

# HOW TO MAKE A SCIENTIFIC PRESENTATION?

Dr. Audrius Buciskas

# OUTLINE

Engaging Delivery

Adapting to the Audience

Designing Effective Slides

The Structure of a Good Talk

# WE MAY NOT BE EXPERTS AT PUBLIC SPEAKING...

But we are all **experts at listening** to talks:

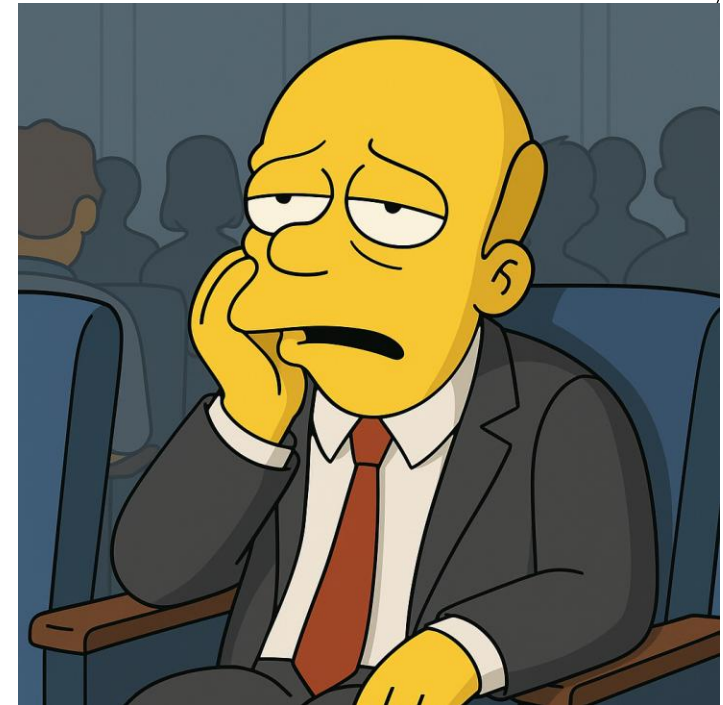
- Seminars,
- Lectures,
- Podcasts...



# WHY YOU SHOULD GIVE OR LISTEN TO ANY TALK?

**Research is communication:**

**...not monologue, but dialog with auditorium**



# WHY THE SPEAKER SHOULD TRY TO GIVE AUDITORIUM MORE ATTENTION?

A research talk gives you access to the world's most priceless commodity: **the time** and **attention** of other people.

**Don't waste it! Respect their time, respect their focus.**



Salvador Dalí

# THE PURPOSE OF YOUR TALK IS NOT

- To **impress** your audience with your brainpower
- To tell them **everything you know** about topic
- To present all the **technical data**



# THE PURPOSE OF YOUR TALK

- To give your audience an intuitive **feel for your idea**
- To engage, **provoke**, excite



**YOUR MISSION IS NOT ONLY TO WAKE UP  
AUDIENCE AND *MAKE THEM GLAD THEY CAME***

# WHAT TO PUT IN YOUR PRESENTATION

- 1. Motivation (20%)**
- 2. Your key IDEA (80%)**

# MOTIVATION

**Two minutes** to engage your audience to enter...



# MOTIVATION

## They are thinking...

- Why should I tune into this talk?
- What is the problem?
- Why is it an interesting problem?



# YOUR KEY IDEA...

- **You must identify a key idea.**
- **Be specific.**
- **Be absolutely specific.**
- **Organise your talk around this specific goal.**



[accessguide.ox.ac.uk/](http://accessguide.ox.ac.uk/)



# ENGAGING DELIVERY

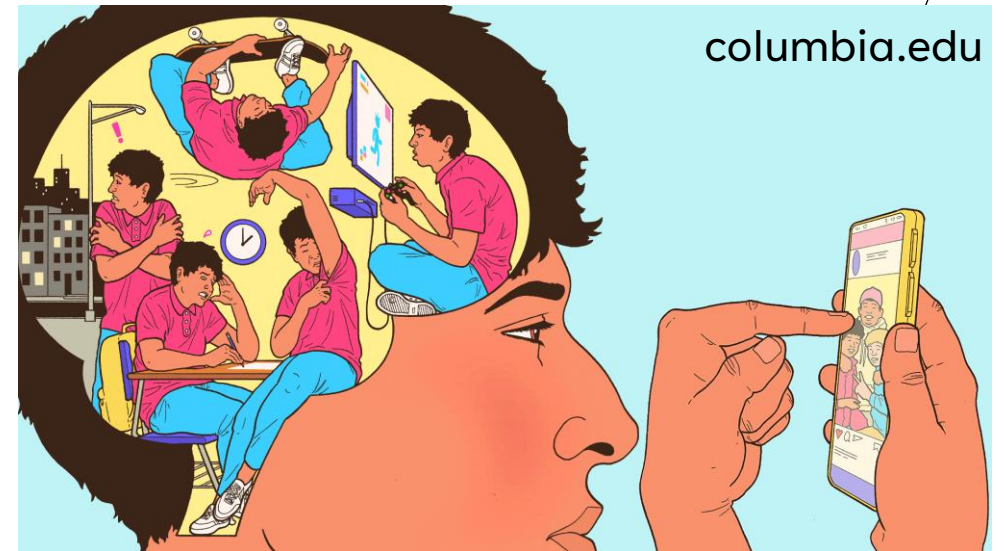
(DEVELOPING CONFIDENT SPEAKING  
SKILLS, MAINTAINING EYE  
CONTACT, AND HANDLING NERVES DURING  
Q&A SESSIONS)

# OVEREXPOSED TO HUMAN INTERACTION?

**Today's reality:** we're not designed for this level of exposure

Constant access through social media, internet, dating apps

**Unlimited stimulation** with digital content



# CONFIDENT SPEAKING

A confident delivery helps your audience **trust your message** and keeps them engaged.



# HOW CONFIDENT SPEAKING IS BUILT

Confidence is built through **preparation, practice,** and control of your body language.



# PRACTICE

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## 100 Years of Communication Excellence

Since 1924, Toastmasters has been inspiring people to confidently communicate through regular practice and evaluation in fun and supportive clubs around the globe. Join the worldwide community!



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# OPEN BODY, OPEN MIND

**A closed body signals a closed mind . . . and it inspires close-mindedness in others.**



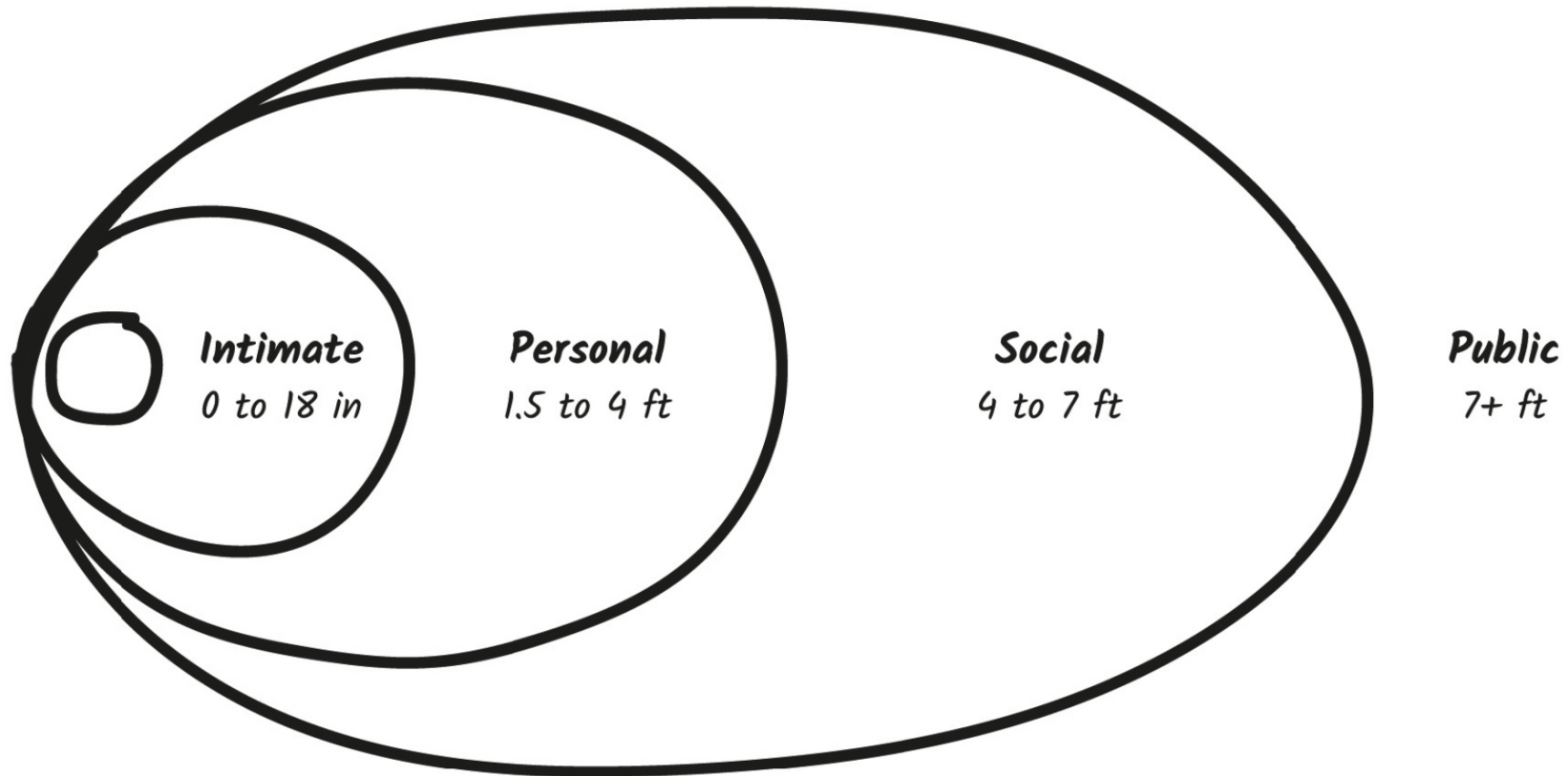
Leonardo Da Vinci

# OPEN BODY, OPEN MIND

- Make a show of **removing all barriers** between you and others.
- *I'm here, I'm accessible, and I'm ready to connect*



# BE SMART WITH SPACE





**When you're giving a talk which space is suggested to use?**

# VOICE CONTROL

- **Avoid monotone**; emphasize key points with changes in tone.
- Speak **slightly louder** than your conversational level for clarity.
- Aim for **~140–160 words per minute**, with intentional pauses for emphasis.

## Betty Botter

Betty Botter bought some butter,  
But she said, “The butter’s bitter.  
If I put it in my batter,  
It will make my batter bitter;  
But a bit of better butter,  
That would make my batter  
better.

### Flap t

When a ‘t’ is between two vowels, it often sounds like a light ‘d’ in the American English accent

Betty Botter butter bitter put it  
batter but a bit of better

#GOALS English [www.goalsenglish.com](http://www.goalsenglish.com)

# MAINTAINING EYE CONTACT

Make the audience feel included and connected.

Scan, don't stare: **Move your gaze around** the room in 3–5 second intervals.

Anchor points: **Identify 4–6 people** in different parts of the audience to cycle through.

**Scan, but don't stare!**



# YOU ARE NOT A WIMP. EVERYONE FEEL THIS WAY.

- **Deep breathing during previous talk**
- **Script your first few sentences (no brain required)**
- **Move around a lot, use large gestures, wave your arms**
- **Go to the loo first**



# NERVES ARE PART OF PUBLIC SPEAKING

**The goal isn't to eliminate them, but to manage them!**

- Breathe deeply—to slow your heart rate.
- Mentally note your key takeaway message;
- Pause

**While answering:**

- Repeat or rephrase the question
- If unsure, acknowledge it honestly and offer to follow up (“That’s a great question—I’ll check the data and get back to you”).



# NEVER APOLOGIZE, JUST DELIVER

“I didn’t have time to prepare this talk properly”

“My computer broke down, so I don’t have the results I expected”

“I don’t have time to tell you about this”

“I don’t feel qualified to address this audience”



# YOUR MOST POTENT WEAPON

## Enthusiasm!

- If you do not seem excited by your idea, why should the audience be?
- Enthusiasm makes people dramatically more receptive
- It gets you loosened up, breathing, moving around



# INCORPORATING HUMOR

- Humor can relax an audience.
- Humor can also allow an audience to respond to a presentation
- Humor is risky in a professional situation
- Typically, stories about your own failings are the safest.



# MEMORIZING A SPEECH (ADVANTAGES)

- deliver the words in a dramatic fashion
- maintain constant eye contact with the audience
- control over the exact wording, **as long as the speaker's memory does not fail**



## MEMORIZING A SPEECH (DISADVANTAGES)

- memorizing a speech takes **too much time**.
- **rigidity**
- **pacing problem**.



# READING A SPEECH

- a speech is that you say the exact words that you intend to say.
- too fast a pace
- lack of eye contact
- **doubt** about speakers understanding



[pngtree.com](https://www.pngtree.com)

# QUESTIONS

- Questions are not a problem. They are **opportunity** to connect.
- **Encourage** questions during your talk: pause briefly now and then, ask for questions
- **Better to connect**, and not to present all your material



# TIME

- Absolutely without fail, **finish on time.**
- Do not say „**would you like me to go on?**“ (hard to say „**No, please stop** “)





# ADAPTING TO THE AUDIENCE

(UNDERSTANDING CULTURAL AND  
ACADEMIC DIVERSITY  
AT INTERNATIONAL  
CONFERENCES AND SIMPLIFYING  
JARGON)

# YOUR AUDIENCE... YOU WOULD LIKE

- Have read all your earlier papers
- Thoroughly understand all the relevant theory related your topic
- Are all curious to hear about the latest developments in your work
- Are fresh, alert, and ready for action



# YOUR AUDIENCE... YOU GET

- Have never heard of you
- Have heard about your topic, but wish they hadn't
- Have just had lunch and are ready for a doze



# CULTURAL DIFFERENCES

- Italians use more hand gestures than Americans.
- Nodding differs in India & Pakistan vs. Western cultures.
- Eye contact: respectful in U.S., rude with superiors in some Asian & Middle Eastern cultures.



# TARGETING MULTIPLE AUDIENCES

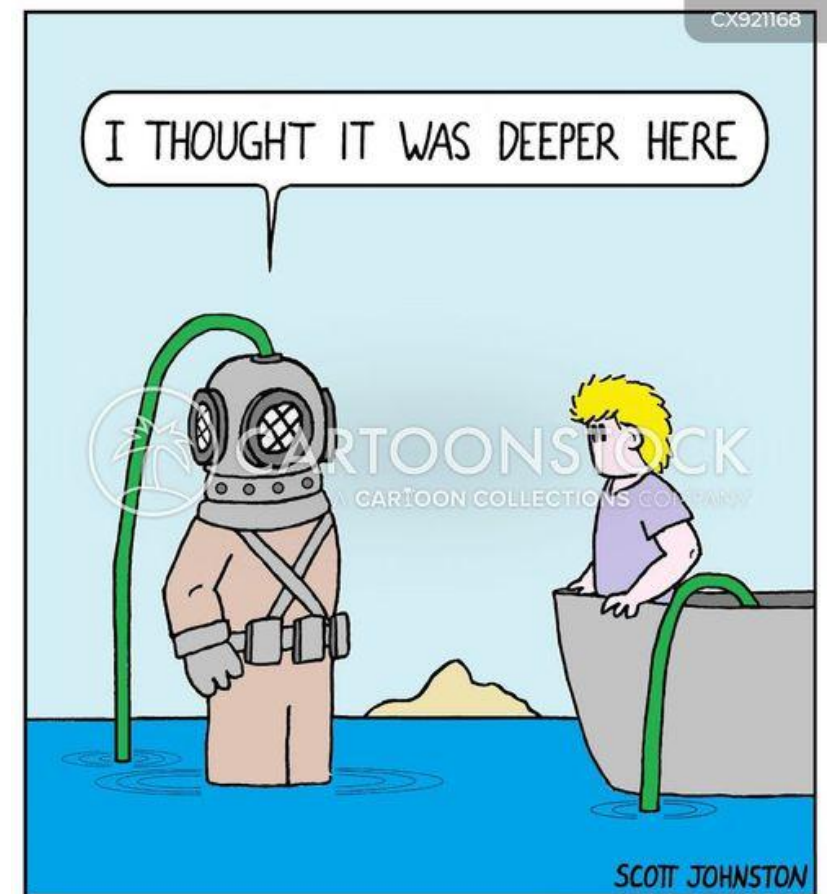
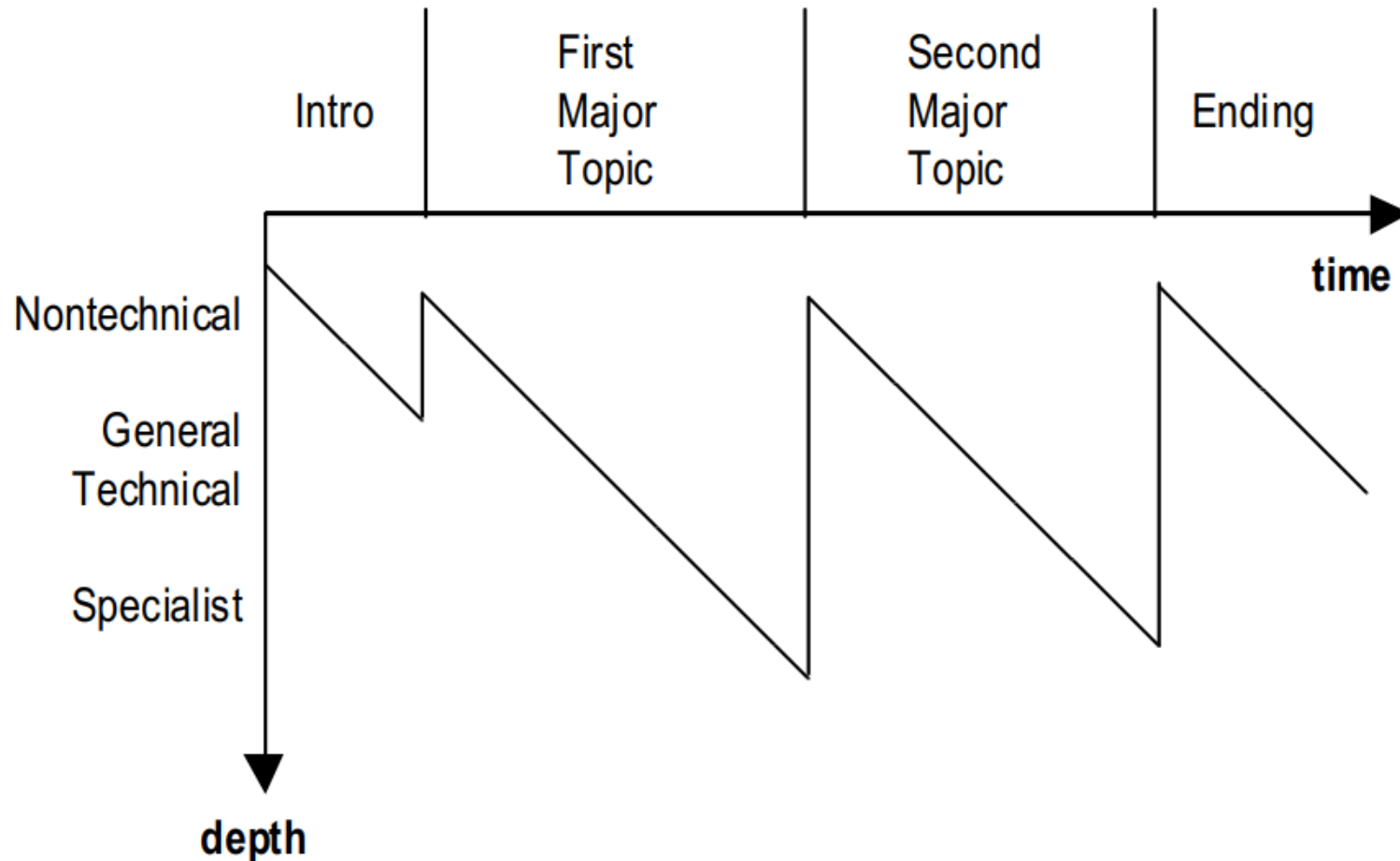
- includes **specialists** in the field who understand the problems
- includes **engineers** and scientists from other fields
- include **nontechnical professionals** such as managers who may not have any idea about your work
- students



# HOW DO YOU DESIGN THE PRESENTATION SO THAT EVERYONE IS SATISFIED?

- **The answer is not simple.**
- **Perhaps to give multiple presentations to the different audiences.**

# TARGETING MULTIPLE AUDIENCES: STRATEGY



# TARGETING MULTIPLE AUDIENCES: PURPOSE

- Presentations to **Inform** (“as instructions for handling a drugged hippopotamus”)
- Presentations to **Persuade** („advocating for the adoption of a new teaching method in universities. “)
- Presentations to **Inspire**



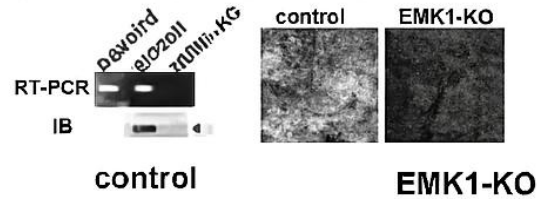


**What type of presentation you are  
planing to give in this conference?**



# DESIGNING EFFECTIVE SLIDES

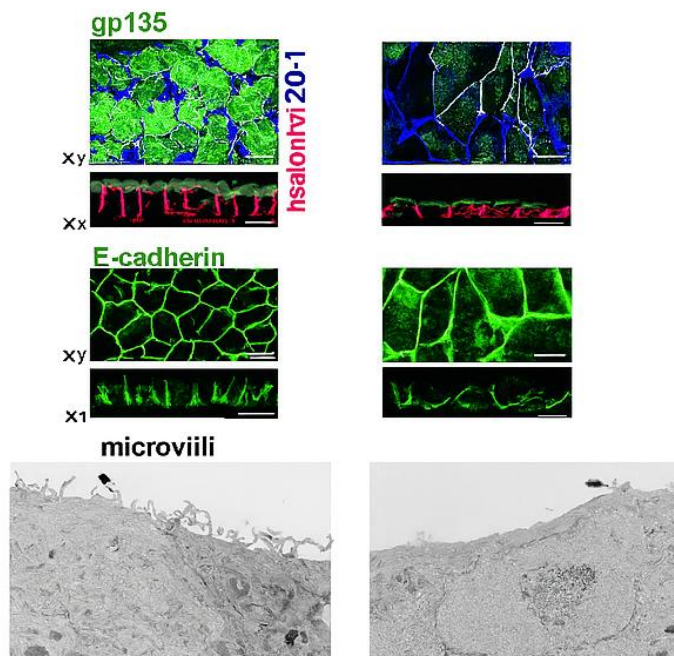
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# Make it Clear - Structure

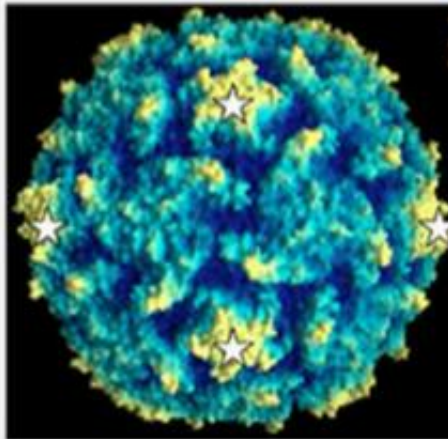
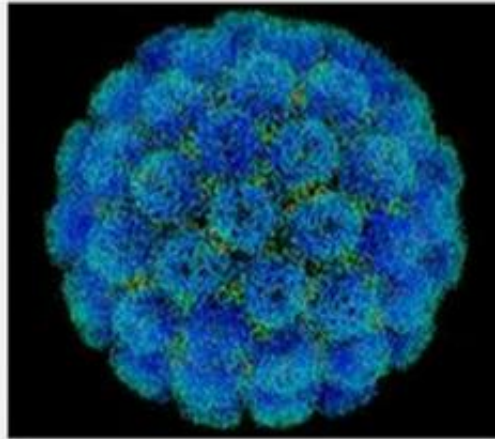
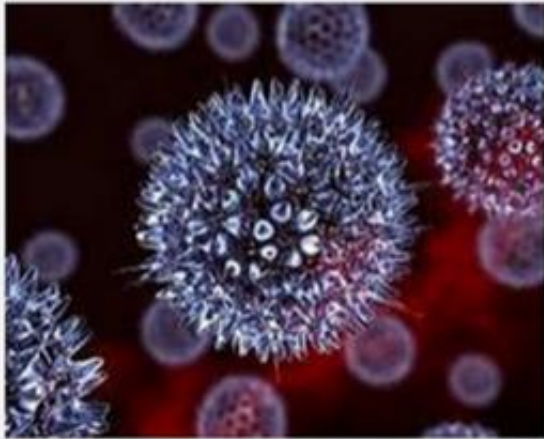
## OUTLINE FIRST!!

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# VIRUSES, VIROIDS, PRIONS AND LICHENS

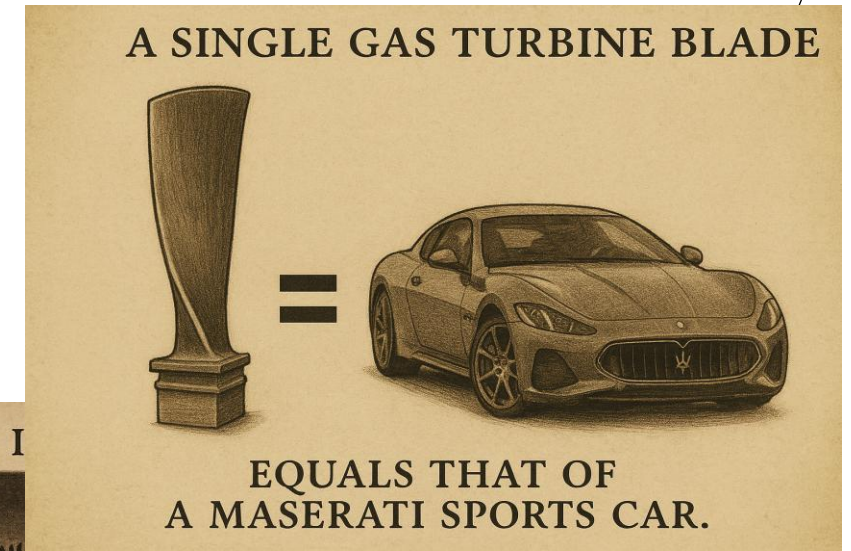
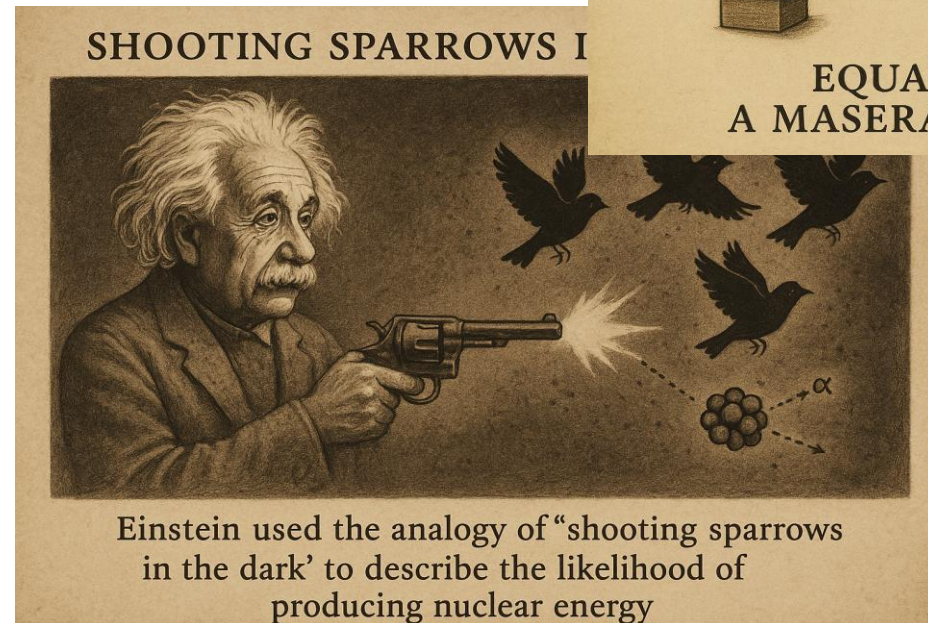
## VIRUSES

- Viruses have an inert crystalline structure outside the living cell.
- Viruses are obligate parasites.
- When they infect a cell they take over the machinery of host cell to replicate themselves, killing the host.



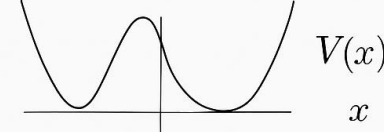
# INCORPORATING ANALOGIES, EXAMPLES, AND STORIES

- To motivate the work
- To convey the basic intuition
- To illustrate The Idea in action
- To show extreme cases
- To highlight shortcomings



# OMIT LOTS OF TECHNICAL DETAILS

- It will send your audience to sleep
- Present specific aspects only
- Have backup slides for this technical data if needed



$$\langle \phi | \rho | \phi \rangle = \sum_n \sum_{n'} \langle \phi | n \rangle \langle n | \rho | n' \rangle \langle n' | \phi \rangle \quad |n\rangle \wedge |n\rangle = 1$$

$$\psi(x) = \sum_n \phi_n p'_n \quad \psi(x) = \frac{i\hbar}{2t} \frac{\partial}{\partial t} |\psi(t)\rangle = H |\psi(t)\rangle \quad t = t, q_z = q(t) + t_0 v$$

$$\psi(x) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\infty} \psi_0(k) e^{ikx} dx \quad \Delta X \Delta P \geq \hbar \quad \Delta X' \Delta P \geq \frac{\hbar}{2} \quad \psi(r) = E\psi$$

$$\psi(x) = \langle x | \psi(t) \rangle \quad \rho(x, t) = |\psi(x, t)|^2 \quad E = \langle \psi | H | \psi \rangle \quad \text{Galilean symmetry}$$

$$\psi(x) = \frac{1}{2} \langle x, t | \psi \rangle \quad \hat{H} = \frac{\hbar^2}{2m} \nabla^2 + V(r) \quad -\frac{\hbar^2}{2m} \nabla^2 \psi(r) + V(r)\psi(r) = E\psi(r) = p - mv$$

Probability density  $E = \langle \psi | H | \psi \rangle \quad U(t) = i \quad \psi'_k = \frac{1}{i} \tilde{\epsilon} e^{i \cdot k} \quad \psi_k(r) = \frac{1}{ik \cdot r}$

$$\bar{H} = \psi'_2 - \frac{1}{2m} r \nabla^2 V^2 \quad \nabla \cdot \bar{p}(\cdot, z) = -\frac{\hbar^2}{2m} \bar{\psi}'(r) + V(r)\psi(r) = E\psi(r) \quad \bar{J}'_x - \bar{J}'_y = i\hbar \bar{J}_z$$

$$-\frac{\hbar^2}{2} \partial \bar{\psi}(r) + V(r)\psi(r) |z\rangle \quad \bar{J}'_x \bar{J}'_y = i\hbar | \bar{J}_z \quad \bar{J}_i | jm \rangle$$

$$\bar{H} = \frac{\hbar^2}{2m} \nabla^2 + V(r) \quad \bar{J}'_x \bar{J}'_y = +\sqrt{r} \quad \bar{J}'_k = \frac{2}{3} i i_k / \bar{r} \quad \hbar^2 | j(14) | jm \rangle$$

# TOO MUCH TEXT ON SLIDES

## What is a Prioritization Framework?

A prioritization framework is a structured approach or methodology used to make informed decisions about the allocation of resources, time, or attention to various tasks, projects, or goals. It helps individuals or organizations determine what should be done first, what can be delayed, and what might not be worth pursuing at all. Prioritization frameworks are commonly used in business, project management, personal productivity, and various other contexts to ensure that efforts are focused on the most important and impactful activities.

Here are some key elements and principles commonly found in prioritization frameworks:

1. **Criteria:** Establish clear criteria or factors that will be used to evaluate and rank items for prioritization. These criteria could include factors like importance, urgency, cost, potential return on investment, alignment with strategic goals, and feasibility.
2. **Scoring or Weighting:** Assign scores or weights to each criterion to reflect their relative importance. This helps in quantifying the importance of each factor in the decision-making process.
3. **Data Collection:** Gather data and information relevant to the items being prioritized. This could involve market research, financial analysis, customer feedback, or other sources of information.
4. **Ranking:** Apply the criteria and scoring to each item to create a ranked list. This list represents the order in which items should be addressed or pursued.
5. **Review and Adjustment:** Regularly review and update the prioritization list as circumstances change or new information becomes available. Priorities may shift over time.
6. **Resource Allocation:** Allocate resources (such as time, budget, and manpower) to the top-ranked items according to the established priorities.
7. **Communication:** Communicate the prioritization decisions to relevant stakeholders, teams, or individuals to ensure alignment and understanding of the chosen priorities.



STYLE?

**Avoid fancy transitions between slides**

Let's be honest. PowerPoint transitions are...

# USING TOO MANY COLORS ON ONE SLIDE

## Project Phases Planning



Key Milestones	Completed by	
	4Q 2023	1Q 2024
Developing a detailed project plan, including timelines and resources.	15 Oct	
Reaching milestones in the development of a new product or service.	20 Dec	
Reaching savings, investment, or debt reduction targets.		2 Jan
Building a functional prototype of the product & Ensuring the product meets quality standards.		12 Feb
Reaching key construction milestones like framing, roofing, and finishing.		18 Apr

# COLOR?

**Dark letters against a light background work or vice versa.**

**Avoid red-green combinations.**

Lots of people can't read this –  
even if they could,  
it makes your eyes hurt.



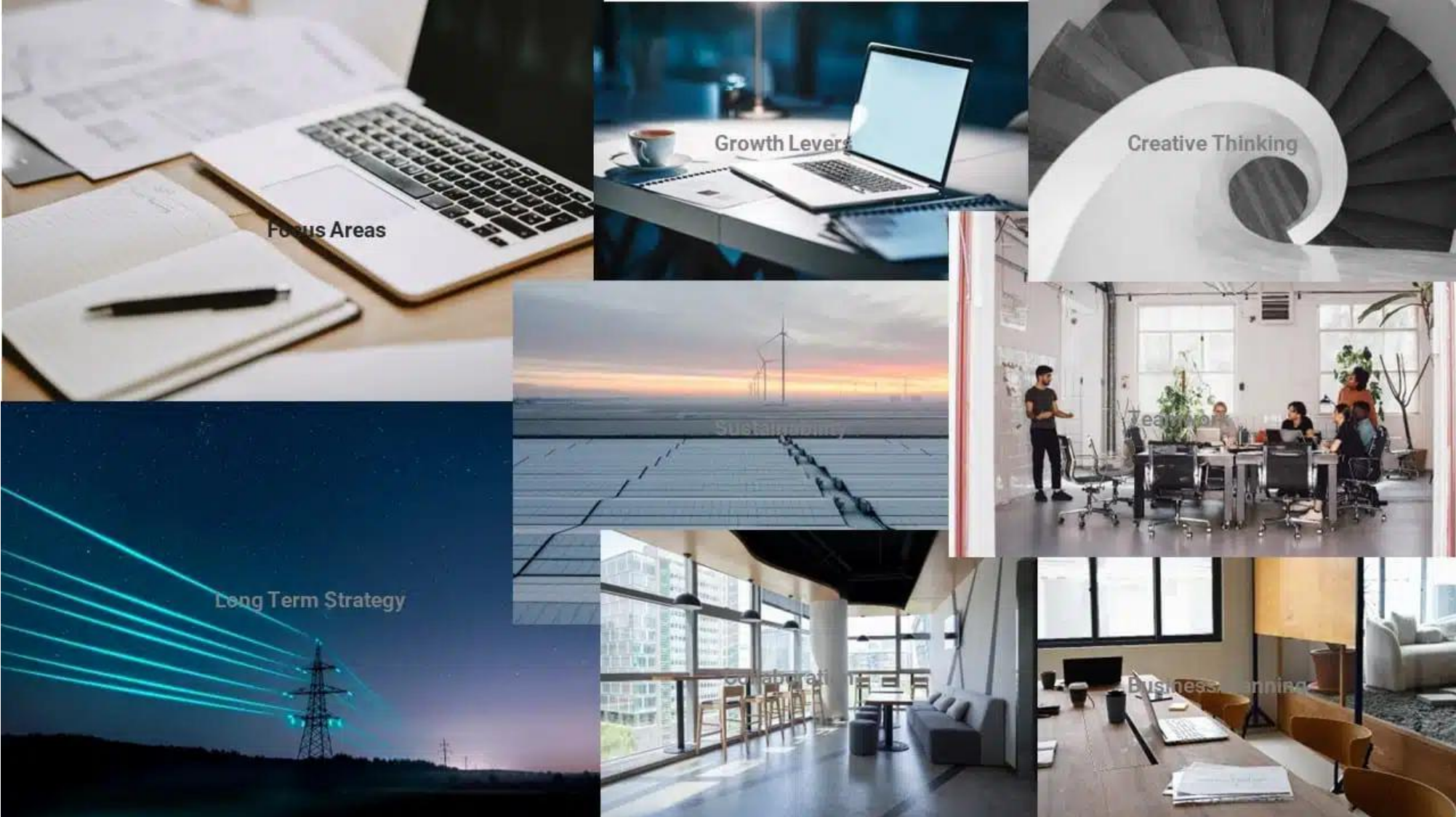
**Red is Angry color**

**Contrast is also important**

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**your audience's eyes will thank you**

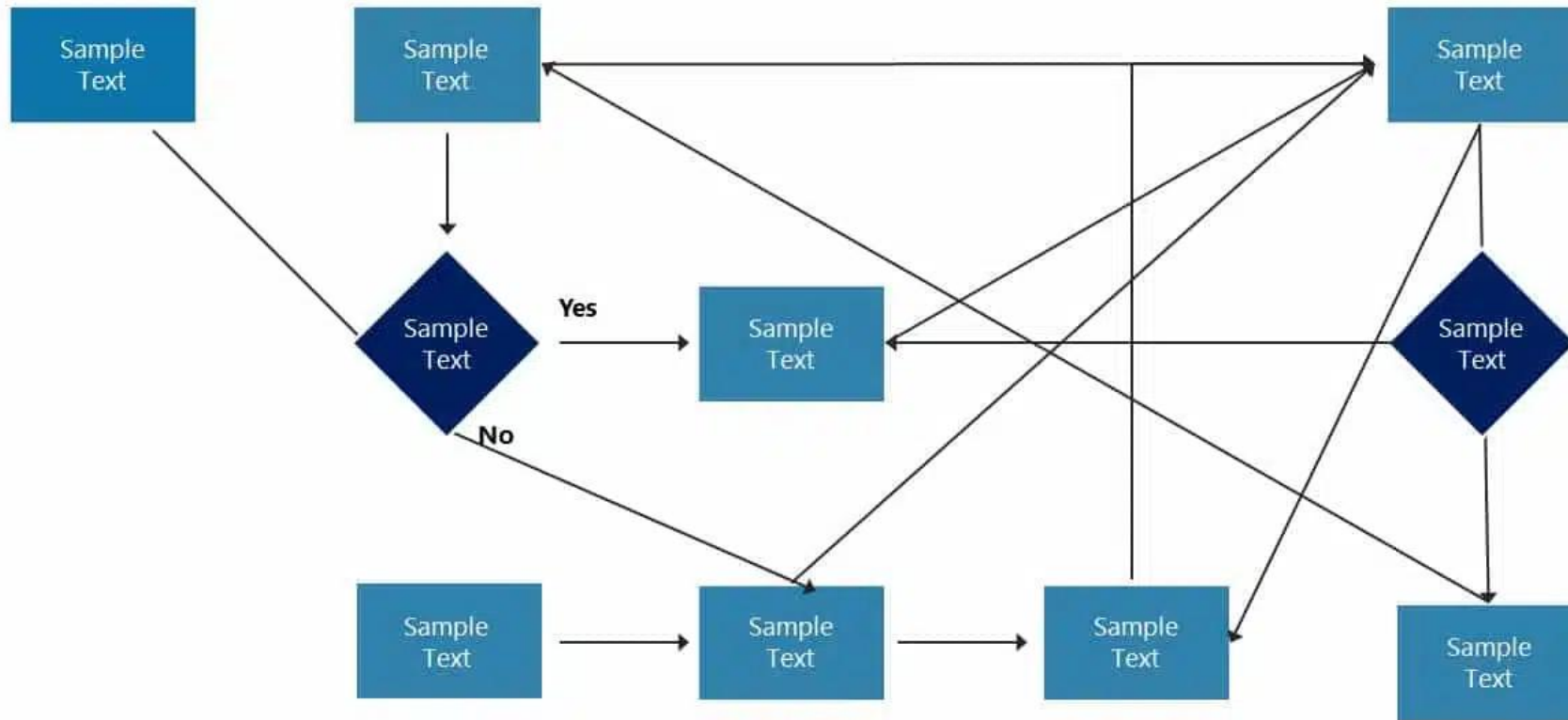
# USING ONLY PICTURES AND DIFFICULT-TO-UNDERSTAND FONTS



STYLE?

**Try your best to include a simple image on every slide.**

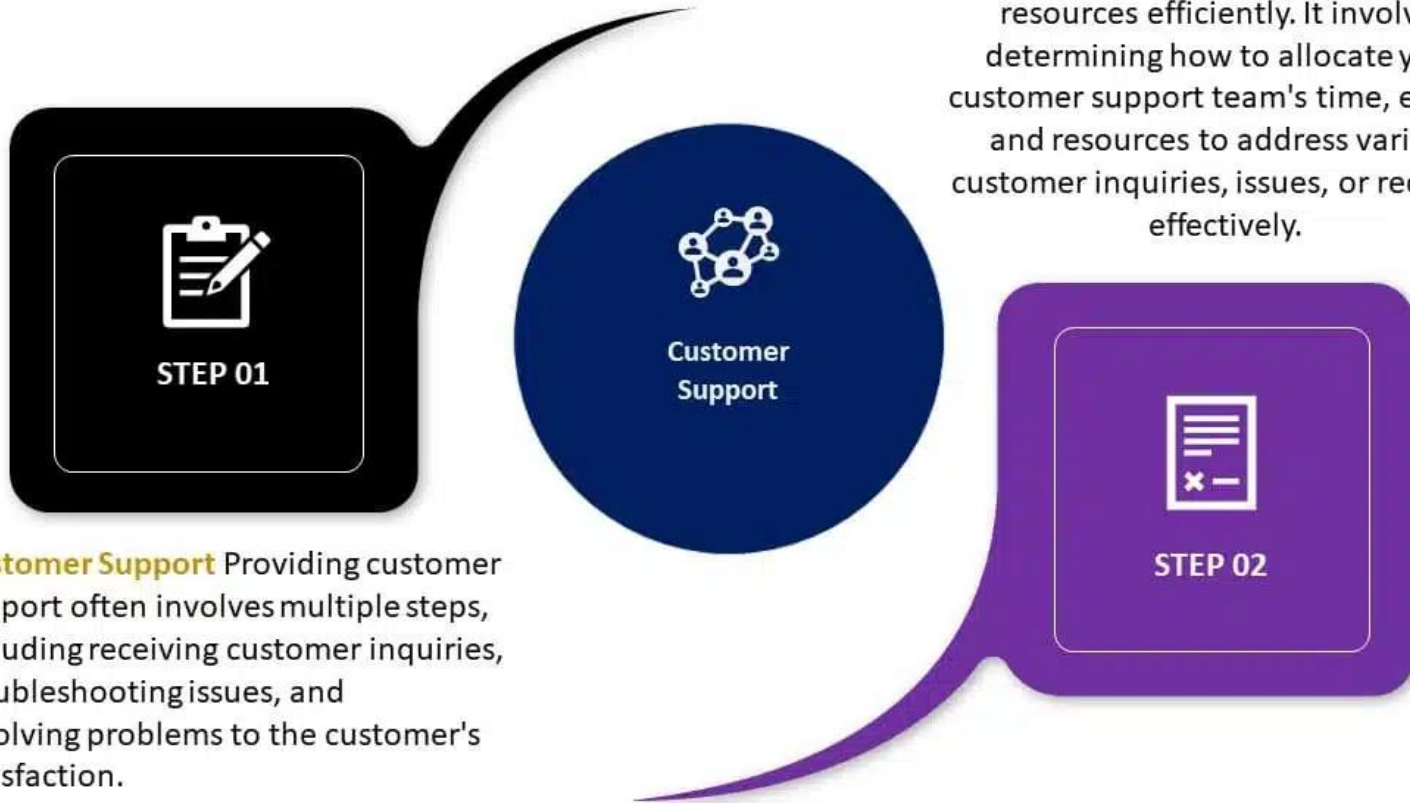
# FLOW CHARTS ON THE SLIDES DO NOT MAKE SENSE



# NO SYMMETRY IN TEXTS AND POINTERS

## Customer Support Prioritization

**Customer support prioritization** is a crucial aspect of providing excellent customer service and managing resources efficiently. It involves determining how to allocate your customer support team's time, energy, and resources to address various customer inquiries, issues, or requests effectively.



**Customer Support** Providing customer support often involves multiple steps, including receiving customer inquiries, troubleshooting issues, and resolving problems to the customer's satisfaction.

**It's quite easy to use PowerPoint badly  
(Fonts, Layouts, Color...)**

# WHAT FONT TO USE? WHY?

## **Sans Serif font:**

- **This font is Arial.**
- **This font is Comic Sans.**
- **This font is Trebuchet.**

## **Serif fonts:**

- **This font is Times New Roman.**
- **This font is Courier.**
- **This font is Merriweather Light**

# WHAT FONT SIZE TO USE?

**Type size should be 18 points or larger:**

**18 point**

**20 point**

**24 point**

**28 point**

**36 point**

**\*References can be in 14 point font**

## CAPITAL LETTERS?

**AVOID USING ALL CAPITAL LETTERS  
BECAUSE IT'S REALLY HARD TO READ!  
(VISUAL SHOUTING AT AUDIENCE)**

**Avoid using all capital letters  
because it's really hard to read!**

# LAYOUT?

Every slide should have a heading.

The best heading is a simple sentence.

## Bad Example

Slide Content...

Lots of text without clear heading

- Random bullet point
- Another bullet point
- No clear main idea

## Good Example

Clear heading summarizing the slide

- Point 1 directly supports heading
- Point 2 directly supports heading
- Concise and easy to read

# LAYOUT?

**Limit text blocks to  
no more than two lines each**

## LAYOUT?

**Lauren ipsum eats cake for breakfast,  
Spills coffee on her Zoom background. Her  
to-do list ran away screaming, And her  
plants are in witness protection. Wi-Fi  
connects only when insulted, She types like  
she's summoning spirits. Laundry has  
evolved into sentient life, And socks elope  
in pairs, never seen again. She tried  
manifesting — got a parking ticket. Still,  
she smiles like it's part of the plan.  
(Exception – a wonderful quotation.)**

# LAYOUT?

**List should contain no more than 3 items:**

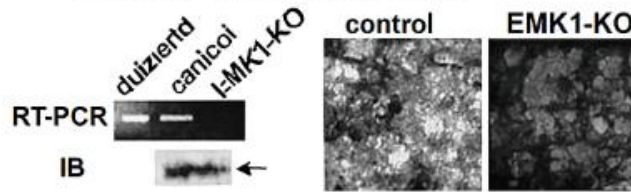
- **Item 1**
- **Item 2**
- **Item 3**

**Avoid long lists. Or „unveil“ your list one by one:**

- **Item 1**
- **Item 2**
- **Item 3**
- **Item 4**
- **Item 5**

# RULE - LESS IS MORE...

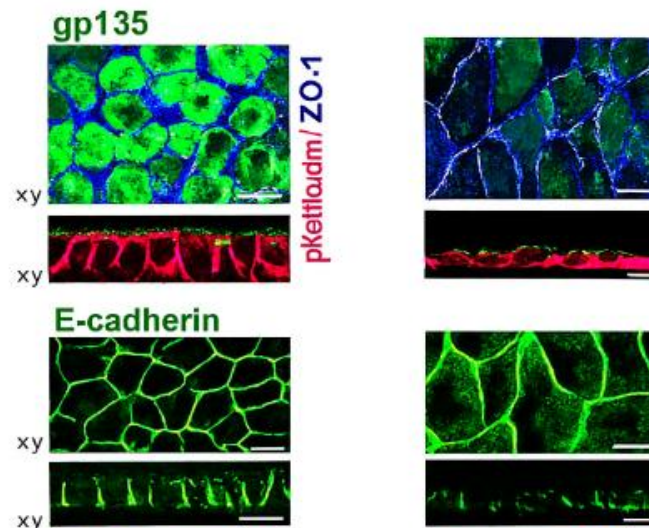
## A EMK1-knockdown



## B control EMK1-KO collagen overlay



## C Ca-switch



Lorem ipsum dolor sit amet, consectetur adipiscing elit. Suspendisse vulputate sem risus, quis aliquam magna semper nec. Sed aliquet lacus a lacus lacinia maximus. Donec consectetur diam massa, in auctor elit mollis in. Morbi aliquet, arcu a egestas imperdiet, urna quam ultrices diam, id dictum purus lorem at massa. Nulla aliquet suscipit eleifend. Ut justo odio, volutpat vel ipsum venenatis, dignissim malesuada ligula. Curabitur mollis pulvinar dictum. Phasellus aliquam rhoncus luctus. Fusce eu dignissim lacus. Mauris rhoncus posuere nulla sit amet semper. Sed congue vestibulum nisi, at facilisis orci suscipit id. Vivamus faucibus lectus eget tellus molestie, volutpat ornare elit porttitor. Aenean feugiat hendrerit lorem.:

**STYLE?**

**Limit the number of items on each slide.**

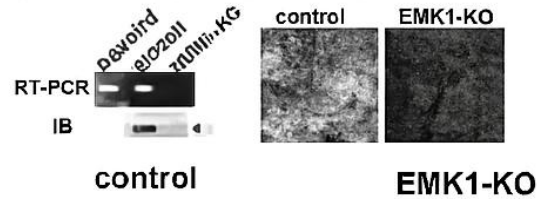
**Each slide should make just one or two points.**

**One slide per min. 20 min talk = 20 slides**

## STYLE?

- **Build content progressively**
- **If you are not going to talk about it, leave it out**

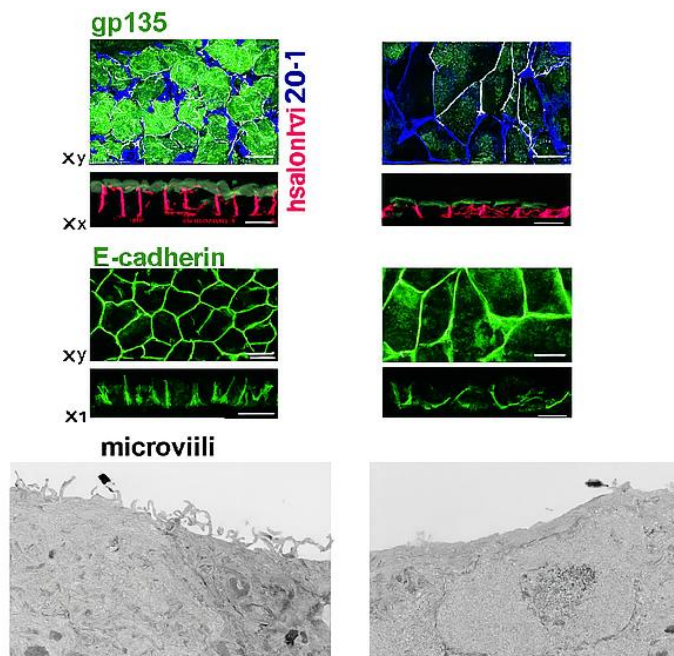
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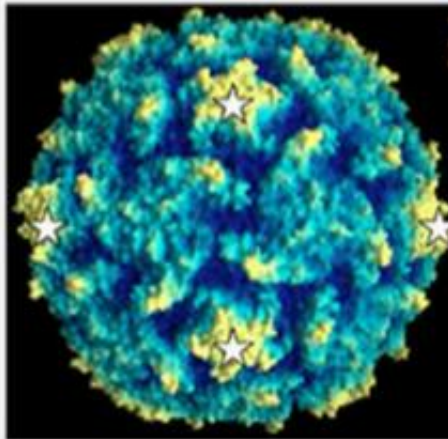
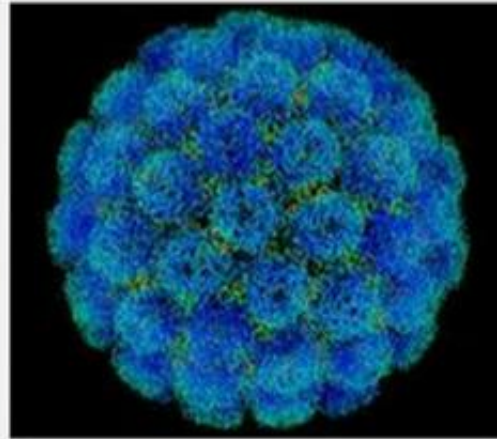
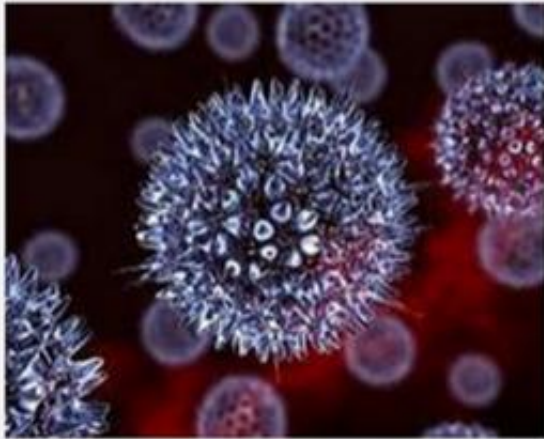
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## VIRUSES

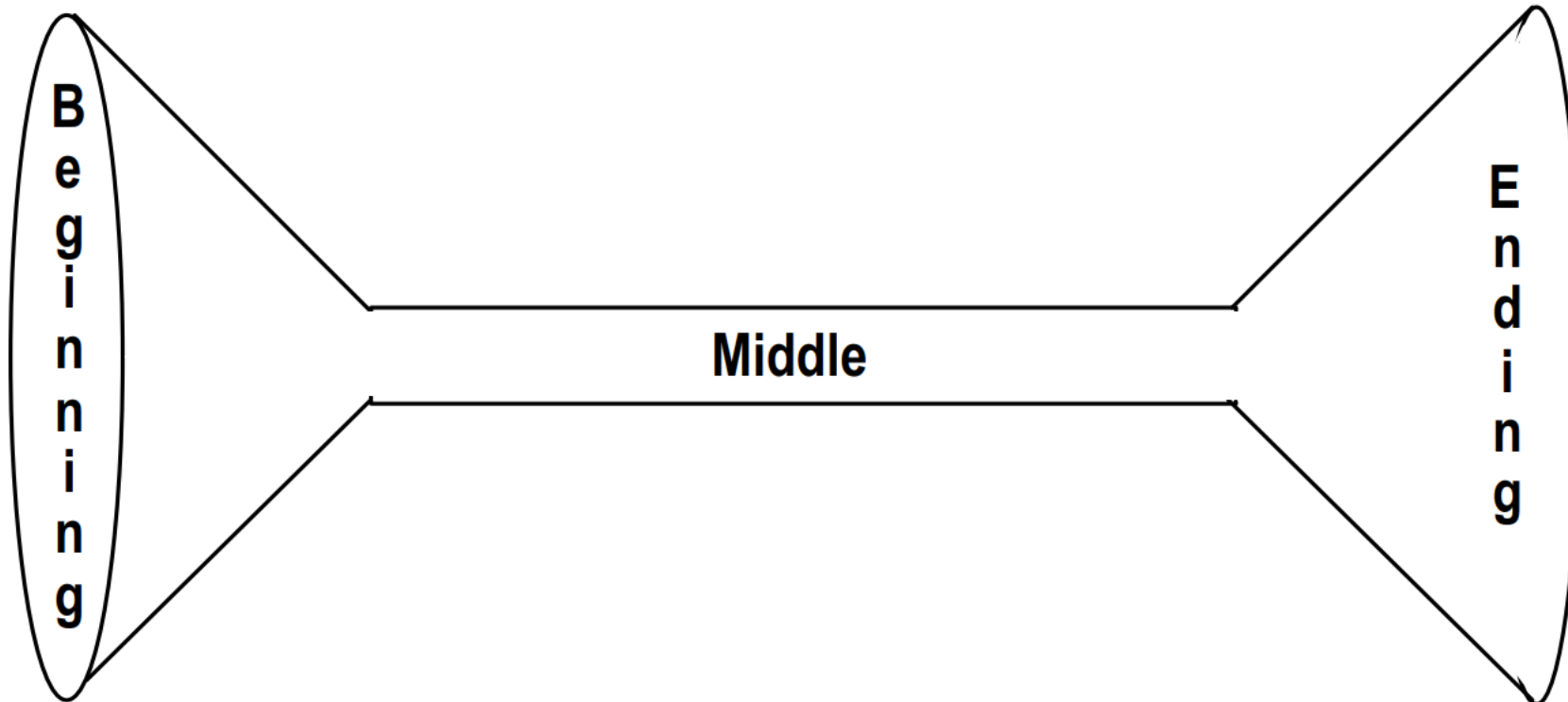
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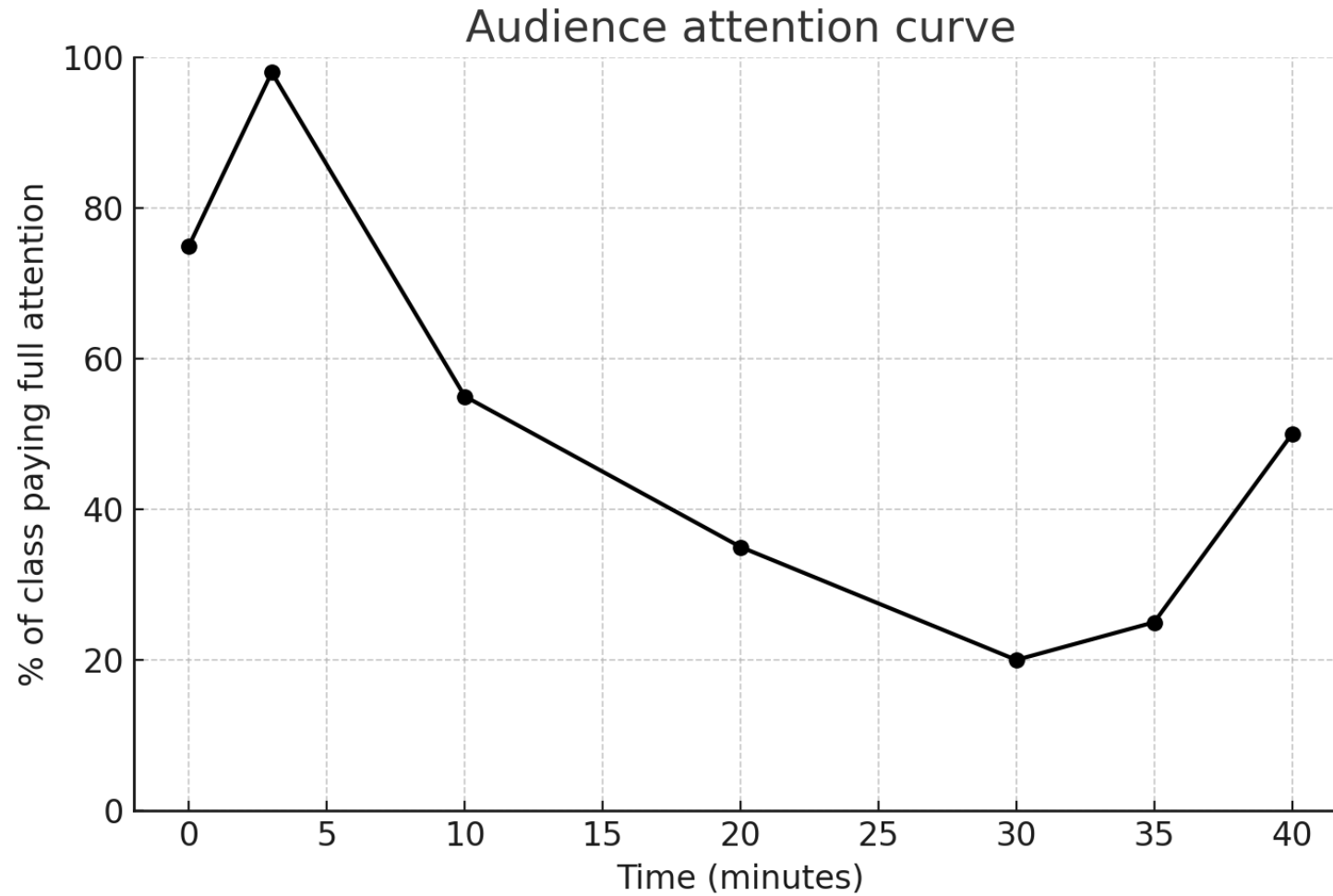


# THE STRUCTURE OF A GOOD TALK

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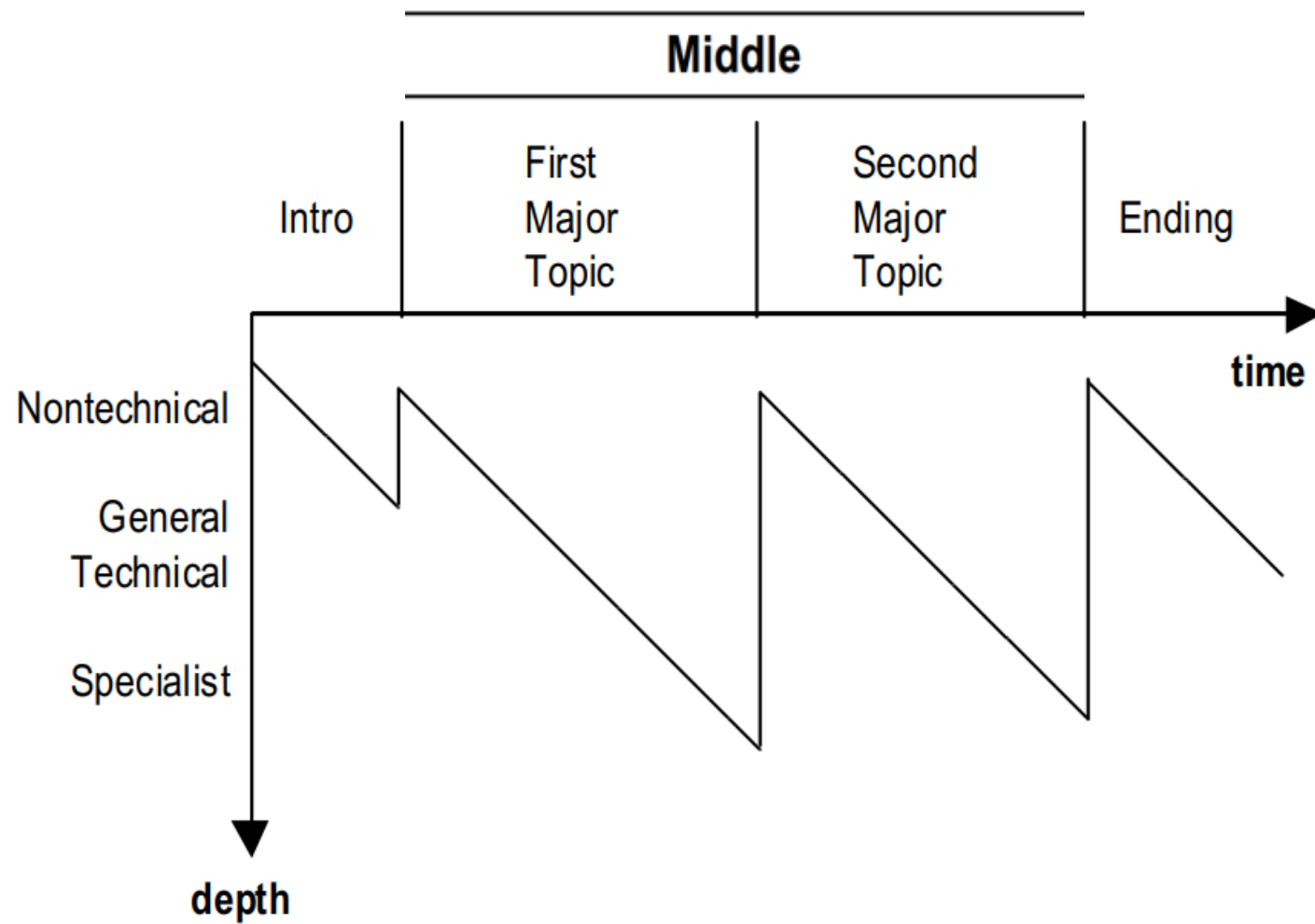


# AUDIENCE ATTENTION

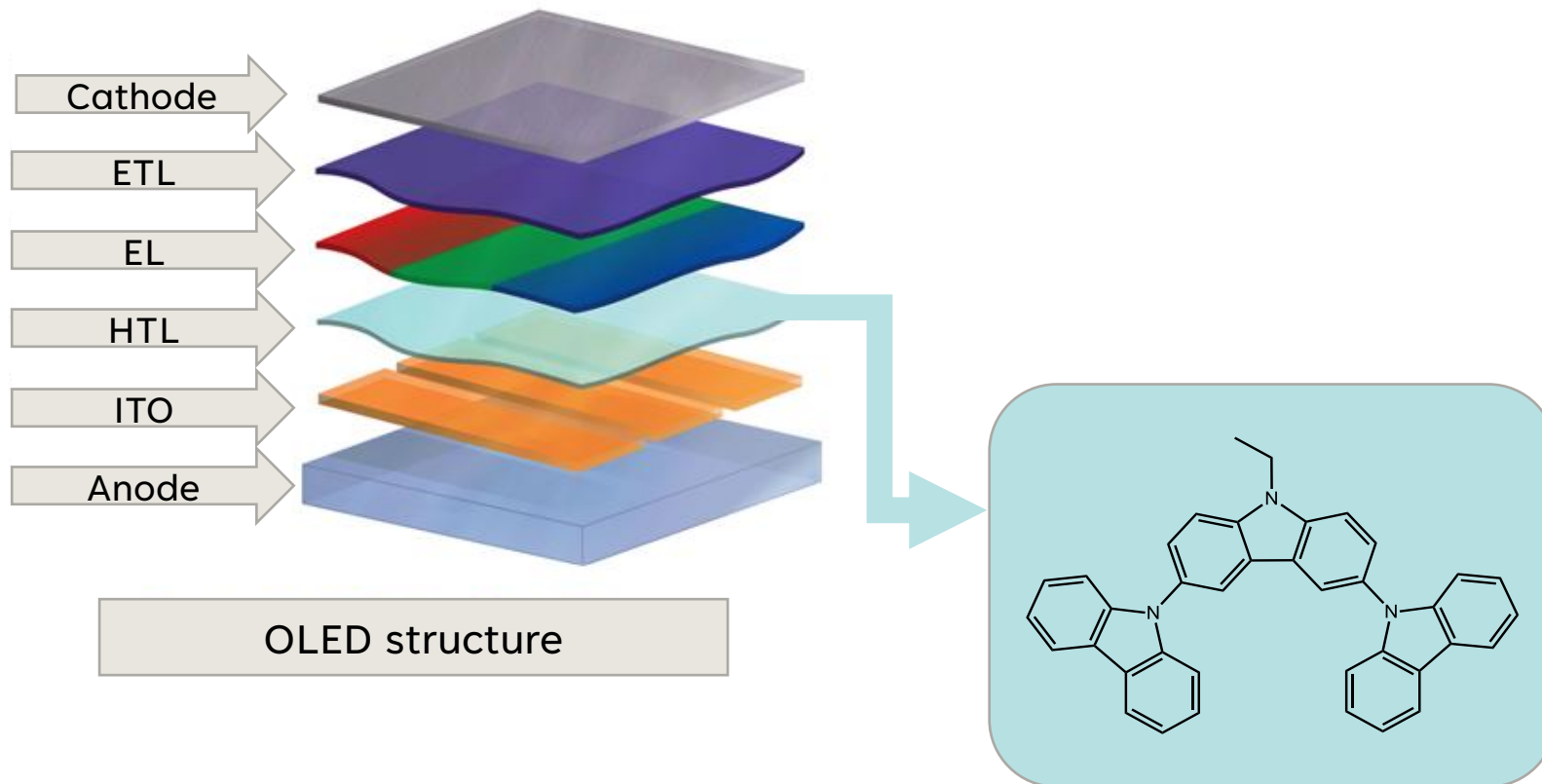


From "A handbook of Public Speaking for Scientists and Engineers" by Peter Kenny

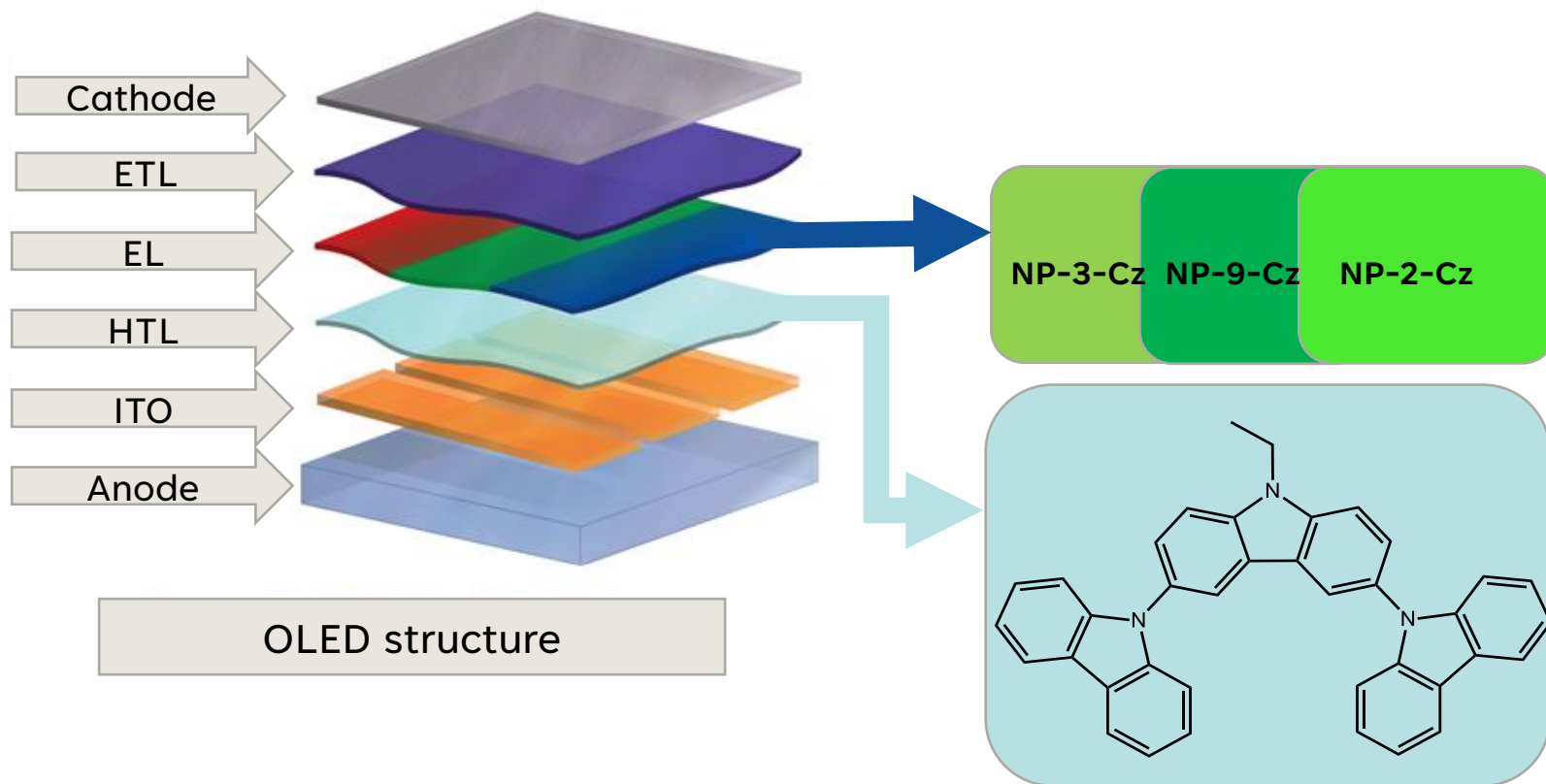
# ENABLING THE AUDIENCE TO TUNE BACK



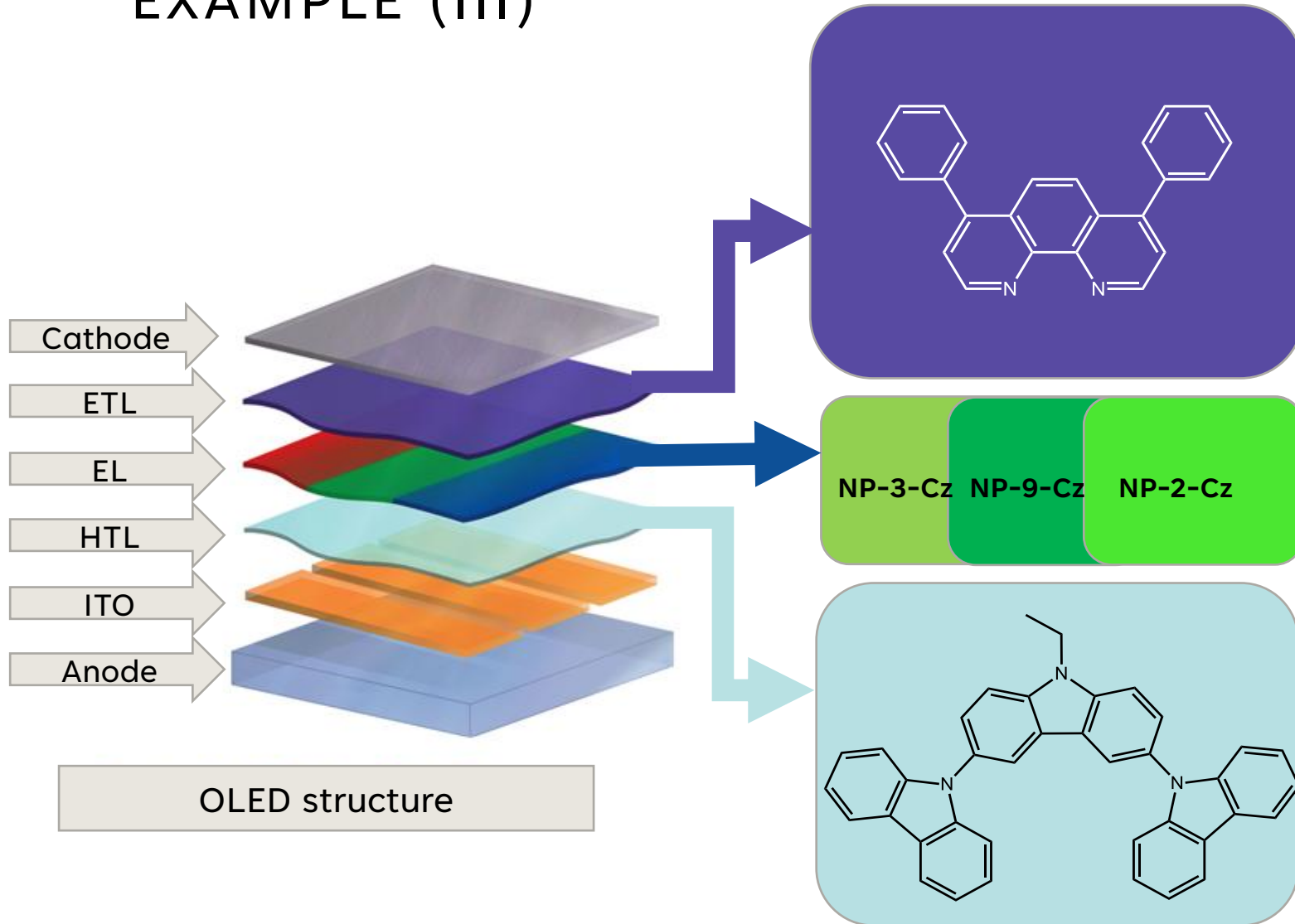
# EXAMPLE (I)



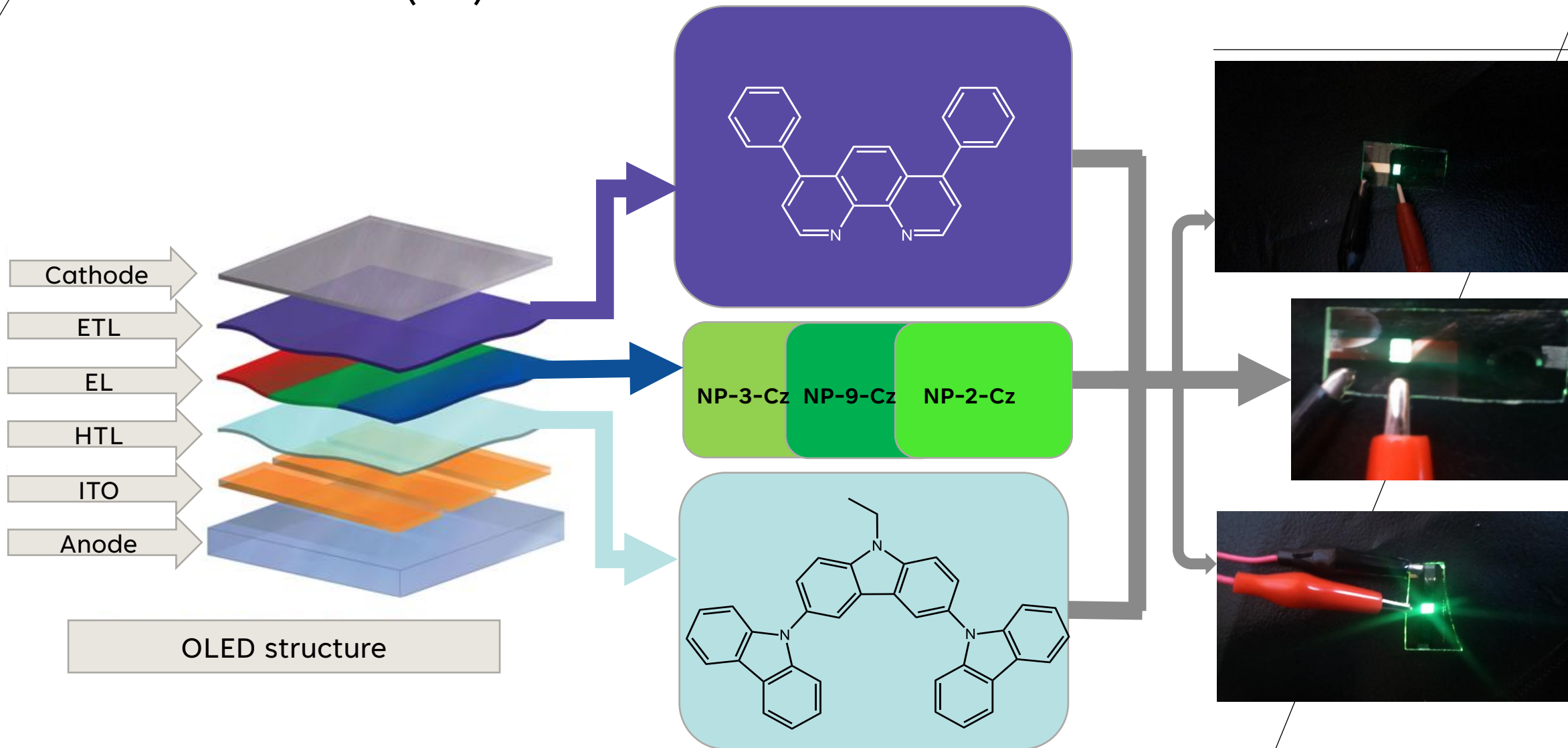
# EXAMPLE (II)



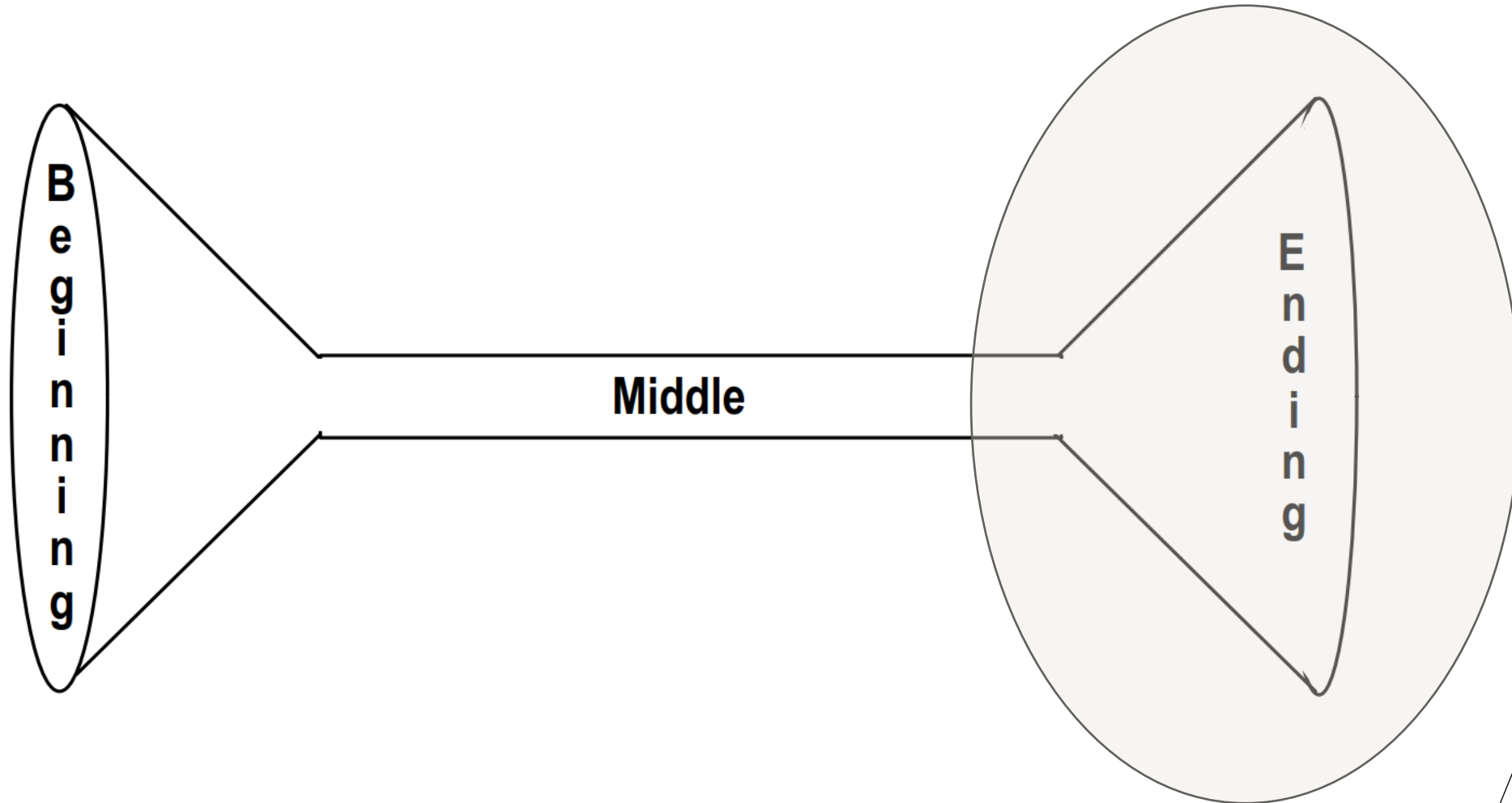
# EXAMPLE (III)



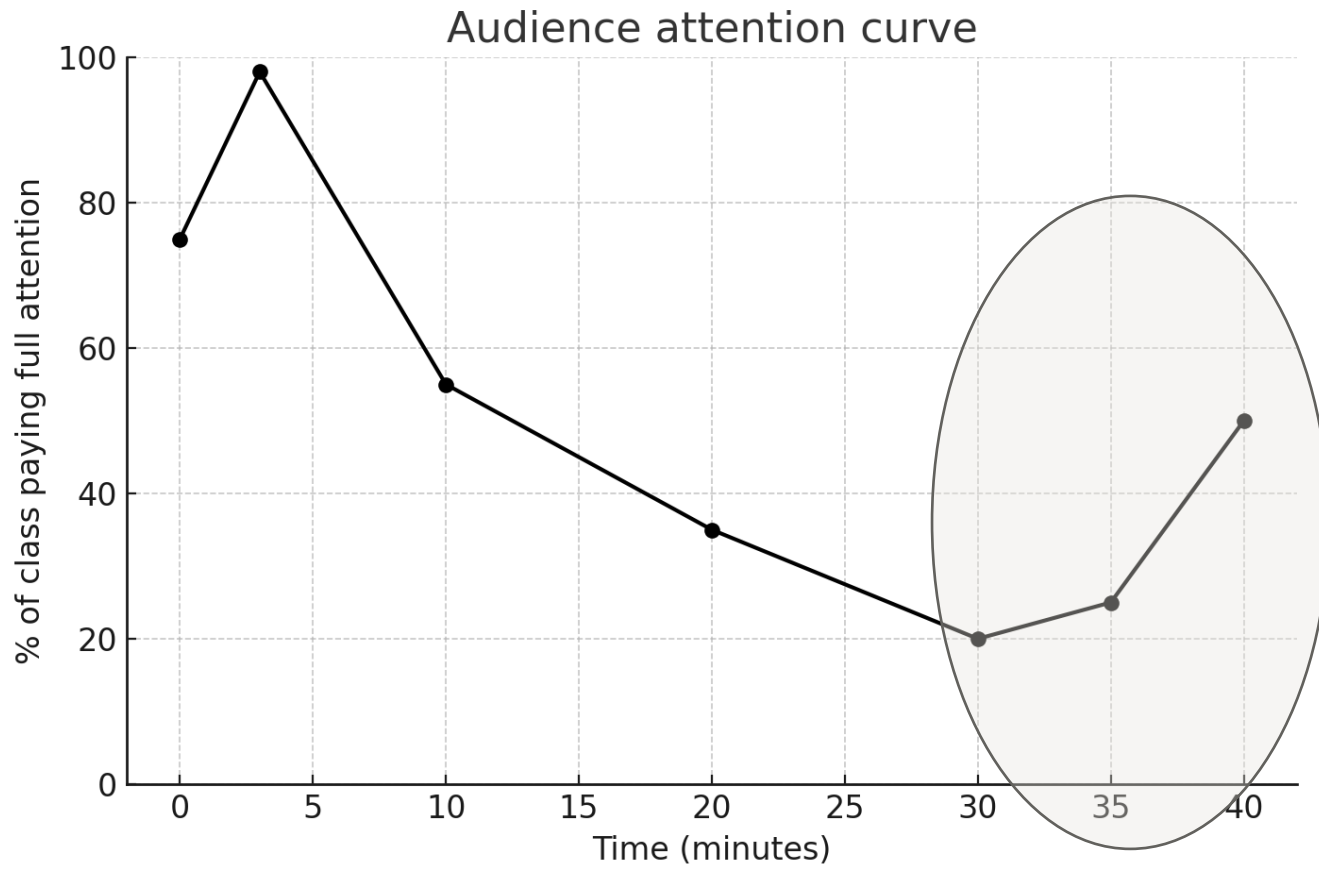
# EXAMPLE (IV)



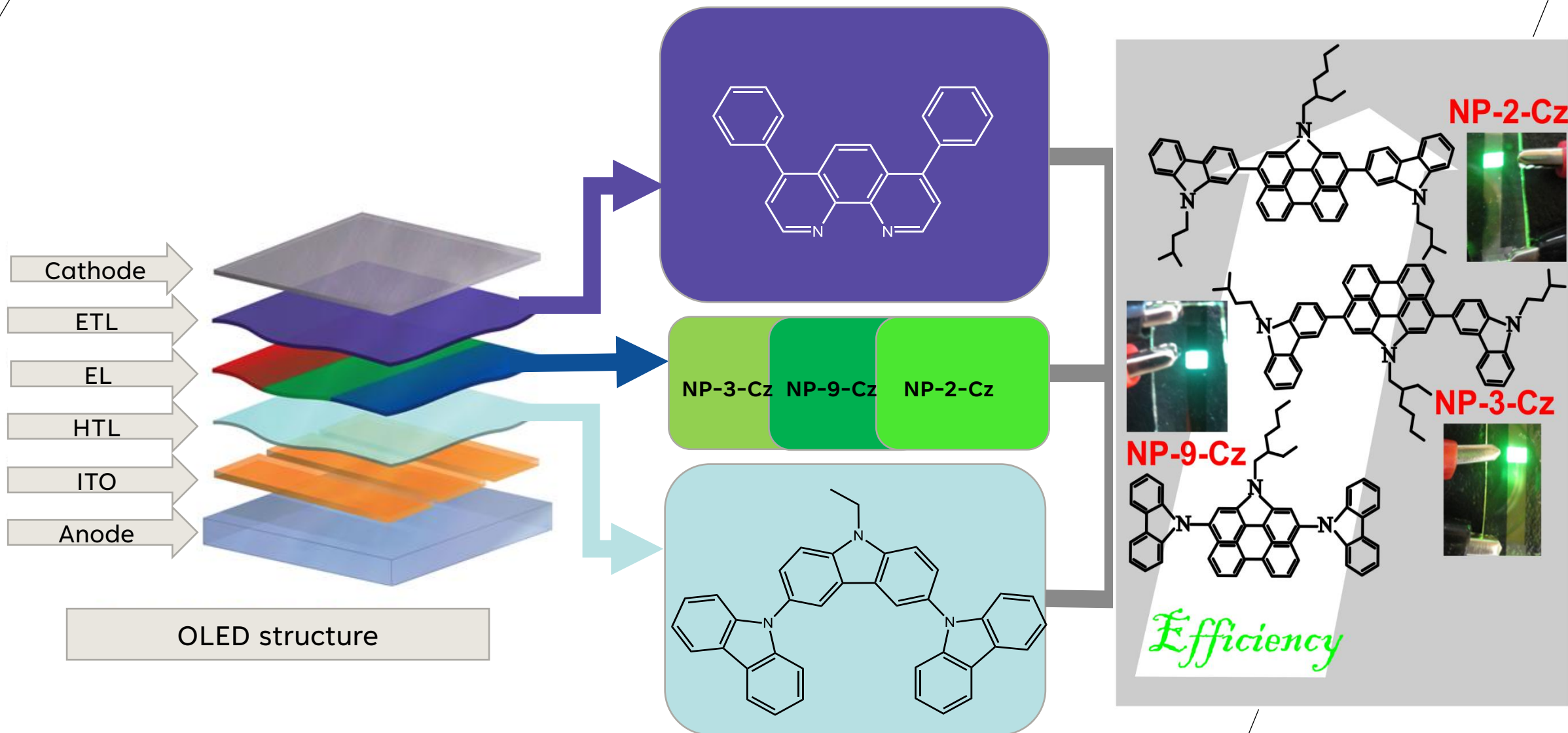
# ENDING OF THE TALK



# ENDING OF THE TALK



# ENDING OF THE TALK





# THE KEYS TO A GREAT TALK

**Engaging Delivery** – Confident speaking, eye contact, and calm Q&A

**Adapting to the Audience** – Clear language, respect for diversity

**Designing Effective Slides** – Simple, focused, mistake-free

**Be smart** with Power Point

**Strong Structure** – Start broad, go deep, end broad



## PRESENTATION IMPACT

Your ability to communicate effectively will leave a lasting impact on your audience

Effectively communicating involves not only delivering a message but also resonating with the experiences, values, and emotions of those listening



= So CLOSE. So DISTANT. STILL =  
A. KRASCHUNAS  
Kraschunas



THANK YOU

