terms...

\[ w(t) = \frac{c}{t} \]
Handouts
Picture Superiority Effect
“human memory is extremely sensitive to the symbolic modality of presentation of event information”
About 440,000 Americans die each year from diseases related to smoking. 90% of them started as teen smokers.
Illustrated stories aren’t just for kids.
Picture superiority increases with age

Your audience’s age
3 days after this talk, how much will you remember?
10% if you only hear it

65% (if images are used)

Research from *Brain Rules* by Dr. John Medina
Actuarial Perceptions of IT

- Actuaries are going it alone
- *We*, not IT, introduce new technology projects
- The typical actuarial support model today:
  - Non-IT staff in actuarial dept.
  - IT staff who know little about the actuarial discipline

- Is the current model sustainable?
Images can be **bad**

Stock, overly generic photos

Pixelated, badly resized or aligned

Images lacking an obvious connection
If you fail to plan, you are planning to fail.
What is your idea worth spreading?
Your work begins as soon as you know you’re speaking.
Use the computer that’s always with you

Drafts for iOS
Mind Mapping

Benefits:
- Overview
- Easy to memorize
- Simple, fast & fun

Collaboration
- Team work
- Sharing
- Colleagues

Creativity
- More efficient
- Intuitive

Planning
- Projects
- Goals
- Strategies

Productivity
- Ideas
- Innovation
- Thoughts
Write. Organize. Script.
Akash Karia in *How to Design TED Worthy Presentation Slides*

**1x:** Practice at **normal** speed

**2x:** Practice at **double** the speed

**0.5x:** Practice at **half** your speaking pace
Connect
In summary...
• Use as little text as possible
• Use pictures
• Evoke emotion
• Plan and practice
• Connect and be present
Write a children’s book
Oh, the Places You'll Go!
And will you succeed? Yes! You will, indeed! (98 and 3/4 percent guaranteed.)

—Dr. Seuss

That’s only 1.25% tail risk!
Data Visualization Techniques

Roger Rosales, FSA, CERA
What’s in it for you?

Part I: History of Data Visualization and State the Goal

Part II: Best Practices of Data Visualization

Part III: Data Visualization Actuarial Case Study
Part I:

Welcome to Today’s Data Visualization Museum
600 B.C. ... City of Babylon
950 AD ...How Planets Move
1854... London... John Snow
Cholera Outbreak takes 616 Lives
1785 ... William Playfair
CHART,
showing at one view
the price of the quarter of wheat,
& wages of labour in the week,
from the year 1565 to 1821.

WILLIAM PLAYFAIR
Modern Day Data Viz
Cluster Analysis
Infographics

ICHIRO: ALL 3,000 MLB HITS

Source: MLB Stat of the Day 7 Aug 2016 via Twitter
Data Dashboards
Animations with D3.JS

Source: http://bl.ocks.org/mbostock/raw/4062045/
Goal of Data Visualization:

“Tell a **story** with your data to communicate ideas and help make informed decisions.”
Part II:

Data Visualization
Best Practices
Going for a Comparison?
World’s Most Accurate Pie Chart

- Pie I have eaten
- Pie I have not yet eaten
Sales by State

In 2015, Company ABC sold $219 million in South Carolina (SC), followed by $93 million sold in Texas (TX).
Sales by Quarter
(in millions)

Largest sales in a quarter due to release of new technology platform
Combo Charts...
Sales, Loss Ratio, and Profit Margin by Year

Profit Margin
- 2013: 10%
- 2014: 7%
- 2015: 9%
- 2016: 2%

Loss Ratio
- 2013: 80%
- 2014: 85%
- 2015: 90%
- 2016: 82%

Sales
- 2013: $100
- 2014: $123
- 2015: $154
- 2016: $111

After
Part III:

Actuarial Case Study using Data Visualization
The Data

• Follows a person for over 500 frames from 5:00AM to 8:00AM

• Tracks latitude and longitude of the person’s location at each frame

• Tracks speed at each frame

• Over 100 people tracked
How would you visualize this data?
5:00 am

Area = 210

Source: https://public.tableau.com/profile/roger.rosales#!/vizhome/commute_0/Dashboard1
6:00 am

Area = 127

Source: https://public.tableau.com/profile/roger.rosales#!/vizhome/commute_0/Dashboard1
7:00 am

Source: https://public.tableau.com/profile/roger.rosales#!/vizhome/commute_0/Dashboard1

Area = 49
7:15 am

Area = 69

Source: https://public.tableau.com/profile/roger.rosales#!/vizhome/commute_0/Dashboard1
7:30 am

Source: https://public.tableau.com/profile/roger.rosales#!/vizhome/commute_0/Dashboard1

Area= 20
7:45 am

Source: https://public.tableau.com/profile/roger.rosales#!/vizhome/commute_0/Dashboard1

Area= 10
8:00 am

Source: https://public.tableau.com/profile/roger.rosales#!/vizhome/commute_0/Dashboard1

Area = 55
The highest risk concentration happens at 7:45 AM while on the bridge traveling to work.
Data Visualization Recap

Part I: History of Data Visualization and State the Goal
What story are you trying to tell with your data?

Part II: Best Practices of Data Visualization
Comparisons, Using Colors, Combo Charts

Part III: Data Visualization Actuarial Case Study
Make your big data move!
Further Reading on Data Visualization:

”Visualize This” by Nathan Yau

”Show Me the Numbers” by Stephen Few

“The Visual Display of Quantitative Information” by Edward Tufte

“Visual Analysis Best Practices” by Tableau

Flowingdata.com

Fivethirtyeight.com

https://www.reddit.com/r/dataisbeautiful/
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