

OPEN MIND

CO-CREATION

DIVERSE AUDIENCES

SHAPING MUSEUM EXPERIENCES

2025

FUTURE OPEN MIND

IDEAS UNLEASHED



**The Futurium** is a place where possible futures are presented, explored, tested and discussed. The aim is to empower people to shape the future.





# Exhibition



Forum



# Futurium Lab

David Weigend 2025



Alessandro Maggioni  
Gründer BADABOOMBERLIN

takes a lot from our approach as a studio,

### #FuturiumLab

Futurium - 8/50



- 5 **Opinionator by Tactical Tech (EN)**  
Futurium 2:54
- 6 **Opinionator von Tactical Tech**  
Futurium 2:54
- 7 **Hybrid Catalogue House by Refunc**  
Futurium 3:17
- The Fantastic Mobility by BADABOOMBERLIN (EN)**  
Futurium 3:02
- 9 **Future Mobility Simulator by IMAGINARY (EN)**  
Futurium 3:09
- 10 **Ab in die Kreislaufwirtschaft – Hybrid Catalogue House von...**  
Futurium 3:17
- 11 **Sensor Bike by re:edu (EN)**  
Futurium 3:12

### The Fantastic Mobility by BADABOOMBERLIN (EN)



Futurium

15.600 Abonnenten



2



Teilen



Herunterladen



Clip



Alle

Aus der Serie

Von Futurium

Ähnlich



90 Aufrufe vor 3 Jahren

David Weigend 2025

llation by BADABOOMBERLIN turns prototyping into an interactive game. At Futurium Lab, you can develop and test your own prototypes and in the lab, you can put together vehicle parts to create new inventions. A camera records the combination of pieces you make and



**Blue & Purple Particles Passing**  
By | 4K Relaxing Screensaver

Josu Relax

760.613 Aufrufe · vor 8 Jahren

30:20

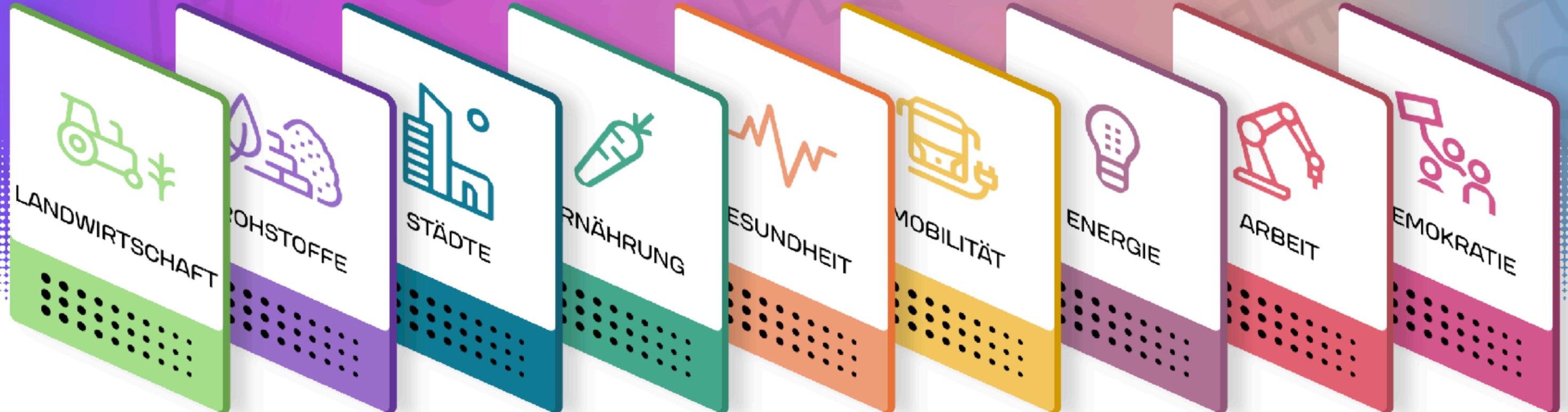
BILDUNGSPLATTFORM

# ZUKÜNFTIGE GESTALTEN

Bringt Zukünfte in die Schulen!

Unsere Bildungsplattform ermöglicht zeitgemäßen digitalen Unterricht.

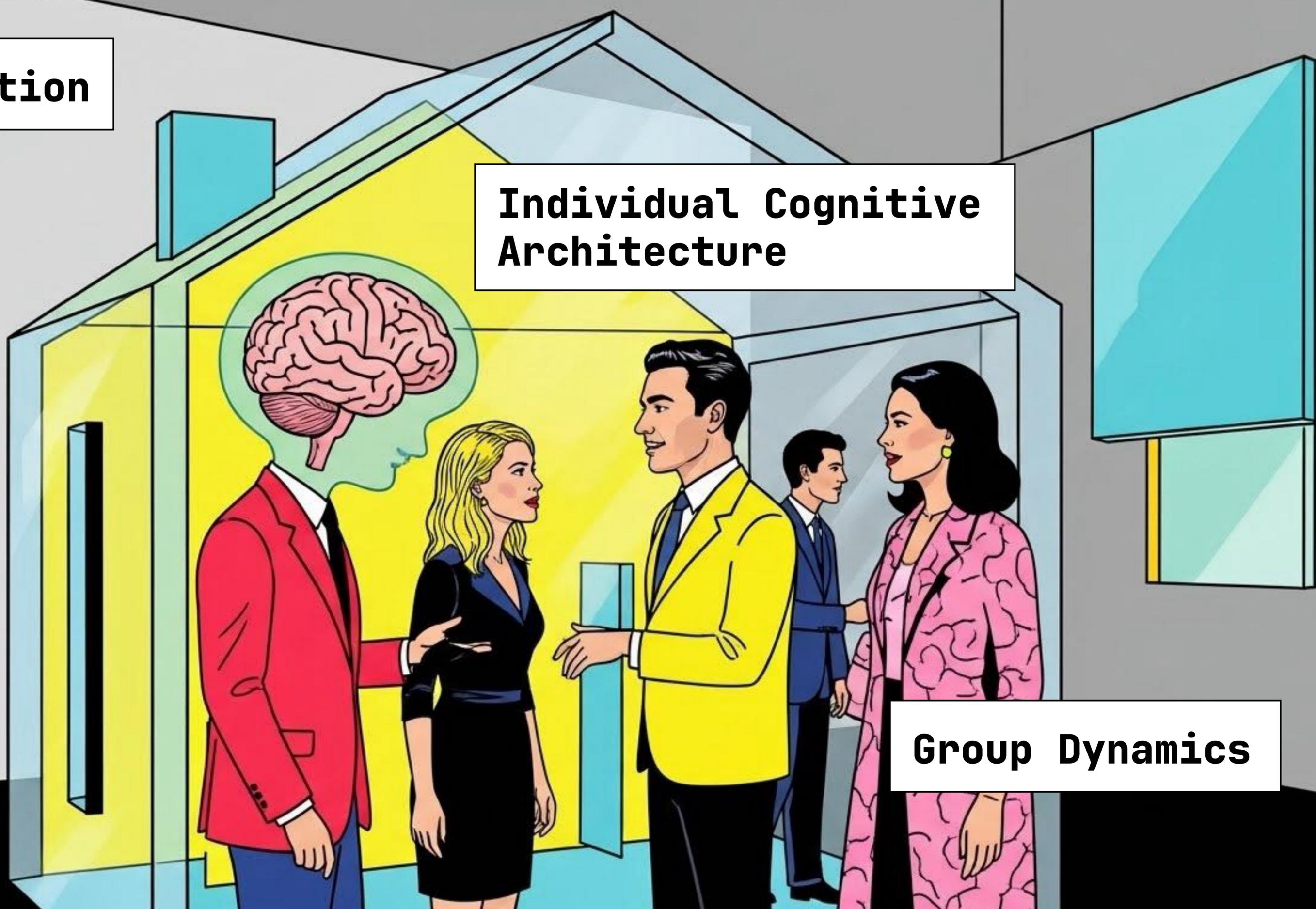
Hier finden Lehrkräfte und Schüler\*innen kostenfreie, multimediale Lernangebote, um mit digitalen Werkzeugen Ideen für die Zukunft zu entwickeln.



# **Partizipation + Co-Desing**

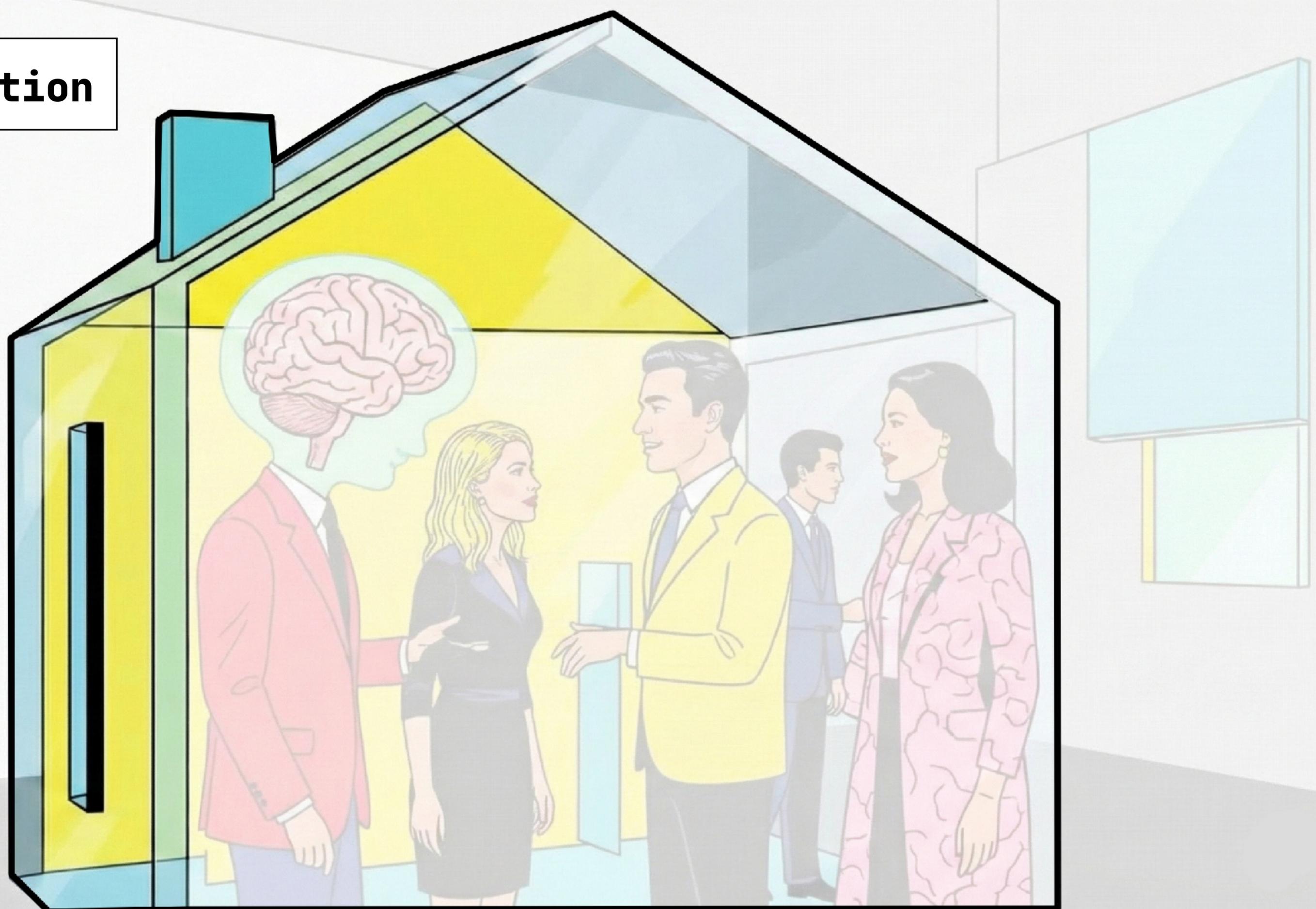
**Institution**

**Individual Cognitive  
Architecture**

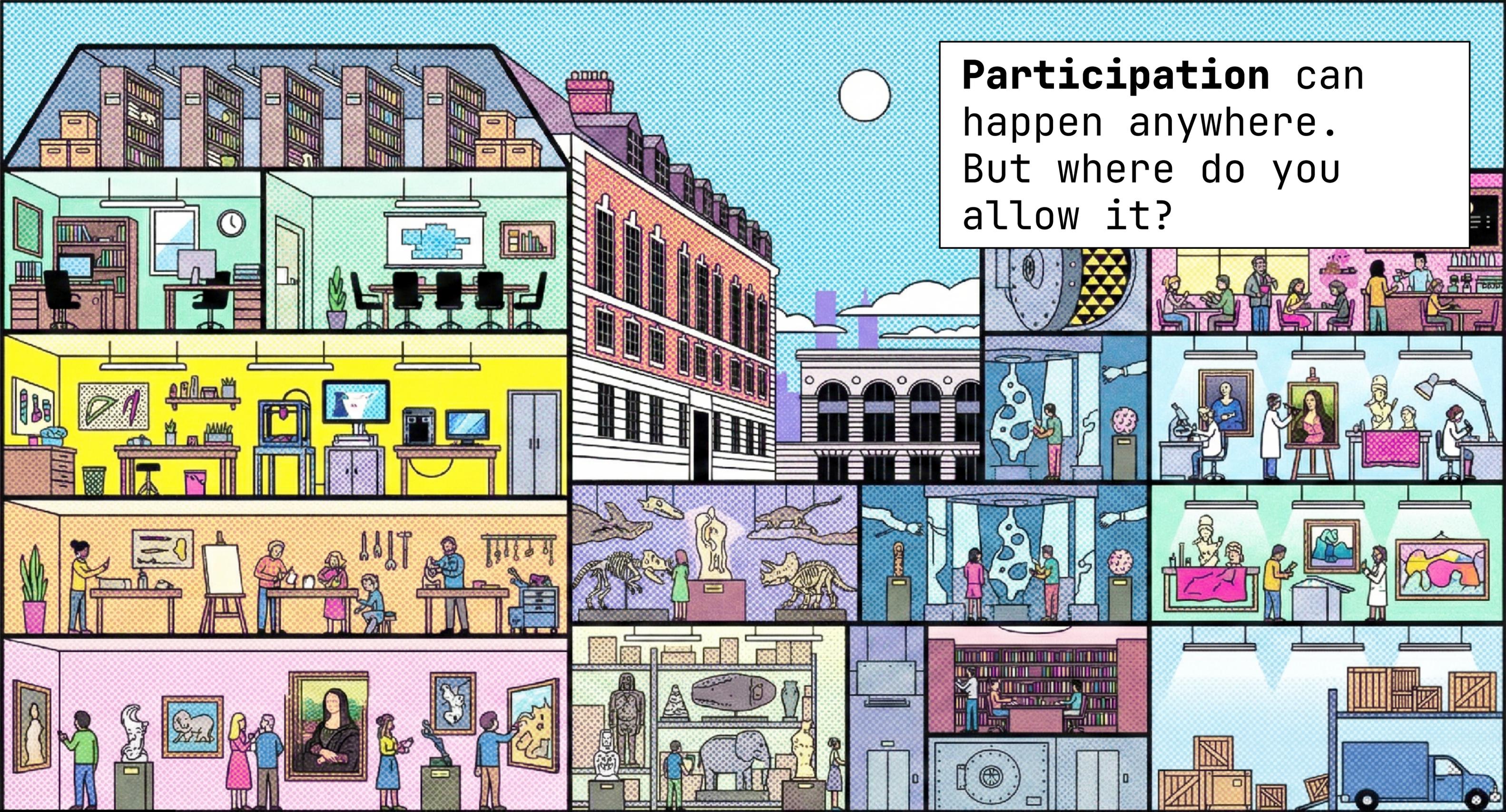


**Group Dynamics**

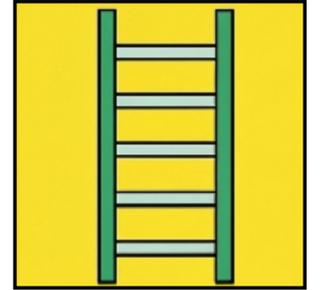
# Institution



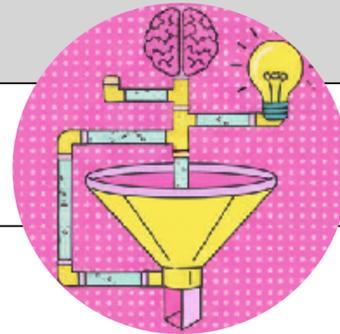
**Participation** can happen anywhere. But where do you allow it?



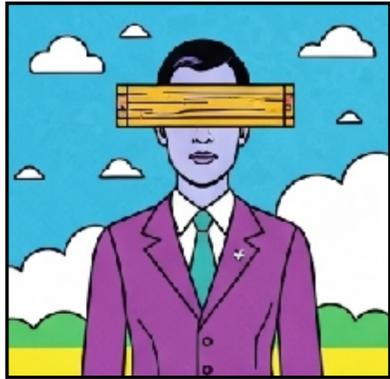
# Key Framework: Arnstein's Ladder



Rungs		Level	Description
1	Manipulation	<b>Manipulation</b>	Citizens are "educated" or "cured" – no real voice
2	Therapy		
3	Informing	<b>Tokenism</b>	Citizens can hear and be heard, but no guarantee their voice affects outcomes
4	Consultation		
5	Placation		
6	Partnership	<b>Citizen Power</b>	Genuine redistribution of decision-making authority
7	Delegated Power		
8	Citizen Control		



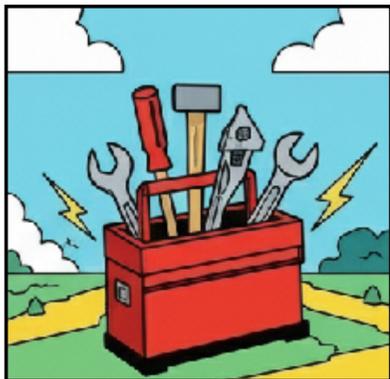
# Contemporary Critiques Of Arnstein's Ladder



**Context-blindness** – The ladder assumes participation is universal; it doesn't account for cultural, political, or situational differences



**Static view of power** – Modern approaches emphasize participation as a dynamic, negotiated process, not a fixed position on a ladder



**Missing the "how"** – The ladder tells us *what level* of participation, but not *how* to achieve it

# The Participatory Continuum



**Collaborative**  
Working together  
on defined tasks



**Contributive**  
Adding to existing  
structures



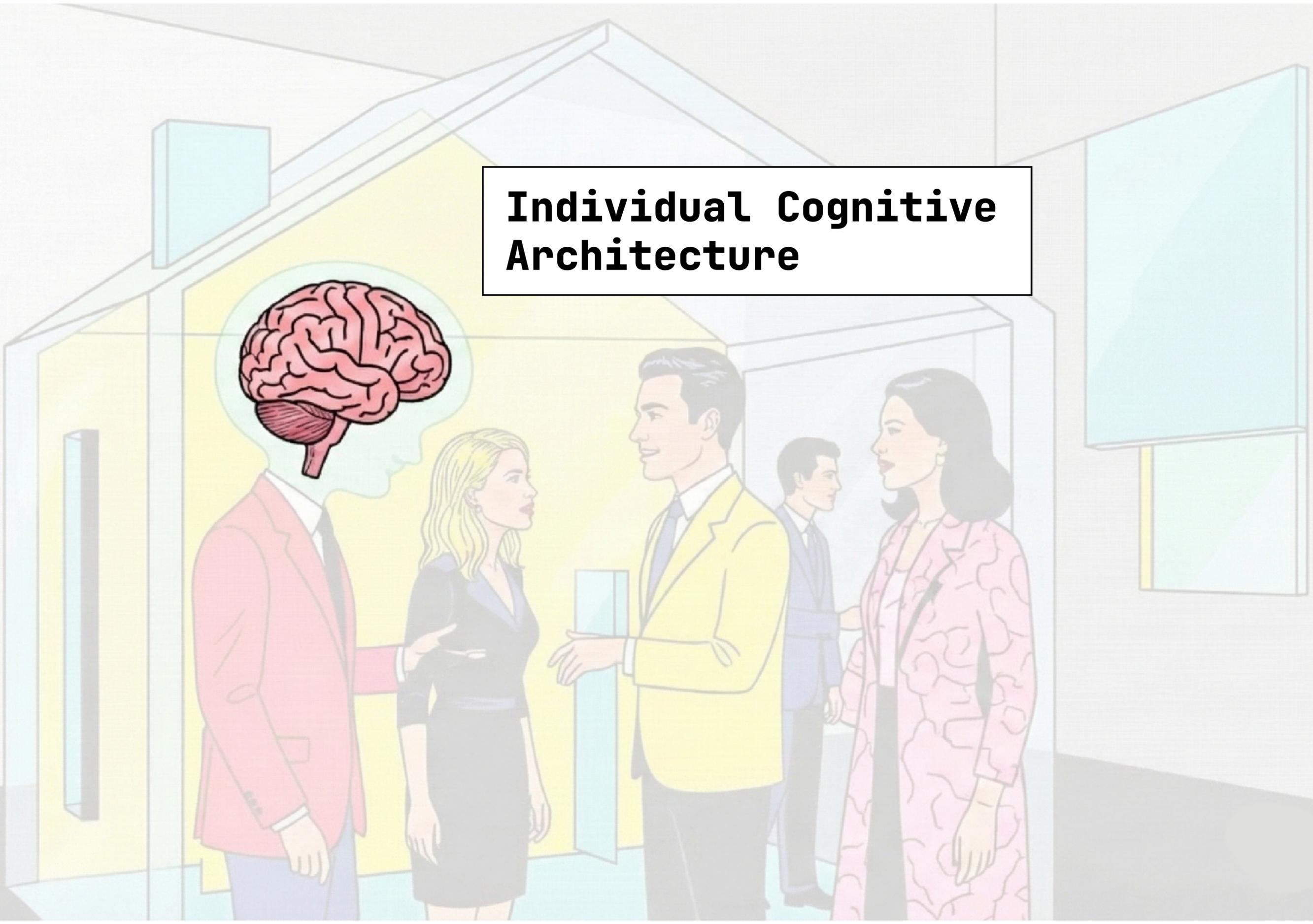
**Co-creative**  
Jointly shaping  
concepts, processes,  
and outcomes

**As an institution, we must answer three questions:**

- Where in our processes do we allow participation?
- How much autonomy are we genuinely willing to transfer?
- What mechanisms ensure that participation actually influences outcomes?



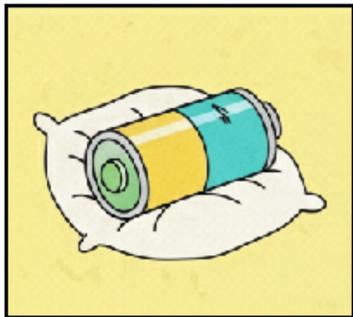
# Individual Cognitive Architecture



# The Brain as a Prediction Powerhouse

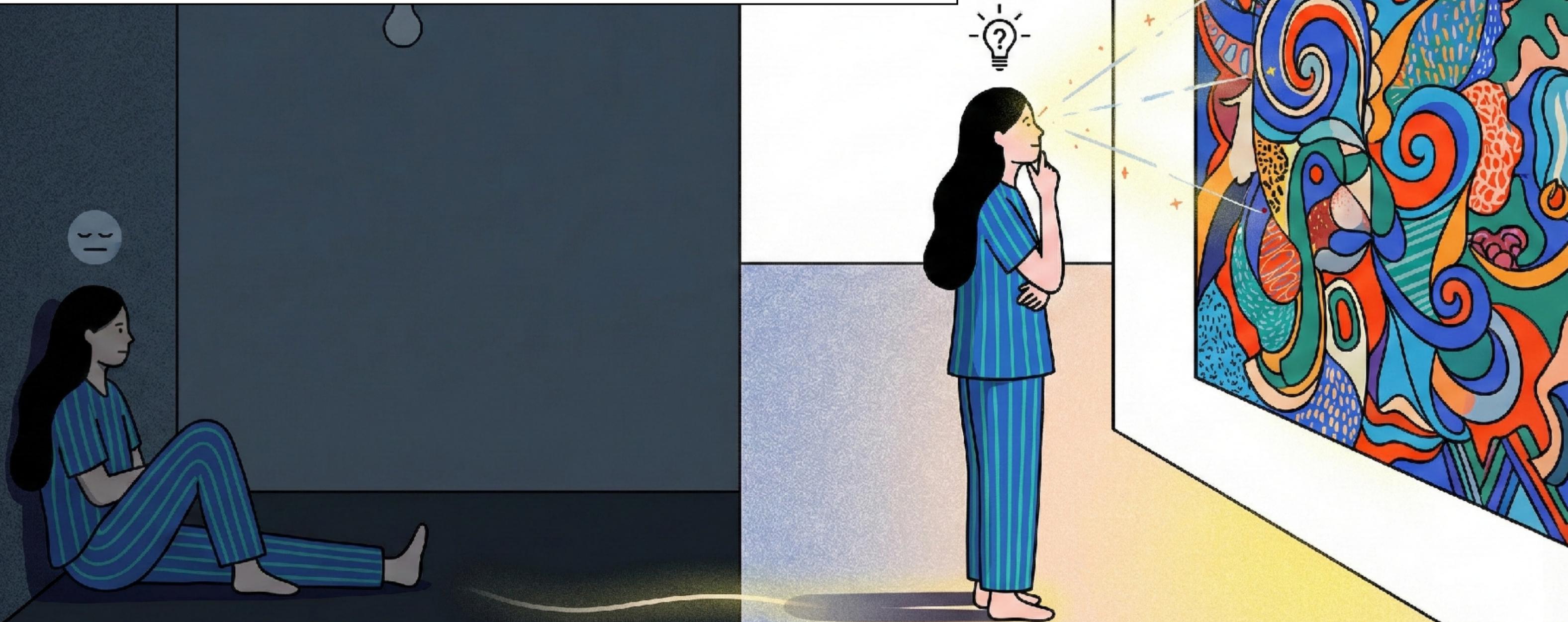


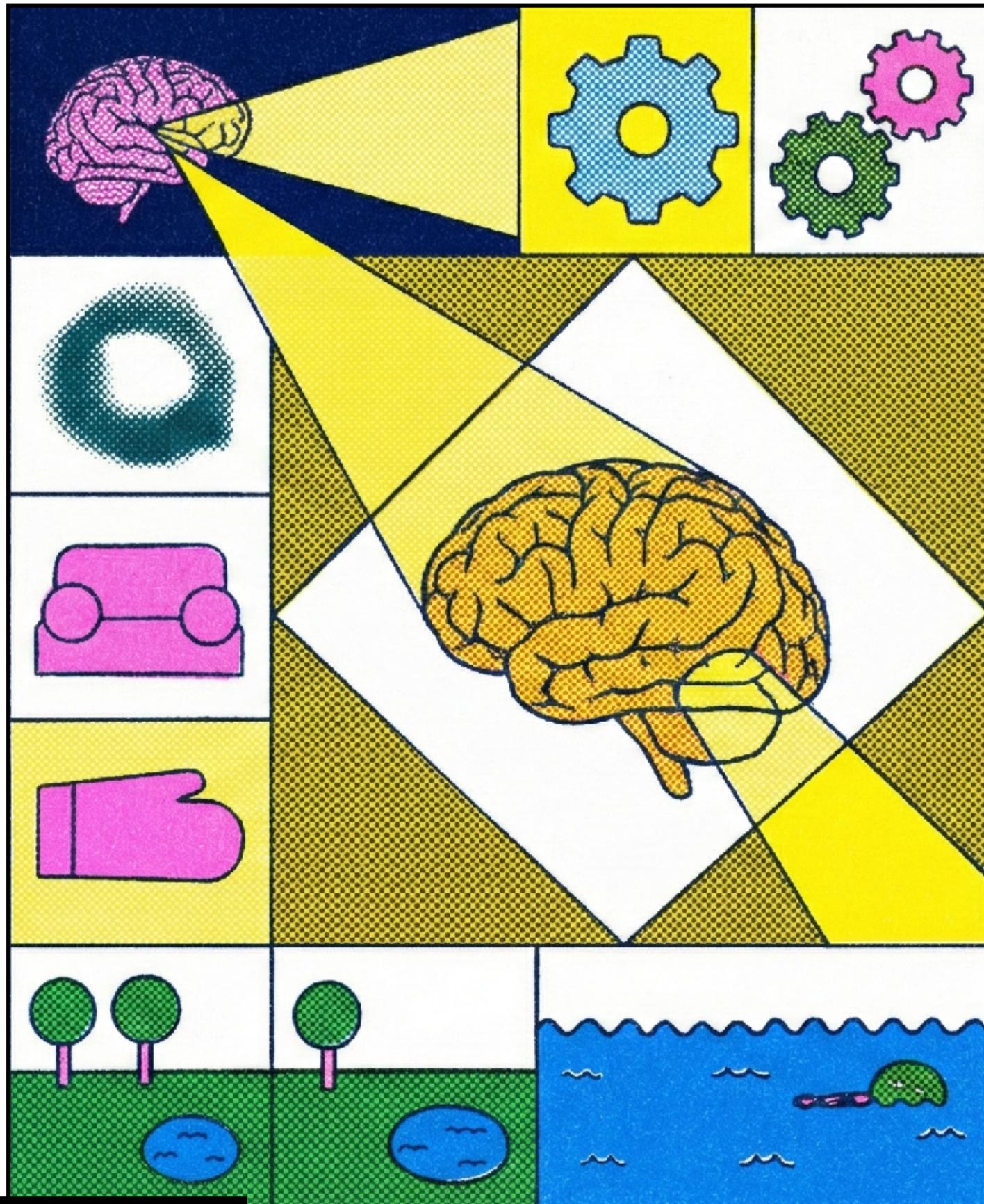
**Reality as Construction:** The brain is not a passive receiver of reality, but an active generator of predictions. Perception is a "controlled hallucination."



**Energy Conservation:** The brain is an expensive organ. Its primary goal is safety and efficiency.

If **brains** minimize prediction error,  
why don't we hide in **dark rooms**?



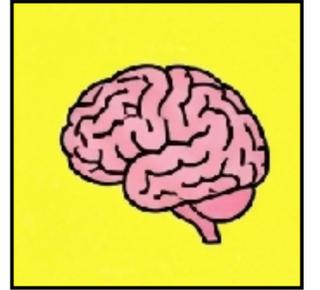


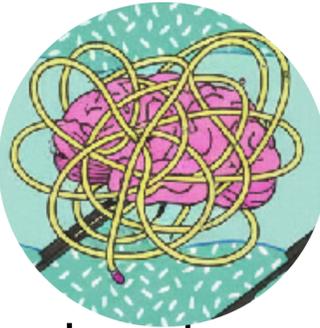
## The Working Memory Bottleneck

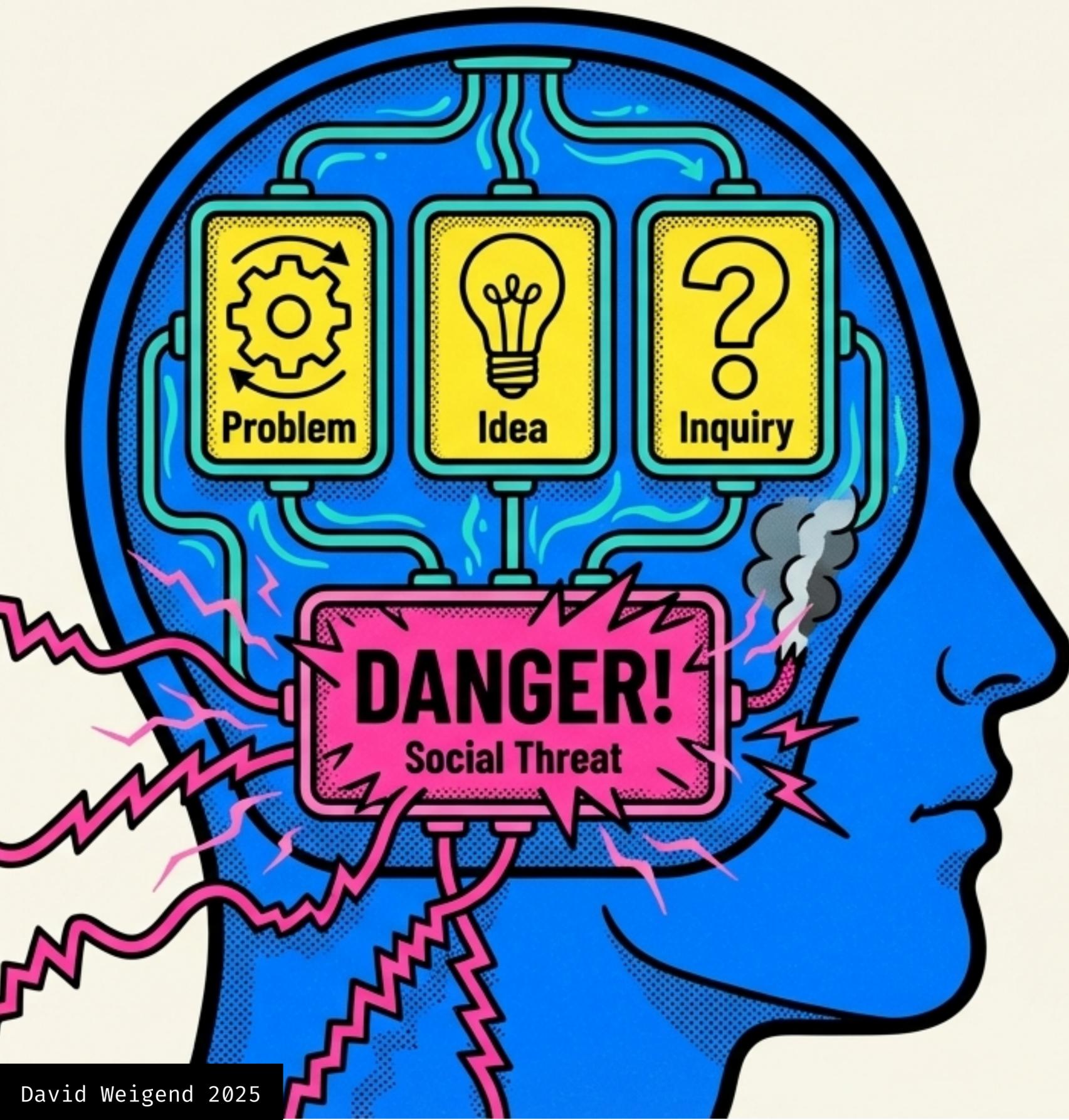
- Working memory can hold approximately **4±1 chunks of information**
- Novel information competes with environmental processing
- Under **social pressure** (being watched, fear of judgment), available capacity drops further

# Cognitive Load Theory

John Sweller



Type	Definition	Design Implication
Intrinsic Load 	Inherent complexity of the task 	Match task complexity to participant expertise
Extraneous Load	Unnecessary cognitive effort from poor design	Eliminate confusion, reduce navigation burden 
Germane Load	Productive effort that builds understanding	<b>This is what we want</b> – but only possible if other loads are managed



# The Hidden Tax on Thinking

The **Discussion Club mode** is cognitively expensive. When we feel the need to defend our status and identity, our brains redirect precious resources away from the creative task itself.

- **Cognitive Load (Sweller, 1988):** The total amount of mental effort being used. Defensive routines add immense “extraneous load,” as we’re forced to track social dynamics, manage our ego, and formulate defenses.
- **Working Memory’s Hard Limit (Cowan, 2001):** We can only hold and manipulate about 4 chunks of information at a time. In a defensive state, at least one of those chunks is permanently occupied by “social threat monitoring,” crippling our ability to problem-solve.

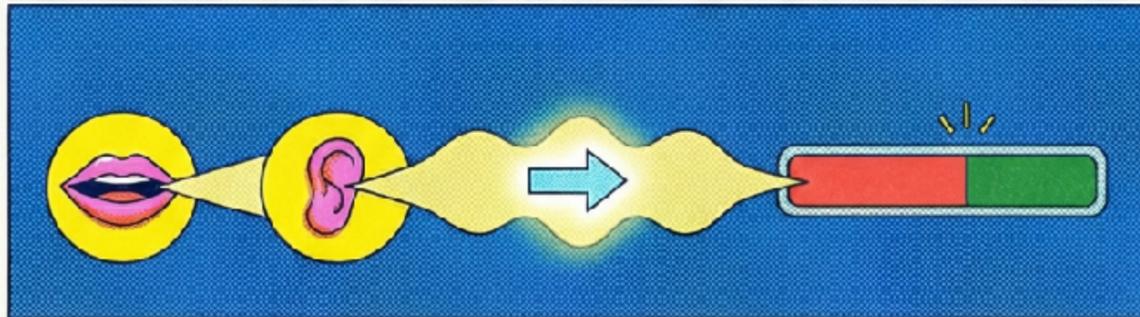
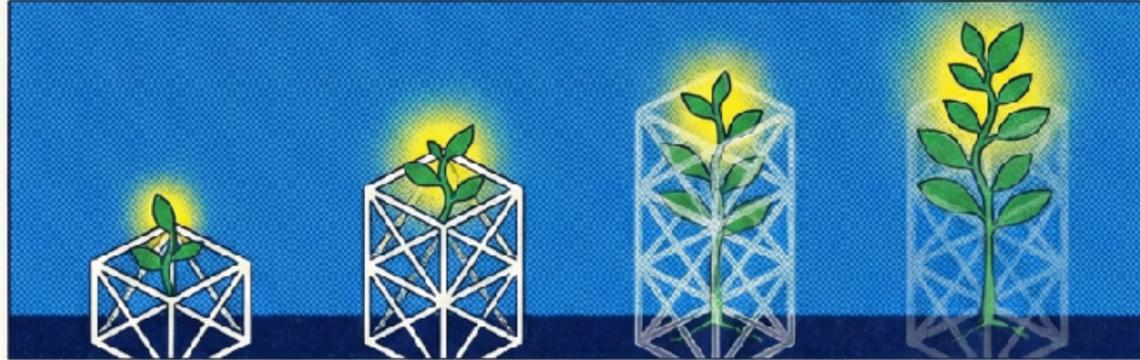
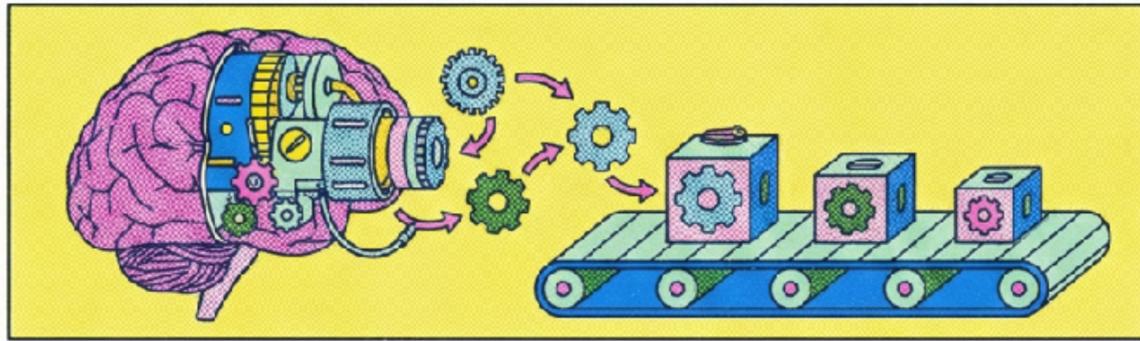
# The Engine of Ideas



**The Generator:** The Default Mode Network drives spontaneous thought, daydreaming, and "Novel Combinatorial Forms." It is the biological seat of imagination.



**The Evaluator:** The Executive Control Network is responsible for goal-directed focus, inhibition, and critical analysis. It acts as the quality filter for utility and feasibility.



- **Reduce difficulty**  
Break complex tasks into small steps
- **Provide scaffolding**  
Support that can be gradually removed
- **Create practice opportunities**  
Repetition before performance pressure
- **Give useful feedback**  
Clear, immediate, actionable
- **Design guided independence**  
Autonomy only when sufficient prior knowledge exists

# The Pen Problem

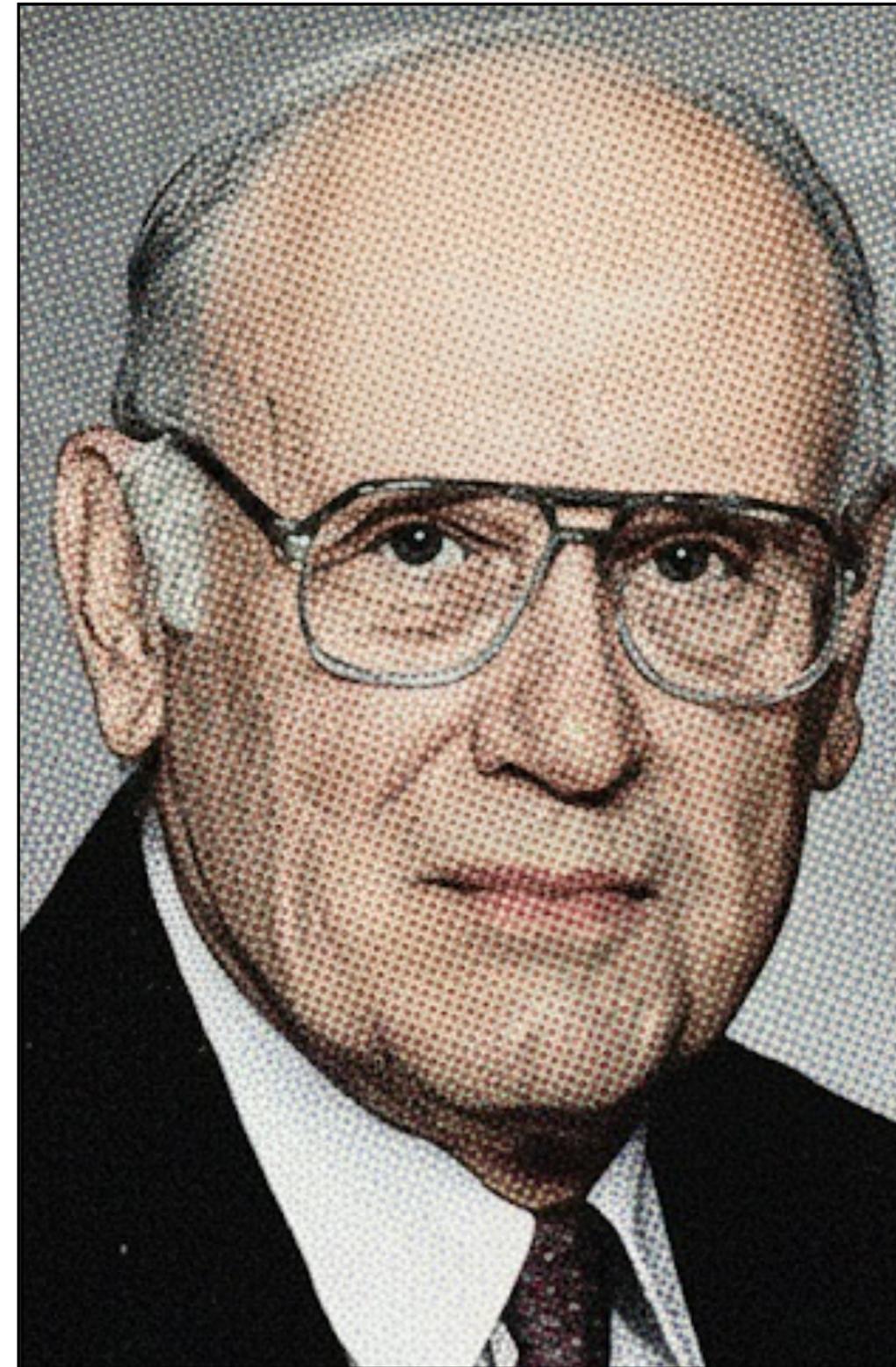
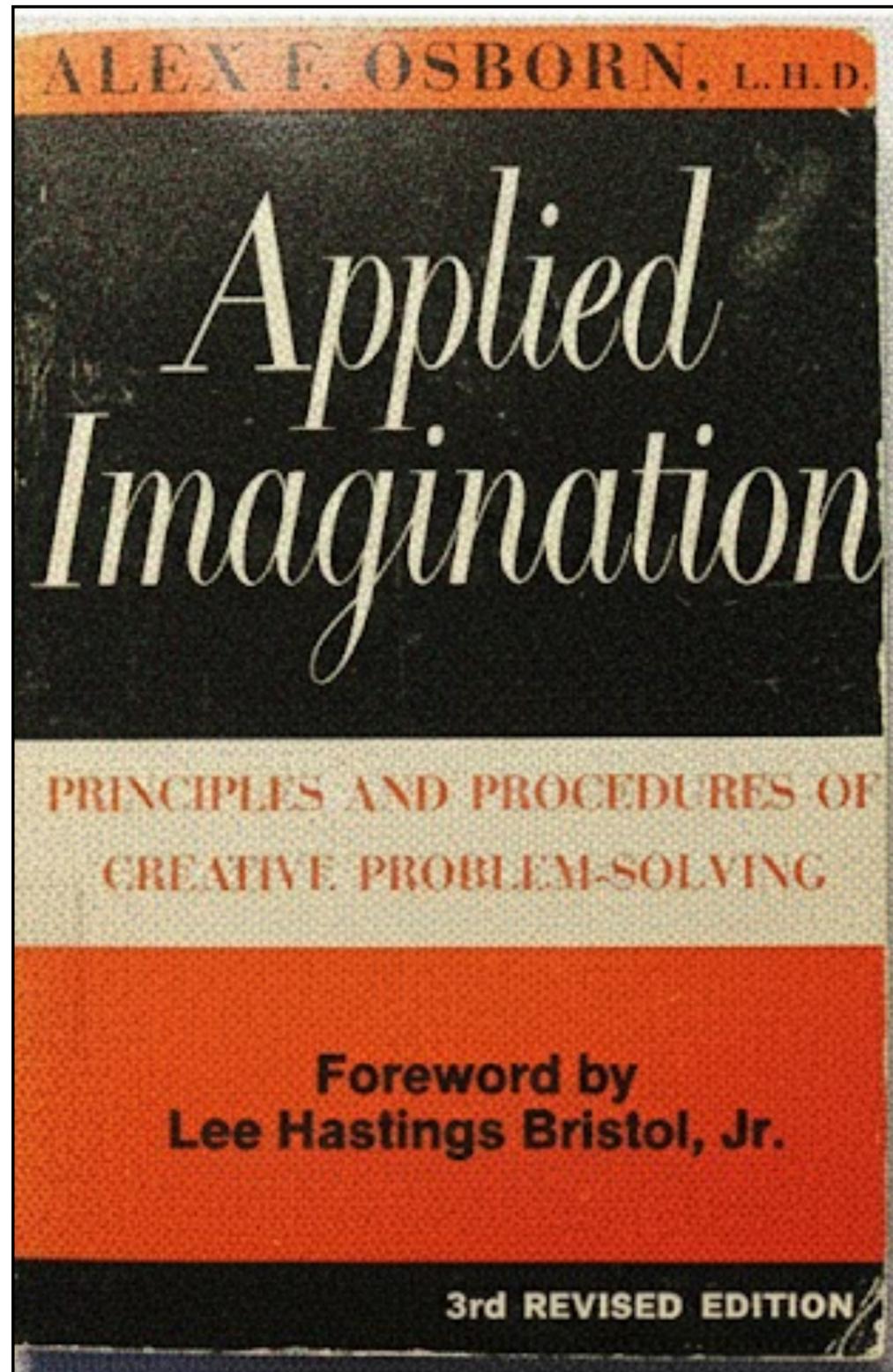


- **Search** the environment  
(consuming attention)
- **Decide** whether to ask staff  
(social anxiety activation)
- **Wonder** if they're supposed to  
have their own  
(confusion)
- **abandon the task** entirely  
(participation lost)





**Group Dynamics**



Osborn's claim of the superiority of brainstorming

*Donald W. Taylor*

*Paul C. Berry*

*Clifford H. Block*

## Does Group Participation When Using Brainstorming Facilitate or Inhibit Creative Thinking?

*In an experiment designed to answer the title question, twelve groups of four men each and forty-eight individuals followed the four basic rules of brainstorming in attacking the same three problems in the same order. Upon completion of the experiment, a table of random numbers was used to divide the forty-eight individual subjects into twelve nominal groups of four men each. The performance of each nominal group was then scored as though its members had actually worked together. The achievement of these nominal groups thus provided a measure of the performance to be expected if group participation neither facilitates nor inhibits creative thinking. When compared with that of the twelve nominal groups, the performance of the twelve real groups was found to be markedly inferior with respect to: (a) mean total number of ideas produced; (b) mean number of unique ideas produced; (c) three different measures which weighted the ideas produced differentially with respect to quality. To the extent that the results of the present experiment can be generalized, it must be concluded that group participation when using brainstorming inhibits creative thinking.<sup>1</sup>*

<sup>1</sup>The experiment reported here is one in a series of psychological studies of problem solving being carried out under Project NR 150-166 and supported by Contract Nonr 609(20) between Yale University and the Office of Naval Research. The present article presents essentially the same information, omitting only certain details of

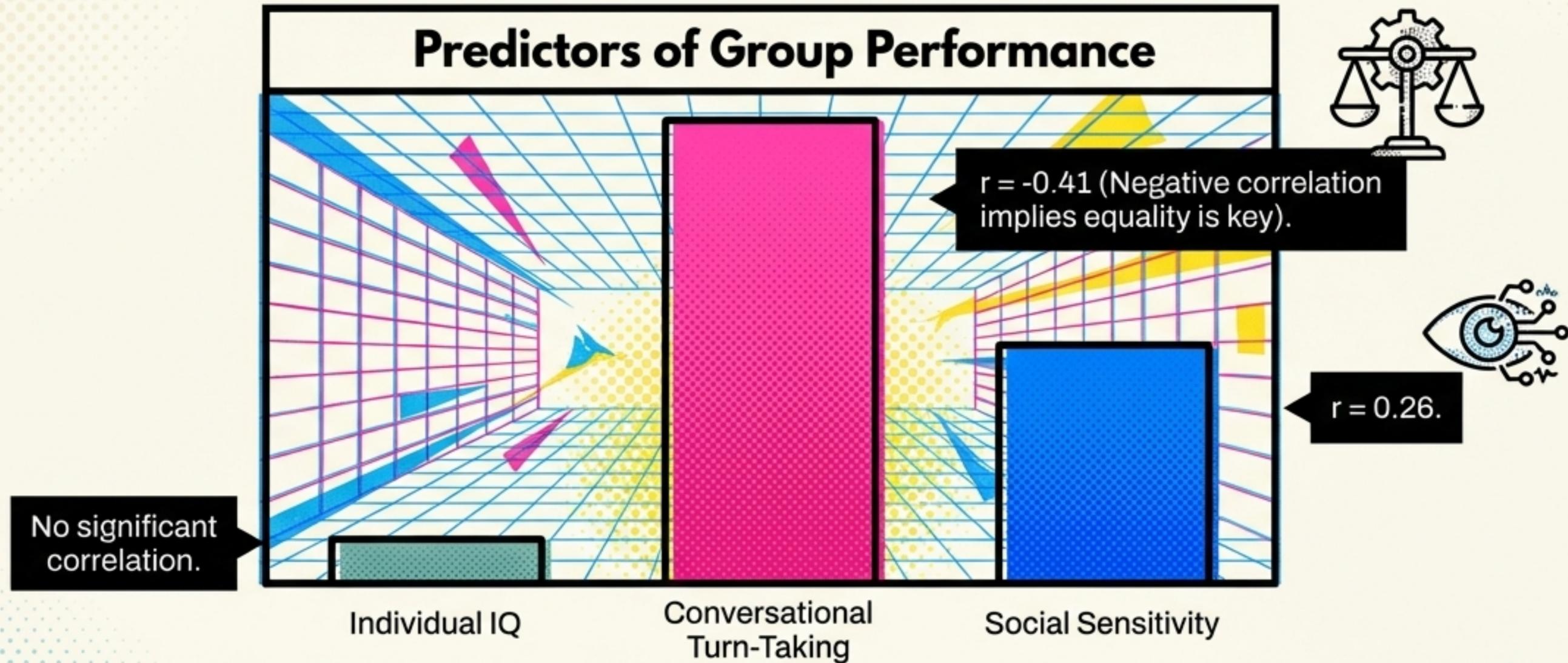
## Why groups underperform?

- **Production blocking** – Only one person can speak at a time
- **Evaluation apprehension** – Fear of judgment suppresses ideas
- **Social loafing** – Diffusion of responsibility
- **Anchoring** – Early ideas constrain later thinking



# What Really Makes a Group Smart?

It's not what we think. A landmark study by Woolley et al. (2010) measured the "Collective Intelligence" of groups on complex tasks. Their findings were revolutionary. The single greatest predictor of a group's success was NOT the average or maximum individual intelligence of its members.



**The smartest groups are not those with the smartest people, but those that are best at listening and responding to each other.**

# The Creative Switch

## DEFENSE MODE: The Discussion Club

Ideas are territories to be defended, leading to stalemate and frustration.



MY  
IDEA



### Warning Signs

- "Yes, but..." language becomes common.
- Body language closes off (crossed arms).
- Ideas become personal property ("John's idea").

## TRIGGER THE SWITCH



Focus on an object:  
"Let's look at the prototype together."

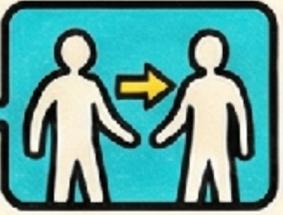


1/20

Extend idea generation:  
"Let's get to 20 ideas before we judge."



Lower the stakes:  
"This is just a rough draft."



Change the layout:  
Move from face-to-face to side-by-side.

## CO-CREATION MODE: The Workshop

Ideas are shared resources to be built upon, leading to novel solutions.



OUR  
SOLUTION



### Signs of Success

- Focus is on a shared object (whiteboard, prototype).
- Body language is open and side-by-side.
- Ideas are detached from individuals ("The idea on the table...").



# Plankarte aus der Zukunft: Städte im Jahr 2050

Wie sieht die Stadt im Jahr 2050 aus?  
Skizze die Stadt im Jahr 2050  
Plan die Stadt im Jahr 2050  
in dem Stadtplan



**Kategorie Politische Struktur**  
Wer besitzt in Zukunft die Macht in der Stadt?

**Kategorie Mobilität**  
Was ist in Zukunft das Fortbewegungsmittel in den Städten?

**Kategorie Aussehen**  
Welche Größe und Form haben Städte in der Zukunft?

**Kategorie Leitbild**  
Womit werden die Städte der Zukunft?

**Kategorie Wachstum**  
Wie wird die Stadt in Zukunft wachsen?

**Kategorie Vernetzte Dörfer**  
Vernetzte Dörfer

**Kategorie Auf dem Meer**  
Auf dem Meer

Brains lock into **shared rhythms** during cooperation.  
Research shows that **storytelling** boosts neural  
alignment - improving learning outcomes

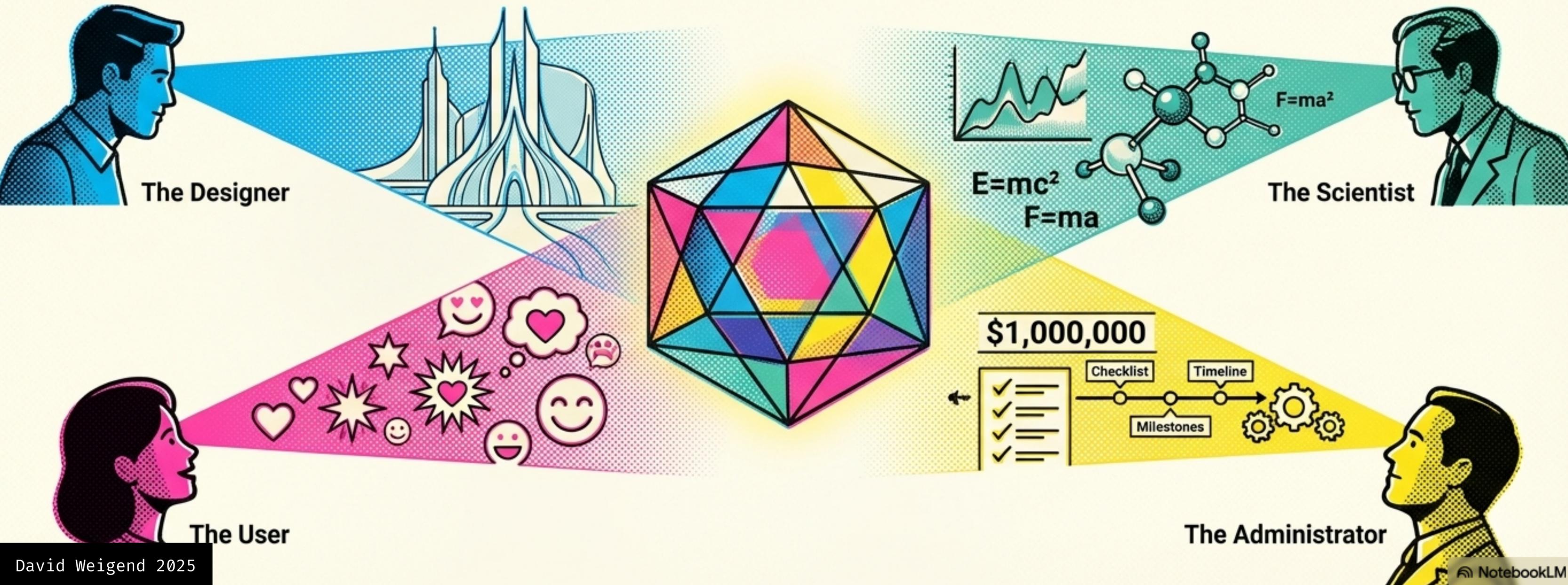


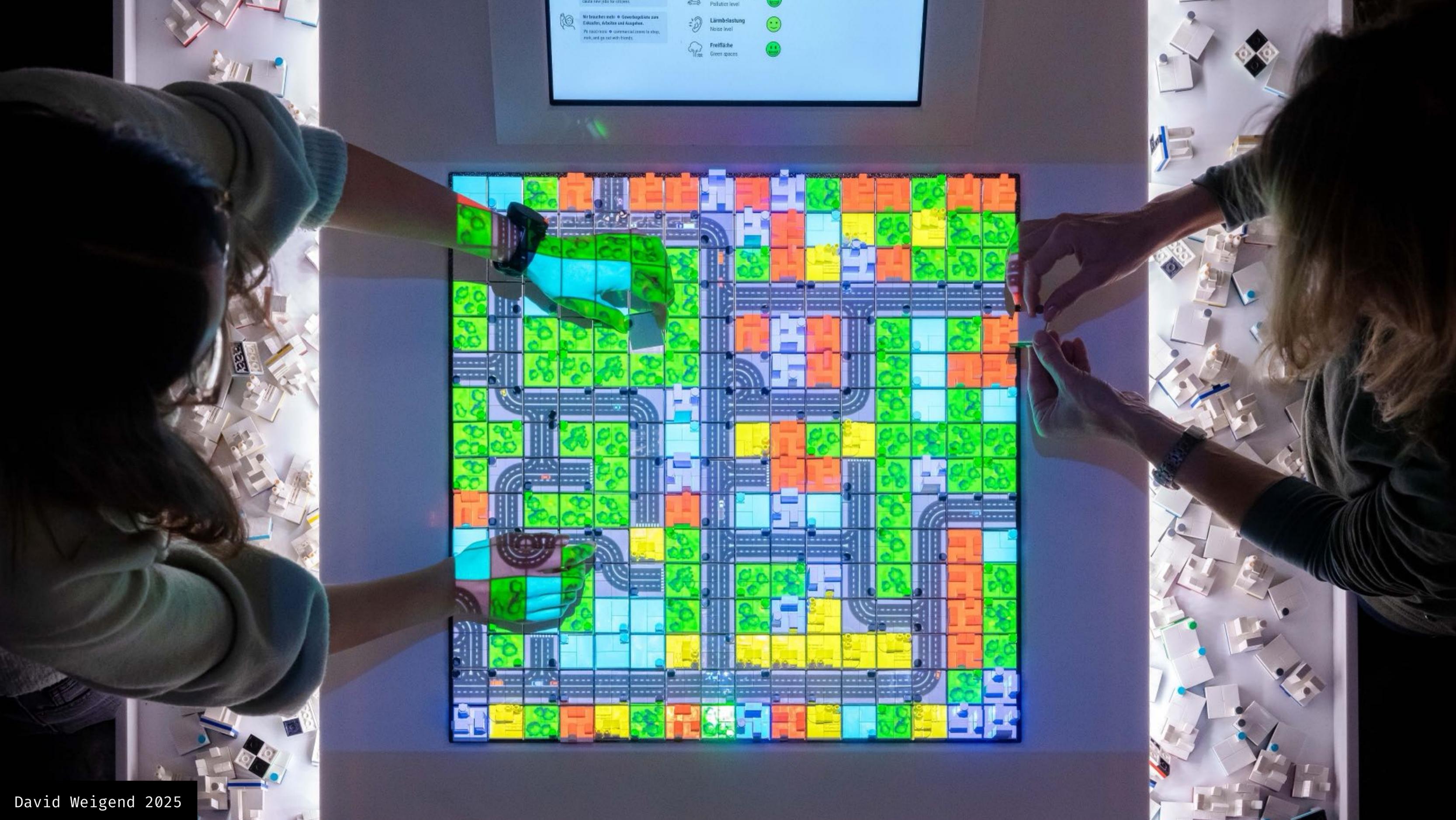
# Boundary Objects

# One Object, Many Meanings

A boundary object works by externalizing the problem. It detaches ideas from egos and focuses the group's energy on a shared external reality. Everyone can project their own perspective onto it, allowing different disciplines to "tack back and forth" between viewpoints.

Examples: A prototype, a map, a Post-it note on a wall.





Wir brauchen mehr: • Übertragelände zum Erholen, Arbeiten und Ausgehen.  
Pe footprints • Commercial zones to shop, work, and go out with friends.

Pollution level  
Lärmblasting  
Noise level  
Freifläche  
Green spaces

**future-mobility** Public Watch 3 Fork 9 Star 6

[main](#) 2 Branches 41 Tags  t Add file Code

<b>elondaits</b> feat: Allow configuring the language(s) used in the dashboard and t... <span>4dc88b6 · last year</span> <span>142 Commits</span>
<b>.idea</b> Make Power-Up cooldown optional, through the config fil... <span>2 years ago</span>
<b>art</b> Add a special road texture for the walkable-city Power-Up. <span>4 years ago</span>
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<b>docs</b> Validate input and output in HTTP API using the Open API... <span>4 years ago</span>
<b>server</b> Server refactoring to avoid memory leaks (event handlers... <span>3 years ago</span>
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<b>static</b> Add the PowerUp selector to the Dashboard (PowerUps d... <span>4 years ago</span>
<b>textures</b> Fix duplicate id warning when loading road textures. <span>4 years ago</span>
<b>vendor</b> Add Google font locally. <span>4 years ago</span>
<b>.env</b> Use .env file to store server URIs. <span>4 years ago</span>
<b>.eslintrc.json</b> Make MapView tiles non interactive by default. <span>4 years ago</span>
<b>tiignore</b> Add RoadMap class to handle road connectivity methods ... <span>4 years ago</span>

### About

An exhibit about the Future of Mobility

- Readme
- MIT license
- Activity
- Custom properties
- 6 stars
- 3 watching
- 9 forks

[Report repository](#)

### Releases

41 tags

### Packages

No packages published

### Contributors 2

- elondaits** Eric Londaits
- andreasdanielmatt** Andreas Daniel M...

 **future-mobility** Public

Watch 3 Fork 9 Star 6

main 2 Branches 41 Tags

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# Future Mobility: The Boardgame

A boardgame based on the [Future Mobility Simulator](#).

Developed by [IMAGINARY](#) for [Futurium](#).

Printable files are found in the pdf directory in both [German](#) and [English](#).

## Credits

Designed and developed by Eric Londaits for IMAGINARY gGmbH. Translation to German by Elisabeth Schaber, and Andreas Matt. Playtesting by Andreas Matt, Bianca Violet, and Johanna Marschall.

## Attribution

Emojis designed by [OpenMoji](#) – the open-source emoji and icon project. License: [CC BY-SA 4.0](#)

The following modifications were made to OpenMoji icons:

- Lightbulb: Bottom screw redrawn. Recolored.
- Truck (Articulated Lorry): Orientation changed. Recolored.
- Star: Stroke removed. Recolored.

Children Crossing: Removed frame. Changed stroke.

Electric vehicle icon was built combining the Car, Electric Plug, and High Voltage emojis from OpenMoji

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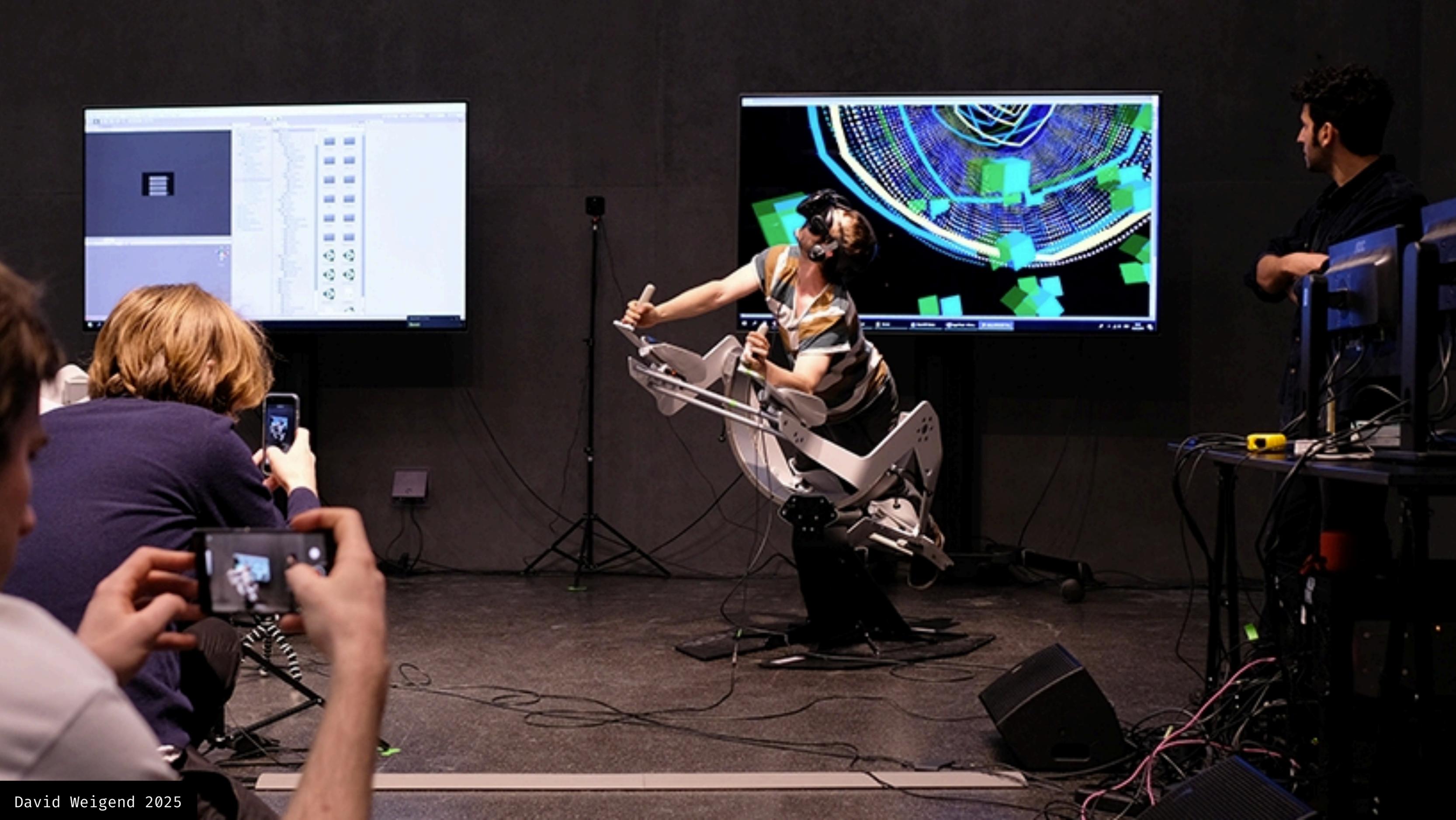
-  **elondaits** Eric Londaits
-  **andreasdanielmatt** Andreas Daniel M...



MANUFACTURING THE FUTURE









# A Visitor's Passion Becomes the Bridge to a New Identity

**Case Study Snapshot:** In the *Change Your Game* exhibition, a 14-year-old visitor, M, initially identified strongly with his role as a sports fan.



## The Process:

- **Activation:** The exhibition content (e.g., a display on bikes) connected directly to his existing role identity ("I have a bike just like this.").
- **Engagement:** This personal relevance transformed his visitor role from passive to active, leading to deep engagement with interactives.
- **Transfer & Shift:** He explicitly connected the museum experience to his life roles, stating, "it's cool that you can see how it connects to everyday life, like when I swim and I wear trunks." This led to a shift in his self-perception of inventiveness.

## Outcome:

- M changed his "Inventive Me" self-assessment from a partial to a full overlap, concluding, "You can be inventive like in every day." His identity became the scaffold for exploring a new one.

# Build the Future, Together.

The path to meaningful engagement is a deliberate construction, moving from foundational principles to the machinery of implementation and the horizon of lasting impact.



**Thank You 🙏**

**David Weigend**  
@weigend  
weigend.studio

