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# PowerPoint Pipeline

by Frank Grossman

If you are utterly confident in your communications skills—that you are indeed a superior communicator along with the majority of actuaries—then please turn to the next article in this newsletter. However, should you be willing to consider the possibility that your effectiveness as a communicator is at risk when using Microsoft PowerPoint, then fasten your seat belt and read on.

## 1. PowerPoint Nation

PowerPoint 1.0 for Macintosh computers went on sale in April 1987, and today there are 400 million users worldwide creating trillions of presentations each year. Resistance clearly has been futile: PowerPoint is now taught to children in elementary schools, and it has converts in the highest corridors of power. Secretary of State Colin Powell used PowerPoint for his presentation on Iraq and the search for weapons of mass destruction at the United Nations Security Council in February 2003.

And yet, despite the runaway success of PowerPoint, Ian Parker's article "Absolute PowerPoint" published in *The New Yorker* in May 2001 included the following passage:

PowerPoint also has a private, interior influence. It edits ideas. It is, almost surreptitiously, a business manual as well as a business suit, with an opinion—an oddly pedantic, prescriptive opinion—about the way we should think. It helps you make a case: about how to organize information, how much information to organize, how to look at the world.

## 2. PowerPoint as a Management Cliché

Embracing management clichés allows one to accomplish tasks without resorting to the time- and effort-consuming process of engaging in

original thought. Employing PowerPoint in this manner has a couple of practical consequences. Very often individual slides are deemed to be "good enough" and subsequently recycled into new presentations. There is also the unfortunate habit of allowing correspondents to decipher a PowerPoint presentation attached to an e-mail, rather than composing a brief synopsis of the presentation in prose for their information.

More generally, the unquestioned mass acceptance and adoption of clichés also has two more insidious effects according to Marshall McLuhan. First, clichés are internalized as part of our psychological and intellectual lexicon, forming a type of codified shorthand. And second, clichés dull our observation skills and leave us in a highly suggestible state when it comes to critical thinking. McLuhan described the anesthetic effect of management clichés as "demobilizing consciousness." Management clichés thereby lull managers and executives into a sense of complacency and blind acceptance of their content.

## 3. The Mosaic Method

The name Marshall McLuhan was largely unknown outside of Canada until his book *Understanding Media* was published in 1964. Marshall McLuhan's focus was on the impact of technology on culture and society and by extension the business world. He popularized the idea that we are living in an "ever shrinking, ever more interdependent world"—the Global Village. McLuhan also described the influence of television on the dissemination of information:

At the speed of light, there are no connections in the news. Everything is apposed (sic), or juxtaposed minus connections.

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This Mosaic Method of presentation tends to fragment information, reflecting the format of a newspaper layout which juxtaposes ads, quotations and commentary instead of providing a secure narrative thread to support a theory or a point of view.

#### 4. PowerPoint as a Communications Medium

PowerPoint presentations are comprised of a sequential thread of slides that partition information into arbitrary compartments subject to bullet-point hierarchies. Given their fractured continuity, the presentations tend to be inherently anti-narrative.

When confronted by a PowerPoint presentation's seamless packaging, audience members struggle to identify an appropriate juncture to interject a comment or pose a question. (Is one even permitted to interrupt?). Ian Parker describes a PowerPoint presentation scenario that pre-empts dialogue and short-circuits an exchange of knowledge:

In the glow of a PowerPoint show, the world is condensed, simplified and smoothed over ... PowerPoint is strangely adept at disguising the fragile foundations of a proposal, the emptiness of a business plan; usually, the audience is respectfully still ... and, with the visual distraction of a dancing pie chart, a speaker can quickly move past the laughable flaw in his argument. If anyone notices, it's too late—the narrative presses on.

What seems to be apparent is that PowerPoint "lifts the floor" of public speaking inasmuch as a lecture is less likely to be poor if the speaker is using the program. But there is a concomitant reduction in the ceiling as well. Though PowerPoint is very good at delivering simple content, what is often missing is the provider of the content, particularly one whose thoughts cannot be arranged in the predefined format of a clichéd template.

In several respects, a PowerPoint presentation resembles a communications pipeline. Content must be configured prior to transmission. The Medium has its own conventions that necessarily constrain its users. Content is delivered sequential-

ly, and its rate of transmission is generally beyond the control of the audience. The content's flow is unidirectional. Content is subject to deconfiguration (interpretation) by the audience on delivery. And, most significantly, content can be lost *en route*.

#### 5. PowerPoint and the Columbia Accident Investigation Board

Prior to the fatal conclusion of the space shuttle *Columbia's* mission in January 2003, NASA engineers used PowerPoint presentations to describe their investigation into whether the impact of several pieces of foam that struck the left wing 81 seconds after liftoff had caused serious damage to the craft. William Langewiesche, writing in *The Atlantic Monthly*, described the Debris Assessment Team's effort to communicate a nuanced situation:

... first, that if the tile had been damaged it had probably endured well enough to allow the *Columbia* to come home; and second, that for lack of information they had needed to make assumptions to reach that conclusion, and that troubling unknowns therefore limited the meaning of the results. The later message seems to have been lost.

The optimistic conclusion that the *Columbia* was not in danger was undercut by data in the presentation, namely that a piece of debris that hit the shuttle was 640 times larger (later confirmed to be in fact 400 times larger) than anything previously tested by NASA. This crucial piece of information was located at the bottom of the key PowerPoint slide.

Edward Tufte, a Yale University professor and expert in information presentation, reviewed three of the NASA PowerPoint slide shows that were part of an oral presentation made to NASA managers and subsequently circulated as e-mail attachments. Regarding the pivotal slide, Tufte noted in March 2003 that:

In the glow of a PowerPoint show, the world is condensed, simplified, and smoothed over ...



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... the title is confusing. “Review of Test Data Indicates Conservatism” refers not to the predicted tile damage, *but to the choice of test models used to predict the damage*. ... a more appropriate headline would be “Review of Test Data Indicates Irrelevance of Two Models.”

(Tufte’s emphasis)

This key slide also adopted an elaborate bullet outline structure with six levels of hierarchy that effectively fragmented its vital content into small, arbitrary and misleading phrases. The low-text resolution of the PowerPoint slide prompted the use of compressed phrases, and in combination with large fonts resulted in three “typographic orphans, lonely words dangling on a separate line.”

Tufte noted that units of measurement were not consistently employed and also targeted the sloppy use of language on the key slide:

The vaguely quantitative words “significant” and “significantly” are used five times on this slide, with de facto meanings ranging from “detectable in largely irrelevant calibration case study” to “an amount of damage so that everyone dies” to “a difference of 640-fold.” None of these five usages appears to refer to the technical meaning of “statistical significance.”

The cavalier treatment of the term “conservatism” (a subject of perhaps some little interest to actuaries) also caught Tufte’s eye:

Claims of analytic “conservatism” should be viewed with skepticism. Such claims are sometimes a rhetorical tactic that substitutes verbal fudge factors for quantitative assessments.

The independent Columbia Accident Investigation Board devoted an entire page—entitled “Engineering by Viewgraphs”—of its final report published in August 2003 to Edward Tufte’s analysis of the key PowerPoint

slide. Much of Tufte’s critique was reproduced verbatim in the report. The Board ultimately went beyond Edward Tufte’s analysis of the key slide with the following remarks:

As information gets passed up an organization hierarchy, from people who do analysis to mid-level managers to high-level leadership, key explanations and supporting information is filtered out. In this context, it is easy to understand how a senior manager might read this PowerPoint slide and not realize that it addresses a life-threatening situation.

At many points during its investigation, the Board was surprised to receive similar presentation slides from NASA officials in place of technical reports. The Board views the endemic use of PowerPoint briefing slides instead of technical papers as an illustration of the problematic methods of technical communication at NASA.

The Columbia Accident Investigation Board report suggested that PowerPoint’s distinctive cognitive style reinforced the hierarchical filtering and biases of the NASA bureaucracy.

## 6. PowerPoint’s Cognitive Style

Edward Tufte’s case study of the Columbia accident PowerPoint presentations subsequently became the kernel of a 28-page booklet entitled *The Cognitive Style of PowerPoint* published in May 2003. This document presented additional analysis of PowerPoint’s idiosyncratic style.

The PowerPoint slides that accompany a talk generally have a significantly lower rate of information transmission than the talk itself. This poverty of content is due to the slide projection of the text which requires large fonts so the audience can read the words. Conventional PowerPoint slide design style also contributes to the low data resolution inasmuch as only a minority of the slide’s area is available to show unique material, while the balance is consumed by bullets, frames and branding. Tufte observes that:

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Impoverished space leads to over-generalizations, imprecise statements, slogans, light-weight evidence, abrupt and thinly argued claims. ... Many true statements are too long to fit on a PP slide, but this does not mean we should abbreviate the truth to make the words fit. It means we should find a better way to make presentations.

The immediate consequences of low-resolution PowerPoint slides is that the written language of the slides is often clipped and therefore subject to misinterpretation, and—inevitably—more slides are required.

PowerPoint embraces a medieval preoccupation with hierarchical distinctions by adopting a bullet point structure that conveys each bullet's status in as many as five different ways: by the order in sequence; size of indentation; style of bullet; size of bullet; and size of accompanying text. The complexity of the bullet hierarchies, and their intensely nested structure, at times resembles computer code. According to an article on business planning published in the *Harvard Business Review*, though bullet lists are a well-known business convention that seeks to "reduce the complex to the short and clear," they also encourage managers to be intellectually lazy in three specific and inter-related ways. First, bullet lists tend to be too generic and do not provide relevant context. Second, given that a list can communicate only one of sequence, priority or membership at one time, a bullet list risks leaving critical relationships unspecified. Third, key assumptions about how the business works are too often presumed to be understood by the audience and therefore remain unstated.

Edward Tufte notes as well that the advantages of parallel presentation are not facilitated by the sequential PowerPoint approach:

When information is stacked in time, it is difficult to understand context and evaluate relationships. Visual reasoning usually works more effectively when the relevant information is shown adjacent in space within our eyespan. This is especially the case for statistical data, where the fundamental analytical act is to make comparisons.

PowerPoint tempts its users to replace serious content and analysis with "PowerPointPhluff" defined by Tufte as "chartjunk, over-produced layouts, cheerleader logotypes and branding and corny clip art." One might add PowerPoint's sundry animation effects, sentence and slide transition effects and sound effects to the list as well. Their combined effect is to stimulate audience interest in an otherwise impoverished presentation.

The fans of PowerPoint are usually presenters and rarely audience members, because PowerPoint is entirely presenter-oriented, and not content- or audience-oriented. Yet convenience for presenters can be costly to both content and the audience due to PowerPoint's cognitive style characteristics. In addition to supporting verbal presentations, PowerPoint slides are frequently printed to produce paper reports, attached to e-mails and posted on the internet. And when viewed on paper or on one's computer screen, these slides often have increased cognitive style costs because they are presumed to be self-documenting. Yet how effectively can they be interpreted in isolation, after the live presentation, by someone who attended the presentation? By a knowledgeable expert who was not in attendance? Anyone who has marched through a stack of printed PowerPoint slides may well appreciate Tufte's observation that PowerPoint hard-copies are "physically thick and intellectually thin."

Despite the several risks to effective communication latent in the usage of PowerPoint, Edward Tufte confirms PowerPoint's status as a management cliché:

We've drifted into this presentation mode without realizing the cost to the content and the audience in the process. It's widely used because it's simple and fits into a bureaucratic mode. And, also simply because it's widely used. It has momentum.



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**7. The McLuhan Equation**

Undoubtedly one of the most misunderstood and nonetheless the most famous of Marshall McLuhan's sayings is "The Medium is the Message." The key to understanding this equation is recognizing that the Message does not equal the content being communicated. Rather, each Medium has its own intrinsic influence on the scale, pace or pattern of society—independent of the content that it mediates—and that is its unique Message. Examining content alone is not sufficient to gauge the nature, power and potential of the Medium to transform human affairs.

For example, television has the potential to affect significant behavioral change in powerful and influential monolithic entities by its ability to disseminate even more powerful ideas. This is aside from the specific content being communicated. So potent is this Medium's ability to influence opinion that political candidates are routinely evaluated on their telegenic quality, and military timetables are synchronized to dovetail with the six o'clock news at home. Even diplomacy between nations' governments, and between corporations, is skillfully choreographed for the benefit of insatiable all-news networks.

Interestingly, McLuhan also observed that "We shape our tools and thereafter our tools shape us." And this phrase neatly describes the capacity of a given Medium to continually influence our interactions and activities.

**8. PowerPoint's Message?**

When PowerPoint is adopted as one's Medium, what is the associated Message? This is aside from the fact that highly paid people are spending hours formatting slides because it's more fun to do than concentrating on the content of their presentations. While this is an obvious productivity issue, the latent risk is that more effort is being spent on packaging the content than thoughtfully considering the message conveyed by the content. This predilection is consistent with a business culture confident in the sufficiency of the PowerPoint per se, a climate in which the Medium has supplanted both the Message and the content.

There are deeper concerns with the selection of PowerPoint as well. How significantly does the user modify his message so that it may be encoded into PowerPoint due to the constraints of the Medium? How does the delivery of content using PowerPoint influence the audience's appreciation of the information due to the cognitive style of PowerPoint? Ultimately, to what extent are one's ideas subject to the risk of transformation and miscommunication when using PowerPoint?

Clive Thompson wrote trenchantly in the pages of *The New York Times Magazine* about the triumph of PowerPoint in our era of pitch and spin:

Perhaps PowerPoint is uniquely suited to our modern age of obfuscation—where manipulating facts is as important as presenting them clearly. If you have nothing to say, maybe you need just the right tool to help you not say it.

In this regard, there is every reason to believe what works in elementary school will work equally well on the international stage.

**9. The Way Forward**

The mere preparation of PowerPoint slides and their delivery to an audience may not guarantee the effective delivery of your message. Is slide-ware technology getting in the way of understanding business? Jimmy Guterman, writing in *Business 2.0*, made the following observation:

The problem with PowerPoint is that instead of being a visual tool used to illustrate certain elements in a presentation, the slides have become the presentation.

The Message conveyed by employing the PowerPoint Medium is an inherent cognitive style and manner of presentation that places the fidelity of the content being communicated at risk.

So what can you do to mitigate the risk of using PowerPoint? Focusing on the quality, relevance and integrity of your content is very im-

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portant, recognizing that designer formats will not overcome this potential weakness. Preparing a technical document (in sentence-paragraph form) to support your slides can help by providing context and a more thorough exposition of your ideas. (Including clarifying notes, or perhaps a commentary, for each slide using the PowerPoint notes feature is a step in this direction.) Disclosure of the data underlying your charts promotes transparency and can help reinforce the integrity of your presentation.

One should take the time to exercise great care when composing headings and sub-headings, and when assembling bullet lists. Working to establish and maintain a narrative thread will improve your audience's comprehension, though this can be difficult when adopting the clipped phraseology of slideware presentations. The avoidance of distracting "chartjunk" or "phluff" can only help keep your presentation on topic. Presenting multiple slides—several images simultaneously within your audience's field of vision—can facilitate parallel comparisons. And be certain to never (ever) recite an entire PowerPoint slide's text verbatim for your audience.

Edward Tufte's preferred solution is to "simply use PowerPoint merely as a slide projector rather than an information tool." Utilizing printed materials that effectively integrate words, numbers, data graphics and images, can dramatically elevate the rate of information transfer during your presentation. And high-resolution handouts enable your audience to actively engage by contextualizing, comparing and recasting your evidence, thereby avoiding the tendency of too many data-thin presentations—the cultivation of a passive, ignorant audience.

However you proceed to work with PowerPoint, the essential objective is to ensure that the Message of your Medium does not interfere with the message that you initially set out to convey.

## Suggested Readings

- ♦ *McLuhan for Managers: New Tools for New Thinking*, by Mark Federman and Derrick de Kerckhove (2003 Viking Canada, Toronto, ON)
- ♦ *The Cognitive Style of PowerPoint*, by Edward Tufte (2003 Graphics Press LLC, Cheshire, CT)
- ♦ "Absolute Powerpoint: Can a software package edit our thoughts?" by Ian Parker (*The New Yorker*, May 28, 2001)
- ♦ "PowerPoint Makes You Dumb" by Clive Thompson (*The New York Times Magazine*, December 14, 2003)
- ♦ Final report of the Columbia Accident Investigation Board (Volume 1, August 2003), see <http://www.caib.us/news/report/volume1/default.html>
- ♦ "Columbia's Last Flight: The Inside Story of the Investigation—and the Catastrophe it Laid Bare" by William Langewiesche (*The Atlantic Monthly*, November 2003)
- ♦ "Ten Questions for Edward Tufte: The information-design guru offers a few choice words about PowerPoint" by Dan Nadel (*I.D. Magazine*, November 2003)
- ♦ "Unplug That Projector! Edward Tufte says PowerPoint has ruined business presentations" by Jimmy Guterman (*Business 2.0*, May 15, 2003)
- ♦ "The Level of Discourse Continues to Slide" by John Schwartz (*The New York Times*, September 2003)
- ♦ "Strategic Stories: How 3M is Rewriting Business Planning" by Gordon Shaw, Robert Brown and Philip Bromiley (*Harvard Business Review*, May-June 1998) □