



CENTER FOR HOMELAND  
DEFENSE AND SECURITY  
NAVAL POSTGRADUATE SCHOOL



# HSx MODULE: COMMUNICATING WITH DATA



# CONTEXT

- When attempting to persuade a group or organization, data can be crucial
  - Could be a leader attempting to get a team on board with an idea, or a team member pitching an idea to a leader
- Data often legitimizes ideas in a way that traditional persuasive techniques cannot
  - Data is perceived as impartial
- Data often conveys an idea or message in a much clearer manner than other methods
- This trend is driven by the increasing availability of and emphasis on data across a wide variety of fields

# EXAMPLE: SCHOOL LEADERSHIP

- Decisions within school used to be made by administrators based on experience, common sense, and savvy
- In the age of data analytics, school leaders are now expected to factor in statistics and data when making decisions that were traditionally data-free
- This can be good: data analytics may reveal that students with high numbers of absences in grade school are far behind in high school, allowing administrators to attempt to remedy this trend at the source
- This can also be bad: education data may have an emphasis on outcomes (i.e. test scores) with a variety of causes and factors that are not easily identified/solved
- Overall: Data is increasingly important in the field of education

Source: Earl, Lorna, and Michael Fullan. "Using Data in Leadership for Learning." *Cambridge Journal of Education* 33.3 (2003): 383-94. Web. 17 Apr. 2017. <<http://michaelfullan.ca/wp-content/uploads/2016/06/13396056660.pdf>>.

# IMPLICATIONS

- Data is increasingly available across fields and organizations, and can be effectively leveraged to convey a clear and persuasive message
- As the value of data in decision-making continues to proliferate, this trend will most likely continue to increase in importance
- Strong data is not enough: it must be presented and articulated in a clear and understandable manner in order to be effective

# PRESENTING DATA EFFECTIVELY: BASICS

- Charts, graphs, infographics effective in communicating data → it is easier to digest and understand a visual than a block of text
- Different visuals more appropriate depending on the message you want to convey
- The time range of the data you show can be important depending on what type of message you are trying to convey
- The range of x- and y-axes important as well for showing increasing/decreasing values
- Important to clearly label so that your audience understands easily
- Data presentation should not intentionally mislead

# EXAMPLE

Chart 4

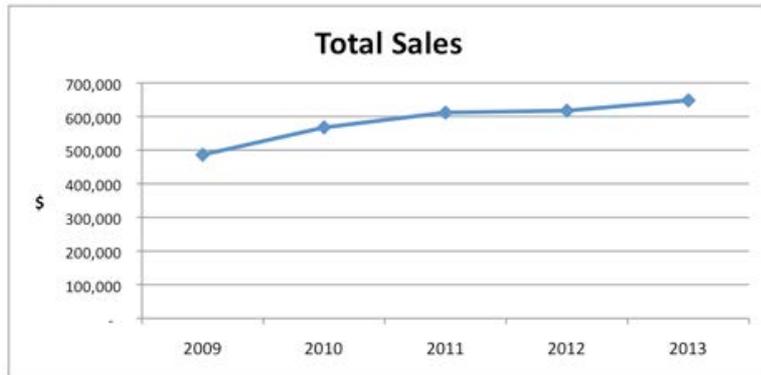
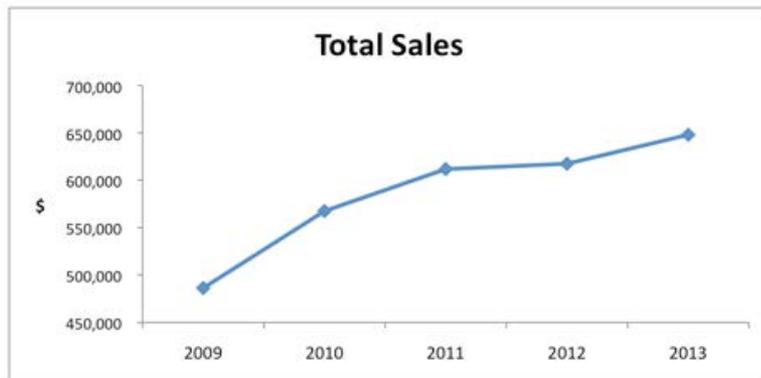


Chart 5

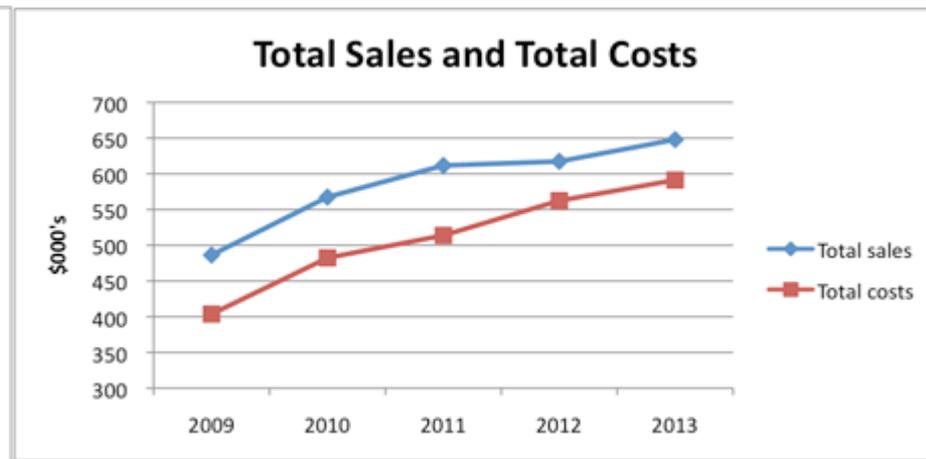
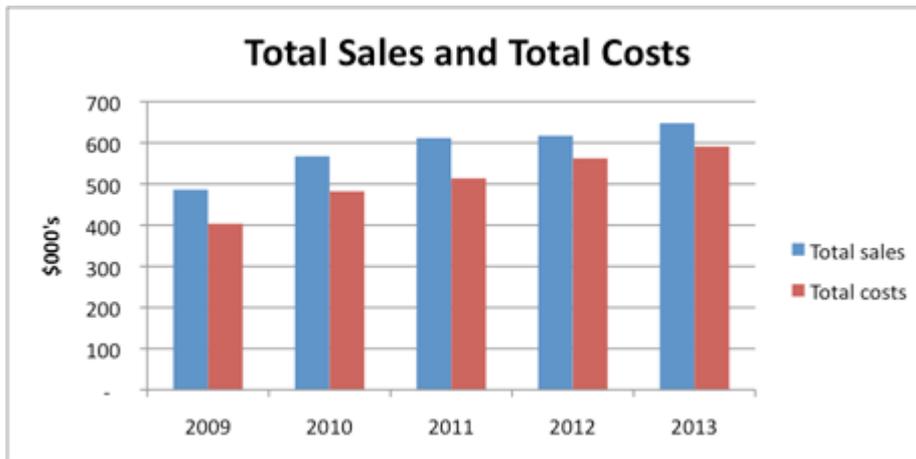


Source: "Effective Presentation and Communication of Information Using Charts." ACCA. ACCA, 17 Aug. 2015. Web. 19 Apr. 2017.

- The top chart y-axis starts from 0 and has a larger range, conveying that sales started high and did not improve by a large margin
- The bottom chart starts from a higher amount and covers a shorter range, giving the impression of a large increase in sales
- Pick which chart based on what message you are trying to convey about sales

# ADDITIONAL CHART/GRAPH TIPS

- Try not to overload data into a single chart
- Ask yourself what the “takeaway” of the visual should be: what idea are you trying to convey? Make this idea as clear as possible
- Consider multiple complementary charts/graphs
- Try the data in several different types of charts/graphs to see what is the clearest



Source: "Effective Presentation and Communication of Information Using Charts." ACCA. ACCA, 17 Aug. 2015. Web. 19 Apr. 2017.

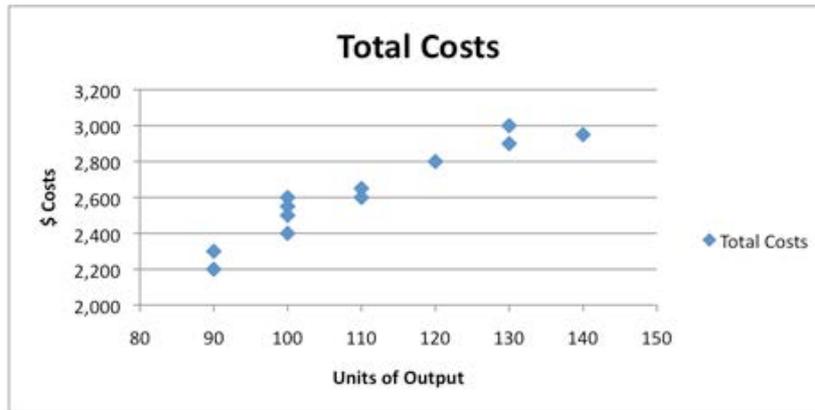
# PRESENTING DATA: TIPS

- Know your audience
  - What do they want to get out of this and how will they best understand it?
- Know the story you are trying to tell
  - Even in a data-heavy presentation, there should be an overarching narrative
- Use data strategically: more $\neq$  better
- Make your data look nice
  - readable, visually appealing

Source: Samuel, Alexandra, and Thomas H. . Davenport and Jinho Kim. "How to Give a Data-Heavy Presentation." *Harvard Business Review*. Harvard Business Review, 23 Oct. 2015. Web. 18 Apr. 2017. <<https://hbr.org/2015/10/how-to-give-a-data-heavy-presentation>>.

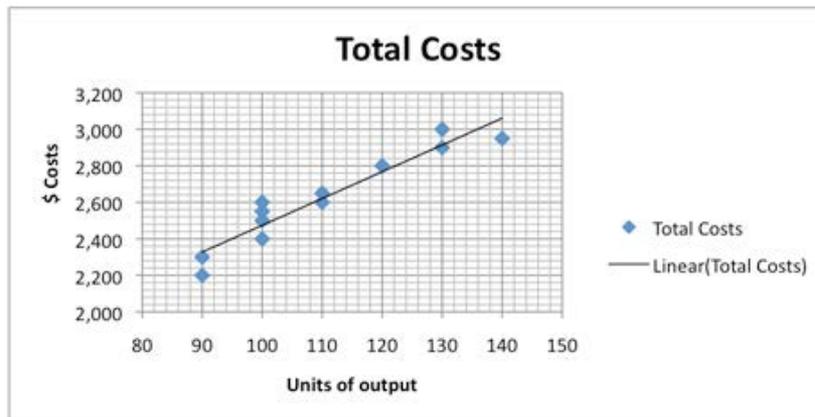
# EXAMPLE

Chart 14



- Charts should make it very clear what trend you are trying to highlight
- Bottom chart includes a clear trend line, while top chart is less clear in its message

Chart 15



Source: "Effective Presentation and Communication of Information Using Charts." ACCA. ACCA, 17 Aug. 2015. Web. 19 Apr. 2017.

# DATA CAN ALSO CAUSE PROBLEMS

- Utilization of data in idea presentation also has the potential to cause issues with certain leaders and organizations
  1. If an idea is overly dependent on or overly trusting of data, important considerations may be missed
  2. We cannot count on past data to always predict future trends
  3. More data isn't always better
  4. Not all data is equally important

Source: Johnson, Patti. "How Analytics and Data Can Undermine Leaders." *Entrepreneur*. 23 July 2015. Web. 17 Apr. 2017. <<https://www.entrepreneur.com/article/247265>>.

# AVOIDING PROBLEMS WITH DATA

- Smart analysis is key
  - Understand the data before attempting to convey it to others
  - Do not intentionally mislead with data
- Understand which data is important to your message → only include what is relevant
- Keep it simple → do not overload your audience
- Stick to one cohesive message to pull everything together

# RESOURCES

- The following resources provide further information on this topic:
  - Samuel, Alexandra, and Thomas H. . Davenport and Jinho Kim. "How to Give a Data-Heavy Presentation." *Harvard Business Review*. Harvard Business Review, 23 Oct. 2015. Web. 18 Apr. 2017. <<https://hbr.org/2015/10/how-to-give-a-data-heavy-presentation>>.
  - "Effective Presentation and Communication of Information Using Charts." *ACCA*. ACCA, 17 Aug. 2015. Web. 19 Apr. 2017.
  - Smiciklas, Mark, and Greg Wiegand. *The Power of Infographics: Using Pictures to Communicate and Connect with Your Audience*. Indianapolis, IN: Que, 2012. Print.

Additional research materials and information sources regarding this topic can be found in the associated *Literary & Scholastic Resource List*.



# Literary and Scholastic Resources – Communicating with Data

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**Date of information:** 17 April 2017

**Overview:** While not exhaustive, the following resources provide a roadmap to understanding value and strategies connected to the communication of messages via data. These resources provide a baseline of understanding, but as the academic environment evolves, resource lists may require updates.

## Recent Publications and Journal Articles:

- **Using Data in Leadership for Learning:** The authors examine the role of data in leadership decision-making, particularly for leadership of educational institutions. The article proposes that data is crucial for leadership decision-making within institutions as well as communication of justification for these decisions to the wider community.
  - *Citation:* Earl, Lorna, and Michael Fullan. "Using Data in Leadership for Learning." *Cambridge Journal of Education* 33.3 (2003): 383-94. Web. 17 Apr. 2017. <<http://michaelfullan.ca/wp-content/uploads/2016/06/13396056660.pdf>>.
- **How Analytics and Data Can Undermine Leaders:** This article provides a word of caution regarding the use of data and analytics within organizations and in relation to leadership. The author posits that data can easily be misused, creating issues for leadership and decision-makers.
  - *Citation:* Johnson, Patti. "How Analytics and Data Can Undermine Leaders." *Entrepreneur*. 23 July 2015. Web. 17 Apr. 2017. <<https://www.entrepreneur.com/article/247265>>.
- **Using Data to Support Grant Applications:** This presentation explores the value of data in grant writing; data can be a useful tool when persuading foundations and organizations to award a grant.
  - *Citation:* "Using Data to Support Grant Applications." *Nonprofits and Data: A How-To Series* 1. Community Research Institute. Web. 18 Apr. 2017. <[https://www.bc.edu/res/gssw-research-home/funding/proposal-development/\\_jcr\\_content/content/download\\_6/file.res/Grant%20Writing%20Tips%20from%20CRI%20Article.pdf](https://www.bc.edu/res/gssw-research-home/funding/proposal-development/_jcr_content/content/download_6/file.res/Grant%20Writing%20Tips%20from%20CRI%20Article.pdf)>.
- **Data-Informed Leadership in Education:** This report details the value of data-informed decision-making, specifically in the case of leaders in education.
  - *Citation:* Knapp, Michael S., Juli A. Swinnerton, Michael A. Copland, and Jack Monpas-Huber. *Data-Informed Leadership in Education*. Rep. Vol. 1. Seattle: Wallace Foundation, 2006. Print.
- **How to Give a Data Heavy Presentation:** This article describes methods for the most efficient utilization of data when conveying ideas.
  - *Citation:* Samuel, Alexandra, and Thomas H. . Davenport and Jinho Kim. "How to Give a Data-Heavy Presentation." *Harvard Business Review*. Harvard Business Review, 23 Oct. 2015. Web. 18 Apr. 2017. <<https://hbr.org/2015/10/how-to-give-a-data-heavy-presentation>>.



- Effective Presentation and Communication of Information Using Charts: This article presents the basic methods of presenting data, primarily through charts and graphs. It emphasizes clarity of data when presenting to leadership that may not be familiar with the subject matter.
  - *Citation*: "Effective Presentation and Communication of Information Using Charts." ACCA. ACCA, 17 Aug. 2015. Web. 19 Apr. 2017.

**Books:**

- Communicating in Groups and Teams: Sharing Leadership: The authors explore how leadership and communication can be most effectively leveraged within organizations and groups.
  - *Citation*: Lumsden, Gay, Donald L. Lumsden, and Carolyn Wiethoff. *Communicating in Groups and Teams: Sharing Leadership*. Australia: Wadsworth Cengage Learning, 2010. Print.
- Evaluation Strategies for Communicating and Reporting: Enhancing Learning in Organizations: The authors explore strategies for communicating ideas and data within organizations.
  - *Citation*: Torres, Rosalie T., Hallie S. Preskill, and Mary E. Piontek. *Evaluation Strategies for Communicating and Reporting: Enhancing Learning in Organizations*. Thousand Oaks: Sage, 2005. Print.
- The Power of Infographics: Using Pictures to Communicate and Connect with Your Audience: This book describes the added value of infographics and data when attempting to convey a message or idea.
  - *Citation*: Smiciklas, Mark, and Greg Wiegand. *The Power of Infographics: Using Pictures to Communicate and Connect with Your Audience*. Indianapolis, IN: Que, 2012. Print.