

The cognitive style of powerpoint

Adapted from Edward Tufte

Lou Gerstner IBM

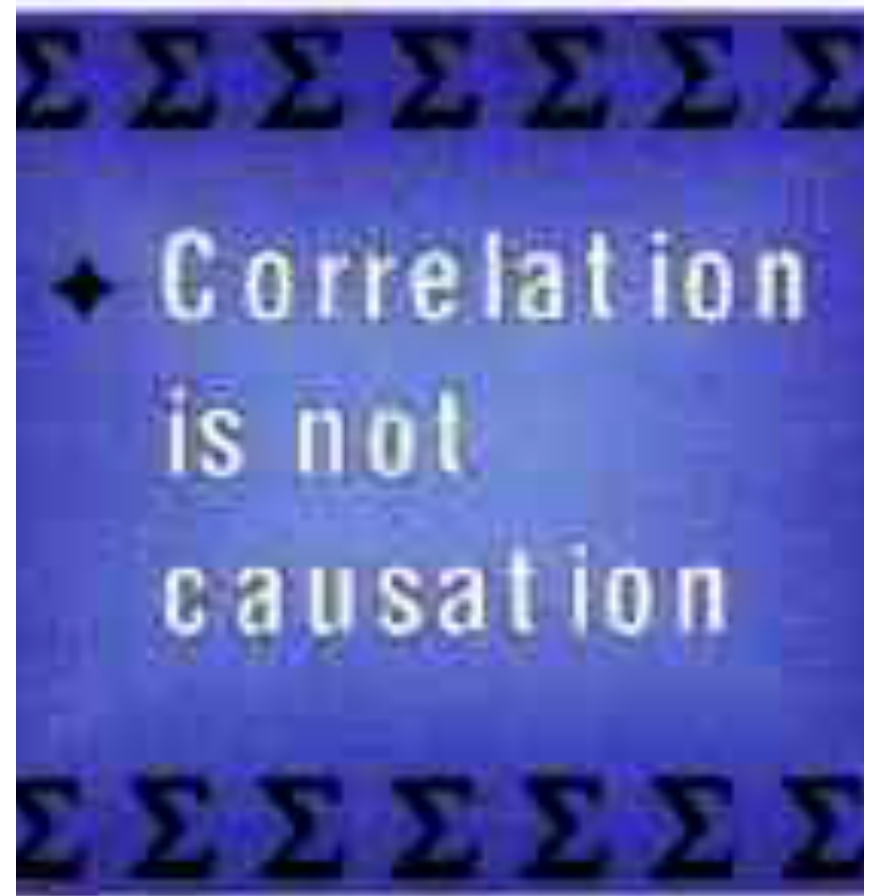
At that time, the standard format of any important IBM meeting was a presentation using overhead projectors and graphics that iBMers called "foils" [projected transparencies]. Nick was on his second foil when I stepped to the table and, as politely as I could in front of his team, switched off the projector. After a long moment of awkward silence, I simply said, "Let's just talk about your business."

Issues of Slideware

- More for the presenter than the audience
 - Reduce evidence and thought
 - Low resolution
 - Single path, single model for all content
 - Small narrative fragments
 - Single model for all presentations
 - Tendency to make everything into a sales pitch

Lo-Fi

- This slide from a statistics course shows a seriously incomplete statement.
- Probably the shortest true statement that can be made about causality and correlation is "*Empirically observed covariation is a necessary but not sufficient condition for causality.*"
- Or perhaps "*Correlation is not causation but it sure is a hint.*"

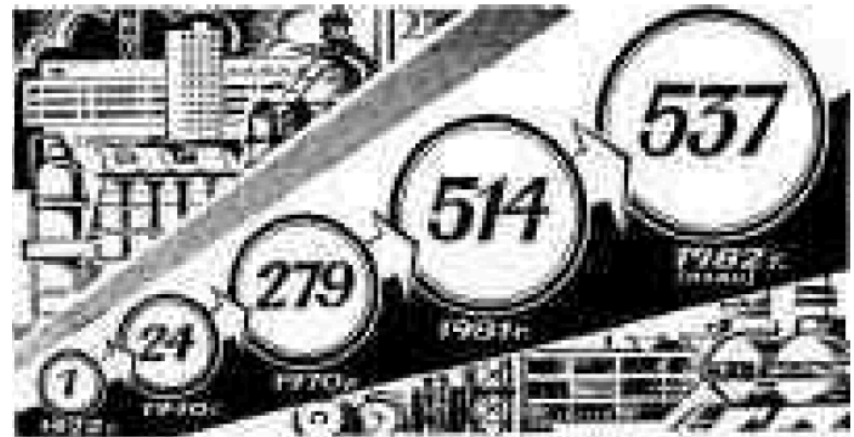


Lo-Fi Data

MEDIAN NUMBER OF ENTRIES IN DATA
MATRICES FOR STATISTICAL GRAPHICS
IN VARIOUS PUBLICATIONS, 2003

<i>Science</i>	> 1,000
<i>Nature</i>	> 700
<i>New York Times</i>	120
<i>Wall Street Journal</i>	112
<i>Frankfurter Allgemeine Zeitung</i>	98
<i>New England Journal of Medicine</i>	53
<i>The Lancet</i>	46
<i>Asahi</i>	40
<i>Financial Times</i>	40
<i>Time</i>	37
<i>The Economist</i>	32
<i>Le Monde</i>	28
28 textbooks on PowerPoint presentations (1997-2003)	12
<i>Pravda</i> (1982)	5

Here is a graphic from *Pravda* (May 24, 1982), in the low-content, high-Phluff style now emulated by PP templates:



Bulleted Lists are Lazy

- In every company we know, planning follows the standard format of the bullet outline... [But] bullet lists encourage us to be lazy in three specific, and related ways.
- Bullet lists are typically too generic. They offer a series of things to do that could apply to any business....
- Bullets leave critical relationships unspecified. Lists can communicate only three logical relationships:
 - sequence (first to last in time);
 - priority (least to most important or vice versa);
 - or simple membership in a set (these items relate to one another in some way, but the nature of that relationship remains unstated).
- And a list can show only one of those relationships at a time.

Example

- What does this mean:
 - Increase market share by 25%.
 - Increase profits by 30%.
 - Increase new-product introductions to ten a year.
- What are reasonable interpretations of this list?
- Talk to your neighbour and come up with more than one.

Review of Test Data Indicates Conservatism for Tile Penetration

- The existing SOFI on tile test data used to create Crater was reviewed along with STS-87 Southwest Research data
 - Crater overpredicted penetration of tile coating significantly
 - Initial penetration to described by normal velocity
 - Varies with volume/mass of projectile (e.g., 200ft/sec for 3cu. In)
 - Significant energy is required for the softer SOFI particle to penetrate the relatively hard tile coating
 - Test results do show that it is possible at sufficient mass and velocity
 - Conversely, once tile is penetrated SOFI can cause significant damage
 - Minor variations in total energy (above penetration level) can cause significant tile damage
 - Flight Condition is significantly outside of test database
 - Volume of ramp is 1920cu in vs 3 cu in for test
-

Powerpoint shapes the Organisation

The Mission Management Team Chair's position in the hierarchy governed what information she would or would not receive. Information was lost as it traveled up the hierarchy. A demoralized Debris Assessment Team did not include a slide about the need for better imagery in their presentation to the Mission Evaluation Room. Their presentation included the Crater analysis, which they reported as incomplete and uncertain. However, the Mission Evaluation Room manager perceived the Boeing analysis as rigorous and quantitative. The choice of headings, arrangement of information, and size of bullets on the key chart served to highlight what management already believed. The uncertainties and assumptions that signaled danger dropped out of the information chain when the Mission Evaluation Room manager condensed the Debris Assessment Team's formal presentation to an informal verbal brief at the Mission Management Team meeting.⁵

A picture is worth a 1000 words

WORDS ON TEXT-ONLY POWERPOINT SLIDES

26 slides in the 3 Columbia reports
by Boeing, median number of words
per slide 97

1,460 text-only slides in 189 PP
reports posted on the internet and
top-ranked by Google, March 2003,
median number of words per slide 40

654 slides in 28 PowerPoint textbooks,
published 1997-2003, median number
of words per slide 15

- The artist Ad Reinhardt said, *"As for a picture, if it isn't worth a thousand words, the hell with it."*
- People can quickly look over tables with hundreds of numbers in, say, financial or sports pages in newspapers.
- People read 300 to 1,000 printed words a minute,
- and find their way around a printed map or a 35mm slide displaying 5 to 40 MB in the visual field.
- Often the visual channel is an intensely high-resolution channel.

Why is Powerpoint so Lo-Fi?

- Design styles often use 60% of the available space
- Projection means powerpoints use big fonts.
- Maybe the presenter doesn't have much to say...
- Better to use paper with more detailed information...
- In areas like art, typography, cartography more detail adds clarity...

Gettysburg Address

Four score and seven years ago our fathers brought forth on this continent, a new nation, conceived in Liberty, and dedicated to the proposition that all men are created equal.

Now we are engaged in a great civil war, testing whether that nation, or any nation so conceived and so dedicated, can long endure. We are met on a great battle-field of that war. We have come to dedicate a portion of that field, as a final resting place for those who here gave their lives that that nation might live. It is altogether fitting and proper that we should do this.

Gettysburg Address

But, in a larger sense, we can not dedicate—we can not consecrate—we can not hallow—this ground. The brave men, living and dead, who struggled here, have consecrated it, far above our poor power to add or detract. The world will little note, nor long remember what we say here, but it can never forget what they did here. It is for us the living, rather, to be dedicated here to the unfinished work which they who fought here have thus far so nobly advanced. It is rather for us to be here dedicated to the great task remaining before us—that from these honored dead we take increased devotion to that cause for which they gave the last full measure of devotion—that we here highly resolve that these dead shall not have died in vain—that this nation, under God, shall have a new birth of freedom—and that government of the people, by the people, for the people, shall not perish from the earth.

Now Consider a Powerpoint...

Data is often Dense

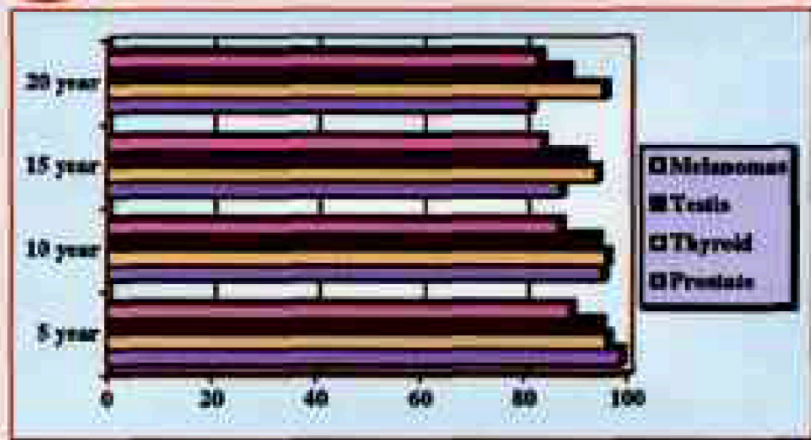
Estimates of relative survival rates, by cancer site¹²

% survival rates and their standard errors

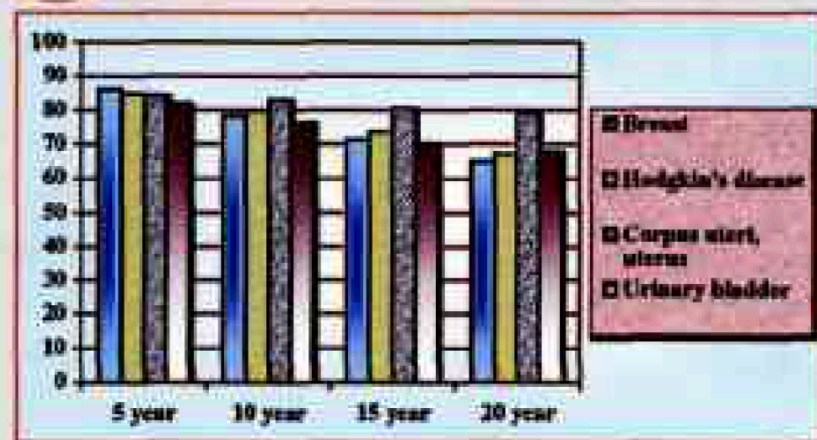
	5 year		10 year		15 year		20 year	
Prostate	98.8	0.4	95.2	0.9	87.1	1.7	81.1	3.0
Thyroid	96.0	0.8	95.8	1.2	94.0	1.6	95.4	2.1
Testis	94.7	1.1	94.0	1.3	91.1	1.8	88.2	2.3
Melanomas	89.0	0.8	86.7	1.1	83.5	1.5	82.8	1.9
Breast	86.4	0.4	78.3	0.6	71.3	0.7	65.0	1.0
Hodgkin's disease	85.1	1.7	79.8	2.0	73.8	2.4	67.1	2.8
Corpus uteri, uterus	84.3	1.0	83.2	1.3	80.8	1.7	79.2	2.0
Urinary, bladder	82.1	1.0	76.2	1.4	70.3	1.9	67.9	2.4
Cervix, uteri	70.5	1.6	64.1	1.8	62.8	2.1	60.0	2.4
Larynx	68.8	2.1	56.7	2.5	45.8	2.8	37.8	3.1
Rectum	62.6	1.2	55.2	1.4	51.8	1.8	49.2	2.3
Kidney, renal pelvis	61.8	1.3	54.4	1.6	49.8	2.0	47.3	2.6
Colon	61.7	0.8	55.4	1.0	53.9	1.2	52.3	1.6



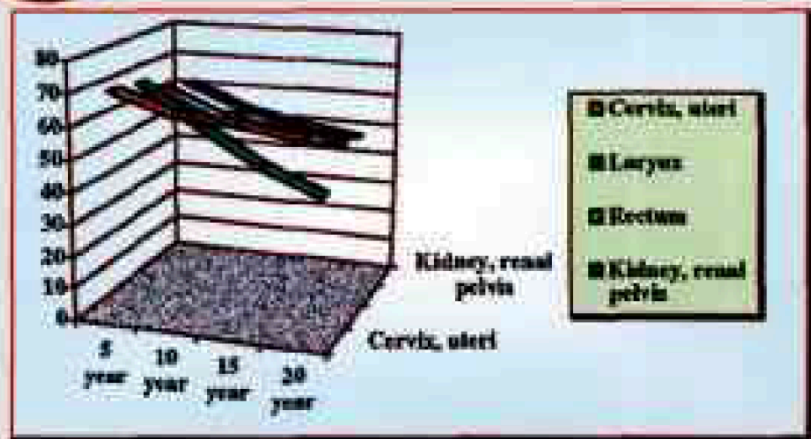
I. Cancer Survival Rates



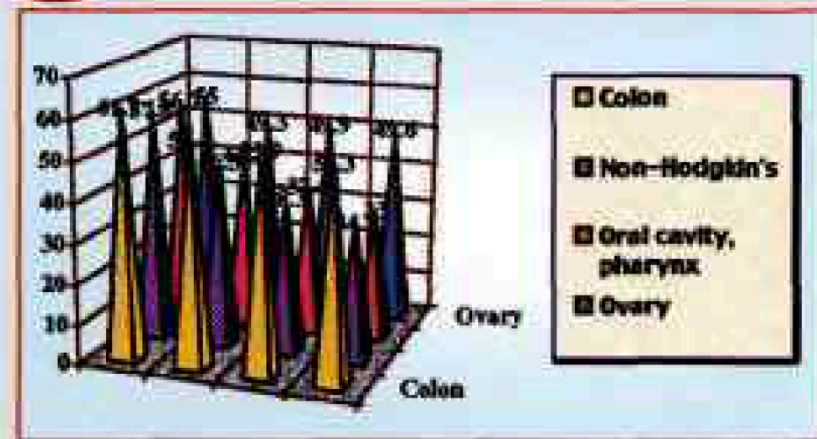
II. Cancer Survival Rates



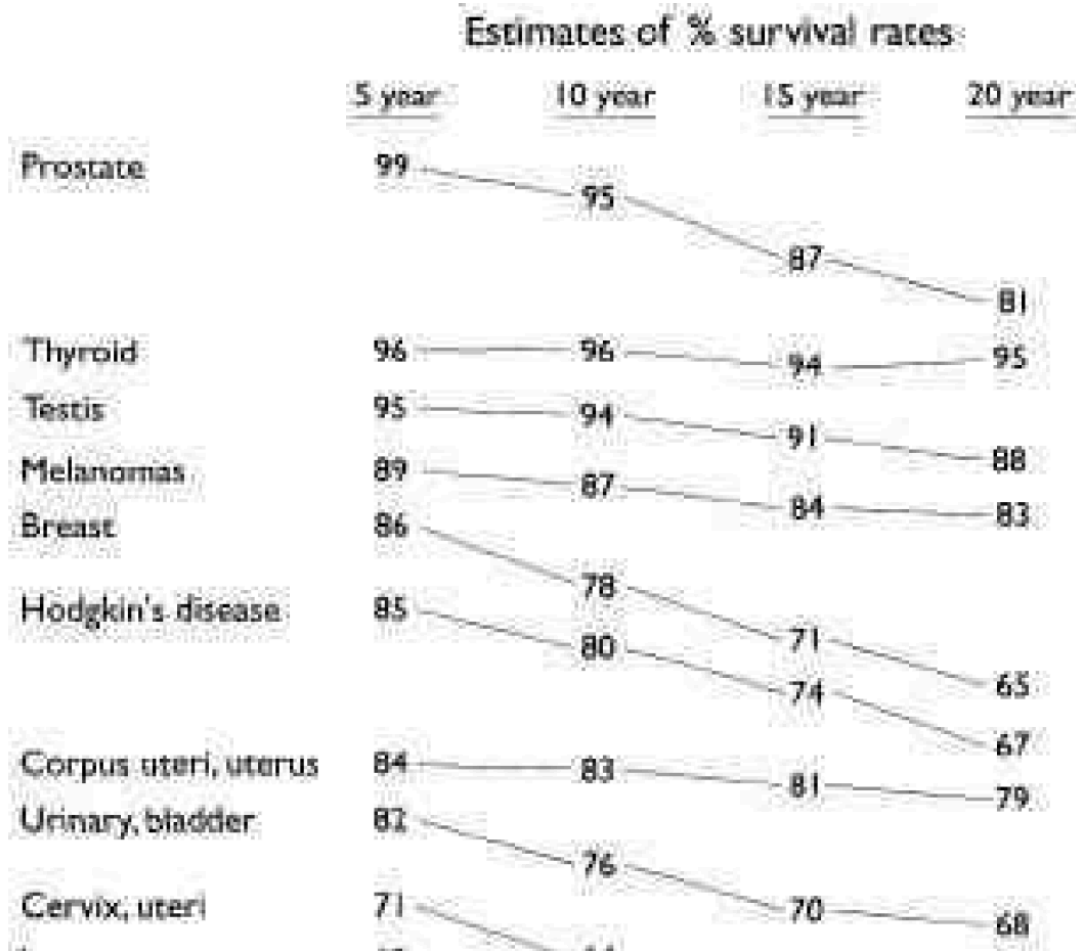
III. Cancer Survival Rates



IV. Cancer Survival Rates



More thought, less fluff



What other questions arise?

- Talk to your partner and develop two or three questions you'd like to ask about the cancer stats...

Guidelines for Preparing Slides

**Instructional Computing
Facility**

Use the 6 X 6 rule:

6 lines of text

6 words per line

No More than One Topic per
Slide

What about them Sox hey?

Outline Formats are Easier to Follow

Use Simple Tables to Present Numbers

	Use Tables	For Your Numbers	But Not too Many
This row	10	90	100
This row	0.6	0.4	1
This row	1	2	3
That row	1	2	3

But look at Weather Data

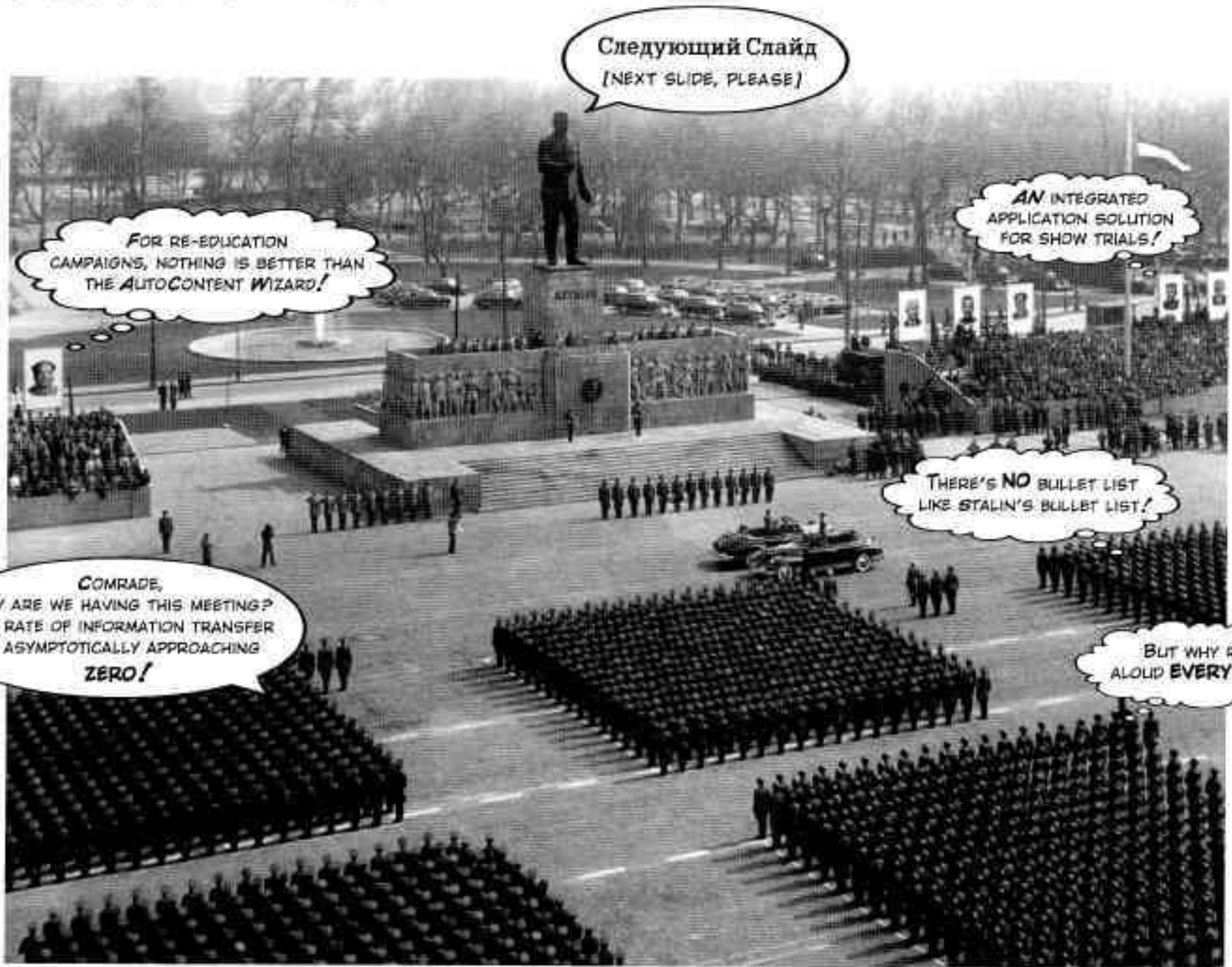
Africa	Yesterday	Today	Tomorrow
Algiers	82/ 66 0.55	85/ 60 S	85/ 61 S
Cairo	99/ 70 0	101/ 76 S	96/ 76 S
Cape Town	64/ 54 0.16	63/ 49 PC	60/ 50 Sh
Dakar	87/ 77 0.75	86/ 81 PC	85/ 81 PC
Johannesburg	69/ 42 0	73/ 42 S	71/ 47 S
Nairobi	75/ 55 0	78/ 56 PC	78/ 56 PC
Tunis	80/ 69 -	87/ 73 PC	85/ 71 PC
Asia/Pacific	Yesterday	Today	Tomorrow
Auckland	59/ 45 0.12	58/ 44 Sh	58/ 44 Sh
Bangkok	91/ 82 0	91/ 79 Sh	91/ 77 Sh
Beijing	85/ 57 0	84/ 60 S	78/ 65 PC
Bombay	88/ 75 0.28	87/ 77 T	88/ 78 T
Damascus	96/ 55 0	98/ 59 S	96/ 62 S
Hong Kong	91/ 77 0	88/ 81 PC	92/ 78 PC
Jakarta	89/ 77 0	90/ 77 PC	89/ 77 PC
Jerusalem	87/ 64 0	88/ 66 S	88/ 69 S
Karachi	86/ 80 0	92/ 78 PC	92/ 79 S
Manila	86/ 75 -	84/ 75 R	87/ 78 R
New Delhi	89/ 80 Tr	88/ 76 Sh	92/ 76 Sh
Riyadh	98/ 69 0	102/ 74 S	101/ 75 S
Seoul	78/ 64 2.09	83/ 65 PC	77/ 66 R
Shanghai	75/ 69 0.06	86/ 76 Sh	86/ 73 PC
Singapore	87/ 78 Tr	89/ 76 R	89/ 78 Sh
Sydney	68/ 53 0	71/ 51 PC	71/ 48 PC
Taipei	84/ 77 2.28	87/ 73 PC	88/ 72 PC
Tehran	93/ 73 0	87/ 73 S	87/ 73 S
Tokyo	89/ 77 0	91/ 79 Sh	83/ 80 Sh

Further Issues

- Pushing a decline in the density of text more widely.
- Highly sequential presentations.
- Loss of context because it can't be held for long.
- Sometimes line by line...

Better Presentations

- Make content relevant, high quality and with high standards of integrity.
- Weak presentations will bore the audience no matter how good the design is.
- Be sensitive to when the presentation medium is distorting the content.
- PowerPoint is a competent slide manager and projector for low-resolution materials. And that's about it.
- Never use PP templates to format paper reports or web screens.
- Use PP as a projector for showing low-resolution color images, graphics, and videos that cannot be reproduced as printed handouts at a presentation.



Следующий Слайд
[NEXT SLIDE, PLEASE]

FOR RE-EDUCATION
CAMPAIGNS, NOTHING IS BETTER THAN
THE *AUTOCONTENT WIZARD!*

AN INTEGRATED
APPLICATION SOLUTION
FOR SHOW TRIALS!

THERE'S **NO** BULLET LIST
LIKE STALIN'S BULLET LIST!

COMRADE,
WHY ARE WE HAVING THIS MEETING?
THE RATE OF INFORMATION TRANSFER
IS ASYMPTOTICALLY APPROACHING
ZERO!

BUT WHY READ
ALoud **EVERY** SLIDE?