

How to present

Guide for scientific presentations

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Overview of topics

Preparation

Structure

Layout

Style

Elements

Presenting

**Objective: You know how to approach the task of preparing
and giving a scientific presentation**

Introduction

Presenter Perspective

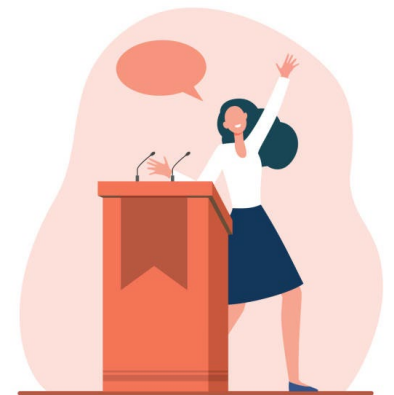
Show the complexity of your work!

Content is far more important than layout!

Content is far more important than presentation skills!



A good presentation can be used again!



Introduction

Audience Perspective

Why is this topic relevant?

I cannot read/understand
the text, figures and graphs!

This is confusing, too much
information but no context!

This is boring,
not interesting!

I cannot remember
the key messages!

Which are the
new results?

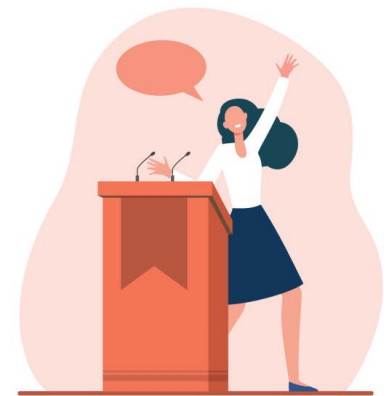
What are the
conclusions?



Introduction

Presenter Pitfalls

- Work of months to be presented in few minutes
 - Motivation and goals not sufficiently discussed
 - No reflection on audience / setting
 - Underestimation of preparation time
-
- Too much focus on details, helicopter view missing
 - Squeezing too much into limited time
 - Structure not comprehensible
 - No clear idea on objectives
 - Key messages not elaborated
 - Poor implementation of slides



Introduction

This was
interesting!

Audience Perspective

I learned something!

I could follow the story!

The information was presented
in a logical sequence!

Motivation, approach and conclusions
were clearly formulated!

I remember a few
key messages!

I could read / understand
the text, figures and graphs!



Introduction

Challenge: No one is interested in your topic!

- Your presentation might be one among many on that day
- Your audience might not be familiar with your topic
- Some people might know more than you
- Your audience might be tired

early morning after night out

after lunchbreak

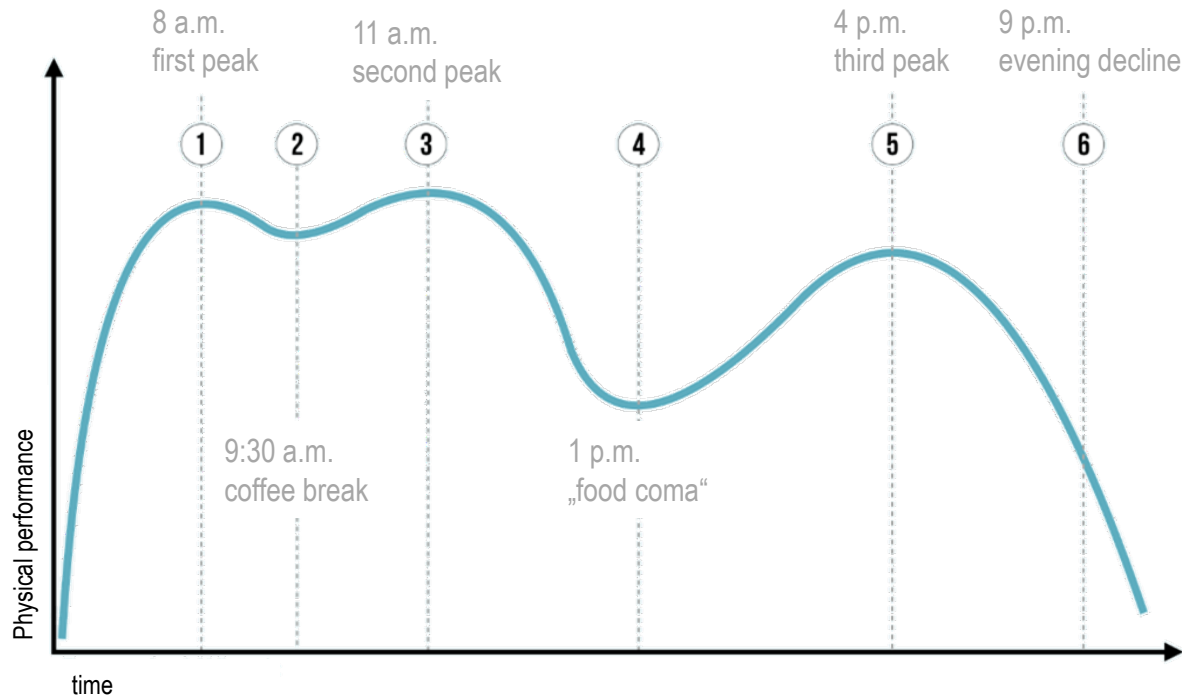
Too much information already
from previous presentations

Poor room conditions



Introduction

Daily Performance Rhythm



Introduction

What will be remembered?

You are in a competition for attention!

Other presentations

Divergence of audience

Constant media input

Information overflow

Only outstanding presentations will be remembered!



Introduction

Differences Paper - Presentation

Scientific texts



- Highest level of details
- Freedom of the reader
- No fixed sequence

→ **Perception controlled by reader!**

vs.

Scientific presentations



- Limited level of detail / time
- No control by the audience
- Fixed sequence

→ **Perception controlled by presenter!**

Introduction

Communication Channels



Parallel operation
Control and consistency
Common interpretation rules

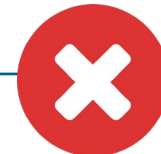
Introduction

The Overall Objective

Sell your idea!



- Ideas / proposals
- Work done
- Personal objectives

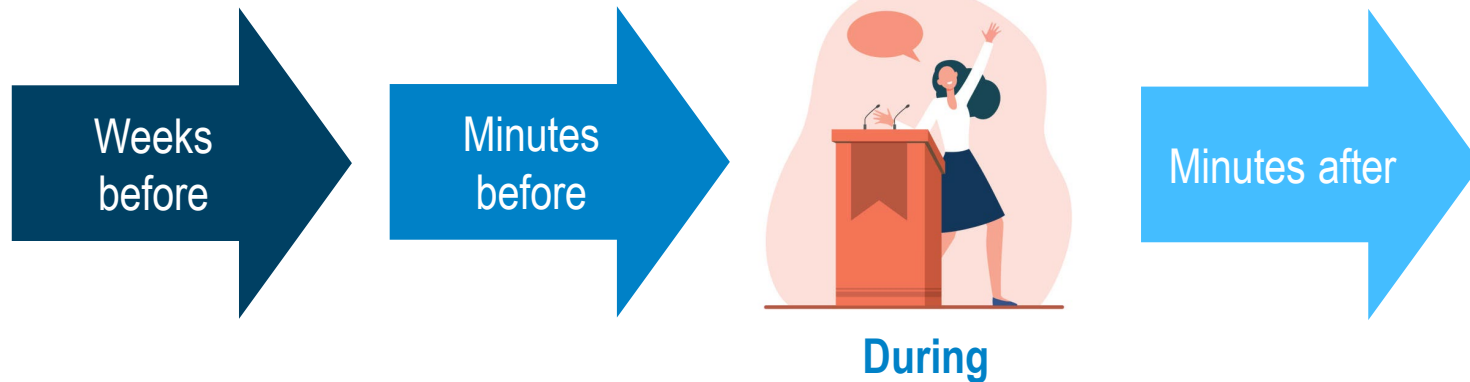


- Cheating
- Telling lies
- Undermining

Presenter will always be judged for content!

Preparation

Presentation Phases



Preparation



Develop your Screenplay

Recommendation: use pen and paper

- Write down **three** key messages
How can you convey them in the best way?
- Clearly define the scope
Which results do you want to show?
- Try to visualize your screenplay graphically
Make a flow chart or mind map



Preparation



Develop your Screenplay

Rule of thumb: 20 minutes = 20 slides

- Set up the structure
title, outline, motivation, SoA, your story, key messages
- Prepare each slide
Short title, message, sketch of layout
- Check the sequence of slides
Does your story develop in the intended way?

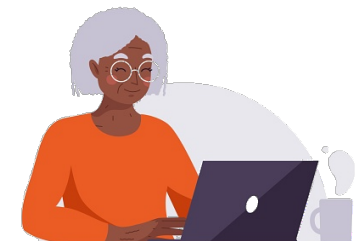


Structure



Slide 1: Title

- The title itself
Short, attractive, no acronyms, no abbreviations
- Further information
All authors with affiliation, date, place, event
- Well selected background and layout
Attractive, adequate, readability



Structure

Slide 2: Outline

- The structure
Max. 7 items, one level only, no full sentences
- Further information
1-2 graphs as eye-candy

But: usually not remembered during presentation!



What will I talk about?

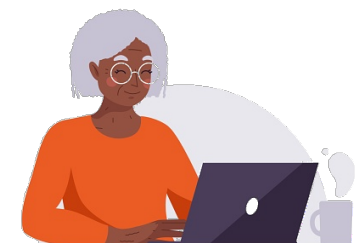
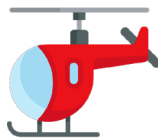
Structure



Slide 3: Motivation

- Setting the scene
What is the background?
- Setting the scope
What is covered, what not?

Take a helicopter view!



Structure



Slide 4: State-of-the-Art

- Give relevant state of the art

What is known?

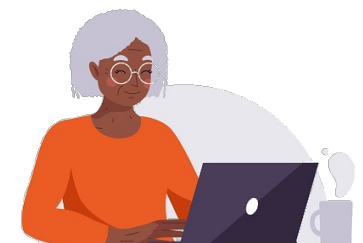
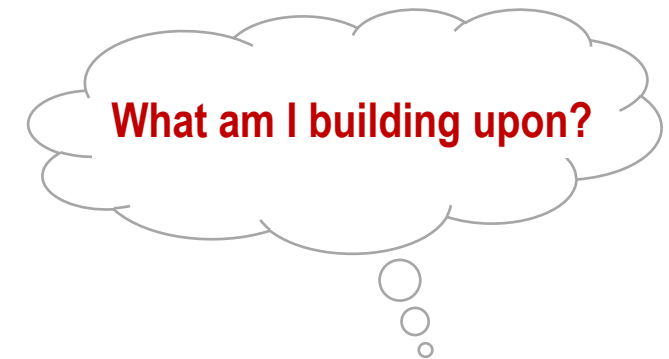
What are deficiencies?

What are current activities?

- Differentiation

What is your approach?


Why is it better?



Structure

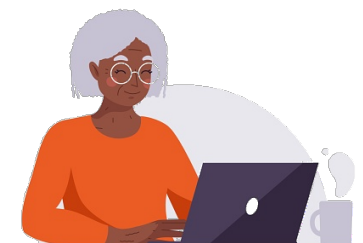


Slide 5 to n-1: Main part

- Meaningful headings
Guidance, summary, statements, questions
- Supporting elements
Pictures, graphs, charts, tables, videos 

How to tell my story?

Material from publications/theses needs to be reworked!

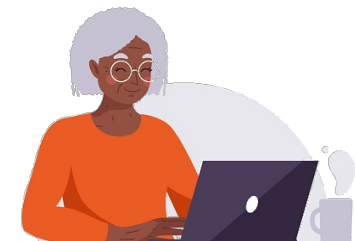
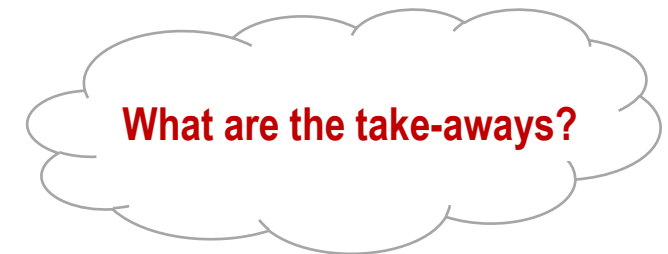


Structure



Slide n: Conclusions / Take-aways

- Highlight your key messages
What is most important (not more than 3)?
- Acknowledge contributions
Co-authors, colleagues, funders
- Thank the audience and organizers
Verbally is sufficient



Layout



General recommendations



Uniform spacings

Unambiguous ordering

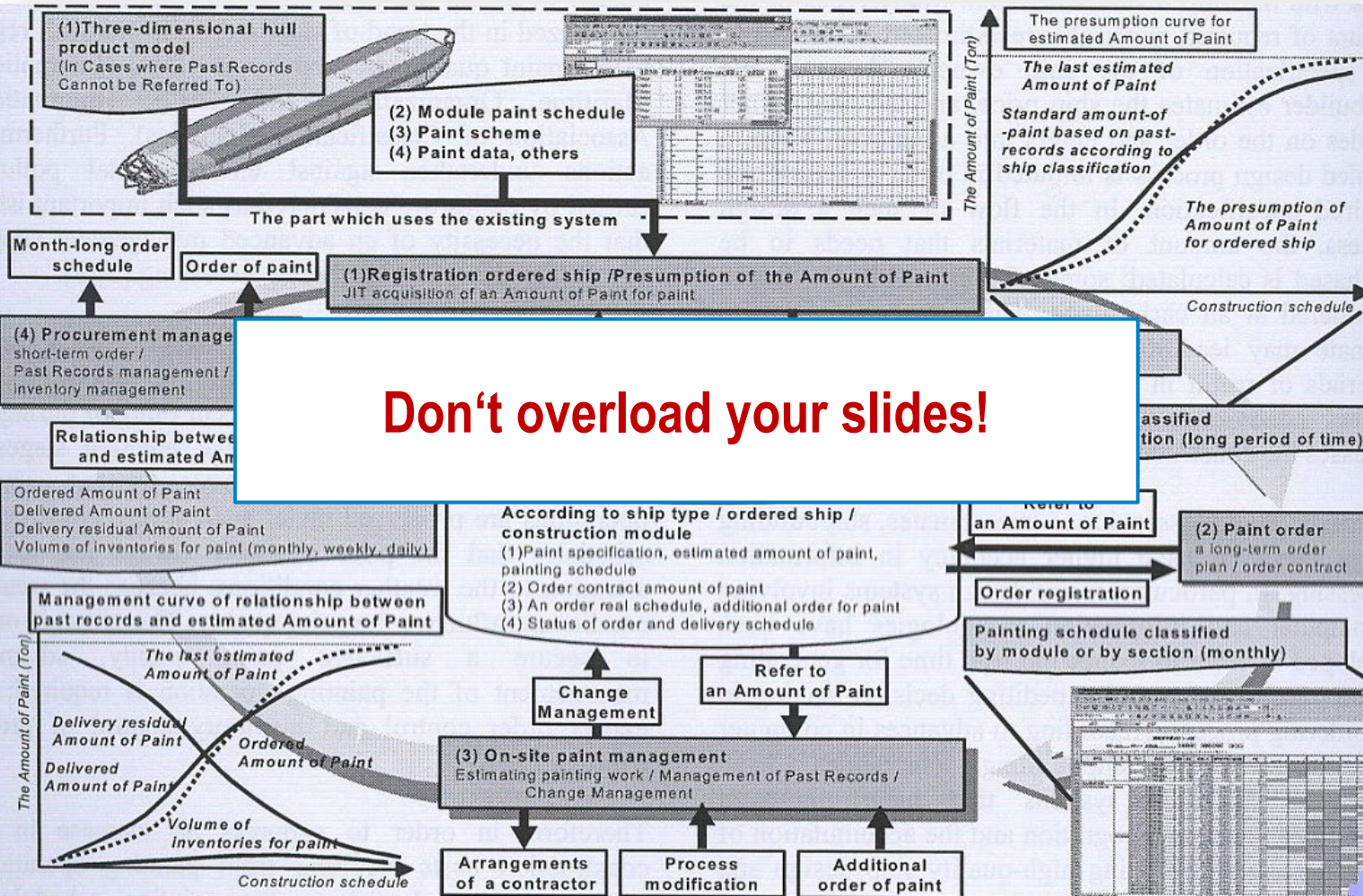
Uniform style

Symmetric arrangement



Clarity
Consistency
Dynamics



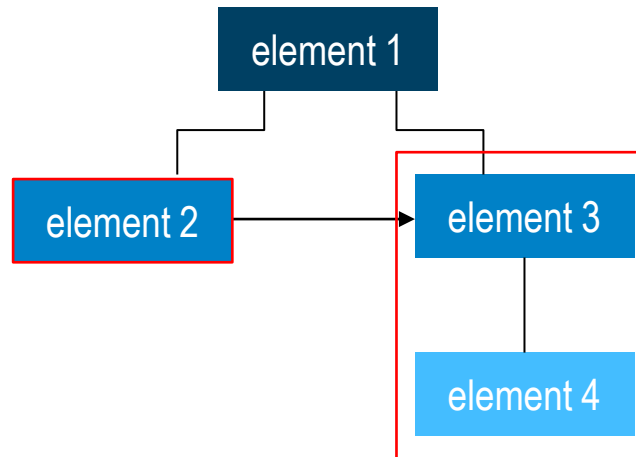


Layout



Information Structuring

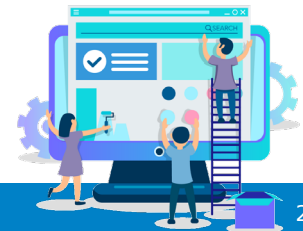
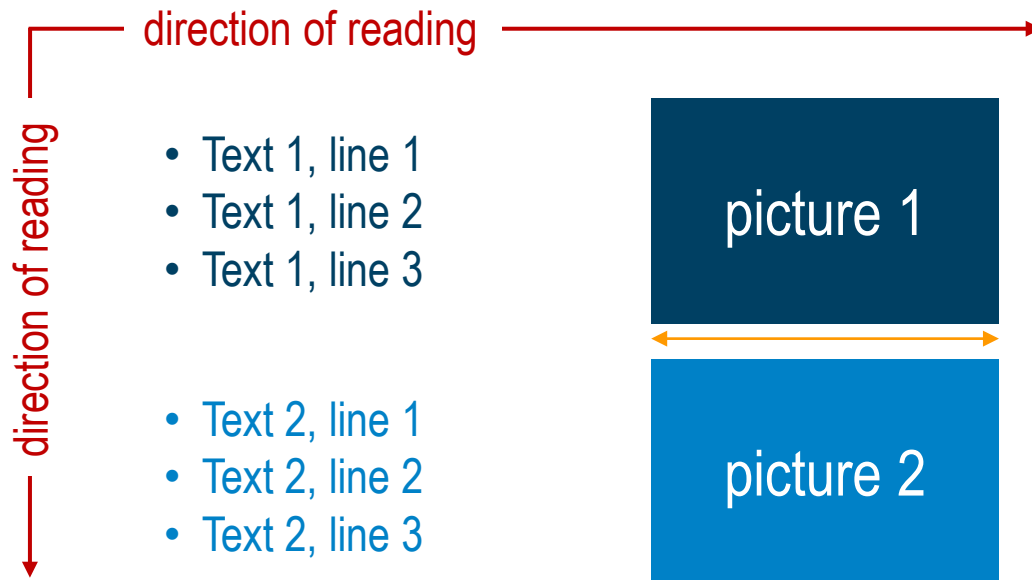
- hierarchies
- relationships
- connections
- priorities





Layout

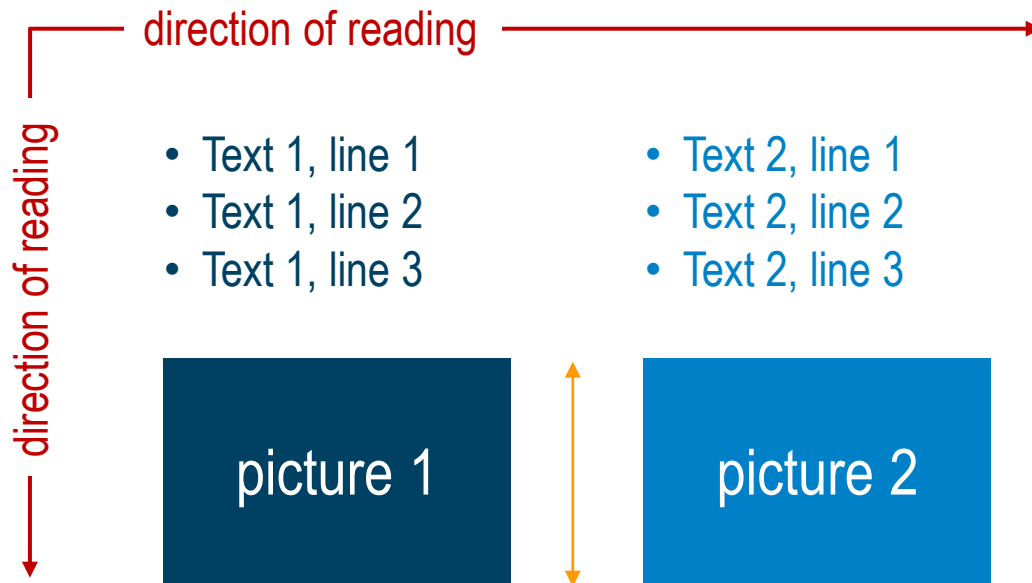
Element Placement: Interpretation





Layout

Element Placement: Comparison



Style



General Recommendations

- Use templates where required and available
Otherwise create your own template
- Use consistent header design
Logos, event names
- Use consistent footers
Date, name, slide number
- Include only relevant material
Selective usage of eye-candy and animations



Style



Recommendations for Text

Don't!

- Full sentences
- Footnotes
- Long lists
- Deep structuring
- Different line spacings
- Double negations

Do!

- Words, phrases
- Direct explanation
- Max. 7 lines
- Max. 2 levels
- Consistent line spacing
- Positive formulations



Style



Text Format: Readability and Accessibility

~~Serifes~~

No serifes ✓

Headings 24pt

- First level 22pt
 - Second level 20pt

Sufficient contrast ✓

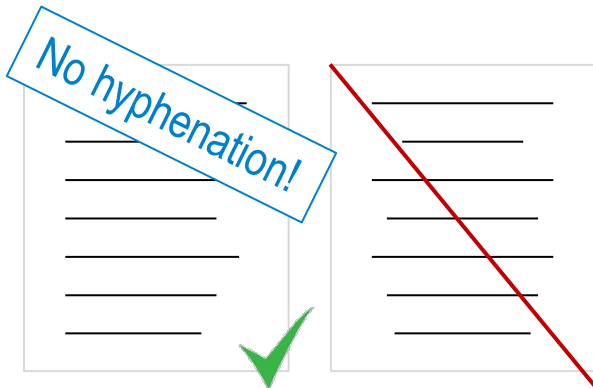
~~Insufficient contrast~~



Style



Text Format: Readability and Accessibility



Important information can be
highlighted like this!

avoid use of shadows!



Style



Text Format: Readability and Accessibility

Mind the general reading directions

- Left → right
- Top line → bottom line

Text outside normal orientation attracts attention (but use with care)!

Bottom-up ✓

~~Top-down~~

Inclined bottom-up ✓

~~Inclined top-down~~



Elements



Graphics: valuable for message transport

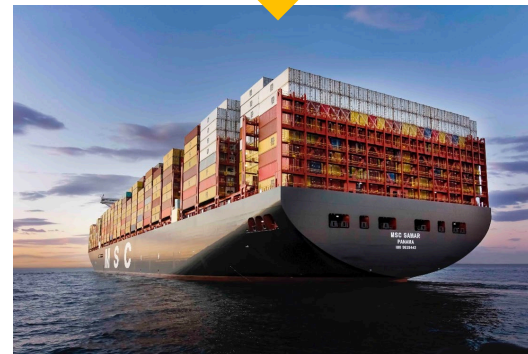
When is battery power not meaningful?

- Large ships, long voyages
- Daily power consumption for a typical container ship:
10,000 Tesla car batteries

→ **280,000 batteries for a
4-week voyage Europe-Asia**



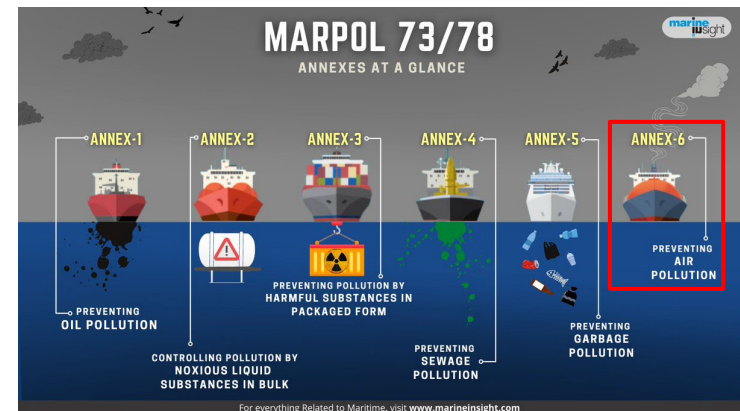
x 280,000



Elements

Graphics: valuable for message transport

- Assisting textual explanation
- Guide audience where to look at
Highlight of important details
- Enabling understanding without listening
To be interpreted in a short time span!
- Use with care
Do not overload slide!



Elements

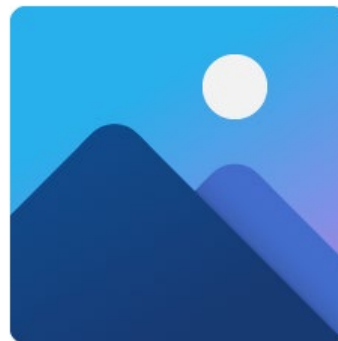


Graphics: valuable for message transport

Only meaningful pictures

High quality (no screenshots)

No dark background



Alignment if more than one picture

Large enough on slide



Elements

Formulae: are they really necessary?

Challenge!

- Too complex → frustration!
- Too simple → message?

Readability!

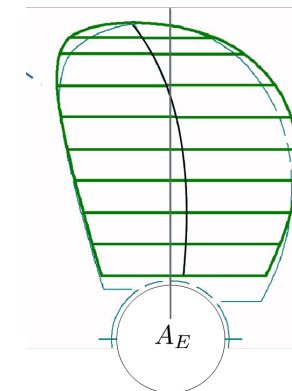
- Symbol representation
- Size of indices

Better ways to transport your message?



$$A_E = Z \cdot \int_r^R c(r) dr$$

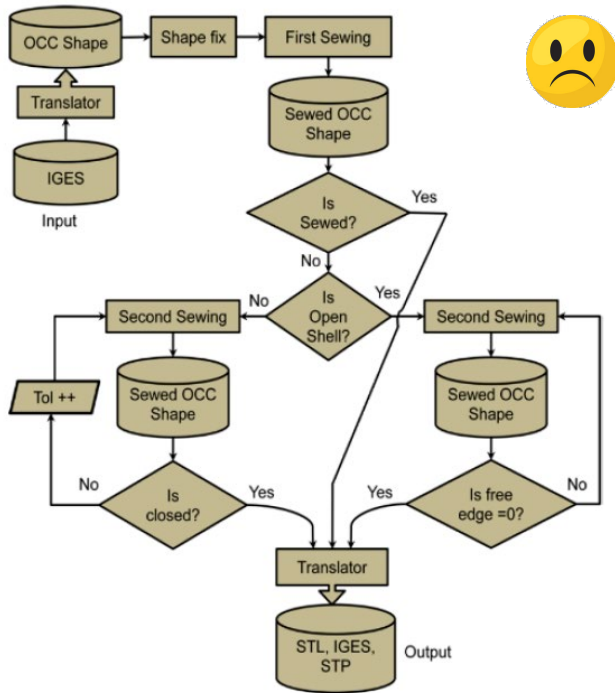
expanded area



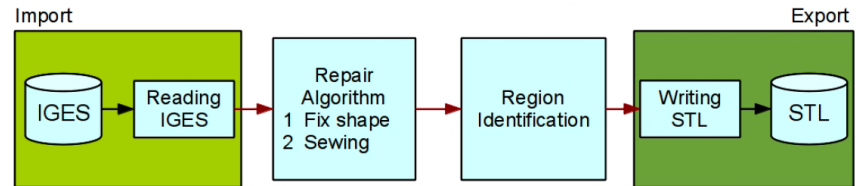
Elements



Flow Charts: help to understand processes



VS.



Elements



Flow Charts: help to understand processes

Don't!

- Many objects
- Different directions
- 3D view
- Complex structure
- Unknown syntax

Do!

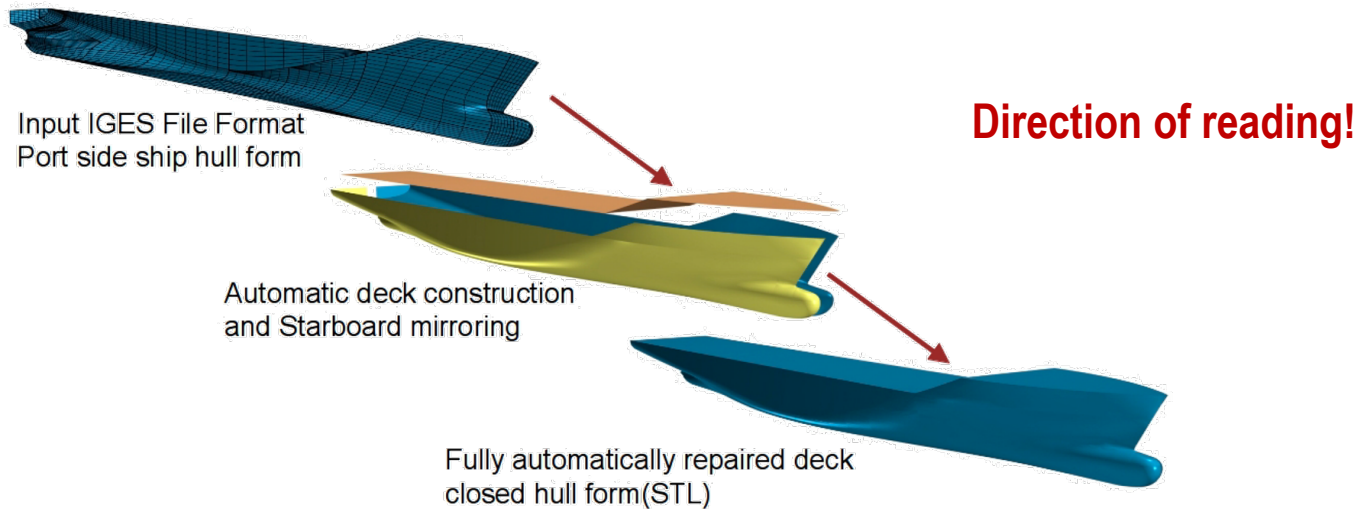
- Few objects
- One flow direction
- 2D-view
- Simple structure
- Introduce syntax



Elements



Flow Charts: help to understand processes



Elements



Tables: comparison of alternatives

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)






Too much information!
What is the message?



Elements



Tables: comparison of alternatives

	Voyage	Distance [km]	Emissions [g CO ₂ /bottle/voyage]	Emissions [g CO ₂ /bottle/100km]
	Hunter Valley-Sydney	170	6	3,5
	Sydney-Hamburg	24.100	56	0,23
	Hamburg-Rostock	200	15	7,5
	total	24.500	77	



Clear labels with units

Annotations ease interpretation

Ratios better for comparison than absolute values



Elements



Tables: comparison of alternatives



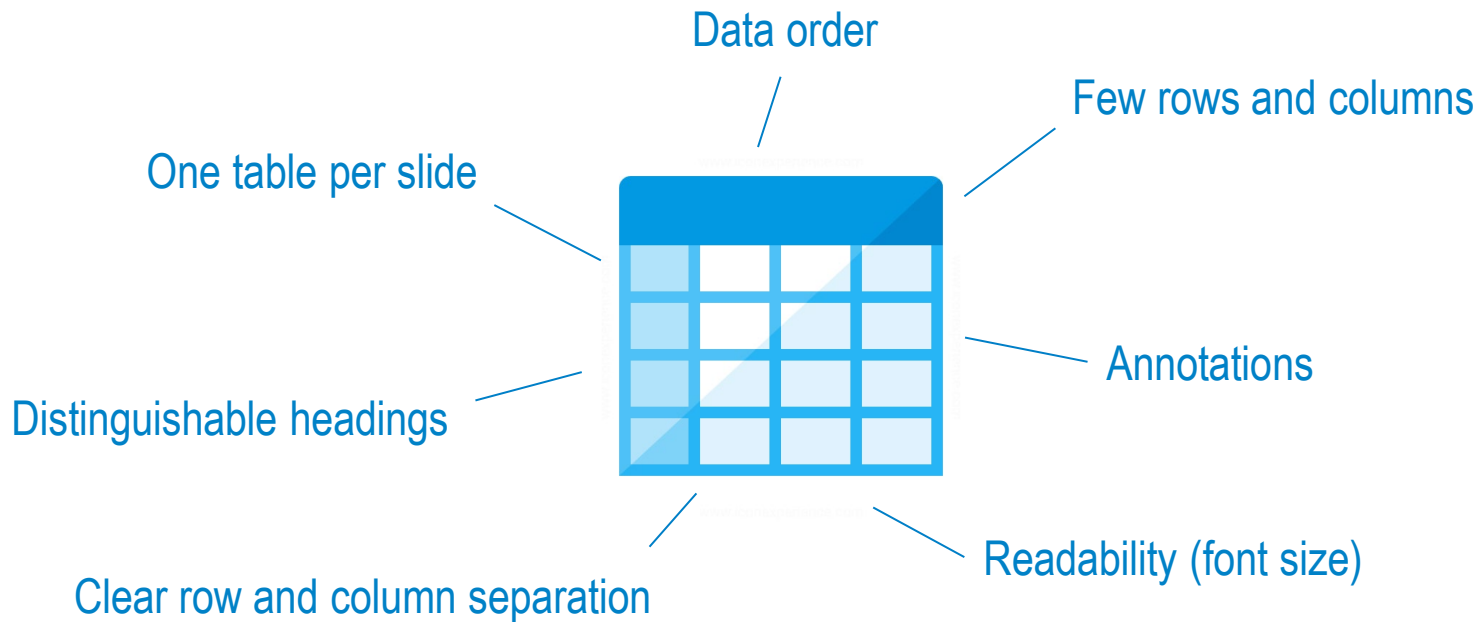
	Publication/Thesis	Presentation
<i>Complexity</i>	High	Moderate
<i>Time</i>	Any	Short (limited)
<i>Perception control</i>	Reader	Presenter
<i>Focus</i>	Reader's interest	Presenter's control
<i>Sequence</i>	Any	linear



Elements



Tables: comparison of alternatives



Always consider: Can I visualize my data in graphs instead?

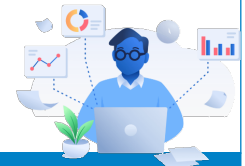
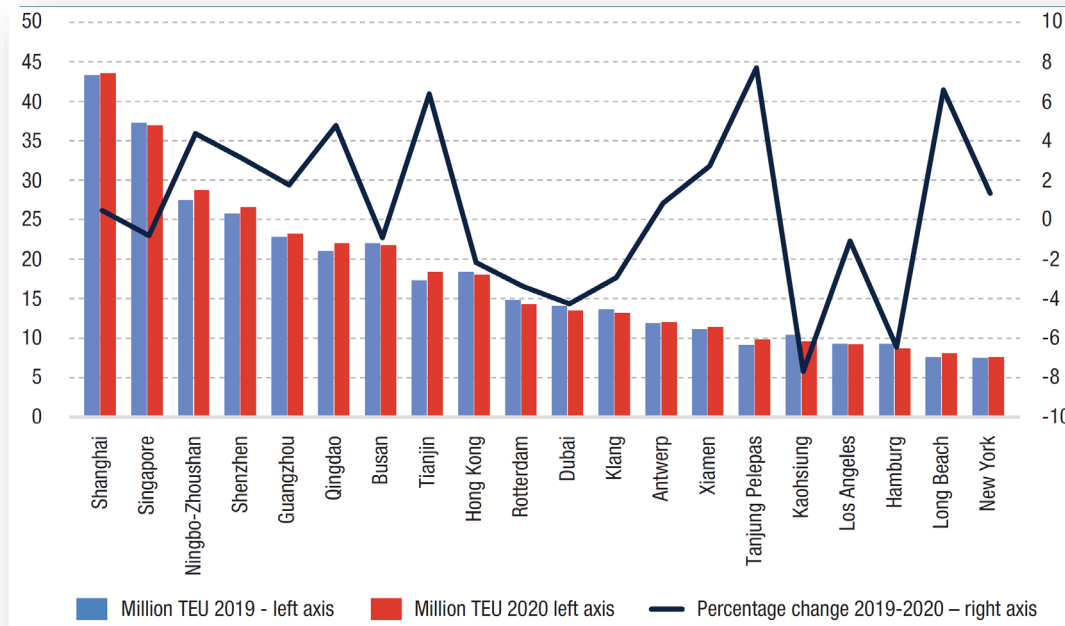


Elements



Graphs: Ideal for data visualization

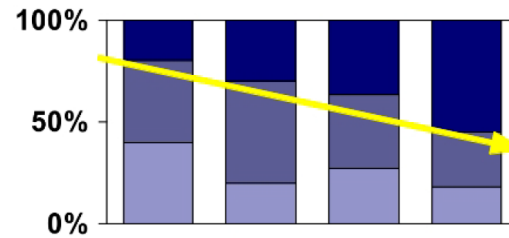
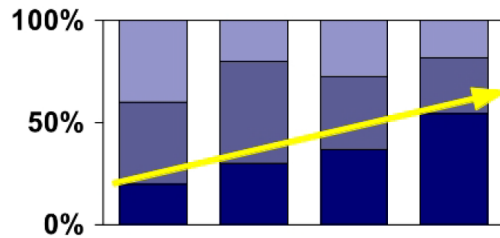
Example: Container handling per harbour



Elements



Graphs: Ideal for data visualization



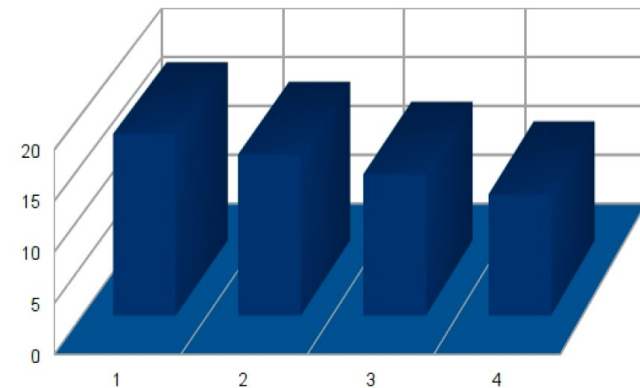
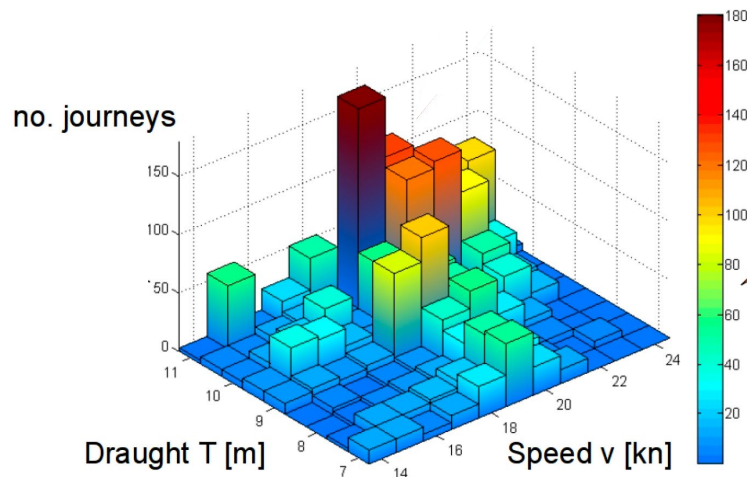
→ data arrangement matters!



Elements



Graphs: Ideal for data visualization



Avoid using 3D or pseudo 3D graphs - or annotate!

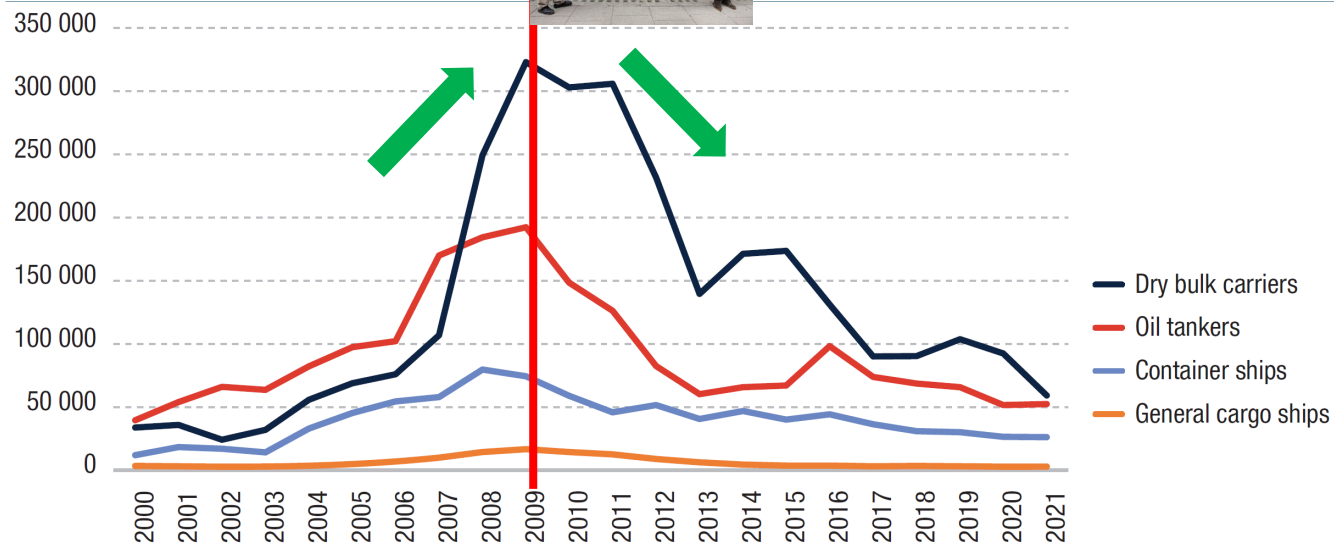


Elements



Graphs: Ideal for data visualization

Example: Ship orders



Elements

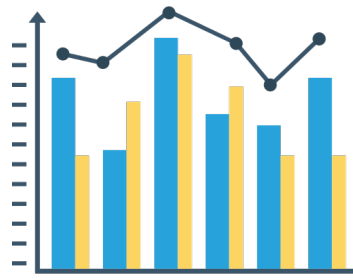


Graphs: Ideal for data visualization

Max. two per slide

Limited number of functions

Axis labels with units



High contrast, different colours

Sufficient line thickness



Rehearsing



Conduct test runs

1. Rehearse for yourself

- Stand, speak out loudly
- Check smooth flow
- Check time → **be critical: 20 minutes is 20 minutes!**

iterative!

2. Give the presentation to a friend/family

- Ask for feedback

3. Final check

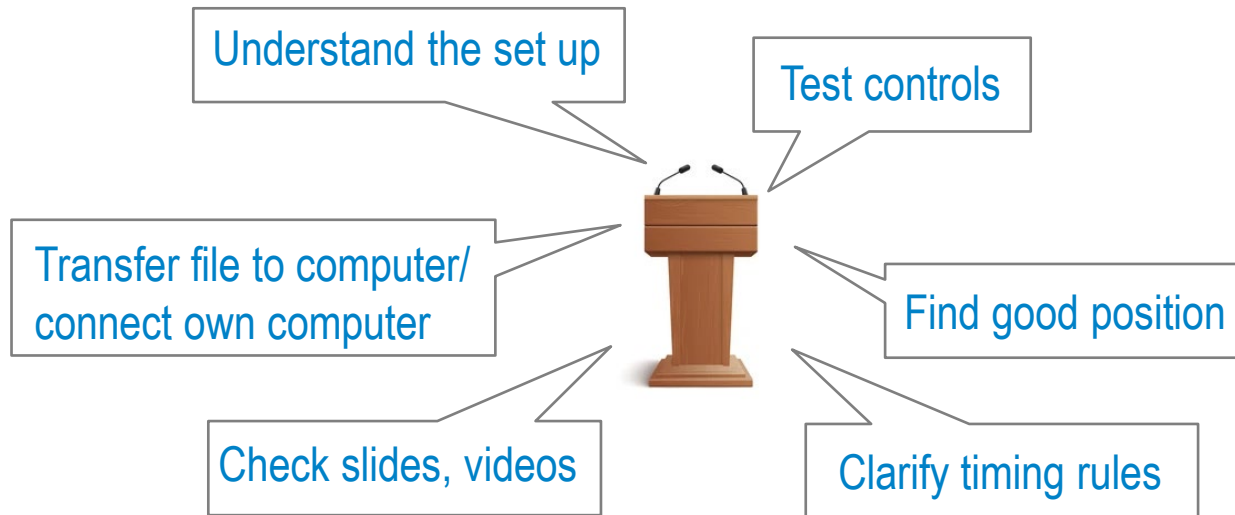
- Readability
- Typos
- Consistent style



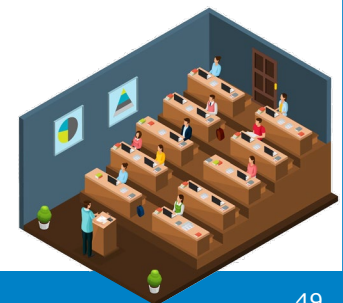
Presenting



Preparation at the location



Wait for signal from session chair → START



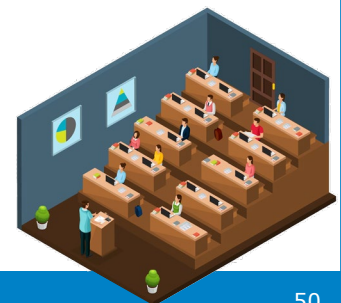


Presenting

Giving the presentation to the audience

The perfect start

- Take position
- Look at the audience
- Know the first 2-3 sentences by heart
A smooth start gives you confidence
- Speak to the audience
Select a few persons in the room to look at
- Speak freely
Do not read from notes or the computer



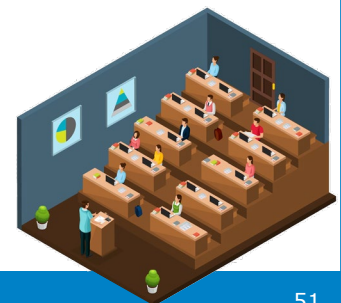


Presenting

Giving the presentation to the audience

Recommendations

- Use short and simple sentences
Do not exaggerate, no jokes
- Do not mention things that are not important
Why do you have them on the slide?
- Do not excuse poor readability
Better to prepare good slides
- Do not refer to slides coming later
Focus on the current slide



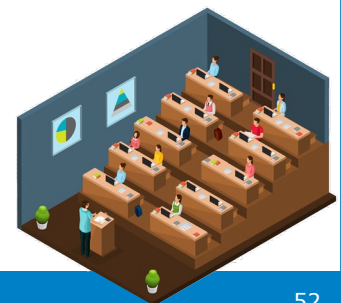


Presenting

Giving the presentation to the audience

Recommendations (cont.)

- Explain all elements on your slides
Nothing is understood automatically!
- Use the pointer in a good way
no wiping around, hold hand steady
- Behave in a good way
No hands in pocket, interact with audience, stay close to microphone



Discussion



Answering questions after your presentation

Be precise

Make eye contact

Be honest!
If you don't know, say it



Navigate directly to
the slide in question

If not understood/forgotten
ask for repetition/reformulation

Wait for signal from session chair → FINISH



How to Present

Guide for scientific presentations



Contact
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