DNV·GL

MARITIME ACADEMY

Communication for Us Nerds

Let’s have a look at a presentation – from hell?

Overview of my presentation

- Introduction
- Background
- Theory
- Results
- Conclusion

This is the title of my slide

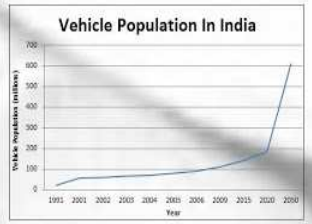
- This is the first point of my talk. I will anyway read this material to you, so don't bother reading it
- This is my second point. I am sure it is convenient for you to listen to me converting the digital text to voice
- This is my third point. Some one said, you understand better when you read and listen to the same information. So, I am only ensuring that you remember more
- This is my fourth point. I know half of you are asleep and the rest are doodling or texting. But, I am asked to make the presentation. So, I will fully utilize the time given to me

MODERN TRANSPORT SYSTEM

DEPAK.M - SONA COLLGE OF TECHNOLOGY, SALEM

The challenge:

- Pollution
- Congestion
- Road accidents(per year)
  - No of accidents: 4.5lakhs
  - No of deaths : 1.3lakhs
  - No of injuries : 3.2lakhs

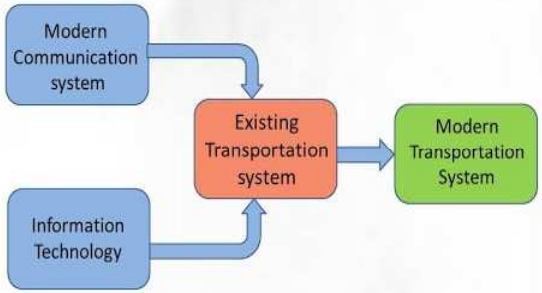


GPS System

Electronic Toll Collection

Traffic management computers

CCTV cameras

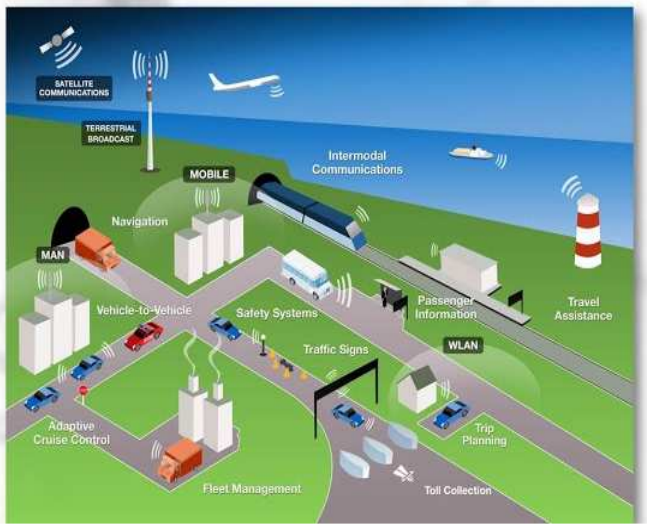


Current Scenario:

- Increasing mobile users (includes 3G)
- Growing Information Technology
- Infrastructure Development
- Growing Economy

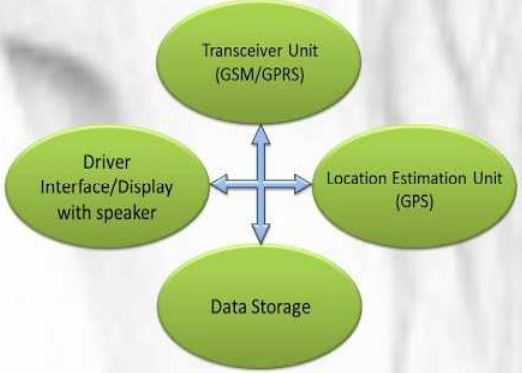
Advancements:

- CCTV cameras
- Message boards
- Traffic management computers
- Traffic enforcement
- Parking management
- Electronic Toll Collection
- Traffic & Travel information System
- Emergency vehicle notification system



KEY PLAYERS FOR MTS

- AUTOMAKERS AND COMMERICAL VEHICLE MANUFACTURERS
- LOGISTICS COMPANIES
- NAVIGATION SYSTEM SUPPLIERS
- EMBEDDED SYSTEMS/GPS COMPONENT DEVELOPER
- SOFTWARE SOLUTION COMPANIES
- DIGITAL MAPS PROVIDERS
- SERVICE PROVIDERS – MOBILE NETWORK OPERATORS



Benefits of MTS

1) increasing driver and pedestrian safety
2) improving the operational performance of the transportation network, particularly by reducing congestion
3) Increased Fuel efficiency and Vehicle life
4) enhancing personal mobility and convenience,
5) delivering environmental benefits,
6) boosting productivity and expanding economic and employment growth.

Reference: www.itsindia.org , www.etsi.org

Acknowledgement : Thanks to CMBT, Chennai

Theoretical background (4)

$$Lift = \int_0^{2\pi} -p sin\theta a \; d\theta$$

$$= -\int_0^{2\pi} \left(p_s - \frac{1}{2}\rho \left(4U^2 sin^2\theta + 4U sin\theta \frac{k}{2\pi a} + \frac{k^2}{4\pi^2 a} \right) \right) sin\theta a \; d\theta$$

$$= \rho U k$$

$$Drag = \int_0^{2\pi} -p cos\theta a \; d\theta$$

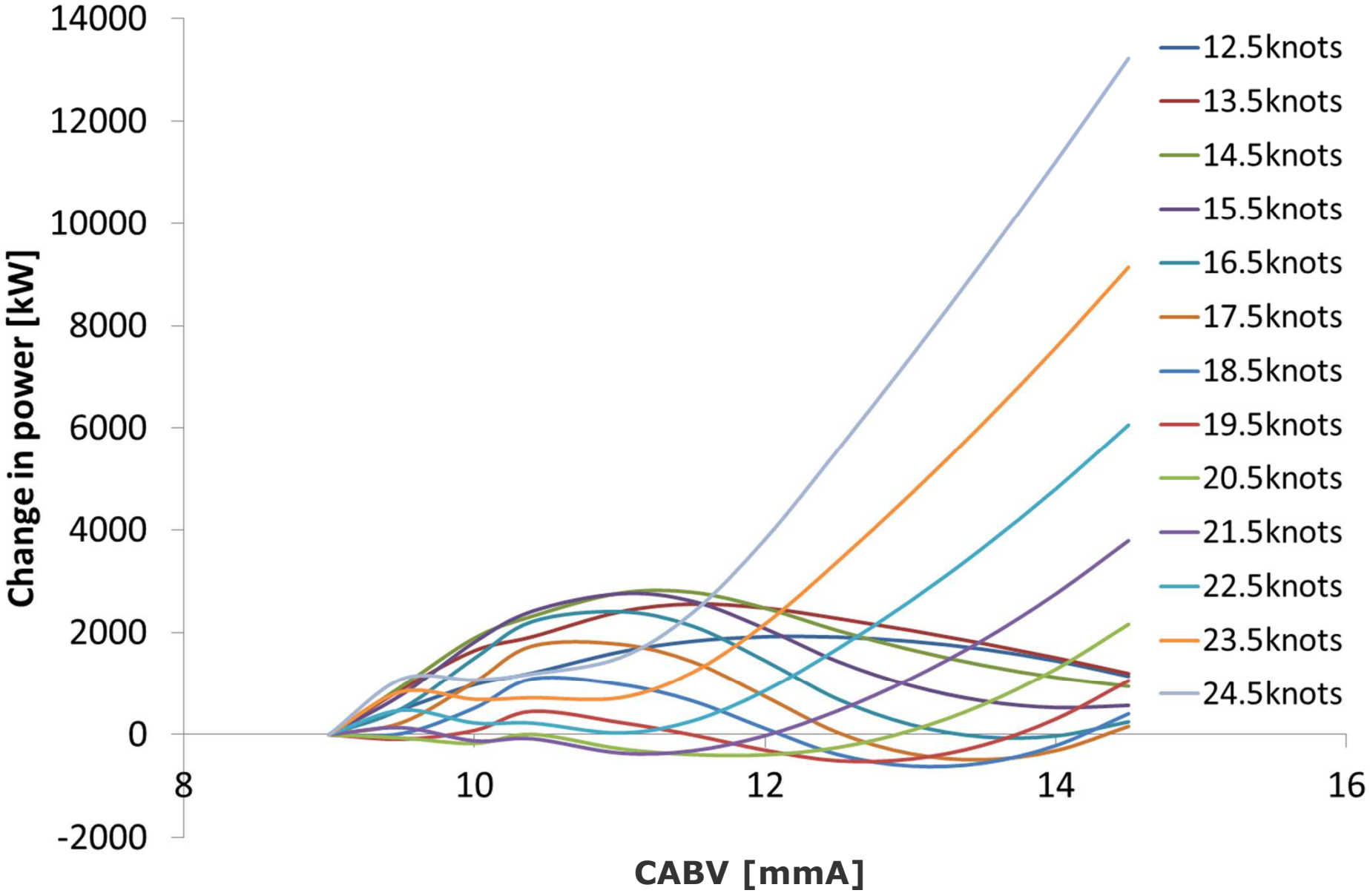
$$= \int_0^{2\pi} \left(p_s - \frac{1}{2}\rho (4U^2 sin^2\theta + 4U sin\theta \frac{k}{2\pi a} + \frac{k^2}{4\pi^2 a}) \right) cos\theta a \; d\theta$$

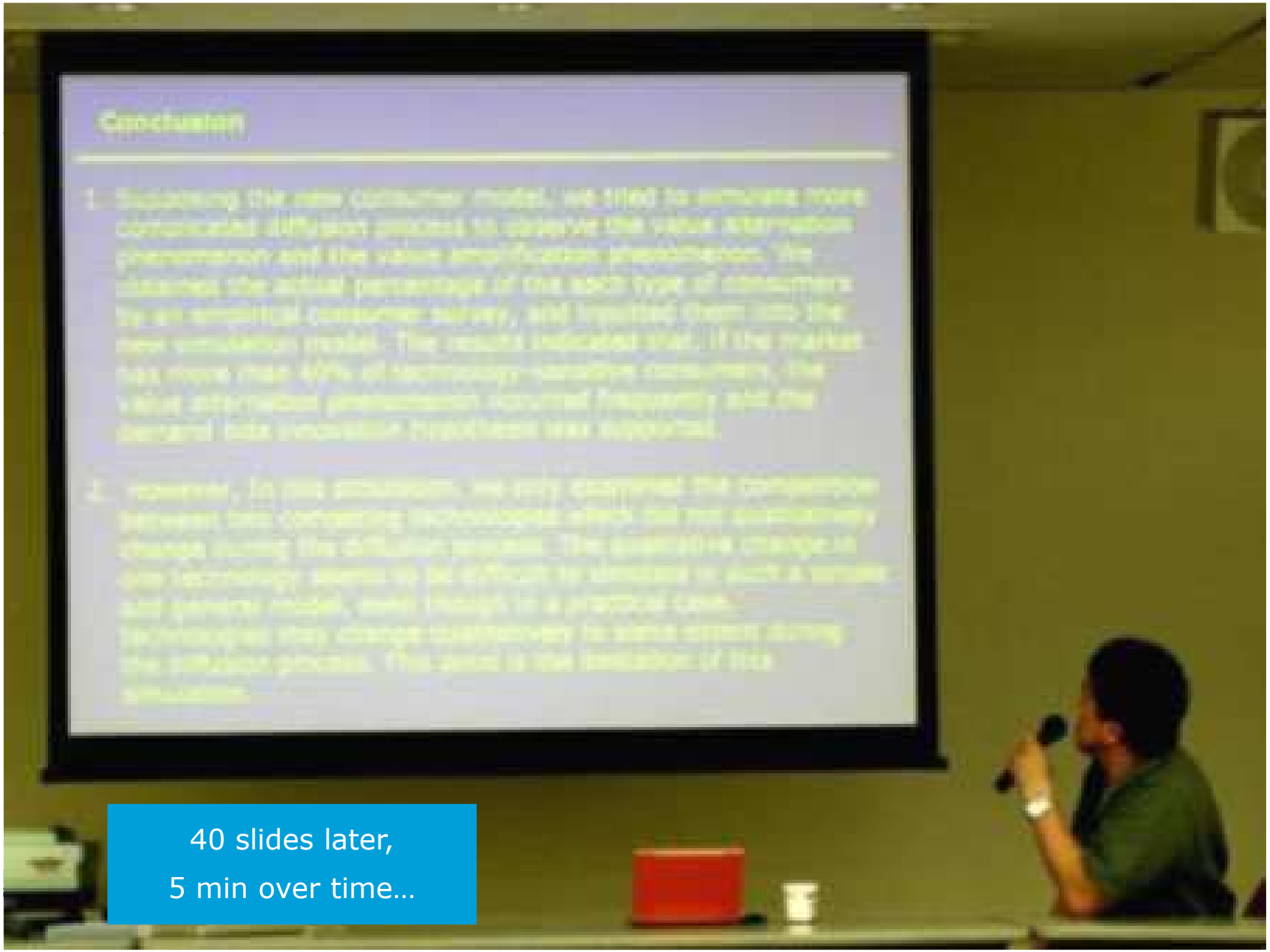
$$= 0$$

Results

RHU ADVANTAGE INVESTIGATOR NRX AVG								
Arth CR	JUNE	JULY	AUGUST	SEPTEMBER	JUNE	JULY	AUGUST	SEPTEMBER
9907	VIOXX	VIOXX	VIOXX	VIOXX	CELEBREX	CELEBREX	CELEBREX	CELEBREX
A+	5	10	10	9	15	13	13	12
A	19	27	26	26	39	33	35	33
A–	2	4	6	5	6	5	8	6
B	1	3	2	3	4	6	6	5
C	0	3	2	2	2	5	3	1
D	1	2	1	1	0	2	2	0
Given Meded's RHU								
(316 records)								

More Results




Conclusion
40 slides later,
5 min over time…

Lessons learnt ?

What

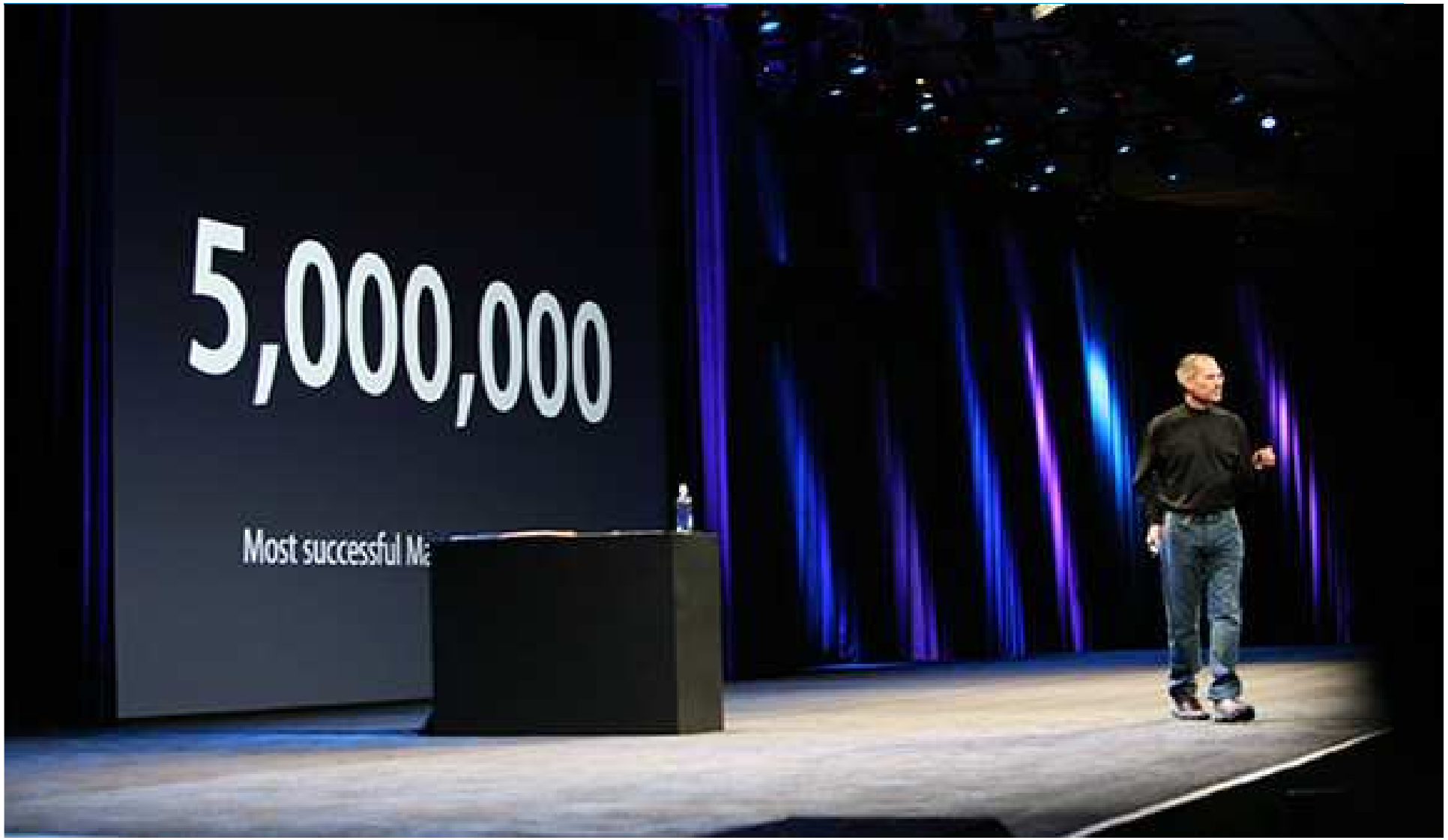
went

wrong ?

And what else often goes wrong?

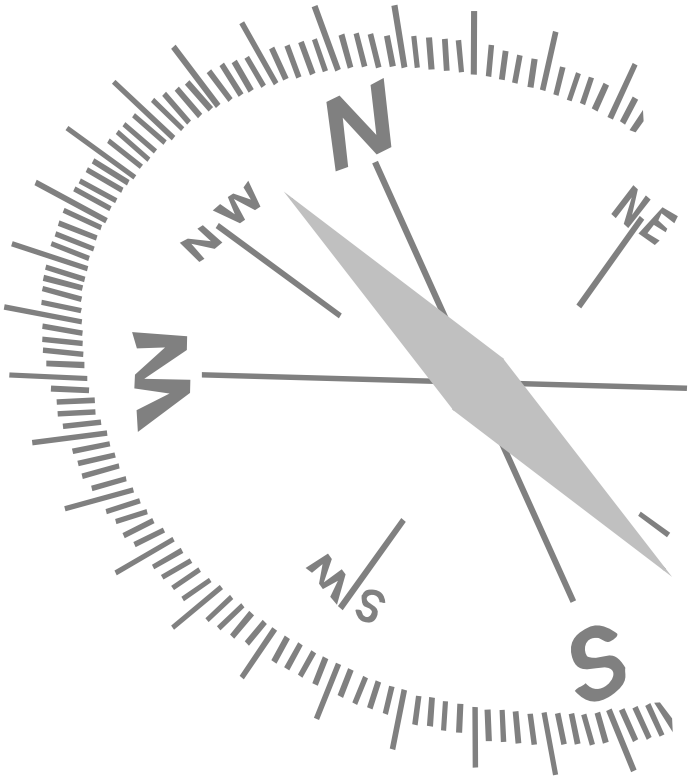

Spare
your
audience

Learn from the masters



Navigator

- Think first – “Concept Design”
- Production – Abstract & Paper
- Production – “PowerPoint”
- Operation – Delivery & Discussion
- Next steps

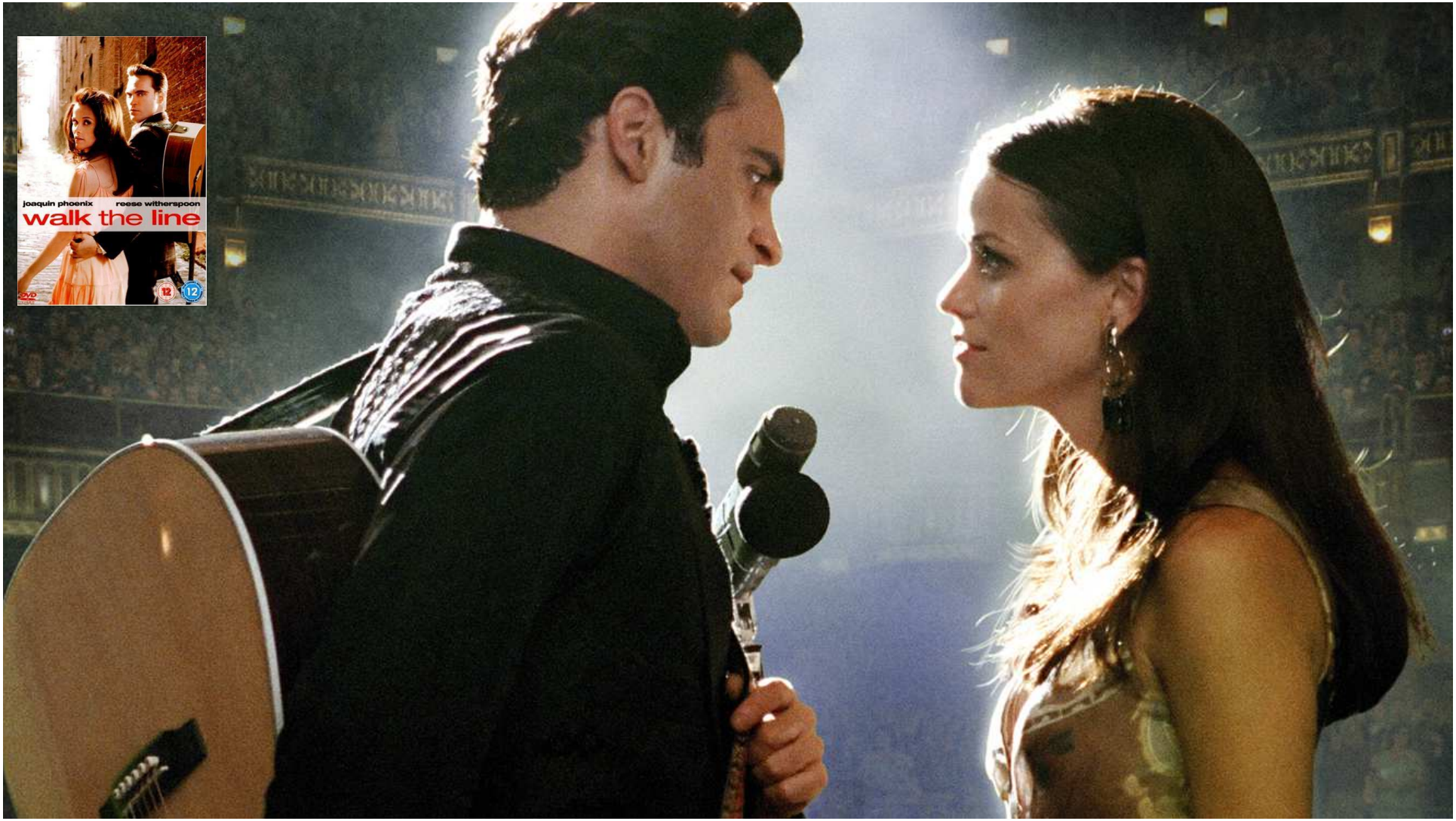


Nobody wants to read your diary

Collect all images and then tell the story around them ?

Figs.17-23 show some more boring results…

Did you see “Walk the Line” ?

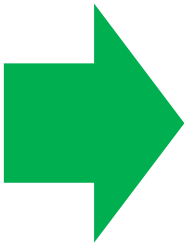


One song people would remember…

Think first

Ever considered to have “Conclusions” first?

They want to open it and see the gem…



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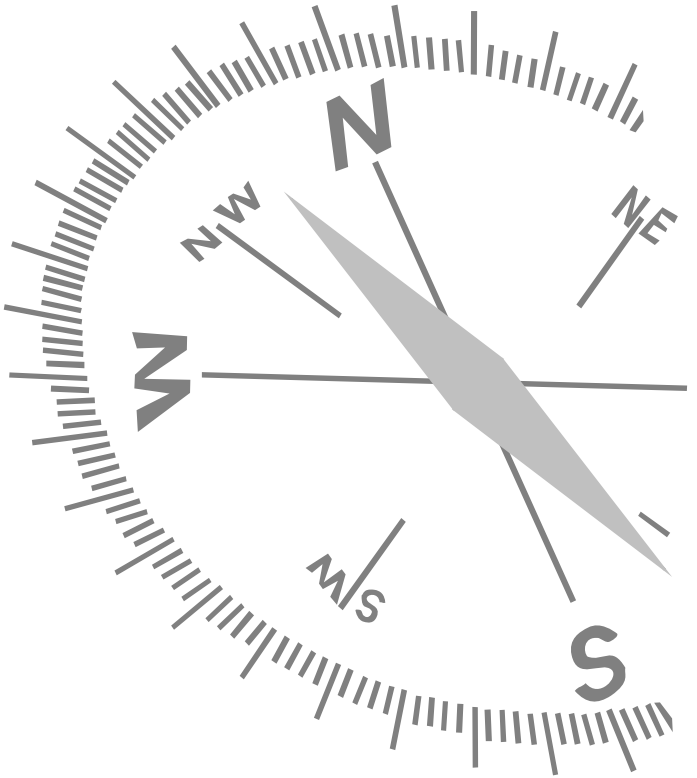


Good abstracts are hard to find

Example:

A brief overview is given of turbulence models in use today for practical flow calculations. The main categories covered are simple eddy-viscosity models, the k-ε two-equation model and Reynolds-stress-equation models as well as their algebraic derivatives. The near-wall treatment is discussed and alternatives to the fairly common use of wall functions are described. Calculation examples are presented for a variety of 2D separated flows and general 3D flows. Finally, the trends in further developments of turbulence models are outlined.

What do you think about this abstract ?

Check the first three lines – Do you know what it is about?

Example:

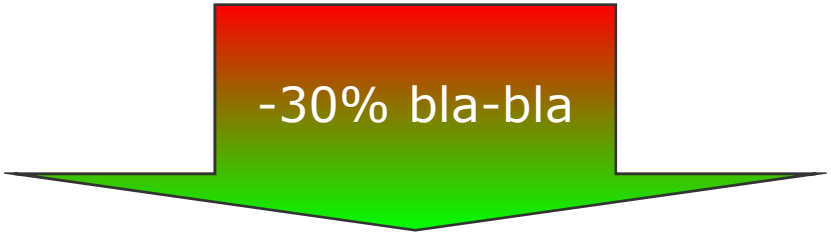
A brief overview is given of turbulence models in use today for practical flow calculations. The main categories covered are simple eddy-viscosity models, the k-ε two-equation model and Reynolds-stress-equation models as well as

Do I really want to read further ?

I decide after the first 3 lines…

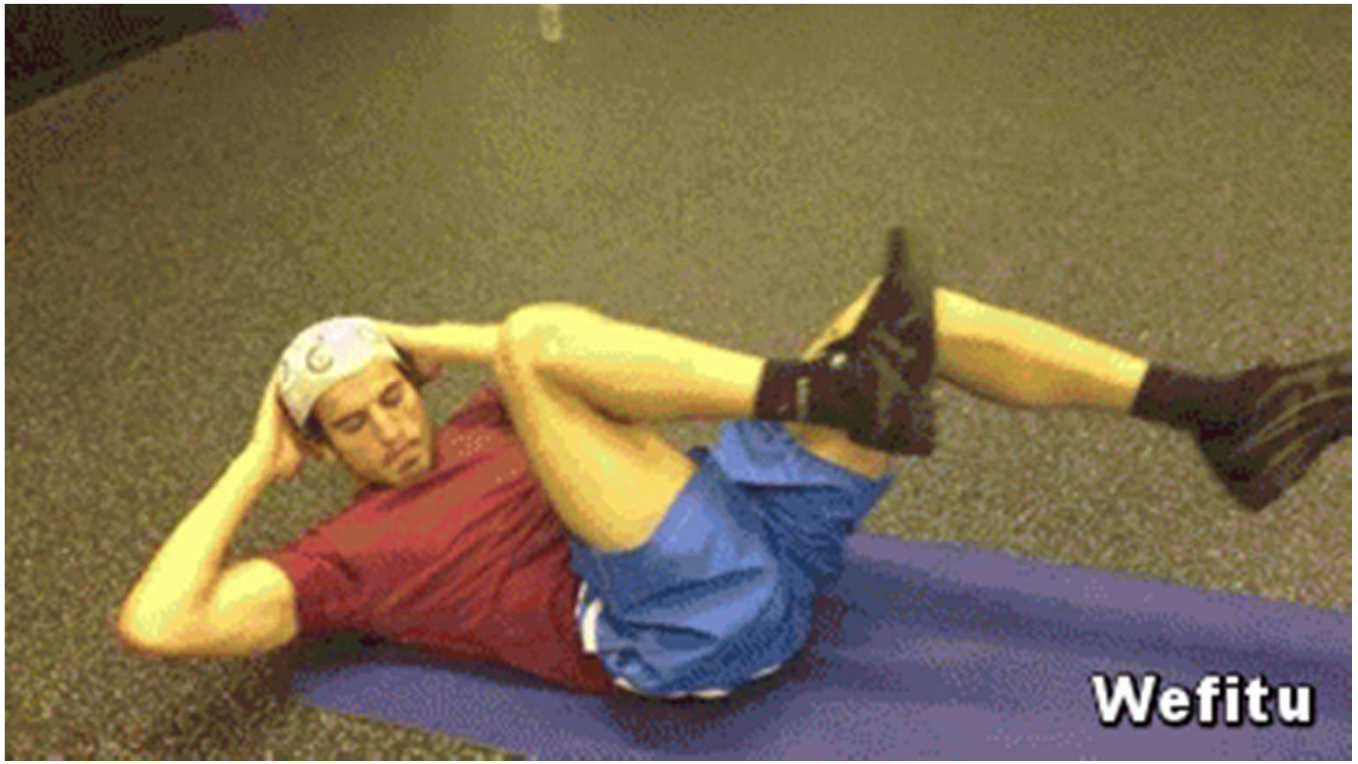
Good, but could be better

A brief overview is given of turbulence models in use today for practical flow calculations. The main categories covered are simple eddy-viscosity models, the k-ε two-equation model and Reynolds-stress-equation models as well as their algebraic derivatives. The near-wall treatment is discussed and alternatives to the fairly common use of wall functions are described. Calculation examples are presented for a variety of 2D separated flows and general 3D flows. Finally, the trends in further developments of turbulence models are outlined.



An overview of turbulence for practical flow calculations covers simple eddy-viscosity models, the k-ε two-equation model, Reynolds-stress-equation models and algebraic-stress models. Alternatives in near-wall treatment to common wall functions are described. Calculation examples include 2D separated flows and general 3D flows. Trends in turbulence models are …

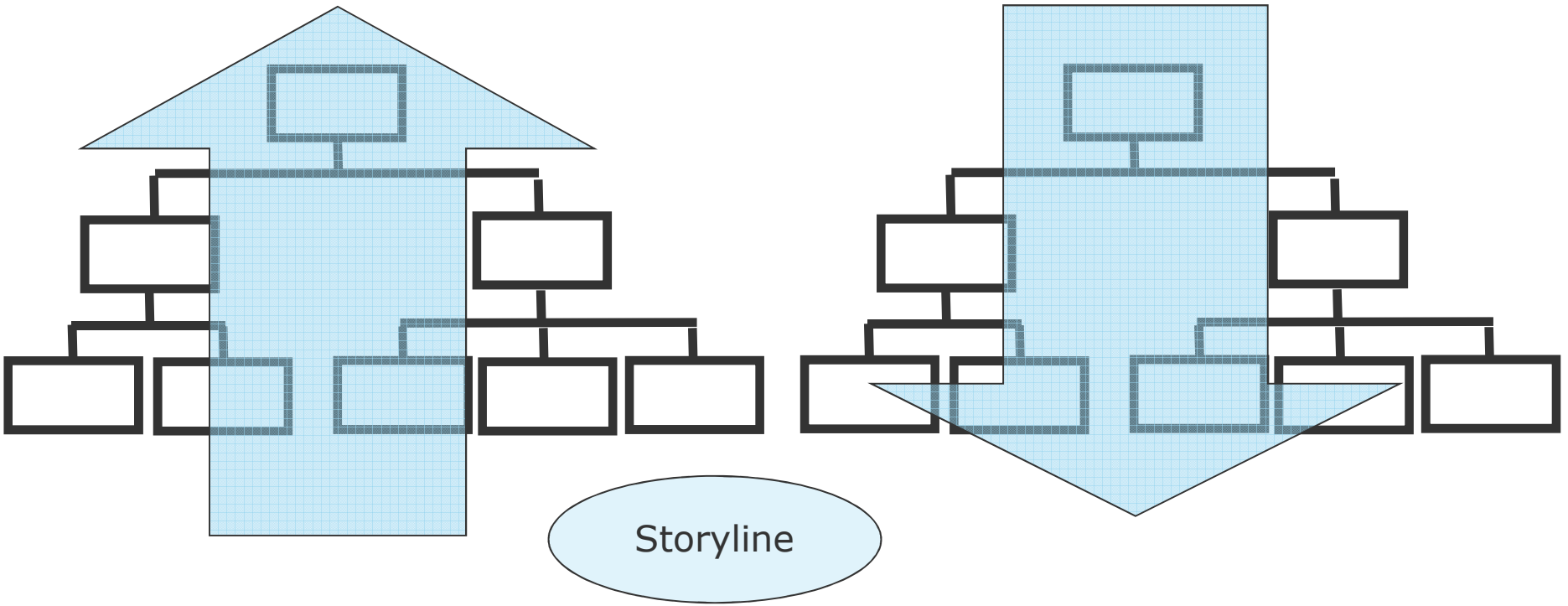
Time to exercise...



Structure helps you & your audience

Pyramid helps in grouping and sorting statements…

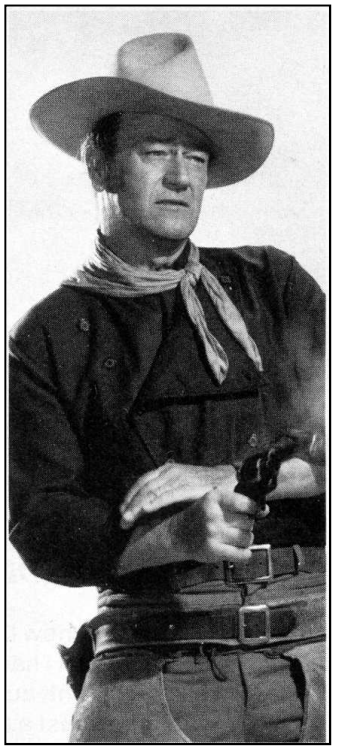
… but also in communicating



Avoid wishy-washy

Quiche Eater/Politician:

"Well, at this point in time, within the usual parameters, allowing for normal fluctuations and unpredictable variables – and subject to a re-assessment in a different time frame – it could be said that I had quiche for dinner last night."



Real Men:

"Yes" or "No"

Some common mistakes

"allows for"	→	"allows"
"It should be noted that" "Note that" "It can be said that"	→	[-]
"The agreement between A and B is good"	→	"A agrees well with B"

More examples in hand-out

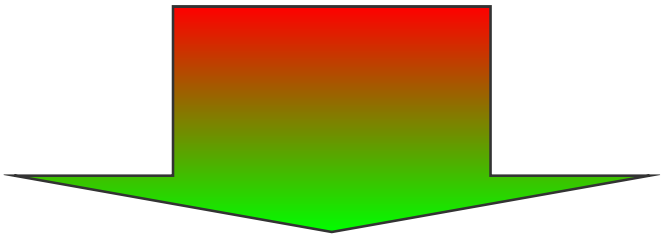
Explain the CIA – "always"

- Never assume…

CIA = cryptic idiotic abbreviation

Bad style destroys everything

The effect of the wake on noise generation is by way of influencing the cavitation behavior.



Wake influences cavitation and thus noise generation.

... and, please, use the spellchecker

Navigator

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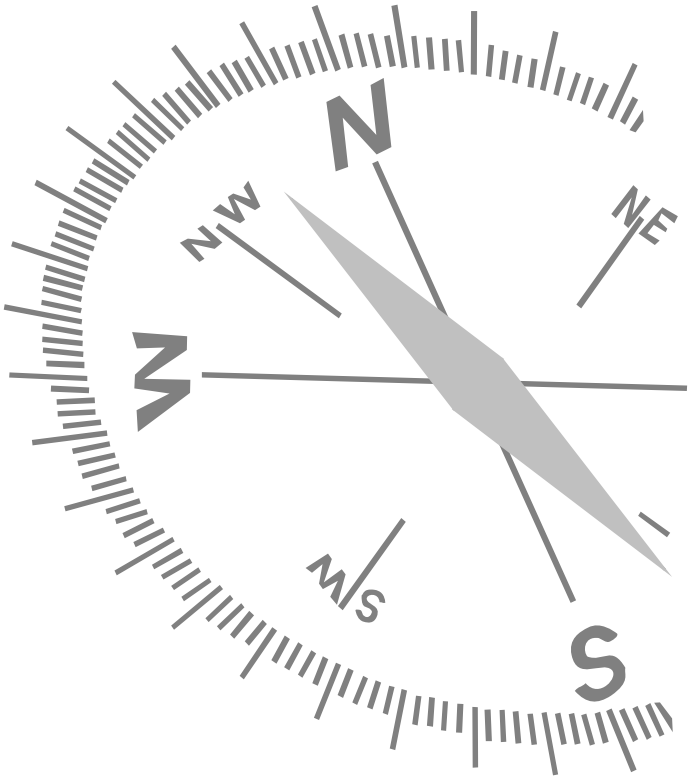
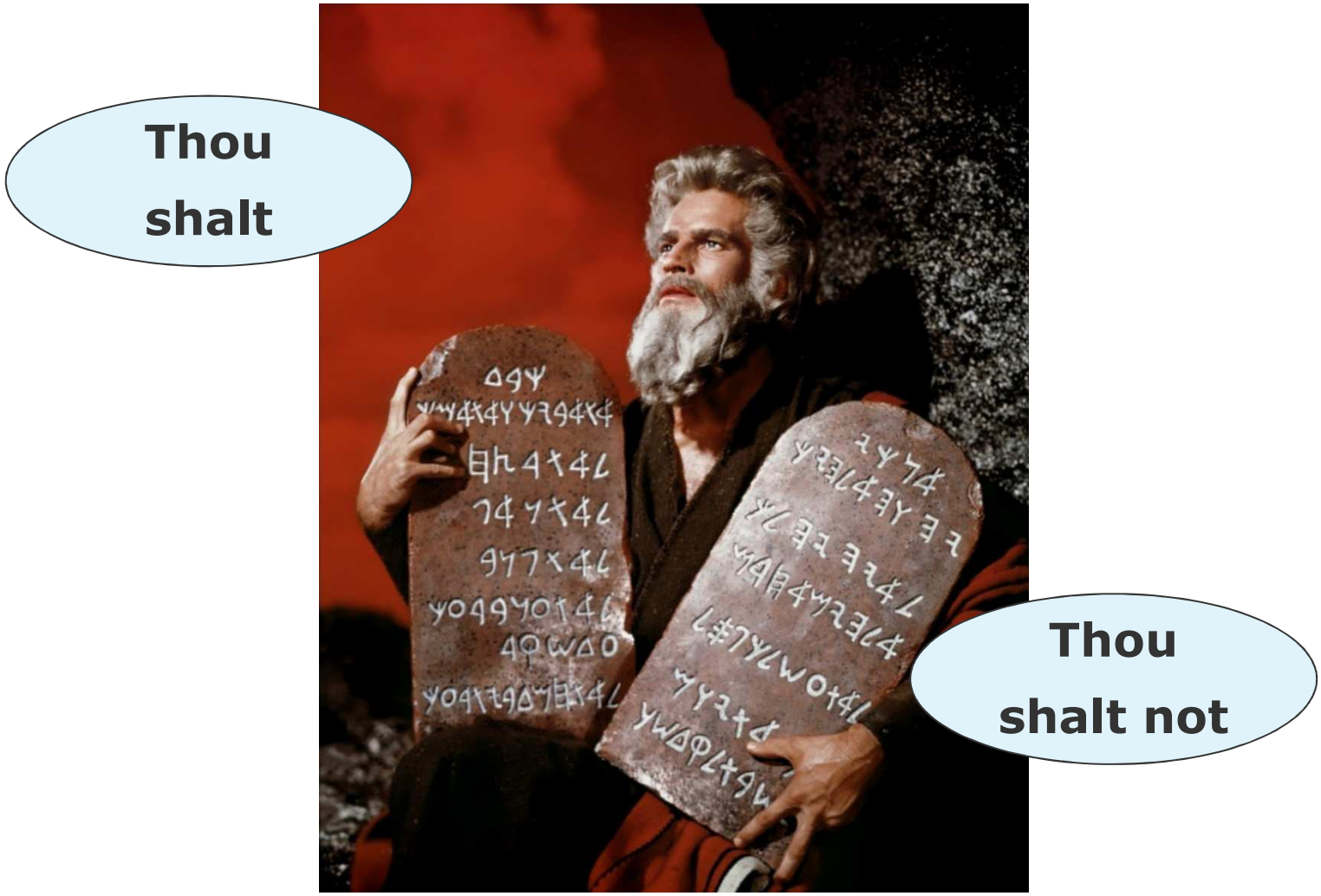
Next steps



Some commandments (for presentations), maybe 10



Engage your audience

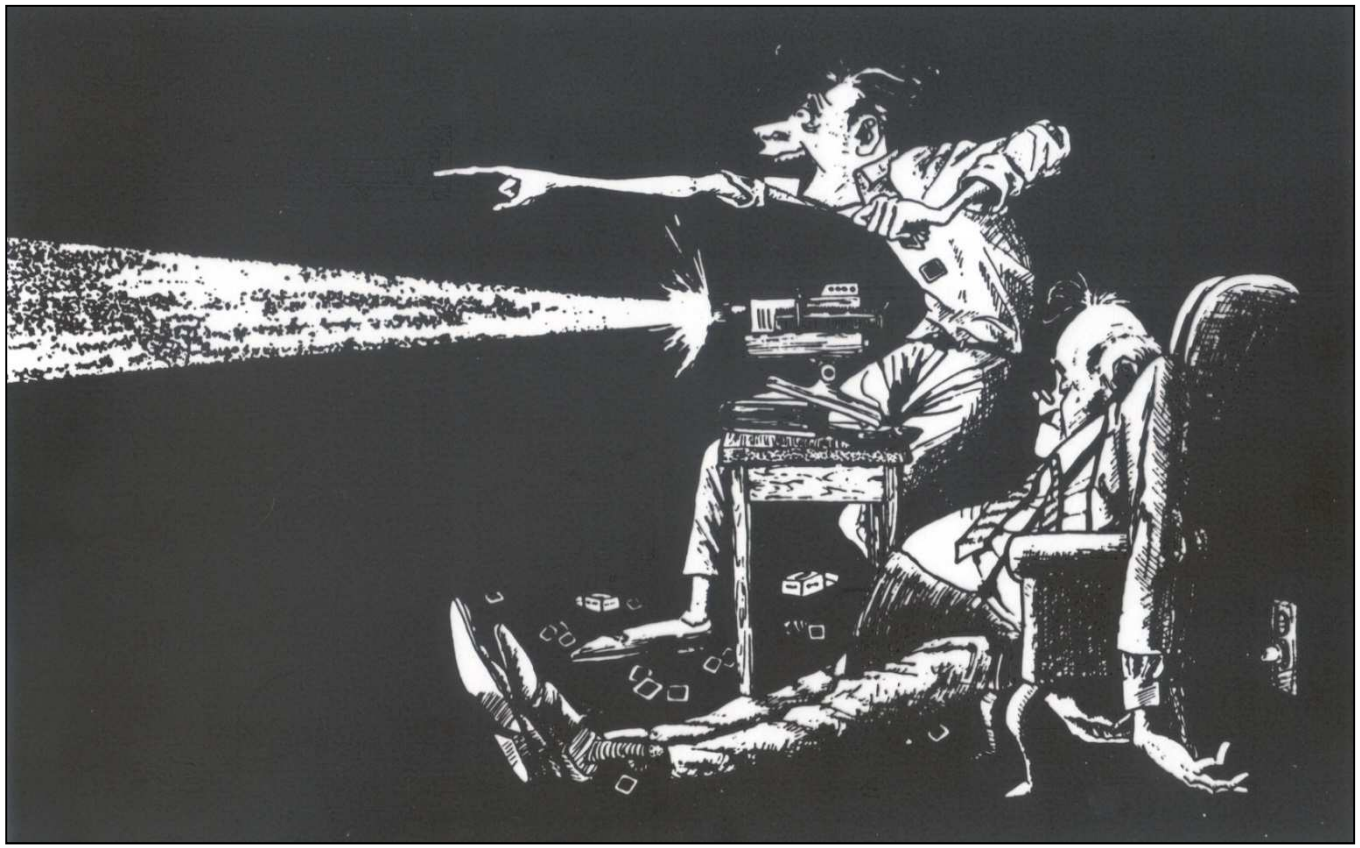
Make them **think**,

Ask questions

Make them **laugh** (at least once),

It brings oxygen to the brain

Everybody enjoys a short presentation

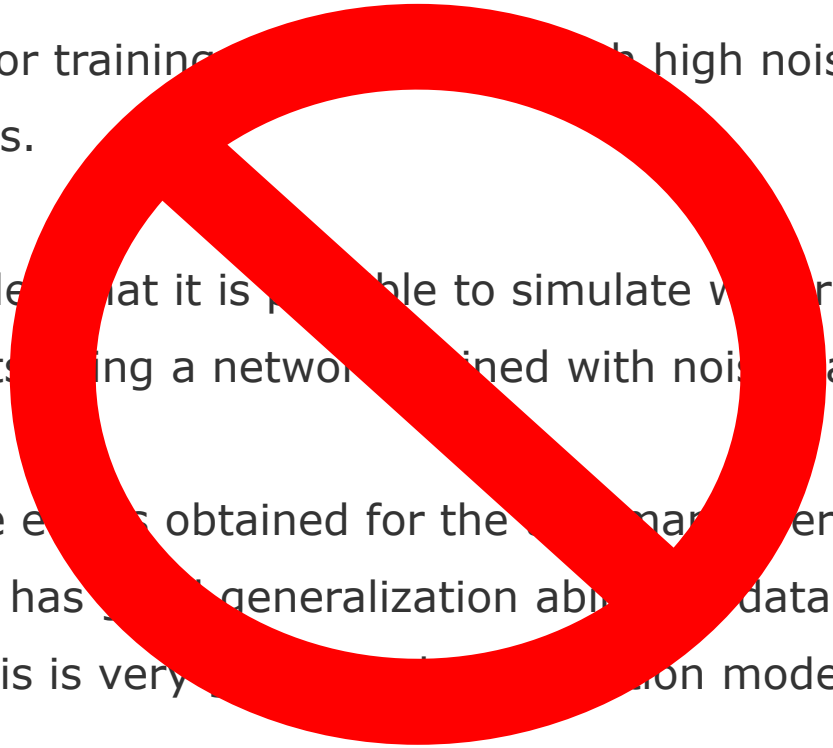


… especially those not interested in the topic

Keep it short, globally and locally

Less Is More

Avoid long text



The predictions for training … high noise present acceptable results.

It can be conclude… at it is p…ble to simulate w… reasonable accuracy the tests …ing a netwo…ined with noi…ata.

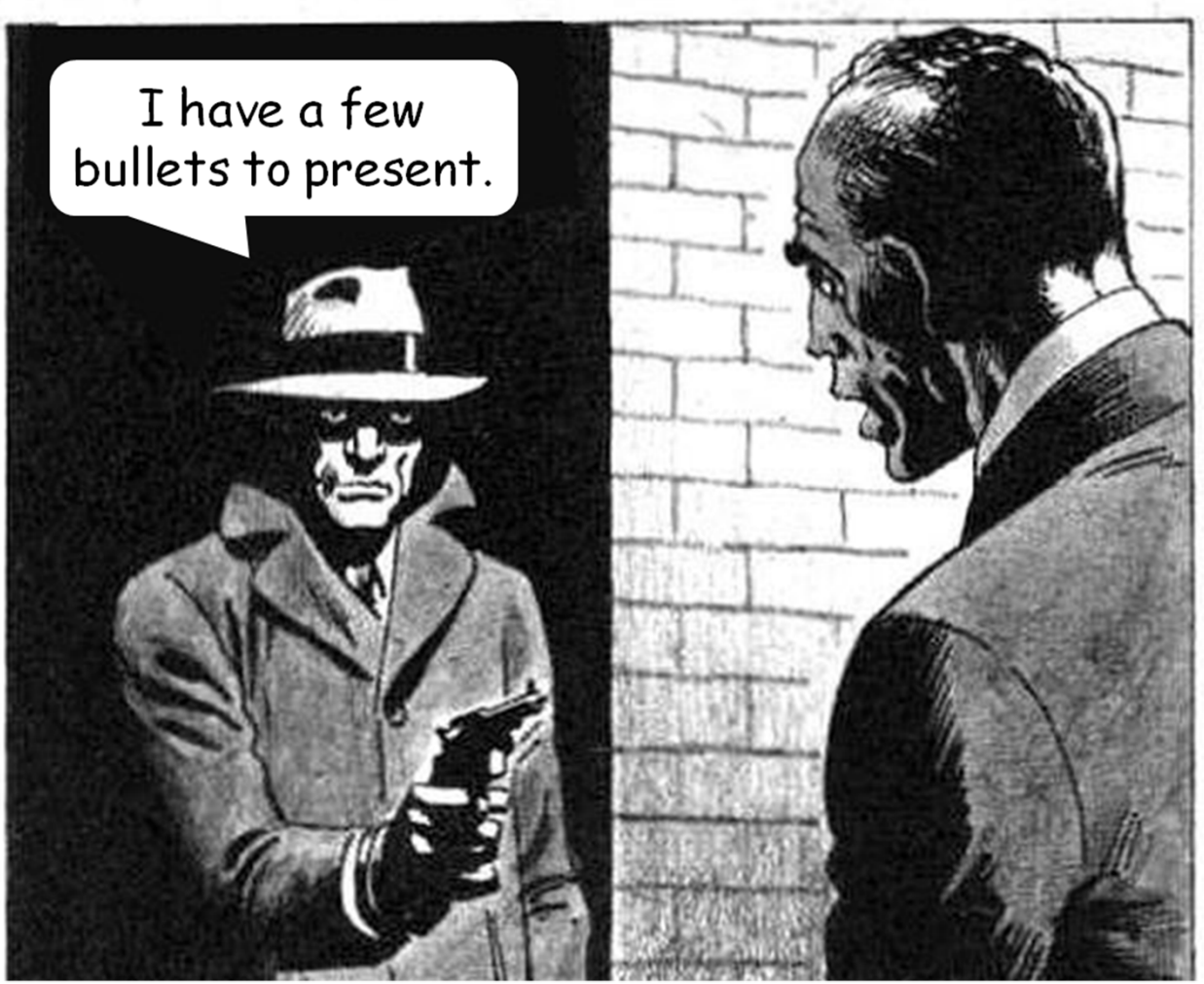
The values of the e… obtained for the …mar…ers show that the network has … generalization abi… data different from training. This is very … …ion model.

Avoid long text

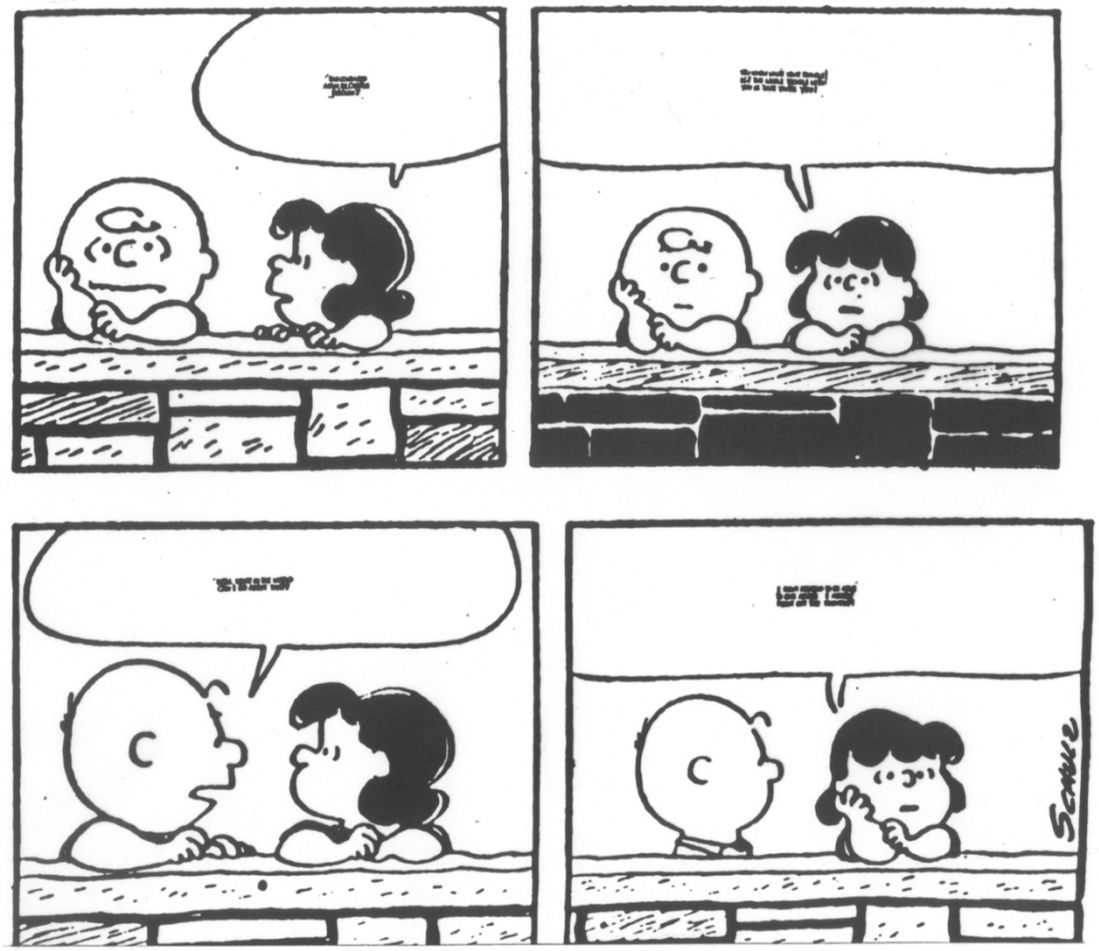
- OK results - despite noisy training data
- good generalization ability

- "Headlines", not sentences
- Feed info slowly - use animation

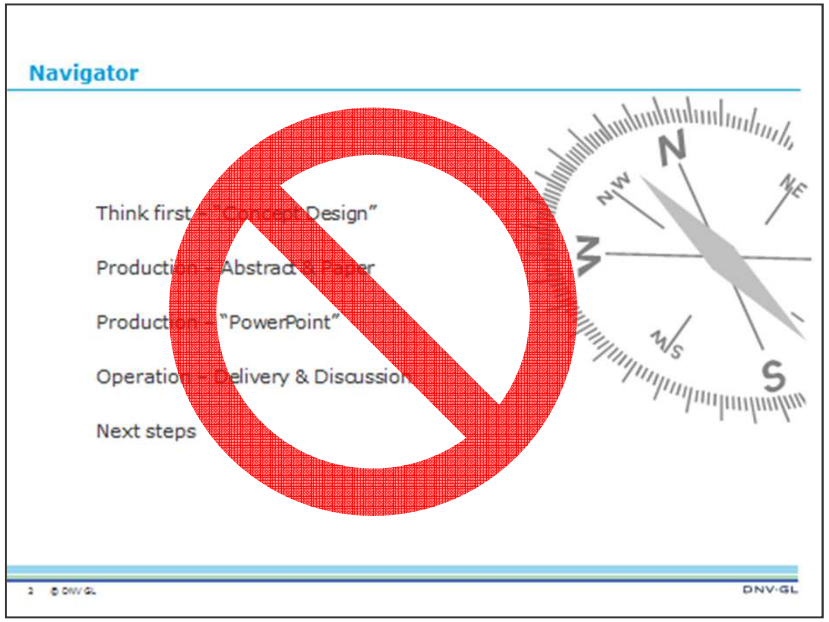
Limit yourself to a few bullets – and 1 idea per slide

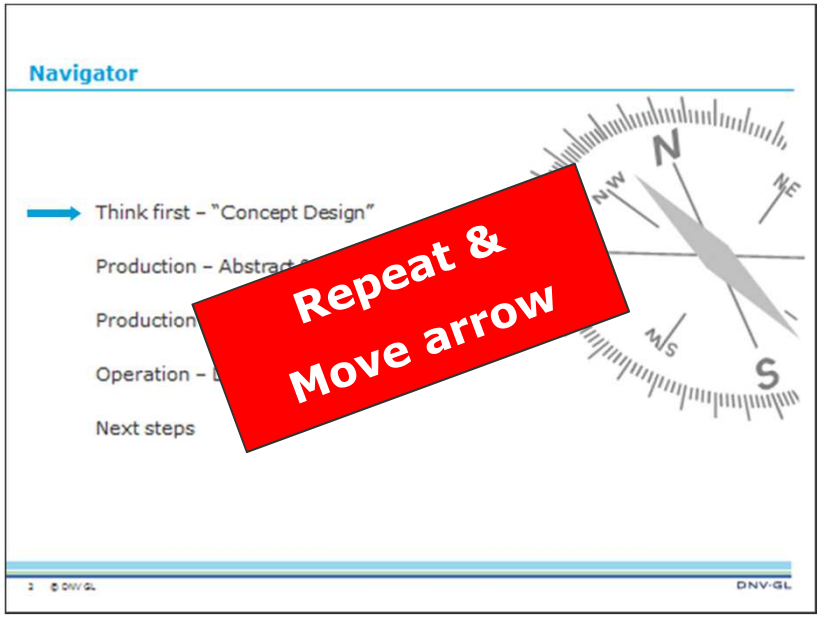


Use sufficiently large font (> 14pt)



Avoid "I have structured my presentation as follows"



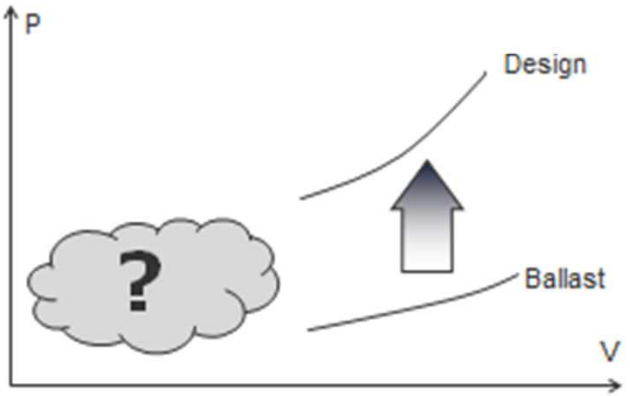


Use 1-line action titles

Model tests - only limited insight

Key point of this slide
(Like newspaper title)

- Employed by most **performance monitoring systems**
- **Large gaps** (low speed, trim, intermediate draft)
- **ISO 19030** recommends: **Fill the gaps**



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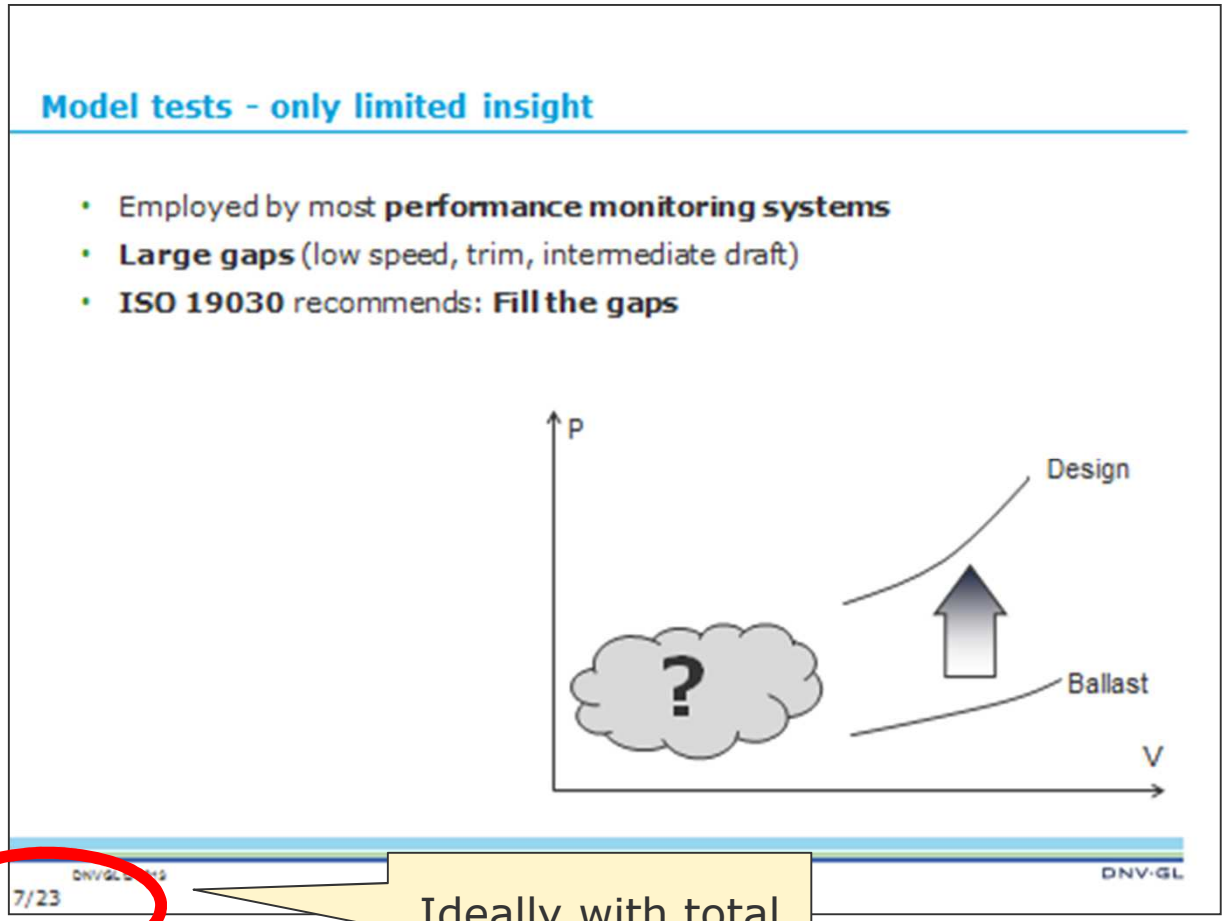
7/23

Insert page numbers



Ideally with total number of slides


Avoid background patterns !!!
Decide:
Do you want to design a tie or
do you want to communicate?
If you want to communicate
make the text easy to read

Avoid background patterns !!!

Decide:

Do you want to design a tie or
do you want to communicate?

If you want to communicate
make the text easy to read

Avoid background patterns !!!

Decide:

Do you want to design a tie or do you want to communicate?

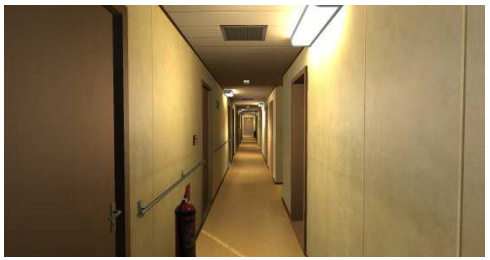
If you want to communicate make the text easy to read

Avoid “stamp” images

Bla bla bla

Bla bla bla

More bla bla



Do like the next one better ?

Bla bla bla Bla bla bla

Supersize images

Bla bla bla

Bla bla bla

More bla bla

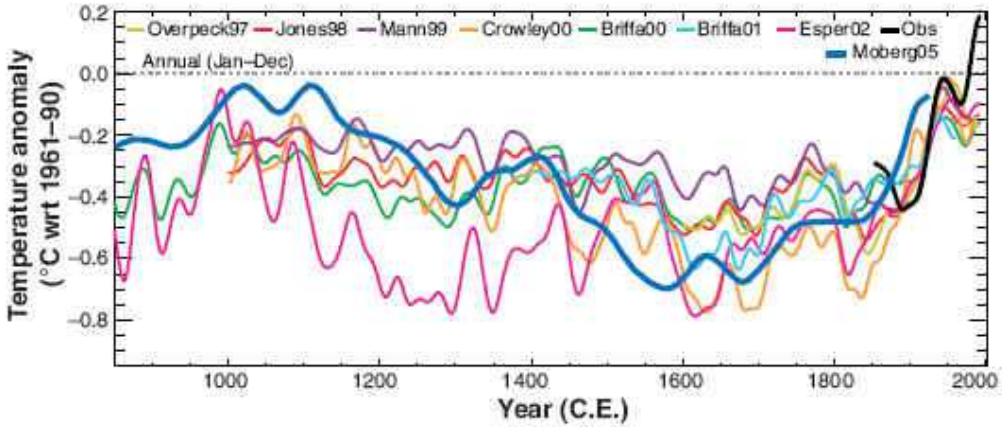
Avoid tables

Code	Disk failures	Prototypical workload		SPC1 workload	
		Total Access Time	Memory bus usage	Total access time	Memory bus usage
RAID5	0	0.93		0.90	1.00
	1		0.99		0.99
EVENODD2	0		0.99		0.90
	1		0.96	0.9	0.98
	2	0.	1.08	0.92	1.17
RDP	0	0.98	0.99	0.97	0.93
	1	0.97	0.94	0.95	1.00
	2	0.98		0.93	1.25
X–Code	0	0.99		0.96	0.98
	1	0.98	0.	0.97	0.90
	2	0.98	0.88	0.95	0.97
EVENODD3	0	0.97	0.91	0.92	0.82
	1	0.96	0.94		0.98
	2		1.07		1.19
	3		1.10		1.31
WEAVER3	0	0.		96	0.98
	1	0.93		0.99	0.90
	2	0.97	0.84	1.00	0.92
	3	0.98	0.86	1.00	0.97

Make it interesting

Spaghetti curves, no thanks !

Yeah!

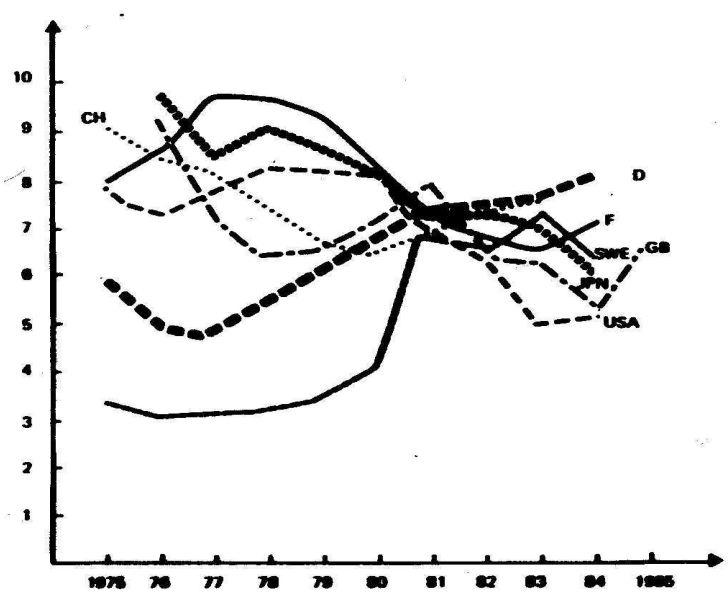


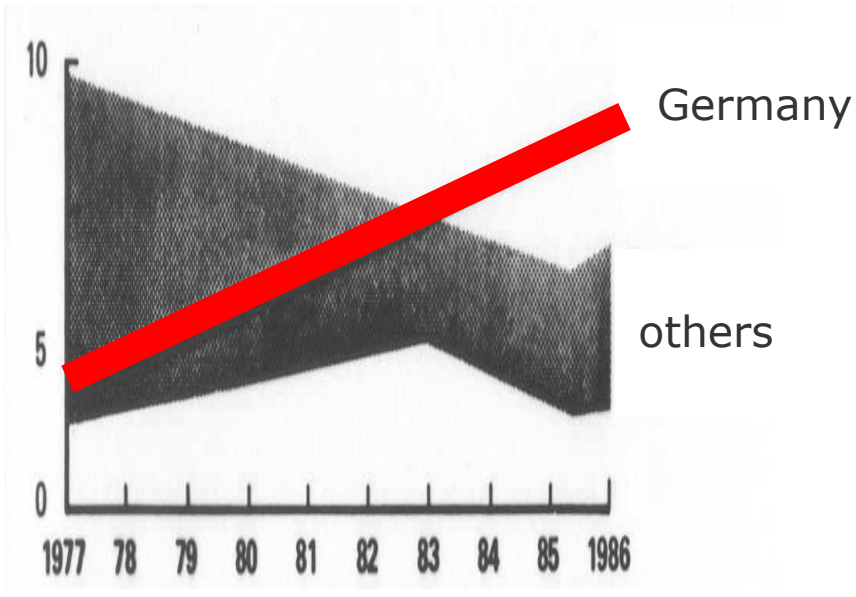
No!

Less is more

Do we **need** all these curves ?

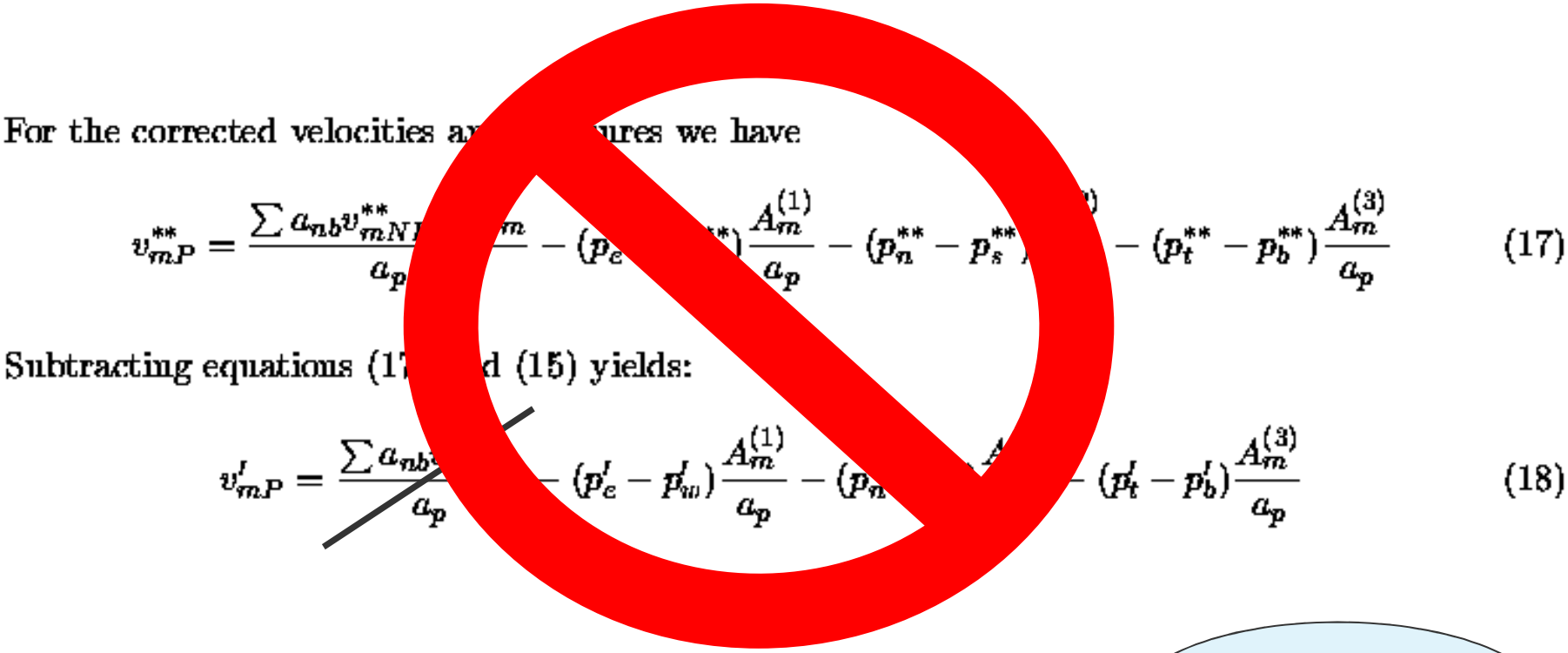
(Not: "The computer created them, sorry, now you have to see them")





Avoid math

Copied from an actual slide…



For the corrected velocities a ures we have

$$v_{mP}^{**} = \frac{\sum a_{nb} v_{mNb}^{**}}{a_p} - (p_e^{**} - p_w^{**}) \frac{A_m^{(1)}}{a_p} - (p_n^{**} - p_s^{**}) \frac{A_m^{(2)}}{a_p} - (p_t^{**} - p_b^{**}) \frac{A_m^{(3)}}{a_p} \qquad (17)$$

Subtracting equations (17) and (15) yields:

$$v'_{mP} = \frac{\sum a_{nb} v'_{mNb}}{a_p} - (p'_e - p'_w) \frac{A_m^{(1)}}{a_p} - (p'_n - p'_s) \frac{A_m^{(2)}}{a_p} - (p'_t - p'_b) \frac{A_m^{(3)}}{a_p} \qquad (18)$$

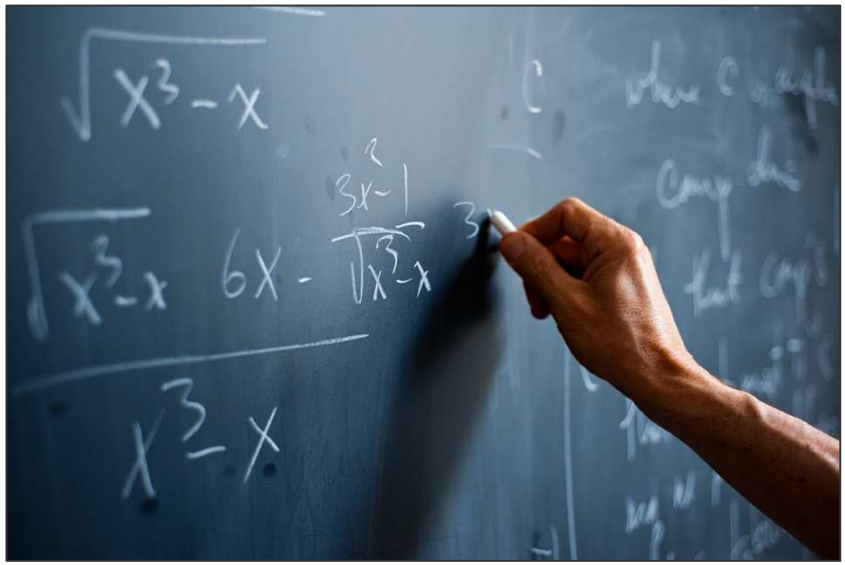
But why?

I need math…

Would you teach aikido using PowerPoint ?

Or dancing ?

Math belongs on paper or on blackboards !



$$\phi(x,y) = a_1 + a_2 x + a_3 y + a_4 xy + a_5 x^2 + a_6 y^2 + a_7 xy^2 + a_8 x^2 y + a_9 x^2 y^2 \quad (2)$$

Plugging $\phi = \phi_j$, $x = x_j$ and $y = y_j$ (j=1,...,9) into the above equation, one obtains the unknown coefficients a_j (j=1,...,9) as the linear combinations of ϕ_j (j=1,...,9). For the nodes in fluid but not on boundaries, the Laplace equation is enforced by analytically taking $(\partial^2/\partial x^2 + \partial^2/\partial y^2)$ on both sides of Eq.(2). The Dirichlet and Neumann boundary conditions are satisfied in similar way with the assistance of Eq.(2). The considered LPC method has second-order accuracy.

Harmonic Polynomial Cell (HPC) method: The Harmonic Polynomial Cell method uses the harmonic polynomials as the basis of the interpolation functions. The harmonic polynomials satisfy Laplace equation. They are in two dimensions given by the real and imaginary parts of $(x+iy)^n$, where n is an integer. Therefore, we assume the following interpolation function

$$\phi(x,y) = \tilde{b}_1 + \tilde{b}_2 x + \tilde{b}_3 y + \tilde{b}_4 (x^2 - y^2) + \tilde{b}_5 xy + \tilde{b}_6 (x^3 - 3xy^2) + \tilde{b}_7 (3x^2 y - y^3) + \tilde{b}_8 (x^4 - 6x^2 y^2 + y^4) \quad (3)$$

Plugging $\phi = \phi_j$, $x = x_j$ and $y = y_j$ (j=1,...,8) into Eq.(3), the unknown coefficients $\tilde{b}_j$ (j=1,...,8) can be found as the linear combinations of ϕ_j (j=1,...,8). This is equivalent to consider a sub Dirichlet boundary-value problem in the cell with Laplace equation as the governing equation. The boundary conditions are given on a set of discrete nodes on the boundaries , i.e. the edges of the cells. That is the reason we do not use information on points in the cell, e.g. point 9, to construct the interpolation functions. The solution at point 9 is equal to the interpolated value by Eq.(3), i.e. $\phi(x = x_9, x = y_9) = \phi_9$. The information on point 9 is used by the neighbor cells as illustrated by an example in Fig.2, where point 9 is on the boundary of the neighbor cell centered at point 5. The local indices of the points of the neighbor cell are marked with prime in Fig.2. This technique then provide continuity of the flow. The Dirichlet and Neumann boundary conditions are enforced by using Eq.(3) and its normal derivative on the boundary nodes, respectively. Note that Eq.(3) contains all the 3rd order harmonic polynomials and one 4th order polynomial term. Another 4th order harmonic polynomial term $(x^3 y - xy^3)$ was not included. It is beneficial to have higher-order terms in order to reduce the wave dispersion errors in the time-domain analysis.

The boundary elements used in the BEM and FMM-BEM analysis are uniformly distributed on both horizontal and vertical surfaces. Ny constant elements are distributed on each of the vertical boundary and $Nx = 40Ny$ elements on each horizontal boundary. Correspondingly, $(Nx \cdot Ny)$ square meshes are used in the field solvers, i.e. FVM, LPC method and HPC method. Hence the mesh size in x-direction Δx and that in y-direction Δy are $\Delta x = \Delta y = L/Nx = h/Ny$. All the methods in the comparison use the iterative GMRES solver. The residual error to stop the iterations is set to 0.5E-8 in GMRES. Proper preconditioners are used in order to achieve fast convergence. Fig.3 shows the CPU time for the five different solvers. The results are plotted against number of unknowns corresponding to constant BEM and FMM-BEM. It clear that the conventional BEM takes more CPU time than the FMM-BEM and all the three field solvers. This is in agreement with Wu & Estock Taylor [3] who compared FEM and conventional BEM. We also noted that FMM-BEM performs best in terms of CPU time with the mesh resolution.

The accuracy of the methods are depicted in Fig.4 and Fig.5 by comparing the L_2 errors, which are defined as

$$e_{L2} = \sqrt{\sum_{i=1}^{N} (f_i^{num} - f_i^{an})^2} \Big/ \sqrt{\sum_{i=1}^{N} (f_i^{an})^2} \quad (4)$$

Here f_i^{num} and f_i^{an} are the numerical and analytical solutions, respectively. The results in Fig.4 correspond to a shallower water case with kh=1.0, while Fig.5 is for deeper water with kh=6.283. For the FMM-BEM method, the errors on both the Dirichlet surface and Neumann surface are shown. The solution on the Neumann surface shows faster convergence than that on the Dirichlet surface in the shallower depth case (kh=1.0), while the opposite is seen with deeper water depth (kh=6.28). The errors of conventional constant BEM are not included in the comparison, since they are the same as that of FMM-BEM. The LPC and FVM methods show similar accuracy on the uniform rectangular meshes adopted in this study. However, separate numerical tests with FVM on distorted unstructured meshes showed unsatisfactory lower-order accuracy, which will not be shown here due to limited space. It is obvious from the comparison that the HPC method is the most accurate among the five methods in the comparisons.

The numerical details in each solvers used in the comparison, e.g. mesh arrangements, equation solvers and matrix preconditioners etc. may not be optimal. One can always be smarter to improve the numerical details to have a faster or more accurate solution, for instance, by using non-uniform/stretched elements on the vertical surface with smaller element size close to the horizontal surface y=0 and larger elements elsewhere. However, one will not be able to change the asymptotic behavior of the methods in terms of computational time.


Time to exercise...

Navigator

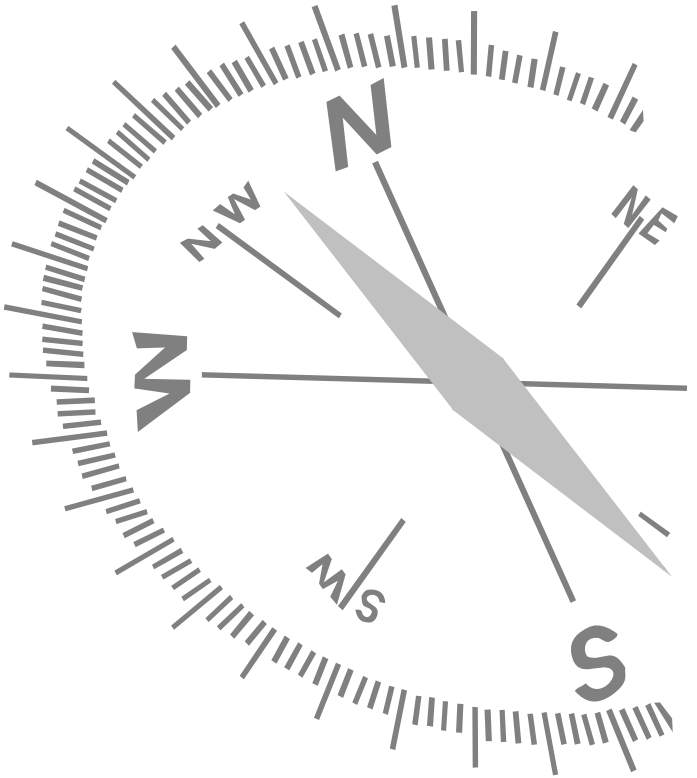
Think first – “Concept Design”

Production – Abstract & Paper

Production – “PowerPoint”

Operation – Delivery & Discussion

Next steps



Be aware of your accent

Mondegreens – People understand something different

Look at them, don’t speak to the screen

- **Look at your “friends”**
- Maybe walk among them
- **No laser pointer !!!**

Avoid PowerPoint Karaoke

"OK, I'm now going to read out loud every single slide to you, word for word, until you all wish you'd just die."

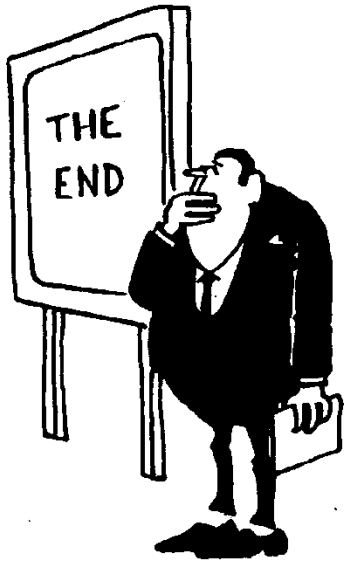
Automatic Switch Off

Please contact Service

Never trust technology

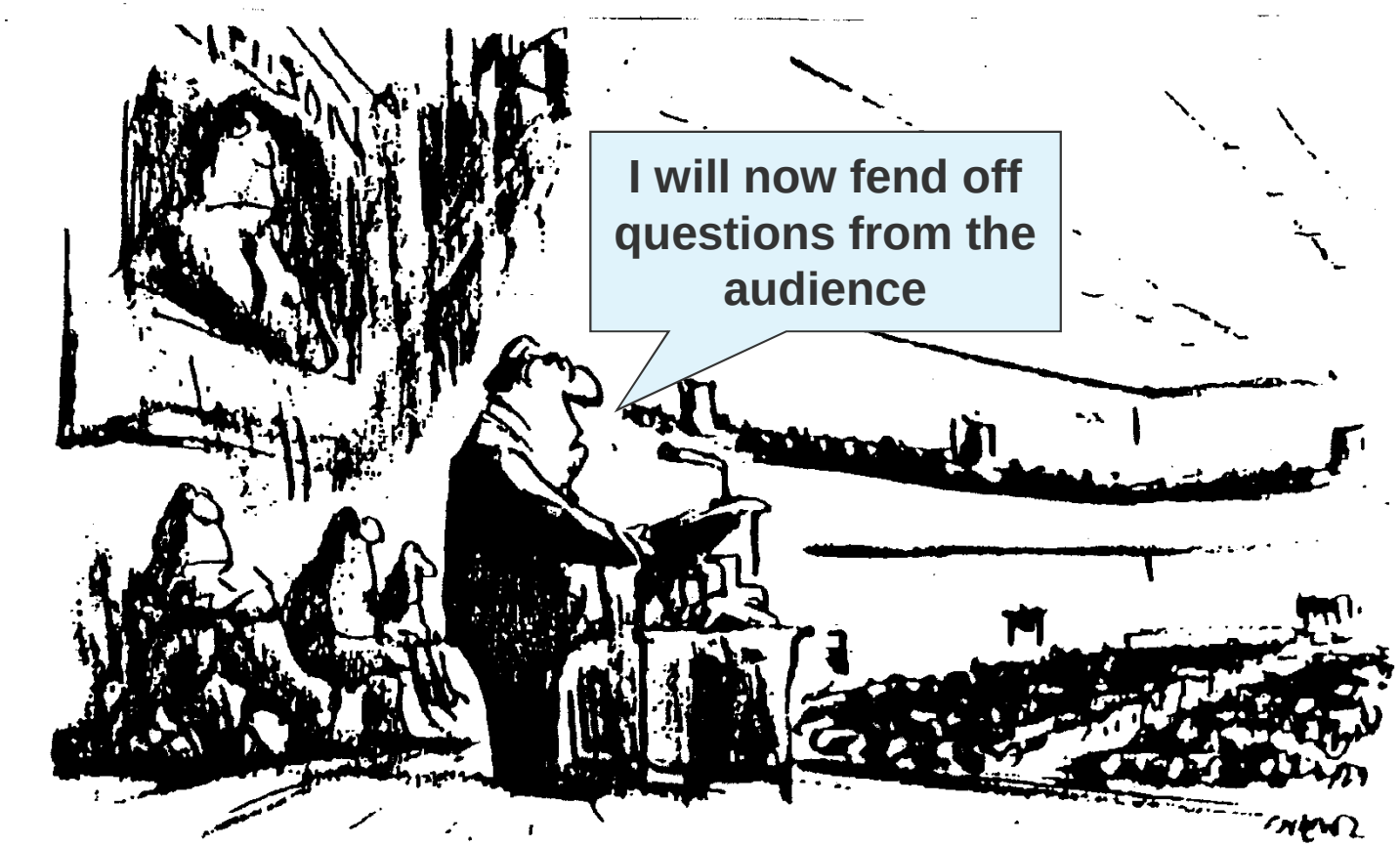
1. **Check**, check, and check again
2. **Never assume** – Assume makes an ass out of u and me
3. Have a "**Plan B**" (upload to other computer, USB stick, etc.)

Make "The End" clear



Say **"Thank you for your attention"** & **shut up**

The final battle – “Discussion” time



Discussion = ego-game

- most **questions ego-driven**, not for clarification
- **keep calm** and try to find a common denominator

- some standard questions:

  "I have a stupid question"

  "I don't understand this"

  "If I understand you correctly"

  "I have three questions"

  "Do you know the publication of Maschner…"

  The monolog

There is just too much testosterone

My equation is longer than yours
(and I want to be the alpha-male here)

Neanderthal
in a suit

Most valuable discussions require…

Navigator

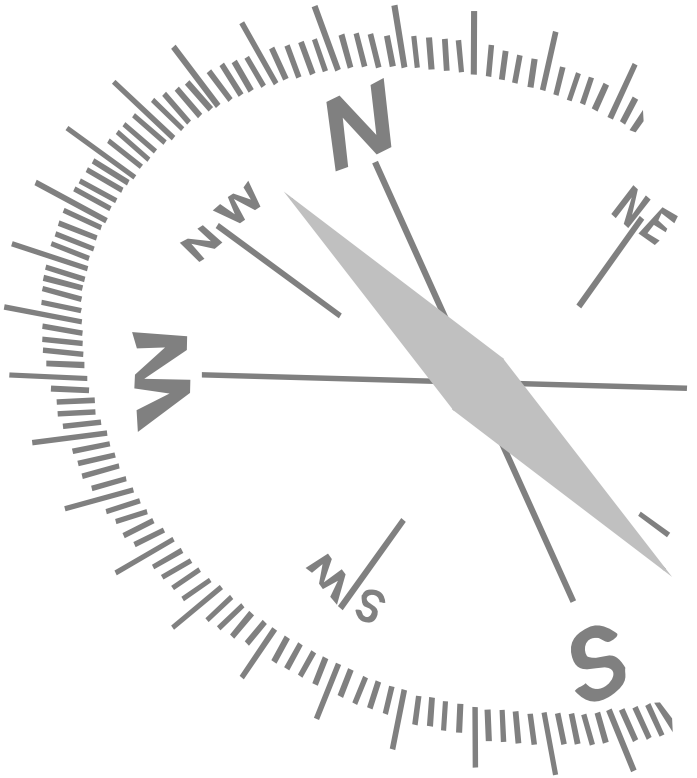
Think first – “Concept Design”

Production – Abstract & Paper

Production – “PowerPoint”

Operation – Delivery & Discussion

➡ Next steps



Use the checklist

Presentation checklist

1. Formalities
- ☐ Executive summary: one slide after cover page, maximum 3 main points
- ☐ Agenda: 3 to 7 categories, repeated after each category, showing presentation progress

2. Content
- ☐ Statement titles (one idea per slide)
- ☐ Keywords in bullet points

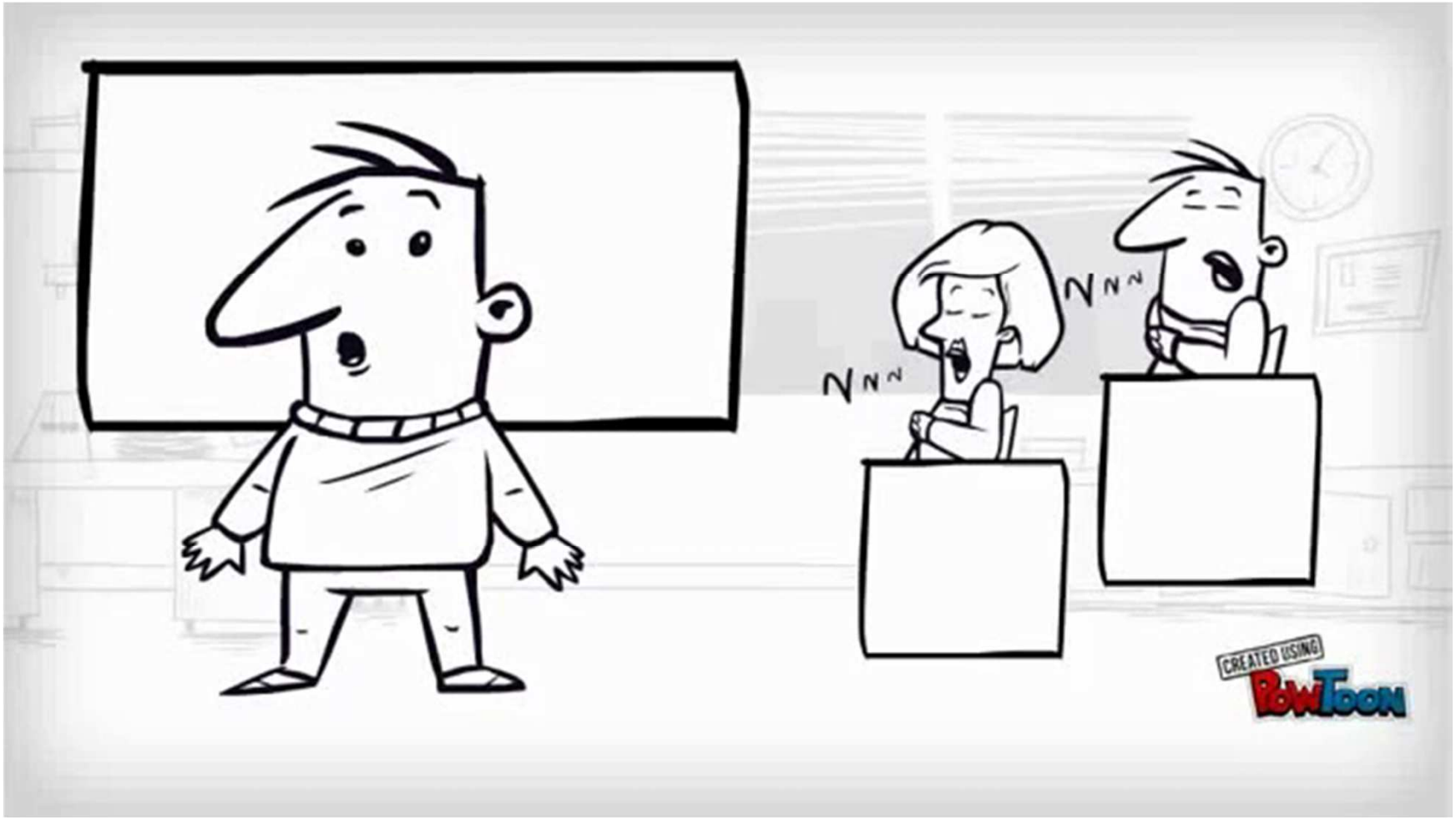
3. Structure
- ☐ Clear storyline
- ☐ Length tailored to time available
- ☐ Page numbers included

4. Visual
- ☐ Visuals support main points
- ☐ Easily understood
- ☐ Suitable graphics

5. Editing
- ☐ All acronyms explained
- ☐ No spelling mistakes

Review
- ☐ I understand the presentation's main point
- ☐ I can follow the presentation without getting bored or losing focus
- ☐ I am able to understand the visual aids easily

Wrap-up



Credit: My ex-student Fernanda Bartels

Questions ?

We are here to help you !

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