



The Art of Being Remembered

IN A NUTSHELL

How to Prepare and Give a Presentation

Robert Bronsart

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Request for Comments

Please help us to improve future editions by reporting any errors, inaccuracies, misleading or confusing statements and typos. Please also let us also know what can be done to make this summary more useful to you and your colleagues. We take your comments seriously and will try to incorporate reasonable suggestions into future versions.

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1 | Presentation — How To

Giving a presentation is like telling a story. — Following this predication, preparing a presentation is working like an author who writes a story, essay or poem to tell a message. Therefore keep in mind that it is always **you** who will be associated with the presentation — nobody else.

An almost unlimited amount of material is available (books, workshops, presentations, Internet, ...) giving information about how to make a presentation. In the following important hints are given on how to prepare for and on how to give a presentation. In many cases the topics addressed are being found of primary importance as experience has shown that students as well as presenters in general tend to overlook them.

In the following, the preparation and giving of a presentation will be discussed based on a time line which is split into a sequence of four distinct phases:

- **Long before** the presentation →
- **Just before** the presentation →
- **During** the presentation →
- **After** the presentation → the discussion.

2 | Long Before the Presentation

2.1 | The Screen-Play

Before you start working with the presentation tool of your choice, find answers to the following questions and write them down and/or make sketches showing the information sequence: use paper and pencil and not your computer!

Be aware of the challenge that you are going to present your work of some month or an even much longer period in a very limited time span (~ 20 minutes) to an audience that in general has very limited to no knowledge at all about what you have done.

1. Very important question to answer in the beginning: What is the story you want to tell? Why should the audience listen to you?
2. Develop a “screen-play” of your presentation: in which order do you want to explain what leading to which overall message(s)?
3. Which are the **three** (not more!) key messages you have? Take some time to distill these key messages from your work! Each key message should be formulated in a phrase (or very short sentence)!
4. What do you want the people to answer if asked about your presentation immediately after the presentation, e.g. at the end of the session or two days later?

Notice: If you do a real good job, people might remember these three messages – but generally not more!

- (a) How does the potential ordering (priority list) of your key messages looks like?
- (b) How can you best explain/support your key messages?

- (c) Which subset (!) of all your results best supports the transfer of the key messages?
 - (d) What can be left out as it is not of highest priority to support the key messages? In almost all cases you will not be able to show everything you have achieved in the context of your presentation. Therefore you have to restrict yourself, do not regard this as a drawback, take it as an opportunity to focus!
5. What are your personal objectives? How can you best achieve them? Note that your answers given to this question have a totally different focus than all the other ones (addressing the audience): what do *you* want to achieve with the presentation?

2.2 | The Audience

For the screen-play as well for its detailing it is important that you reflect the audience for your presentation.

1. What can you expect from the audience? Better do not expect too much: in most cases you can assume that everything will be new for most of the people you talk to!
2. Do you have to anticipate particular persons for the presentation? What will their expectations be?
3. People might not be very interested in your topic and/or people might be tired from the (many) presentations before it is your turn: under these potentially awkward circumstances: how can you make them interested in your “story”?

2.3 | Going into Detail — The Story Board

After you have developed the overall screen-play, you have to think about how to present your story. For that you should observe the following general recommendations:

1. The maximum (!) number of slides you should plan for “to tell your story” is equivalent to the number of minutes of your presentation: 20 minutes = max. 20 slides. This includes all slides also for title, list of topics, . . . and last slide!
2. The first slide will show the title, the type of presentation, your name, affiliation etc.
3. The second slide shows the list of topics you are going to present: “This is what I will talk about”. Restrict to not more than 6-7 topics, never use a second level here. A topic is expressed by a single or 2-3 words – not more.
4. Reserve one final slide for a summary: showing your few most important messages, sometimes called “take home points”. Do not use a “Thank you” slide, if you want to thank someone, say it. The last slide stays on the screen for a longer time – e.g. during the discussion – therefore take the opportunity and show your key messages to the audience!
5. Give a short (!) but meaningful title to each slide without working on the detailed contents. This builds the backbone of your presentation – this is the top level view of your story!
6. For each slide think about the message of that specific slide in the context of your overall story, write down some words expressing the contents supporting the respective message.
7. Go through your set of slides (the sequence of your statements) and check that in total it

results in a comprehensive story.

8. Make sure you have a single sequence in your presentation, in no case (never!) navigate back and forth in your slides to tell your story!
9. When you are satisfied with the sequence of your statements reflected by the sequence of the slides you can start to work out each slide in detail. Always check how all the statements fit into your screen-play, in total giving a “red yarn” guiding through your story.

2.4 | Implementation: The Slides

Generally important points to be observed while preparing the slides are:

1. All slides have a title which gives you the opportunity to put emphasis on the related statement. The title has to be meaningful in the context of your story, poor examples would be “Calculation”, “Measurements”, “Results” as these single words do not say much related to your story. Better alternatives would be e.g. “Measurements Confirm Numerical Model” or “Numerically achieved Results show moderate Difference to Measurements”. Formulate a positive statement for a title.
2. Always observe: “**less is more**”: do not overload slides with information like text and/or pictures/graphs/schemes. Keep every slide as complex as necessary but as simple as possible. There is no problem leaving a large area of a slide empty. By this you make sure that each slide will be understood quickly and easily \curvearrowright the audience will be able to follow your story.
3. Do not make use of animations like “flying” or “jumping” text components or pictures.
4. In case of a more complex contents it might be advantageous to develop the contents in very few steps while showing one major part after the other synchronised with your explanations.
5. Add graphical material to your slides where appropriate: “a pictures tells more than thousand words”. Pictures have to be meaningful in the context of your presentation, do not show cartoons etc. Specially engineers are used to communicate based on graphical information like pictures, drawings, graphs, schemes or videos: use these kind of visual elements to transport your key messages.
6. Be aware of the fact that all graphical material will make the audience to focus at. This has to be specially considered when you show text and e.g. a graph on the same slide. Therefore better start to explain the graph and then continue with the statements given by the text. If you do it the other way around, the audience will not listen to you until they have understood the graph! *Every picture is a “vampire”, sucking up all the attention.*
7. Abbreviations and acronyms are problematic as the audience might not be familiar with the meaning behind. Always thoroughly check whether an abbreviation or acronym is commonly known to the expected audience or has to be explained (in writing) when shown the first time.
8. Do not use your own coding to differentiate between e.g. design alternatives, test runs, models, mathematical approaches: you are familiar with but not the audience.
9. Do not show something on your slides which you will not refer to or you will not explain.

10. Do not show something on your slides which you will comment with e.g. “not necessary to be understood ...”: do not talk about that you do not want to talk about it!
11. Always be serious, do not show cartoons or jokes or other material which incorporates a high risk of misinterpretation and confusion. This holds specially true for an international audience.
12. In case given, use the template (slide master format) supplied for the presentation.
13. On each slide show a sequence number. Questioner can easily refer to these numbers for addressing specific aspects of the presentation they want to discuss.

2.4.1 Text

Generally text is of utmost importance for your presentation.

1. The minimum text size depends on the size of the room, 18-20 pt can be regarded suitable in many cases. This also holds for all graphical material: make sure that every single piece of information can be read easily!
2. Never write full sentences: do not use more than one line for each statement → no line breaks in a statements, layout left-justified.
3. Give max. seven statements in a list, never use more than two levels in a list.
4. Be aware that specially symbols might cause problems (are corrupted or even do not show at all) if the corresponding font is not available on the computer used for the presentation.
5. Use a sans serif font for all text like Arial, Verdana or Tahoma. Do not use different font types. Highlighting can be done through e.g. a bold font or colouring, do not use underlining.
6. Do not place text in picture regions: in almost all cases this deteriorates the readability both of the text and the picture.
7. If you place text on a coloured background make sure that it has a high contrast, see also under section Colouring.

2.4.2 Graphs

Graphs showing e.g. functional dependencies should never be used in the form suitable for a paper: in any case they have to be reworked completely to be shown in a presentation (!):

1. Graphs must be simple and easy to be understood: note that the audience (potentially in a farther distance to the screen) will only have a very limited time span to understand the information given by a graph which can be very dense.
2. Place max. two graphs on a slide, better only one: what best supports your statement?
3. Both, abscissa and ordinate must be labelled (including units!) and easy to read.
4. If more than one function is shown in a single diagram they have to be clearly distinguishable.
5. Lines should be thick enough to be recognised from larger distances, e.g. 1 mm.
6. If you use different line styles for different functions in a diagram make sure that they can be distinguished clearly. Same line style but different thickness should be avoided.

7. 2-parameter functions ($z = f(x, y)$) can be displayed in a 3-D representation. Note that in these cases general trends can be easily shown but it is almost impossible to read any values. If some values are important to be recognised: add a pointer to the graph indicating the points of interest, including respective values if necessary.
8. Do not give values in an accuracy which is neither relevant in the specific context nor can it be derived as the methods applied are not capable for such a very high accuracy. The audience will anyhow not be able to remember multiple decimal places.

2.4.3 Tables vs. Charts

Tables are mostly unsuitable for presentations: the information in almost all cases can be displayed much better with help of charts. If you can not use another form for the presentation than a table (really?), make sure that

1. rows and columns are clearly labeled, including units.
2. Reduce the contents to support your primary statement(s).
3. Make sure that all table entries can be easily read → minimum font size to be observed.
4. Highlight specially interesting elements by an extra border of e.g. a thicker coloured line or by a differentiating background colour.
5. Make charts as simple as possible to be easily understood: reduce the contents to support your primary statement(s).
6. In almost all cases 3-D views of one parameter based information do not support the understanding as it is impossible to read any data values in the short period of time the chart will be displayed on the screen: in this case always make use of a simple 2-D chart.
7. Think about the most suitable type to support your statements e.g. pie chart to illustrate proportion, bar chart to show comparisons among categories.
8. Clearly label all aspects depicted in a chart, in case of a pie-chart place the labels close to the corresponding proportions, do not use a separate legend which shows colours and the related aspects. In case of a bar chart with multiple aspects shown for each bar use the same color for the same aspect, the lower in the bar the darker the colour should be.

2.4.4 Formula

Formula are specially problematic in presentations:

1. What is your message in these cases? If a formula is (too) complicated, the audience will not be able to follow in the short time (*"I know more than you"*), if a formula is (too) simple, what is the statement made by showing it (*"I also know what you know"*)?
2. If a formula is used to support your "story", you might graphically highlight the major components.
3. Make sure that all elements in a formula can be read easily (font size!): specially observe the minimum size of indexes.
4. Special attention has to be given to symbols: make sure that the symbol font exists on the computer used for the presentation.

2.4.5 Schemes

Schemes like flow charts etc. can be a very helpful tool to support the “story telling”. Schemes can not be used in the form for a paper: in any case they have to be reworked completely (!) for a presentation. Be aware of the high potential for misunderstanding and misinterpretation:

1. Make schemes as simple as possible, always focus on your associated messages. Do not use too many elements in the scheme, do not go into too detailed aspects, restrict to a very limited number of different element types, whenever possible show a symmetrical layout of the graphical elements. Note that in these cases like in others mentioned the audience has only very limited time to fully understand what you might have developed over months: use an appropriate high level of abstraction.
2. In case of a flow chart, clearly indicate the start and the end of the flow. Do not use complicated loops which nobody will be able to understand in the short time span the scheme will be visible in the presentation. Crossing lines in many cases are a cause for misunderstanding.
3. Whenever possible use a standardised graphical syntax if available in the specific field.
4. If a standardised and by this commonly understood graphical syntax is not available in the specific context: introduce the few (!) and consistently used elements verbally.

2.4.6 Colouring

Colouring can support the understanding of your messages but can also result in confusion:

1. Make sure that there is always a high contrast for all elements on the slide, e.g. do not place medium grey text on light grey background: better use black or very dark blue text on white background. If you have a dark background use inverse colouring for the text, e.g. white text on dark blue or gray background.
2. Do not use light colours, use strong ones: e.g. do not use different blue or grey colours for different functions in the same graph, better use totally different basic colours (red, green, blue, black) to distinguish between functions.
3. Never use red-green (~10% of people can not distinguish) or red-blue (tends to flicker on the screen) combinations. Yellow and turquoise should also be avoided as they do not provide sufficient contrast.
4. Make sure that the different aspects are shown in a way that they can be distinguished very easily and fast based on their colouring.
5. Be aware of the fact that through the presentation technique available (data projector), colours might look differently on the screen than on your computer, sometimes colouring is not shown at all on the screen or displays much lighter or darker than intended.

2.4.7 Animations

Animations like animated graphics or video sequences often cause problems as the required software to play the animation are not available or the presentation techniques is not prepared to play videos. If relevant make sure that all your animations play correctly before (!) your presentation. If you use a separate program to play the video make sure that you will find the video file immediately on the computer during your presentation.

2.4.8 References

References are always to be shown on the slides for all graphical material not being prepared by yourself! Write a small font copyright note just below the material. In case you want to acknowledge someone for some statements or e.g. equations you show, add the reference in the lowest part of the respective slide in a small font: the only reason for a small font!

2.5 | The Rehearsing

After all slides are prepared, give the presentation to yourself while speaking loudly (very important!). Take the time to do this more than once! Check the time you need, adjust your presentation to strictly meet the given time requirements. Take this requirement very seriously!

1. Identify parts where you might speed up your presentation or where you have to spend more time for additional explanations than expected in the beginning.
2. Identify parts for which you ran into problems while speaking about:
 - (a) This might indicate parts of your “story” which require some rework asking for modifications to your slides also.
 - (b) This might indicate parts you should train the presentation more often.

2.6 | The Final Checking

Finally you should proof read all slides to make sure that no typos exist any more and that everything looks as intended.

1. Make sure that all material on the slides is of highest quality and reproduces nicely.
2. Make sure that the layout of graphs, charts, diagrams is consistent over all slides: the look should always be the same.
3. Go through all points listed above one by one and check their correct implementation.

3 | Just before the Presentation

Before the session begins in which you will give your presentation, it is strongly recommended that:

1. You familiarise yourself with the environment you will encounter for your presentation.
2. Load your presentation on the computer equipment available or check the connection of your computer to the beamer. Make sure that technically everything is working fine.
3. Briefly go through all slides to check that they are projected as intended. Special attention should be given to symbols and to video sequences if applicable.
4. Find out your best position to the screen if not given by the local arrangement of the equipment.
5. Check for the lightning of the room to make sure that the presentation will be clearly

visible.

6. Check about a clock in the room which you might refer to during your presentation to get feedback on your progress. In case there is none you might place your wrist watch on the table in front of you.
7. Make sure that you inform the session chairman that everything works OK.

4 | During the Presentation

After all points listed above have been observed carefully you are well prepared to give your presentation!

1. Before you start to speak: take your position, look at the audience, shortly wait until the audience is ready for your presentation — and begin to speak.
2. It is recommendable to learn the first two, three sentences by heart. After that, you will feel somehow familiar with the situation and will find it more easy to speak freely.
3. Speak to the audience, do not speak to the screen! There is generally no reason to look at the screen behind you: look at the computer in front of you to make sure that your explanations refer to the slide shown.
4. Always look at the audience. Hint: select few persons you know evenly distributed in the room you look at “in a circle”, one after the other and starting from the beginning again.
5. Reading from notes or from the screen in front of you is a no-no! Speak freely.
6. Speak in short and simple but active, positive sentences, do not try to speak in deeply nested sentences. Do not exaggerate, do not use double negative statements.
7. Do not refer frequently to something which you will show in one of the following slides (pointing ahead). The audience will have forgotten this reference immediately. When you identify the need to do this quite often take this as an indication that the ordering of your statements making up your story might need to be reworked (→ should have been detected in your test runs already).
8. Always explain graphical elements on your slides. Do not assume that the audience will understand this “automatically”. Not explaining graphical elements implies the high risk of misinterpretation.
9. When pointing on the screen to focus the audience on a special aspect: TTT = “touch – turn – talk”: point on that aspect while looking at the screen, turn to the audience and explain – or the other way round.
10. Make sure that the focus you set while pointing on the screen is clearly visible to the audience. In no case “wipe” around with the pointer on the screen.
11. If you use a laser pointer hold your hand against your body which avoids flickering movements of the pointer on the screen. This is specially advantageous in case you are a little nervous while suffering from acute stage fright.
12. Do not move around, keep staying at a position which you have tested before you speak to the audience or which is given by the local arrangement e.g. a speaker’s desk.
13. Do not hold your hand(s) in a pocket!

14. Very, very important: be on time! One, max. two minutes longer than the planned duration reserved for your presentation can be accepted but never more! As you will have given the same presentation to yourself (and e.g. to some friends) more than once already, you will be able to be very exact in the overall timing.

5 | After the Presentation — The Discussion

After a presentation it is very common that the audience will get the opportunity to raise some questions or comment on what was presented.

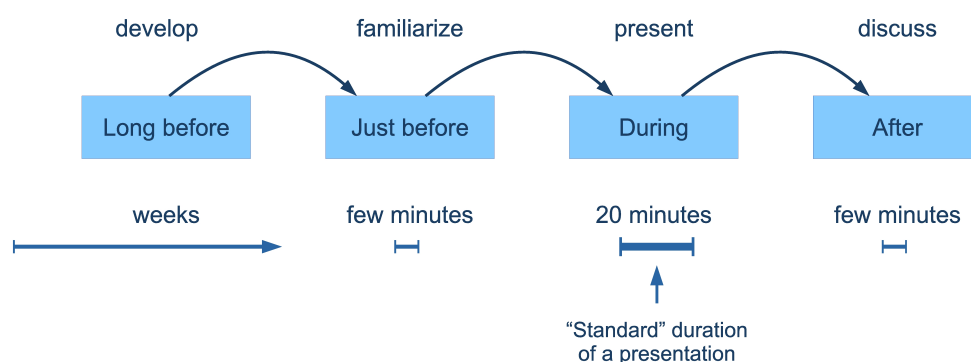
1. In the discussion answer questions as precisely as possible. While answering look at the person raising the question.
2. Do not compliment the questioner, e.g. with “This is a good question!”. All questions are good except those obviously meant to blow the questioner’s own trumpet.
3. If you do not understand the question, kindly ask for a repetition.
4. If the questioner has raised more than one question at a time which you do not remember after having e.g. answered the first one kindly ask for a repetition of the additional ones.
5. If you do not know an answer at all, do not hedge around the subject, simply say that you do not have an answer for that question at the moment.
6. In case a questioner is explicitly referring to a specific slide or an answer can be supported by one of your slides: select that slide for presentation before (!) you give the answer: do not talk to your computer!
7. Do not go back and forth through your slides multiple times: this is always annoying for the audience.

Finally enjoy the applause and relax!

A | Slides

The following slides show many examples on how to prepare an outstanding presentation. After an introduction reflecting general aspects of presenting an idea, research results, a proposal... , the whole process as depicted below is covered while emphasis is put on the early phases with the development of a screen play and a story board as the fundamental prerequisites for the subsequent implementation of the slides.

The perspective taken is the one gained after more than 30 years of professional life in the maritime community in which the author has spent uncountable hours while listening to poor presentations spoiling his and the whole audience's time. As presenting is always very much related to personal attributes the reader might develop own ideas on how to deliver a treasurable presentation. In any case the reader is encouraged to reflect what is written above and shown on the next pages. If the reader is seeking for more information millions of websites and documents as well as a tremendous number of books exist from which he/she can make use of.



The Art of Being Remembered

How to Prepare and Give a

Presentation



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Why this seminar?

- ▶ Google search “presentation+how to”
 - More than 650 000 000 hits
- ▶ Amazon book search “präsentieren” (German for “to present”)
 - 1115 books in German language
- ▶ **Vitally important**
 - for professional career
- ▶ From my personal experience in 35 years
- ▶ To address some most important aspects
- ▶ Want more: see material available

You have seen many poor presentations!

→ Audience perspective

- ▶ Did not understand
- ▶ Confusing, too complex, too much information but no context
- ▶ Could not read, understand text, graphs, figures
- ▶ Boring, not interesting
- ▶ Is the topic relevant?
- ▶ Which are the new results achieved?
- ▶ What was the conclusion?
- ▶ Can not remember key messages

Why are many presentations so boring?

→ Presenters responsibility

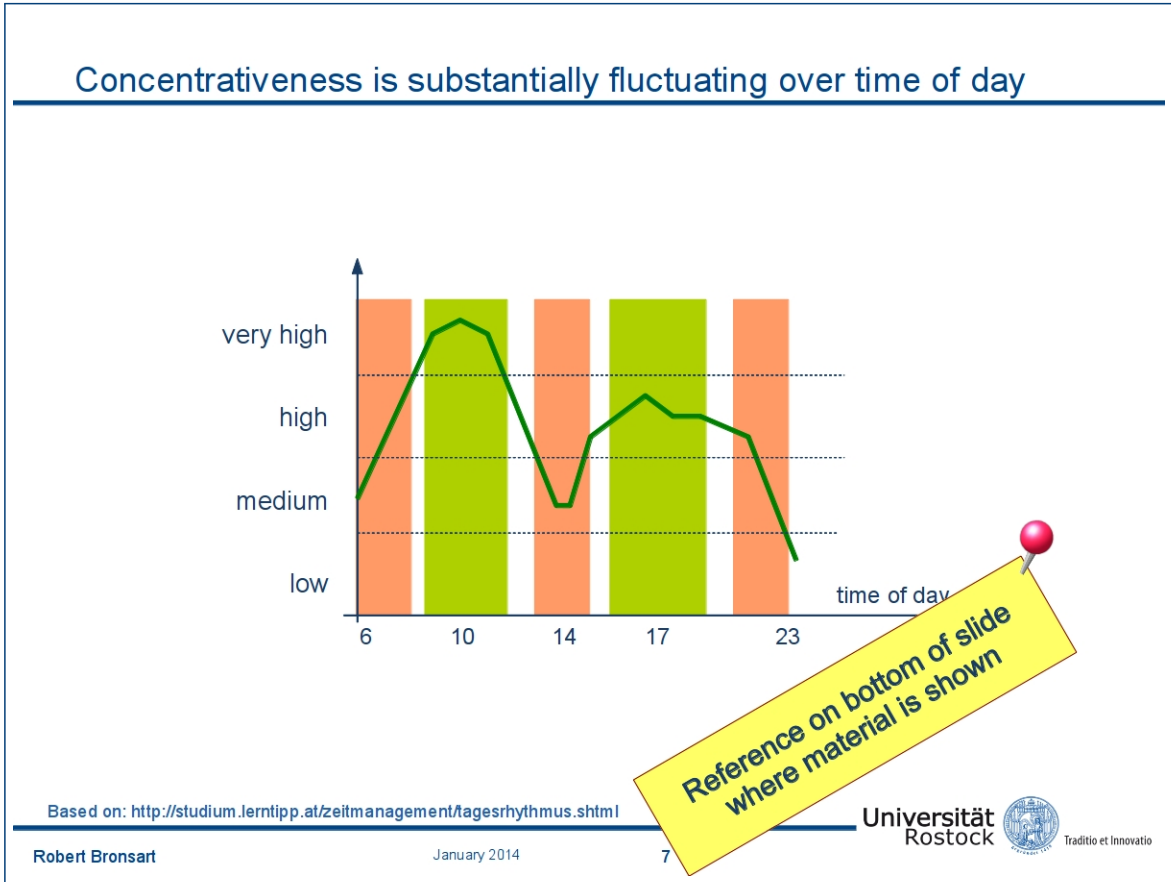
- ▶ Too much focus on details
 - Work of month (years) to be presented in few minutes
 - Motivation and goals not clearly discussed
 - “Helicopter view” missing
 - Structure not comprehensible
 - No real reflection of the expected audience, situation
- ▶ Tendency to squeeze too much into limited time
- ▶ No real ideas about objectives
- ▶ Key messages not elaborated (do not exist)
- ▶ Poor implementation of slides



What makes a presentation positively memorable?

- ▶ Was interesting
- ▶ Do remember
- ▶ Could follow the “story”
- ▶ Information presented in a logical sequence
- ▶ Easy to understand based on visualized information
- ▶ Could read, interpret text, graphs, figures
- ▶ Had clearly formulated motivation, approach, conclusion
- ▶ Well remember few key messages
- ▶ Learned something

Challenge: nobody is interested in the topic!

- ▶ Your presentation will be number “X” of many
- ▶ Audience will not know about the topic
- ▶ Some might know more than you
- ▶ Audience will not be interested
- ▶ Audience will be tired – even though interested
 - Time of the day: too early – too late
 - After lunch break
 - Too much information from previous presentations
 - Poor lecture room conditions



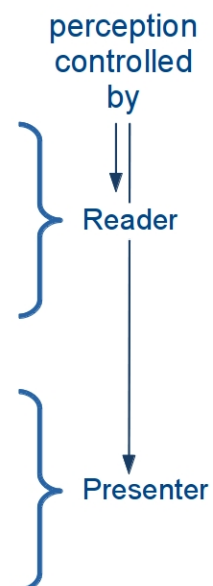
- ### What do you want the audience to remember?
- ▶ Immediately after your presentation
 - ▶ After the session
 - ▶ Two days later
- Bad news: People hardly remember anything!
- 
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Only outstanding presentations will be remembered

- ▶ Strong competition
 - Other presentations asking for attention
 - Divergent interest of audience
 - Perpetual high-profile media in general
 - Information overflow tendency

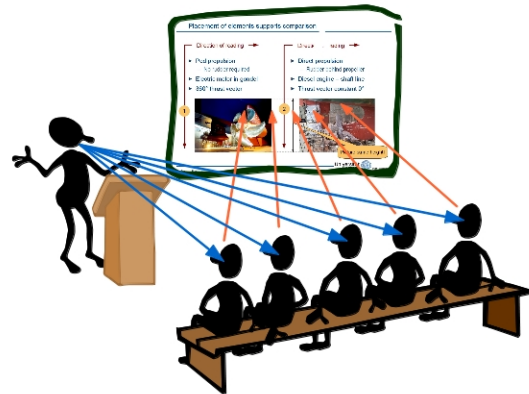
Observe major difference between paper and presentation

- ▶ Paper, Thesis (once it is written)
 - Highest level of detail
 - Author has no control how reader reads the paper
 - Reader fully free to use as much time as necessary
 - to focus following own interest
 - to go forward and backwards
- ▶ Presentation
 - Limited level of detail
 - Limited time to communicate complex story
 - Audience has no control on presentation
 - Presenter fully controls contents, focus and timing
 - Single sequence: beginning → end



Presenting is special form of communication

- ▶ Two involved parties
 - Presenter ↔ Audience
- ▶ Two communication channels
 - Visual →
 - Acoustical →
- ▶ Two channels
 - Operated parallel
 - Controlled by different protagonists
 - Should function well - be consistent
- ▶ Successful only if
 - Common interpretation rules applied

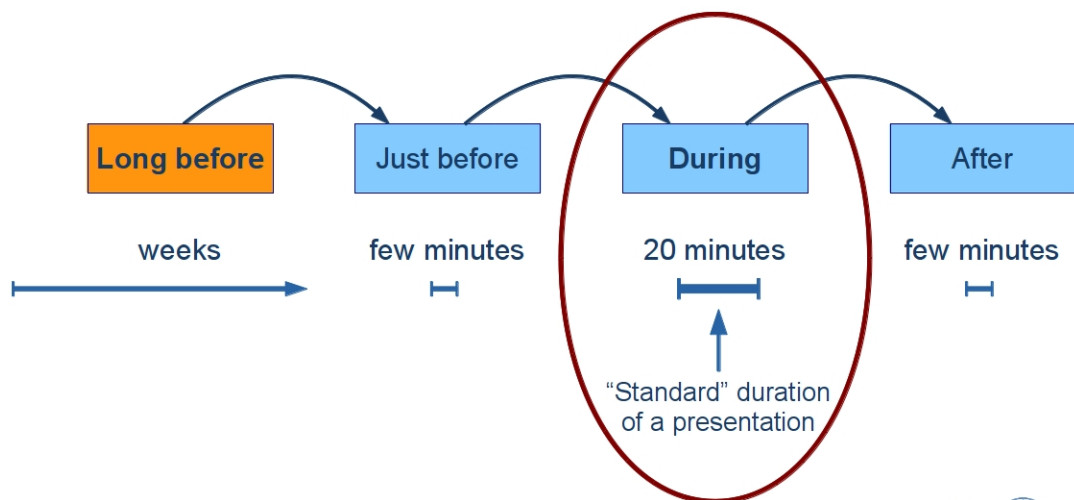


Presenting is always selling in best sense

- ▶ Selling
 - An idea, a proposal
 - Work done, results achieved
 - Personal objectives ←
- ▶ Selling is NOT
 - Cheating, bamboozling, fleecing
 - Undermining, telling lies
- ▶ Topics and presenter always interrelate ←
 - Presenter held responsible for contents
 - Judgement about content and presenter always correlate

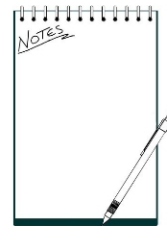
Presentation is part of longer process

- ▶ Different phases to be distinguished



Develop a **screen-play** before starting the implementation

- ▶ Do not start with your computer
- ▶ Sit down and reflect your work
 - Use paper and pencil to write down
 - your **3 key messages** – NOT more
- ▶ Clearly define the subset of all your results to be presented
- ▶ Write down how you can best support your key messages
- ▶ Make a sketch showing your story graphically
 - Flow chart
 - Mind map



→ **Deliberate your “story”!**

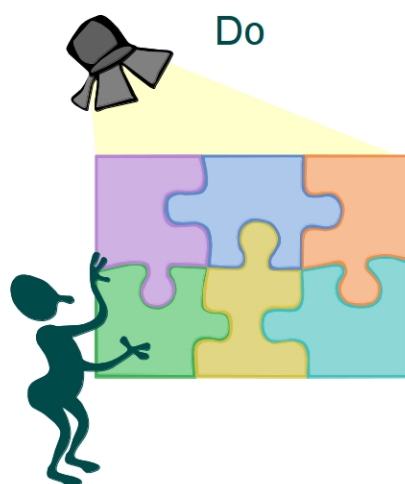
Develop a **story board** before starting the implementation

- ▶ 20 minutes = maximum 20 slides !
 - Title
 - Contents list
 - Summary → 3 key messages → “take home points”
- ▶ Maximum 17 slides for telling your story
- ▶ For each of the 17 slides
 - Write down a short but meaningful title (on a separate sheet)
 - In few words write down the specific message of each slide
 - List / sketch what you want to show on each slide
 - Check the right sequence



The backbone of your story!

Step back and check for a comprehensive story



The story board represents the presentation

▶ 1. slide	title	
▶ 2. slide	contents	
▶ 3. - 19. slide	your story	
▶ 20. slide	summary → 3 key messages	

Now (**not before!**)
start to implement the slides
→ use the computer tool of your choice

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Why are so many presentations so poor?

▶ 1. slide: title	
▶ 2. slide:	
▶ 3. - 19. slide:	
▶ 20. slide: summary → 3 key messages	

Authors start with the implementation

start to implement the slides
→ use the computer tool of your choice

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1. slide should attract audience to listen

- ▶ Title should be
 - Short (a title is not an abstract!)
 - Not full sentence
 - Implying topic related terminology
 - No acronyms
 - No abbreviations
 - Attractive: arouse audience's curiosity
- ▶ Include all authors, presenter first
- ▶ Include affiliation of authors
- ▶ Include occasion of presentation, place, date
- ▶ Not to be explained in detail

2. slide should give brief overview

- ▶ Contents list
 - Not more than 7 items
 - Single level structure
 - Words, phrases → NOT full sentences
- ▶ Gives overview what to expect in presentation
- ▶ Note: audience will NOT remember during presentation
- ▶ 1 – 2 graphics can be added as appetizer, eye-candy

Reason for NO contents list: ←
→ start with motivation/background

3. slide to give motivation for following story

- ▶ Set up the scene: give background
- ▶ Why this presentation?
- ▶ Set scope
 - What is in
 - What is out
- ▶ Apply “helicopter view”

4. slide to discuss state of the art

- ▶ What is known
- ▶ What deficiencies exist
- ▶ Which approaches were taken before
 - Leading to which results
- ▶ Which are comparable initiatives
- ▶ How does the following differentiate
 - What are you doing better?

5. - max 19. slide implementation of story

- ▶ Implementation of story
 - Based on developed story board
 - Representing screen play

A good story deserves a perfect implementation

- ▶ Each slide to have a meaningful heading
 - Positive (negative) statement
 - Question
- ▶ Use proper means to transport message in short time
 - graphs, charts, pictures, flow charts, videos
- ▶ Flow charts specially problematic !
- ▶ Videos might cause technical problems !



All material in any case to be reworked
Nothing from thesis, paper can be used 1:1



A professional layout eases perception

Consistent layout through all slides

▶ Elements on slide

- Same style
- Clear structure
- Symmetry
- Unambiguous ordering
- Dynamic impression

▶ Do not overload

- leave major part empty

▶ “less is more!”

▶ Make slides nicely looking

Area for information

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Do not overload slide with information!

Fully overloaded slide

Sources of CAD Inconsistencies

```

graph LR
    PO(Physical object) --> N[Nature]
    N --> VD[Virtual Data]
    VD --> A[Approach]
    A --> VAD(Virtual Another Data)
    N --> VD
    VD --> A
    A --> VAD
    
```

Virtual Design

Related to Basic concept abstraction

Source for:

- Inaccuracies in modeling process
- Inaccuracies in description /representation

- x Gaps
- x Intersections
- x Degeneracies
- x singularities

Digitization

Related to Measurement of real world phenomenon

Source for:

- Measurement inaccuracies
- Measurement limitations

- x Holes
- x Topological noise
- x Aliasing

Related to Data Exchange from one to another includes

- Tessellation
- Reconstruction from points
- Solid model boundary extraction

- x Holes
- x Gaps
- x Intersections
- x Degeneracies
- x singularities

Complex + confusing mixture of Flow chart, text, explanations

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Message ??

Linear and Non-linear Dynamic Responses

Numerical Results - Full Loading Case
 The dynamic shear force at hydroelastic linear and non-linear analysis, significant wave height $h_{1/3}=10.65m$ $\lambda/L=0.75$

Time record (Linear) Amplitude spectrum FFT (Linear)

Time record (Non-linear) Amplitude spectrum FFT (Non-linear)

Ratios between short term oscillations and vibrations response, for the significant deformation, bending moment and shear force ($h_{1/3} = 10.65m$)

$W_{1/3_vib} / W_{1/3_osc}$	$M_{vib_{1/3}} / M_{osc_{1/3}}$	$T_{vib_{1/3}} / T_{osc_{1/3}}$
Linear	Linear	Linear
5.68%	15.07%	13.86%
Non-linear	Non-linear	Non-linear
5.78%	33.16%	27.37%

	Slamming	Green Sea
Bottom	Aft, $h_{1/3} > 5.75m$ Fore, $h_{1/3} > 12.0m$	Aft, $h_{1/3} > 11.50m$ Fore, $h_{1/3} > 10.65m$
Side	Aft and Fore	
	Springing	Whipping
	Linear : very reduced Non-linear: small	High intensity

12

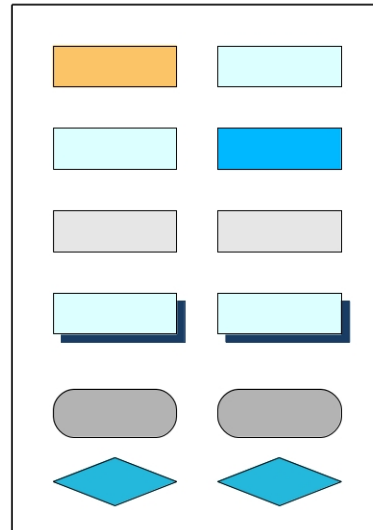
My favorite one!

Message here:
 "I have no idea what I am talking about!"

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Structuring used to add information

- ▶ Relationships between elements
- ▶ Connections between elements
- ▶ Focus on elements
- ▶ Priority of elements



Placement of elements supports interpretation

1

Natural direction of reading →

- ▶ Pod propulsion
 - No rudder required
- ▶ Electric motor in engine pod
- ▶ Thrust vector 360° steerable

- ▶ Direct propulsion
 - Rudder behind propeller
- ▶ Diesel engine – shaft line - propeller
- ▶ Thrust vector constant 0°




Upper picture courtesy of MEYER WERFT

Placement of elements supports comparison

1 - Direction of reading →

Alternative 1
"Pro"...

- ▶ No rudder required
- ▶ Electric motor in pod
- ▶ 360° thrust vector

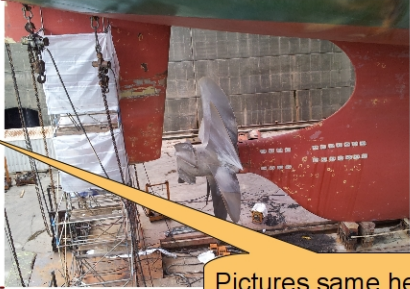


Left picture courtesy of MEYER WERFT

2 - Direction of reading →


Alternative 2
"Con"...

- ▶ Rudder behind propeller
- ▶ Diesel engine – shaft line
- ▶ Thrust vector constant 0°






Pictures same height!
~ same width

31

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Placement of elements sets focus




▶ Electric motor in pod

▶ 360° thrust vector

▶ Diesel engine – shaft line

▶ Thrust vector constant 0°

32

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A meaningful title will be remembered

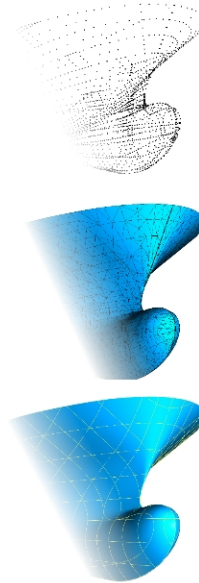
- ▶ Positive (negative) statement
 - Summarizes the message of the slide
 - Gives guidance how to interpret the slide
- ▶ Examples
 - + “Measurements well approximated by regression formula”
 - + “Numerical results proven by measurements”
 - + “Accuracy of numerical results to be increased”
 - + “Model satisfies specified requirements”
 - “Measurements”
 - “Results achieved”
 - “Developed Model”
 - “Implementation”

Question as title to be selected with care

- ▶ Title = question → slide = answer
- ▶ Activates audience
 - Starts to find answer from own perspective
 - Discrete discussion of answer presented
- ▶ Implies drawback
 - Audience not listen but concentrates on question

Implementations can impair the story

- ▶ Very careful usage of acronyms, abbreviations
 - Commonly understood?
 - Own coding scheme always problematic
- ▶ As simple as possible ↔ as complex as necessary
- ▶ Same professional style
 - No animations
 - No comics
 - Only material relevant in context
- ▶ Careful usage of “eye candy”
- ▶ Every slide to have a unique sequence number



Text can make presentations boring

- ▶ No full sentences, no articles, no footnotes
- ▶ Max 7 lines in list
 - Max 2 level structure
- ▶ Always same line spacing
 - Not too narrow
 - Not too wide
- ▶ Avoid too long statements with line breaks which only can occur in case of too long phrases or even full sentences like in this example.
- ▶ Formulate positively
 - Not double negative

Text is very important means to transport messages


24 pt

22 pt

single font for all text:
Arial

- ▶ Must have size to be read easily, should not be too small
- ▶ Use single sans serif font (NO serif fonts)
- ▶ Use **Highlighting carefully** (NO underlining, NO **shading**, NO “ ”)
- ▶ To be readable very easily
 - Be aware of **problematic color combinations**
 - Be aware of **sufficient contrast** to ease the reading
 - **NOT in pictures**

20 pt



Why inverse?


NO hyphenation !

Left-aligned, NOT centered

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January 2014


37



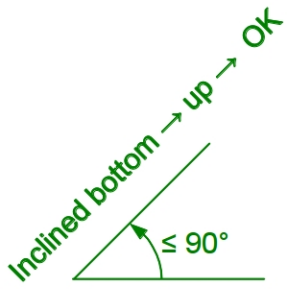
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Orient text in normal reading direction

- ▶ Everything on slide easy to read
 - Left → right
 - Line by line top → down
- ▶ Text NOT in normal orientation attracts attention



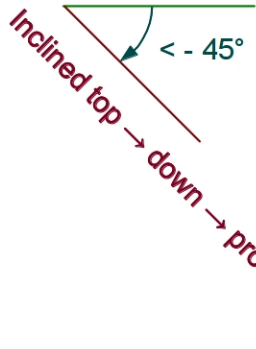
Inclined bottom → up → OK



Bottom → up → OK

Top → down → NOI


Inclined top → down → problematic



Robert Bronsart

January 2014

38



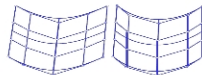
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Graphics with text support transport of message



► Note: graphics are like : sucking up all attention!

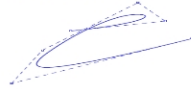
- Non-abutting patches of a surfaces



- Holes (missing pieces within a surface)



- Curve self intersections



- Degenerate Elements



- Surfaces self intersections

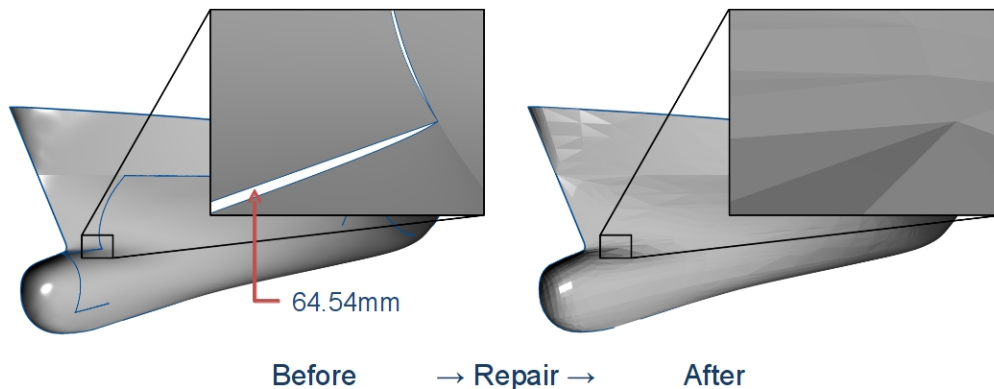


- Gaps (Missing pieces b/n surfaces)

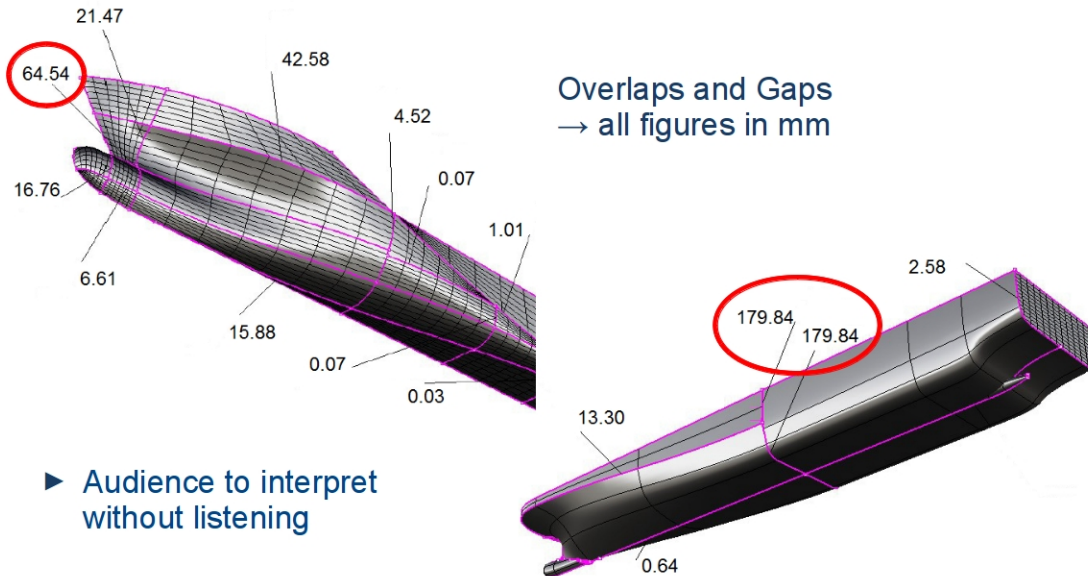


Graphics most valuable means to transport message

- To be fully interpreted in short time span
 - Give textual explanation - highlight areas to focus at
 - Do not overload slide



Guide audience where to focus at



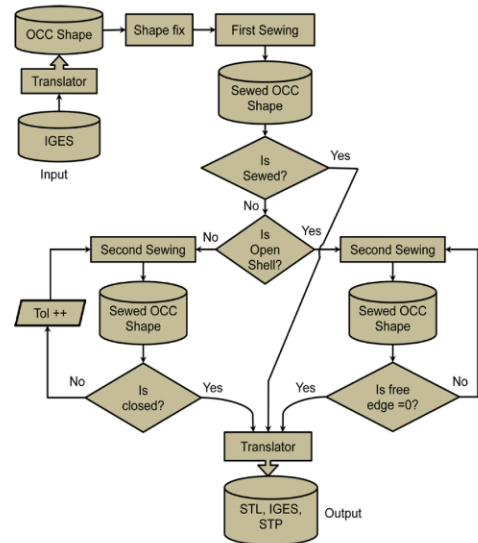
Formulae only if really necessary for story

- Challenge: to be comprehensible in short time period
 - Too complex: audience confused, frustrated
 - Too simple: message?
- Observe text requirements, here specially for indices
- Symbols might not reproduce on presentation computer
- Use proper means to highlight important aspects
- What is the message?
- Better ways to transport message?

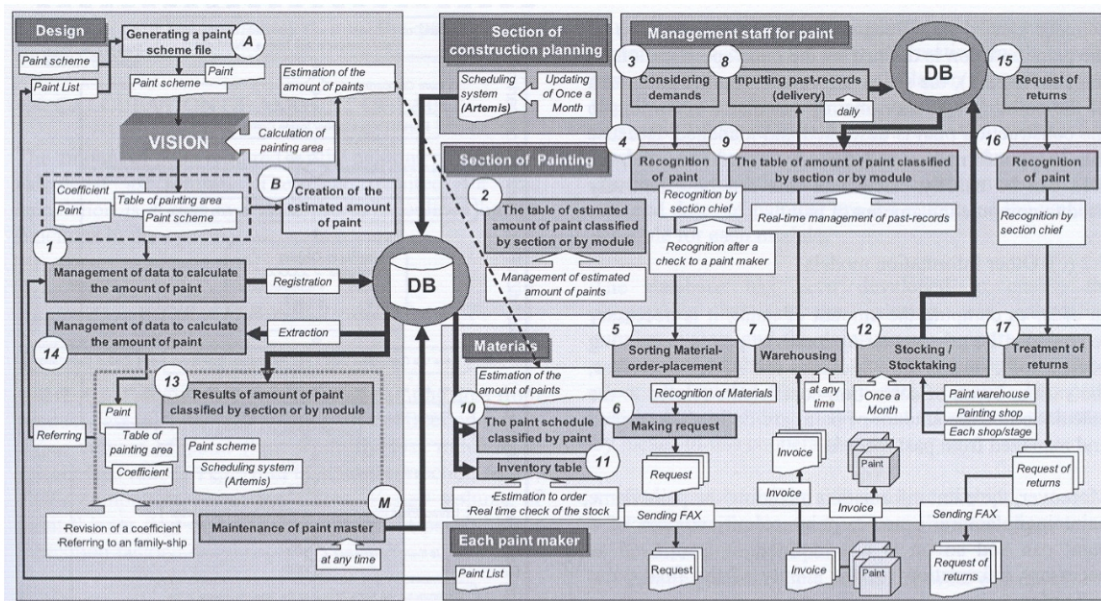
$$\Delta p = \iint_{\Delta ABC} p(\xi, \eta) d\xi d\eta = f(l/L)$$

Flow charts must be very simple to be understood

- ▶ Example of too complex flow chart
- ▶ Single flow direction
- ▶ Very limited number of objects
- ▶ Text requirements
- ▶ Known graphical syntax
- ▶ NO 3D view
- ▶ What is the message?
- ▶ Better ways to transport message?

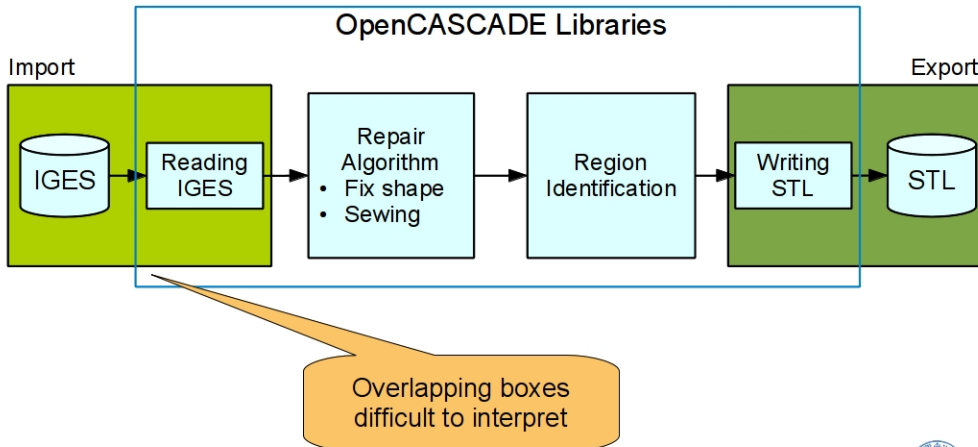


My favorite flow chart: 45 seconds to fully understand - Come on!



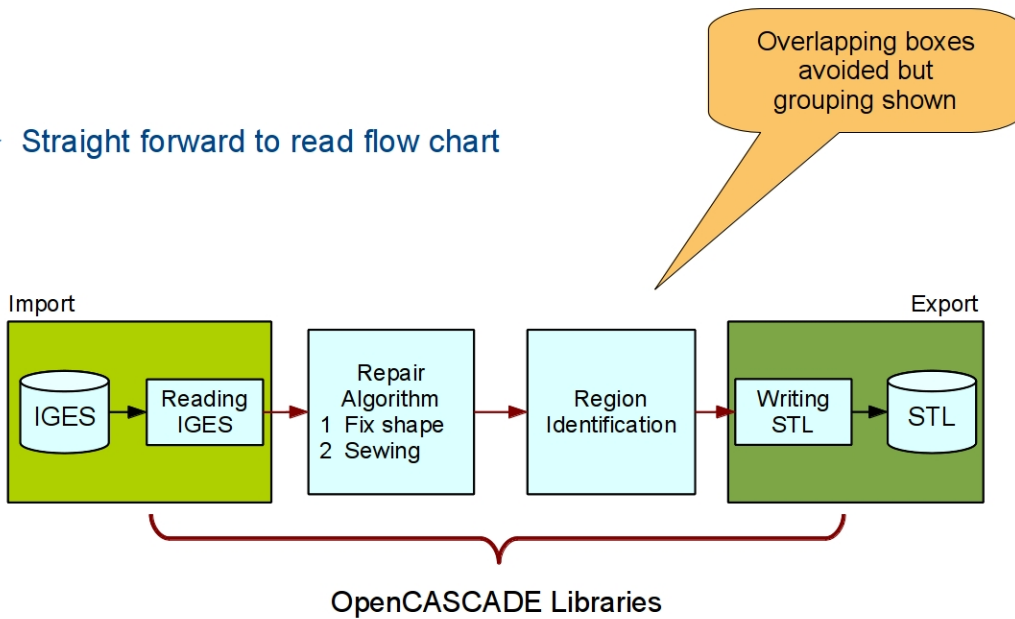
Engineers like to think in process flows

► Flow chart of acceptable complexity



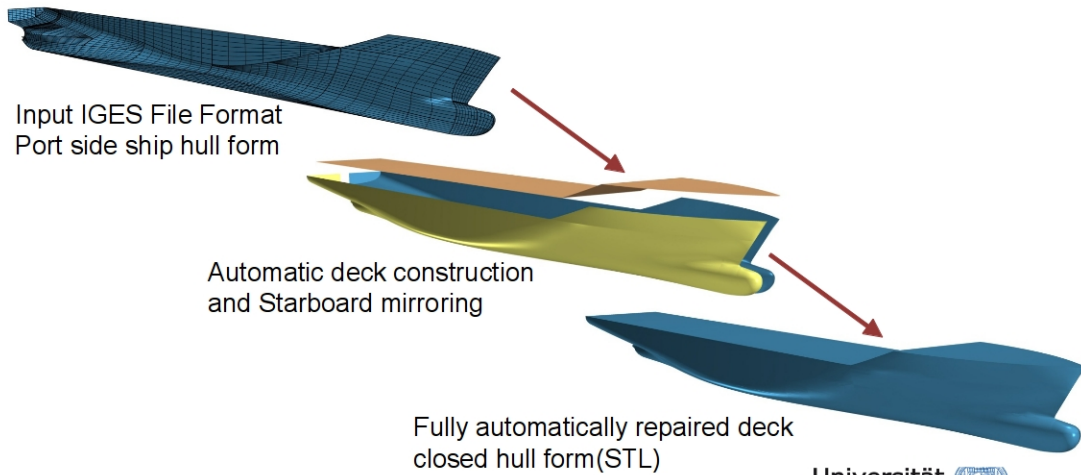
Engineers think in process flows

► Straight forward to read flow chart



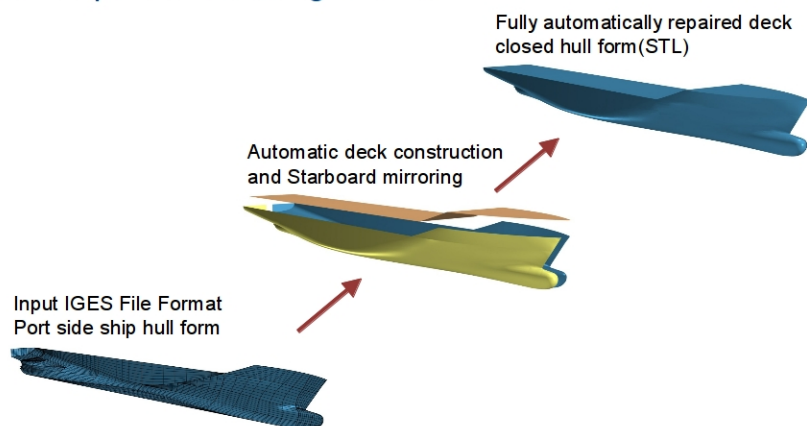
Engineers are trained to think in process flows

- ▶ If feasible show process flow with results
 - Left top → right bottom = normal reading direction



Engineers are trained to think in process flows

- ▶ Lower left → upper right
 - Dynamic impression
 - But: bottom → top unusual reading direction






Pictures to be of good quality

- ▶ Every picture to be meaningful
 - No picture to paint slide
- ▶ Every picture of high quality, right scale
- ▶ NO screen-shots
- ▶ NO dark background for rendered pictures
- ▶ NO comics
- ▶ Every picture large enough audience can easily recognise
- ▶ Set focus by annotation
- ▶ More than one picture on slide
 - Same size
 - In line

Tables are generally a poor means to transport message

- ▶ What is the message here?

Ship Hull Forms	Length (m)	Min. Edge Length(mm)	Max.Tolerance (mm)
	333	117	117
	132	2.84	28
	180	0.00098	150



Message?

Nobody can follow
Nobody will understand
Nobody will remember

Part 4 – Fatigue Analysis and Preliminary Ship Life Prediction

Numerical Results

3D/1D combined model with North Atlantic histogram

Detail 2 - x/L = 0.50								
	Full Load		Ballast Load		0.5 full load + 0.5 ballast load			
Analysis	D _{SN_osc}	D _{SN_vib}	D _{SN_osc}	D _{SN_vib}	D _{SN_osc}	D _{SN_vib}	D _{SN_osc+vib}	L _{osc_vib}
ADV	0.8739	-	0.992	-	0.9330	-	0.9330	21.4
HEL	0.8739	0.0060	0.992	0.0000	0.933	3.0E-03	0.936	21.4
DYN-LN	0.8868	0.0032	1.092	0.001	0.990	1.9E-03	0.992	20.2
DYN-NLN	1.1133	0.0683	1.157	0.037	1.135	5.3E-02	1.188	16.8

Fatigue criteria is not satisfied

3D/1D combined model with Word Wide Trade histogram

Detail 2 - x/L = 0.50								
	Full Load		Ballast Load		0.5 full load + 0.5 ballast load			
Analysis	D _{SN_osc}	D _{SN_vib}	D _{SN_osc}	D _{SN_vib}	D _{SN_osc}	D _{SN_vib}	D _{SN_osc+vib}	L _{osc_vib}
ADV	0.2651	-	0.305	-	0.2849	-	0.2849	> 35
HEL	0.2651	0.0051	0.305	3.7E-05	0.285	2.5E-03	0.287	> 35
DYN-LN	0.3095	0.0018	0.319	3.5E-04	0.314	1.1E-03	0.315	> 35
DYN-NLN	0.4037	0.0183	0.344	9.0E-03	0.374	1.4E-02	0.387	> 35

Fatigue criteria are satisfied

ADN – linear oscillations response without head wave interference component
 HEL – linear hydroelastic response in irregular head waves without interference component
 DYN – LN and NLN – linear an non-linear response in irregular head waves with interference component (wave model Longuet-Higgins)

Message ?

Nobody will understand
Audience will be frustrated
Nobody will remember

The Global-Local Ship Hull Strength Analysis, Bas...
 Model Extended on Two Cargo Holds

Results – wave hogging conditions (h_w = 8.123m)

Deck elements	hw = 8.123m	Max σ_x Stress 3D Full [MPa]	Max σ_x Stress 3D 2 Comp Fine mesh [MPa]	σ_x Fine 2C/3D Full	Max σ_{vonM} Stress 3D Full [MPa]	Max σ_{vonM} Stress 3D 2 Comp Fine mesh [MPa]	σ_{vonM} Fine 2C/3D Full
		Hogging	241.20	321.57	1.33	217.80	294.76
Sagging	329.90	389.90	1.18	297.90	371.64	1.25	

Bottom elements	hw = 8.123m	Max σ_x Stress 3D Full [MPa]	Max σ_x Stress 3D 2 Comp Fine mesh [MPa]	σ_x Fine 2C/3D Full	Max σ_{vonM} Stress 3D Full [MPa]	Max σ_{vonM} Stress 3D 2 Comp Fine mesh [MPa]	σ_{vonM} Fine 2C/3D Full
		Hogging	94.89	109.30	1.15	85.62	100.40
Sagging	111.30	120.70	1.08	106.50	107.80	1.01	

Side elements	hw = 8.123m	Maximum τ_{xz} Stress 3D Full [MPa]	Maximum τ_{xz} Stress 3D 2 Comp Fine Mesh [MPa]	τ_{xz} Fine 2C/3D Full
		Hogging	34.70	36.52
Sagging	47.85	42.41	0.89	

The safety coefficient with reference to the yield stress limit has the minimum value for the deck stress in hogging 1.213 and in sagging 1.

max 35% differences

Annotate tables to ease interpretation in short time





March 2013

Title of slide is:
Ships: the far most environmental friendly means of transport

Digital camera: Shanghai → Hamburg



Ratio is the message !

Absolute values
How to interpret?

			
Distance (km)	19.700	10.000	8.500
CO ₂ [g]	200	850	5.600
	1	4	28

Data from GL Annual Report 2007

Observe major difference between paper and presentation

	 Journal paper Thesis	 Presentation
Complexity – level of detail	High	Moderate Helicopter view
Time	Any	Short (20 minutes) precisely specified
Perception controlled by	Reader	Presenter
Focus	Reader's interest	Presenter's agenda
Sequence	Any – back and forth	Linear – beginning to end

Same as slide above
Comparison better visible

Tables specially designed to be readable in short time

- ▶ Table with figures in cells: other representation not favourable?
- ▶ Single table per slide
- ▶ Very few rows and columns
- ▶ Headings easily distinguishable
- ▶ Rows and columns highlighted for clear differentiation
- ▶ Lines to separate cells
- ▶ Distance of cell contents to boundaries
- ▶ Annotate to increase perceivability

Tables generally read in rows left to right

- ▶ Observe table primary and secondary elements
 - Row = 1., Column = 2. priority

	2010	2011	2012	2013
Students enrolled	21	24	28	26
EMMC funding	20	18	16	14
Self funding, scholarships	1	6	12	12

	Students enrolled	EMMC funding	Self funding, scholarships
2010	21	20	1
2011	24	18	6
2012	28	16	12
2013	26	14	12

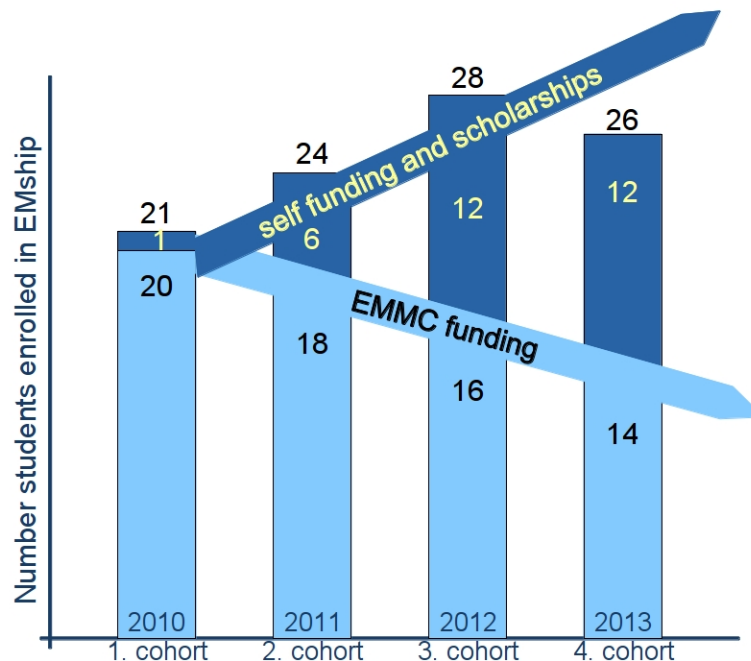
Same data but ordering changed
→ makes less sense

Tables generally a poor means to visualize data

- ▶ Example of only 16 integer values
 - How to interpret in few seconds?
 - What is intended message behind?

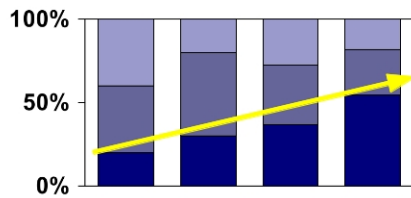
	2010	2011	2012	2013
Students enrolled	21	24	28	26
EMMC funding	20	18	16	14
Self funding, scholarships	1	6	12	12

Charts are a perfect means to visualize data

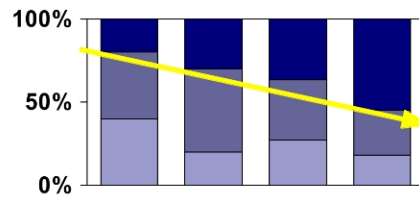


Charts to be designed carefully for intended message

► Same data but different visual interpretation



increasing 😊

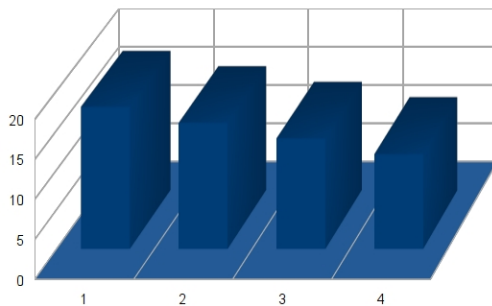


decreasing 😞

► Upwards

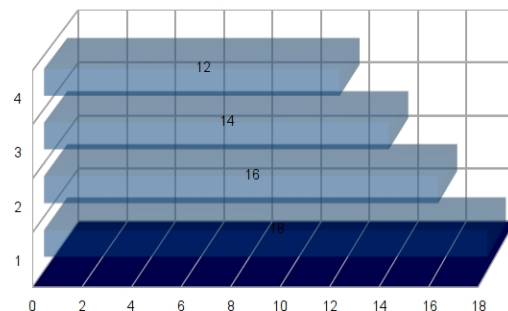
- lighter coloring
- smaller height

Pseudo 3D is always confusing



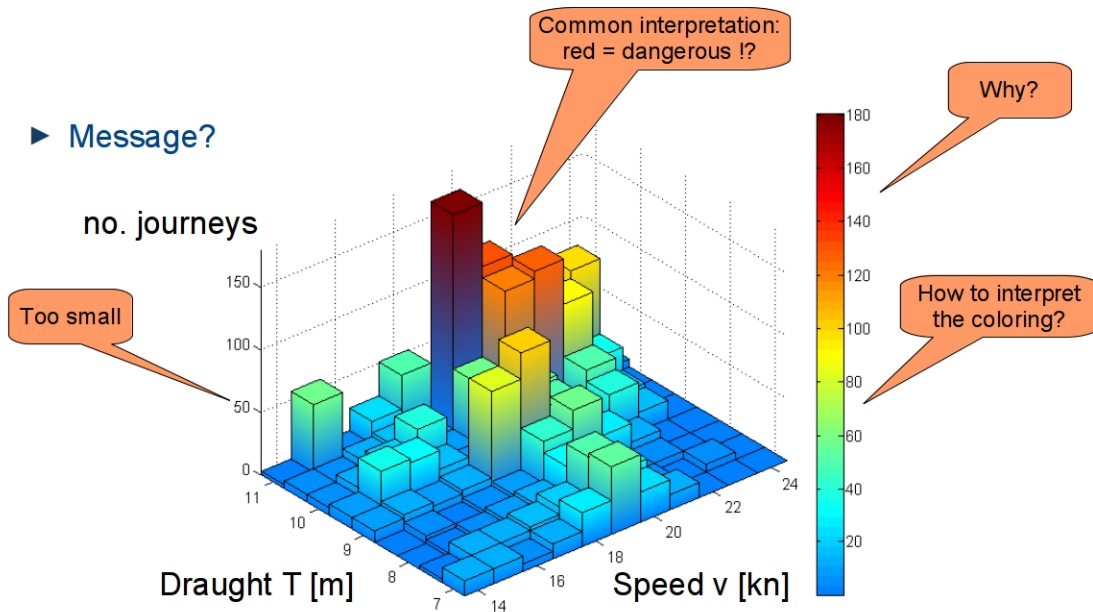
► Values not readable

► Even worse



3D charts: difficult to read values

► Message?

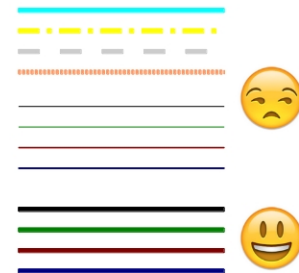


Figures to be used with care

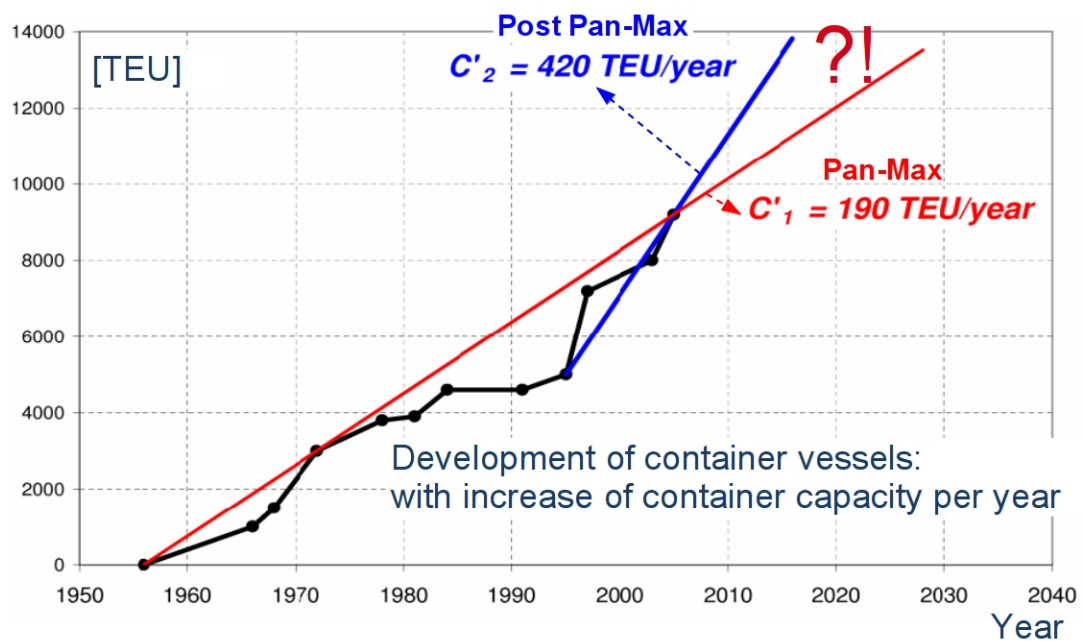
- Nobody will remember multi digit figures
- Always round figures
 - accuracy as low as possible – as high as necessary
 - 9548.463059 ? → 9550 → 9500
- Exponential representation if generally applied in context
 - $3.5 \cdot 10^3$
- Normalized data often more useful than absolute values
 - % of max engine power, of loading capacity, of design draft
- Dimensionless variables if generally applied in context
 - Froude number – Reynolds number vs. speed in knots, m/s, km/h

Function graphs perfect means for message transportation

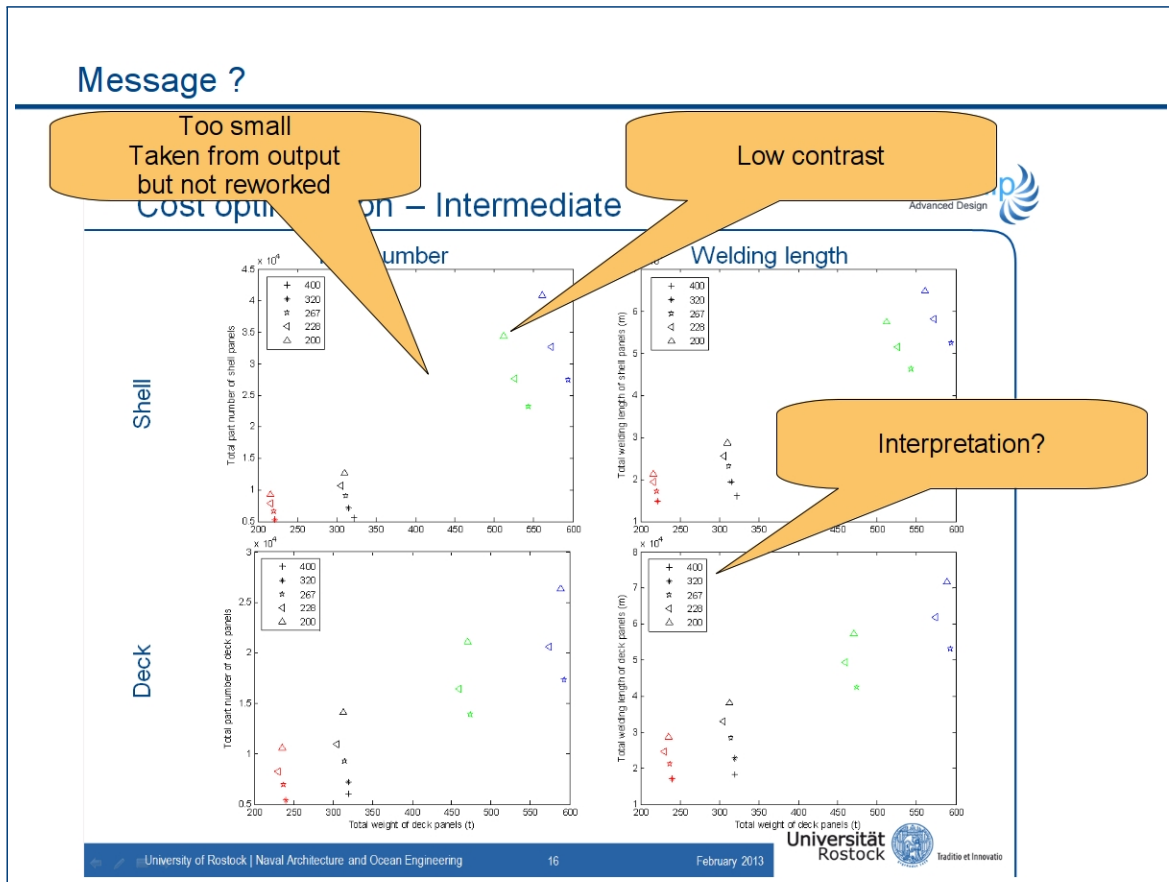
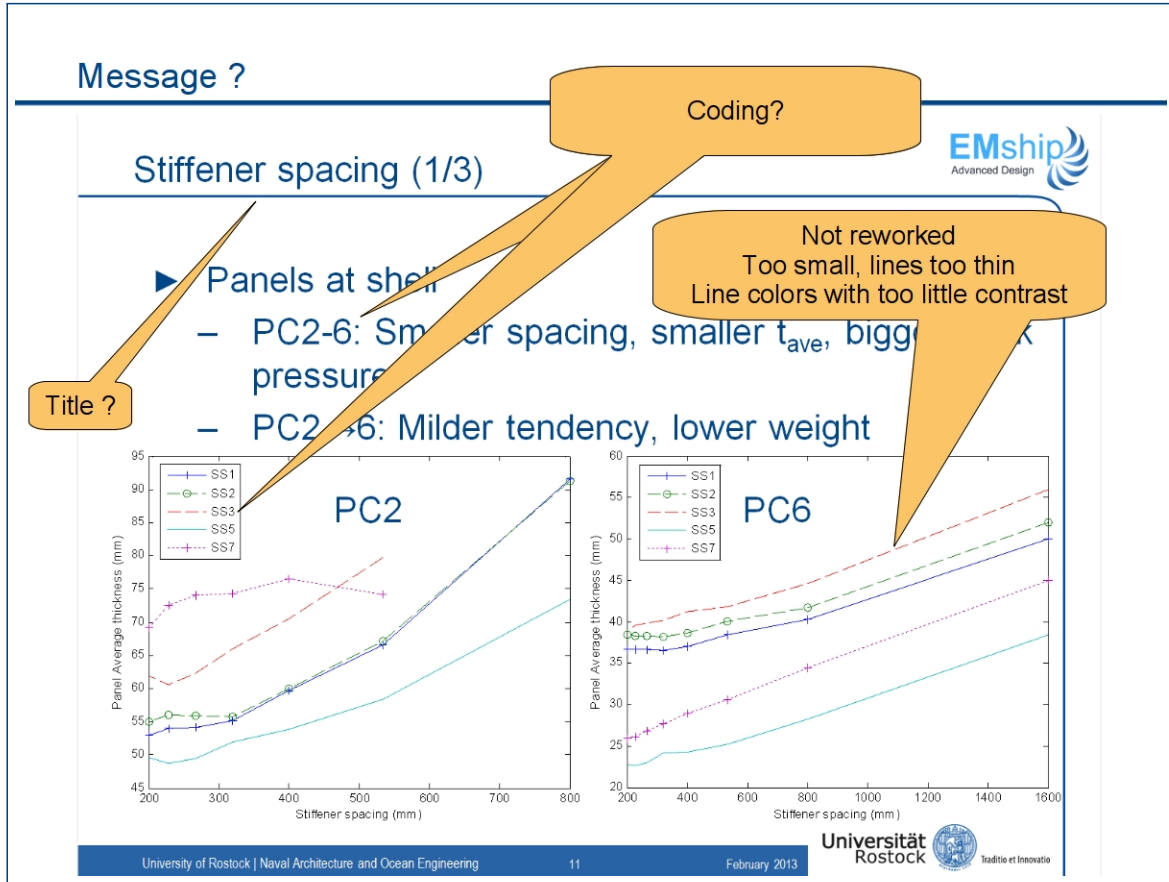
- ▶ Simple and easy to interpret
- ▶ Max two on single slide – better one
- ▶ Clearly labeled abscissa and ordinate incl. commonly used units
- ▶ Max 3 functions to be easily, clearly distinguishable
 - Different high contrast color lines
 - NOT different line style, NOT different thickness
- ▶ Thick lines
- ▶ 2D parameter function in 3D view
 - Trends nicely shown
 - Almost impossible to read values
 - Annotations to set focus



Give advice on how to interpret a function graph

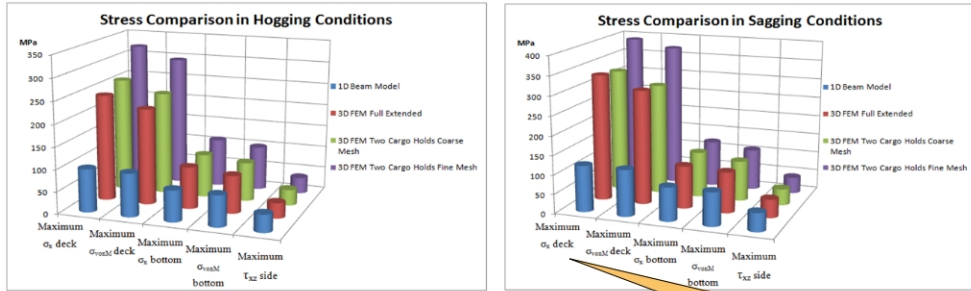


From: Mewis, F. M., *Zur Antriebsleistung von sehr großen Containerschiffen*, STG Sprechtag, 2005



Who will read and understand this in few seconds?

Comparative Results and Conclusions



Stress comparison on all components for each numerical model

In conclusion, by using the user subroutines in the Works Cosmos/M 2007 FEM software, the numerical results provide reliable data for the ship strength assessment (under equivalent quasi-static head waves), having a good concordance between the structural models developed in this study. For further studies, as fatigue analysis, should combine the advantages of the four structural models analysed in this work, taking into account the sensitivity of the ship hull structure models, for the risk panels identification

Basically not readable

No structure
Long, complex sentences
Nobody will read

??

Final Remarks and Conclusions

- From the stress distribution in the 3D-FEM model (global-local strength analysis), for both loading cases, it can be observed that the hot spots stress values are located in the main deck, around the cargo hold frames.
- From the hydroelastic linear and non-linear dynamic response analysis (irregular head waves), results that the bending moments and shear forces are higher in the non-linear analysis than in linear analysis. It is recommended to use the non-linear analysis for more realistic results.
- For stress based on non-linear hydroelastic analysis, under Atlantic wave histogram the maximum $D_{SN(3D)}$ results $1.188 > 1$, so than the ship service life is reduced at 16.8 years < 20 years. In the case of using Word Wide Trade wave histogram no restriction occurs.
- The numerical results are pointing out that for large ships having high wave induced global vibration response, it is necessary to carry out a non-linear hydroelastic analysis, under irregular waves, in order to have a more realistic long term fatigue analysis.
- The study should continue with a finer mesh 3D-FEM model analysis in the areas where were identified the hot-spot stress.

No focus
Long, complex sentences

Nobody will read
Nobody will listen
Nobody will remember

Make use of last slide!

- ▶ Why “Thank you” slide at end?
 - For sitting in room and neither disturbing you nor the audience?
 - For not falling asleep while snoring loudly?
 - For not leaving the room?
 - For not making phone calls?
 - For not eating and drinking?
- ▶ Acknowledge contributions by colleagues: say it!
- ▶ Use perfect opportunity to show/repeat your 3 key messages
 - Will stay on screen for longer time (during discussion)

Make sure that presentation will show nicely on screen

- ▶ Powerpoint
 - Generally available on presentation computer
 - Potential problems: versions change layout, font missing
 - Video sequence problems: codec missing
- ▶ OpenOffice – LibreOffice
 - Generally NOT available on presentation computer
 - Potential problems: versions change layout, font missing
 - Video sequence problems: codec missing
- ▶ PDF
 - Generally available on presentation computer
 - Animation problems: multiple slides solution
 - Video sequence problems: codec missing



Rehearsing is the key for successful presentation

- ▶ Give presentation to yourself
 - Important: standing, loudly speaking
 - Check for parts not running smoothly
 - Check time needed
- ▶ Give presentation to friends
 - Ask for feed back
- ▶ Make sure you finish in given time without hurry
 - 20 minutes are 20 minutes – not less – not more!
- ▶ Finally check all slides
 - Clearly readable, reproduce nicely with consistent style?
 - No typos?



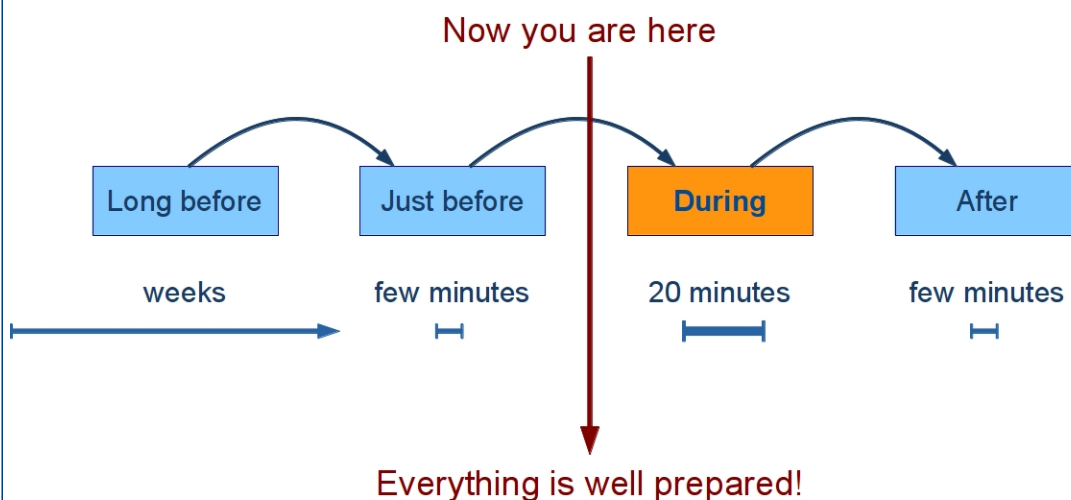
Well prepared – now focus on local setup for presentation



Make sure everything OK before starting presentation

- ▶ Familiarize with set up in lecture room
- ▶ Load presentation on computer; attach own computer to beamer
- ▶ Test remote control - pointer to be clearly visible
- ▶ Check all slides on screen
- ▶ Check that videos show immediately, correctly
- ▶ Find optimal position to screen
- ▶ Find out how to get time feedback during presentation
- ▶ Contact session chairman to give OK for presentation

Well prepared – now focus on presentation



Speak freely – look to audience

- ▶ Distinct start: take position – look at audience – wait – begin
- ▶ Have first 2-3 sentences learned by heart
- ▶ Speak to the audience
 - DO NOT speak to the screen, NOT to computer in front of you
 - Select few persons in room to look at alternating
- ▶ Speak freely
 - DO NOT read from notes
 - DO NOT read from computer in front of you



Be serious – be precise

- ▶ Speak in short, simple, active sentences
 - DOT not exaggerate
 - Avoid double negative statements
 - No jokes
- ▶ DO NOT mention something shown being not important
 - Why then shown?
- ▶ DO NOT excuse for poor readability
 - Why not prepared better?
- ▶ DO NOT frequently refer to slides coming up later
 - Wrong sequence of slides?
- ▶ Fully concentrate on actual slide shown

Always explain all graphical elements

- ▶ NOTHING on slides understood automatically
- ▶ Graphs, Charts
 - Starting with coordinate axes: parameter shown and units
 - Discuss course of functions
 - Emphasise where focus to be set
- ▶ Process flow
 - Start from beginning (input)
 - Explain step by step
 - End at end (output)

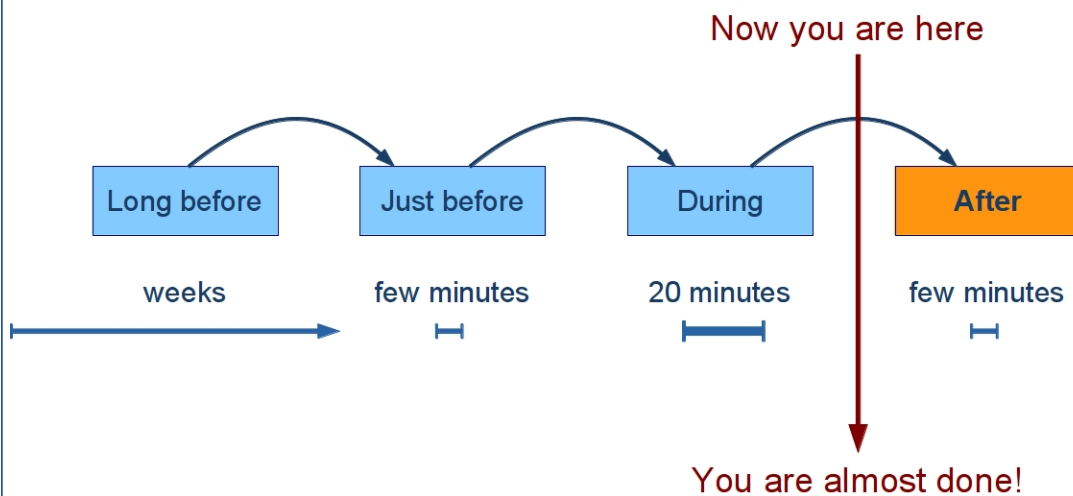
Always explain all graphical elements

- ▶ Formula
 - Left side – right side of equation
 - Important elements
- ▶ Pictures
 - Emphasise focus
- ▶ Tables
 - Start with meaning of columns and rows
 - Discuss cells one by one according to primary direction
 - Allow audience to orient themselves

Help audience to enjoy the presentation

- ▶ TTT: touch – turn – talk
- ▶ Make sure pointer is clearly visible
- ▶ NEVER wipe around with pointer on screen
- ▶ Hold hand at body to avoid flickering of pointer
 - Specially when stage frightened
- ▶ Keep staying at position
- ▶ Hands open at side, in front of you
 - NOT in pockets

Presentation finished – now focus on discussion



Discussion integral part of presentation

- ▶ Answer questions precisely
 - Look at questioner
 - If having no answer be honest: simply say it
- ▶ DO NOT compliment the questioner “This is a good question”
- ▶ Question not understood: kindly ask for repetition
- ▶ One question of many forgotten: kindly ask for repetition
- ▶ Question to certain slide “X”
 - Navigate to slide in single path NOT jumping back and forth
 - Look at questioner – answer – DO NOT speak to the computer
- ▶ Wait for session chairman to formally close presentation

Again: example of an overloaded slide

Enjoy the applause and relax!



Three take home points

- ▶ Delivering a presentation is like telling a story to an audience to be made interested in it
- ▶ A comprehensive, thoroughly developed story board is fundamental basis for successful presentation
- ▶ Implementation of slides to be done with extraordinary diligence

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