

AI-Assisted Presentation Design

Workshop-Companion for “KI.Note – using AI on the way to successful presentations”

Please mind that AI and its application is a very dynamic topic and thus subject to frequent change. This document was updated in August 2026.

From Idea to Successful Presentation

Presentations are learning experiences. The purpose of a presentation is not simply to transfer information from one person to another. A successful presentation helps an audience understand, remember, relate to, discuss, apply, or act upon information.

Artificial Intelligence can support almost every stage of presentation preparation. It can help analyse audiences, identify strengths and weaknesses in existing presentations, structure topics, develop storytelling approaches, create speaker scripts, and support iterative optimisation. However, AI is a tool and not a substitute for sound presentation design, subject-matter expertise, or rehearsal. The presenter remains responsible for all decisions.

This guide follows the same workflow introduced in the ZML-AI-webinar and demonstrates how AI can be used strategically throughout the process. The goal is not to create presentations faster at any cost, but to create presentations that are more audience-centred, easier to understand, and more likely to have a lasting impact.

Resources and Support at KIT

Infos on KIT AI Systems

Toolbox: <https://www.zml.kit.edu/ki-toolbox.php>

MS Copilot: <https://www.scc.kit.edu/dienste/copilot.php>

AI Quick Start Guide (ideas for using the AI Toolbox, MS Copilot with KIT licence, and generative AI in general): <https://www.zml.kit.edu/starthilfe-ki.php>

GenAI@KIT Community of Practice (exchange ideas, discuss use cases, and learn from colleagues): <https://www.zml.kit.edu/ki-community.php>

ZML Newsletter (three issues per year on AI, digital teaching and development):
<https://www.zml.kit.edu/newsletter.php>

Presentations Are Learning Experiences

A presentation is not an end in itself. Whether you are presenting research results, introducing a new process, discussing a project, pitching an idea, teaching a concept, or informing colleagues about changes, the ultimate goal is always to support understanding.

A presentation should enable the audience to:

- understand information,
- connect it to existing knowledge,
- remember key ideas,
- make informed decisions,
- solve problems,
- or take action.

This perspective changes the way presentations are designed. Instead of asking: "What do I want to say?"

a presenter should ask: "What do I want the audience to understand, remember, or do?"

This shift from presenter-centred communication to audience-centred communication forms the foundation of effective presentation design.

Theoretical Foundation: Cognitive Load Theory

Before designing a presentation, it is useful to understand how the human brain processes information.

According to Cognitive Load Theory, working memory has limited capacity. If too much information competes for attention at the same time, learning becomes difficult and understanding suffers. Successful presentations therefore aim to manage cognitive load deliberately.

Intrinsic Cognitive Load

Intrinsic Cognitive Load is caused by the complexity of the topic itself.

Examples include:

- understanding a scientific method,
- learning a new administrative process,

- interpreting research results,
- understanding regulations or policies.

This type of load cannot be removed entirely because it is inherent to the subject matter.

However, it can often be reduced through:

- careful sequencing,
- appropriate examples,
- scaffolding,
- activation of prior knowledge,
- explanations that match the audience's expertise.

Extraneous Cognitive Load

Extraneous Cognitive Load is caused by the presentation itself. Typical problems arise with:

- overcrowded slides,
- unnecessary details,
- poor structure,
- distracting graphics,
- complicated wording,
- reading slide text aloud,
- frequent topic changes.

Unlike intrinsic load, this type of cognitive load contributes nothing to learning.

Therefore: Extraneous Cognitive Load should be reduced as much as possible.

Every unnecessary element consumes cognitive resources that could otherwise be used for understanding.

Learning-Related (Germane) Cognitive Load

Learning-Related Cognitive Load (often referred to as Germane Cognitive Load) is the productive mental effort devoted to learning and understanding. This is the type of cognitive load we actively want to encourage. It occurs when people:

- connect new information to existing knowledge,
- reflect on concepts,

- identify patterns and relationships,
- apply ideas to their own context,
- discuss possibilities,
- develop new mental models,
- solve problems.

Because working memory capacity is limited, the first goal of presentation design is to reduce intrinsic and especially extraneous load wherever possible. This frees capacity for learning-related cognitive activities.

However: More learning-related cognitive load is not automatically better.

A presentation should not overwhelm the audience with excessive reflection tasks, discussions, or complex problem-solving activities. Instead, the challenge is to create exactly the right amount of mental engagement for the specific audience. This can be achieved through:

- relevance,
- audience interests,
- practical examples,
- meaningful interactions,
- opportunities for application,
- appropriate levels of challenge.

This is why audience analysis is the first step of the workflow.

Implications for Presentation Design

Successful presentations:

- ✓ reduce unnecessary cognitive load
- ✓ make complex topics manageable
- ✓ guide audience attention
- ✓ encourage meaningful thinking
- ✓ create opportunities for application
- ✓ balance challenge and understanding

The Road to a Successful Presentation

The webinar introduced an eight-step workflow. These steps can be adapted to different presentation settings, including teaching, conferences, internal meetings, project presentations, public outreach, and administrative communication.

Step 1 – Understand Your Audience

There is no such thing as a universal presentation. The same topic may require entirely different examples, explanations, language levels, and visualisations depending on the audience.

Investing time in understanding the audience often saves significant effort later in the design process.

Questions to Consider

- Who will attend?
- What do they already know?
- Why are they attending?
- What are their expectations?
- What interests them?
- Which examples will resonate with them?
- Which terminology should be avoided or explained?

AI PROMPT

Act as an experienced presentation consultant.
I am preparing a [insert duration here] presentation on [insert topic here]. The purpose of the presentation is [insert presentation goal(s) here].

The audience is described in the document I uploaded.
Analyse this audience description and create an audience profile based on the audience description in this document.

Include in the analysis for the audience profile:

- prior knowledge
- expectations

- motivation
- possible concerns or objections
- terminology that should or should not be used
- examples likely to resonate with this audience

AI TIP

The audience profile is the basis for further considerations towards the presentation. Most later design decisions become considerably easier when the audience profile already exists.

Copy the AI response and save it in a document called 'audience profile.docx'.

Step 2 – Identify Your Starting Point

Many presentations already exist in some form. You may have:

- older presentations,
- reports,
- publications,
- project documentation,
- meeting notes,
- teaching materials,
- policy documents.

Rather than starting from scratch, these materials should be analysed systematically.

Existing Presentation

If a previous presentation exists, analyse:

- audience fit,
- logical structure,
- strengths,
- weaknesses,
- missing information,
- redundancies.

AI PROMPT

Act as an expert in presentation design and audience-centred communication.
Analyse the attached presentation.

The target audience is described in the document I attached.

Presentation goal: [insert presentation goal(s) here]

Presentation duration: [insert duration here]

Evaluate:

- logical structure
- coherence
- audience fit (according to audience profile)
- missing information
- redundant information
- opportunities for simplification

Provide concrete recommendations ordered by priority.

Material Collection

If no presentation exists yet, create a collection of relevant materials. These may include:

- articles,
- reports,
- publications,
- manuals,
- notes,
- project documents.

Step 3 – Structure and Focus the Topic

Many presentations contain too much information. A successful presentation is not defined by how much it includes, but by how clearly it supports the presentation goal.

Recommended Process

1. Define the objective

2. Review available material
3. Create an outline
4. Prioritise information
5. Match content to available time

Always ask: What should the audience remember after the presentation?

AI PROMPT

Act as a senior communication strategist.

Based on the attached material and the audience profile below:

The target audience is described in the document I attached.

Presentation goal: [insert presentation goal here]

Duration: [insert duration here]

Develop a presentation structure suitable for the target audience (refer to the document called audience profile)

For each section provide:

- objective
- key message
- estimated duration
- justification for inclusion

Ensure all content contributes directly to the presentation goal.

If an element cannot be justified in relation to the presentation goal, it probably does not belong in the presentation.

Step 4 – Arouse Interest

Understanding increases when people are interested. Interest, in turn, improves attention, engagement, memory formation, and motivation.

Storytelling

Possible approaches include:

- guiding metaphors,
- practical examples,

- problem-solution structures,
- SCQA,
- stories from experience,
- surprising facts.

AI PROMPT

Based on the presentation topic below, propose three different storytelling approaches suitable for the audience (refer to audience profile in the document I uploaded).

Topic: [insert topic here]

The target audience is described in the document I attached.

Desired outcome:

[insert desired outcome here, give details]

For each approach explain:

- central narrative idea
- advantages
- possible risks
- situations for which it is best suited

Interactions

Interactions help keep the audience mentally engaged.

Examples:

- polls or votes,
- rhetorical questions,
- reflection tasks,
- audience examples,
- discussions.

AI PROMPT

Design audience interactions for a [insert duration here] presentation.

The target audience is described in the document I attached.

Topic: [insert topic here]

For each interaction explain:

- purpose
- expected audience activity
- estimated duration
- contribution to learning and engagement

Interactions should always support understanding, not merely provide entertainment.

Step 5 – Develop the Speaker Script

A presentation is written for the ear, not for the eye.

What sounds clear when spoken is often different from what looks good on paper.

Principles

- Use short sentences.
- Present information linearly.
- Avoid unnecessary complexity.
- Use examples.
- Introduce technical terminology carefully.
- Minimise unnecessary numbers.
- Create smooth transitions.

AI PROMPT

Transform the following outline into a speaker script.

The target audience is described in the document I attached.

Presentation goal:

[insert presentation goal(s) here]

Requirements:

- written for spoken delivery

- short, clear sentences
- logical progression
- smooth transitions
- examples where appropriate
- avoid unnecessary jargon

Mark suggested pauses and interaction points.

Develop the speaker script before finalising detailed slides.
Many slide design problems become obvious while writing the script.

Step 6 – Use Visual Anchors

Understanding is partially a visual process. Visual information can improve both comprehension and memory. Visual anchors may include:

- diagrams,
- photographs,
- process maps,
- scientific schematics,
- organisational charts,
- icons,
- highlighted elements,
- arrows,
- animations.

Guiding Principle

Show what you say.

- If discussing a process, show the process.
- If discussing an experiment, show the setup.
- If discussing a workflow, show the workflow.

IMPORTANT: There is no universally useful image-generation prompt. Suitable visualisations depend heavily on:

- discipline,
- context,
- available source material,
- organisational standards,
- technical infrastructure.

For many audiences, existing diagrams, process maps, scientific schematics, or organisational charts will be more valuable than AI-generated images.

Step 7 – Rehearse and Test

Practice is one of the most powerful presentation-improvement tools.

Even experienced speakers benefit from rehearsal.

Review During Rehearsal

- timing,
- slide flow,
- transitions,
- interaction timing,
- emphasis,
- audience perspective,
- clarity.

IMPORTANT

Rehearsal cannot realistically be delegated to AI. Only a real rehearsal allows you to assess:

- speaking pace,
- confidence,
- transitions,
- timing,
- emphasis,
- personal delivery.

AI can support preparation, but it cannot replace practice.

Step 8 – Optimize

Many presentation problems become visible only after a rehearsal. Optimisation is often more valuable than adding new content.

Repeat the analysis performed in Step 2, but with a highly specific focus.

Example Optimisation Prompts

Analyse this presentation exclusively for signs of cognitive overload.

Analyse this presentation from the perspective of the target group described in the audience profile attached to this chat.

Identify content that is unnecessary, overly complex, or insufficiently relevant.

Identify the three changes that would most improve audience understanding and engagement.

Presentation Preparation Checklist

Audience & Goal

☐ Audience analysed

- ☐ Presentation goal defined

Content & Structure

- ☐ Key message identified
- ☐ Logical structure created
- ☐ Content prioritised
- ☐ Time allocation checked

Engagement & Visuals

- ☐ Storytelling element included
- ☐ Interaction planned
- ☐ Visual anchors included
- ☐ Cognitive overload avoided

Delivery

- ☐ Speaker script prepared
- ☐ Presentation rehearsed
- ☐ Final optimisation completed

Final Thought

Artificial Intelligence can support almost every stage of presentation preparation. However, the most successful presentations are not those created fastest, but those designed intentionally for a specific audience.

The goal is therefore not to replace presentation design with AI, but to use AI as a partner throughout the process:

- ➔ **understand the audience,**
- ➔ **focus the topic,**
- ➔ **support learning,**
- ➔ **and create meaningful engagement.**

This document was co-created by means of MS Copilot (smart model, KIT license).
Gen. AI structured the content and rewrote paragraphs to improve coherence.
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Info & Contact

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