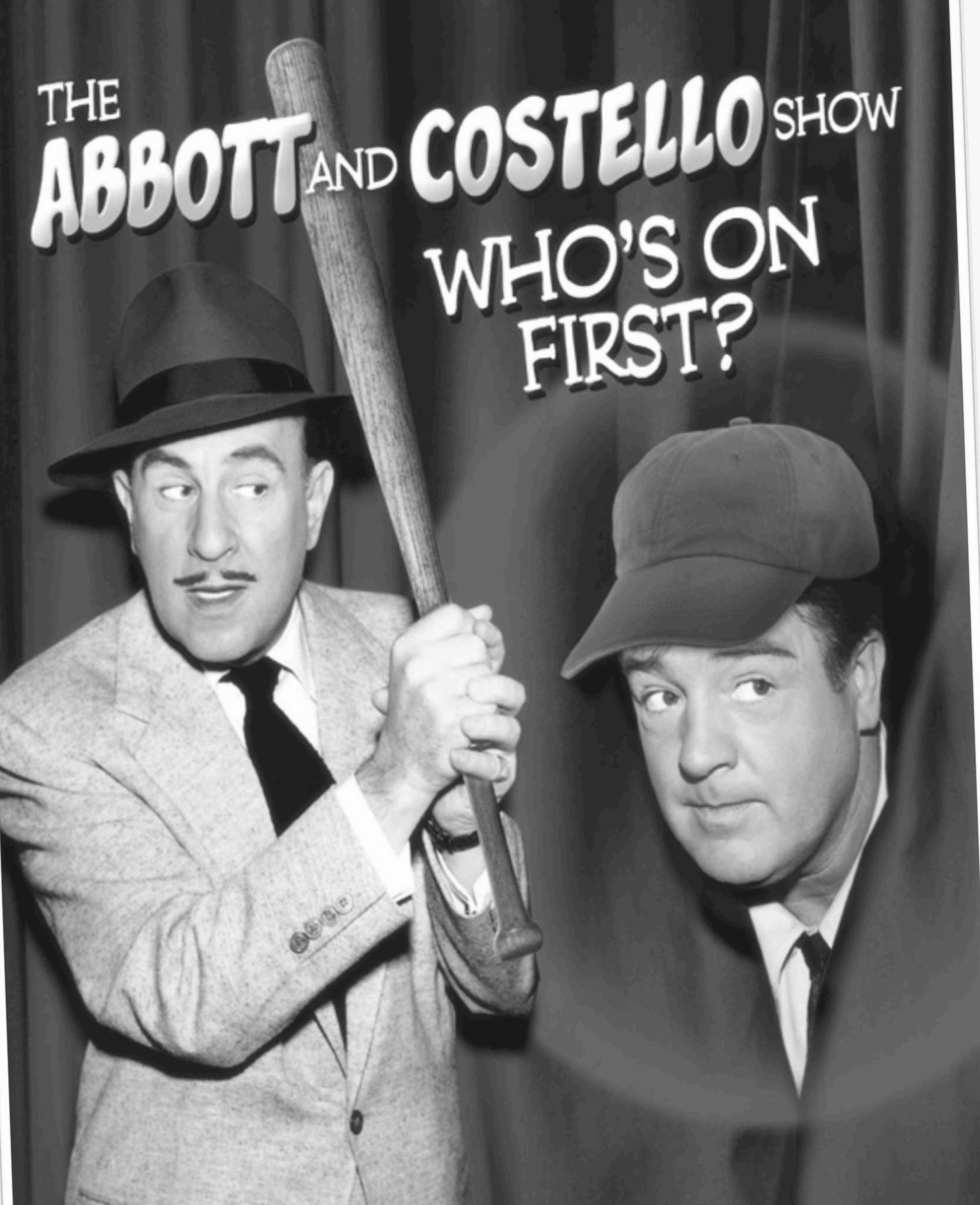


# MENTAL MODELS

Lessons From The Fifth Discipline Fieldbook by Senge,  
Kleiker, Roberts, Ross and Smith

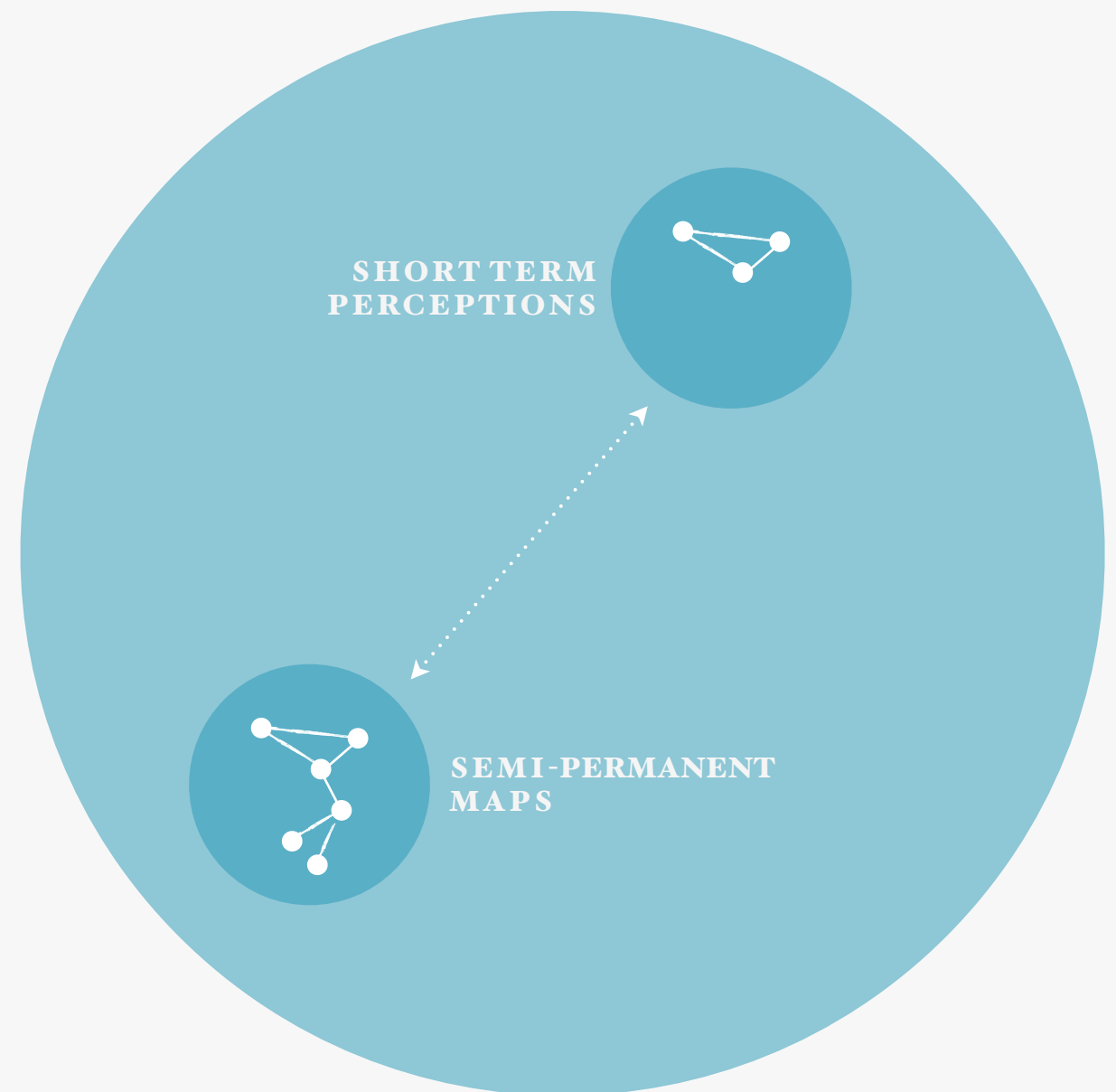
*Presentation by*  
Amy Rae @elucidateamy &  
Joanna Beltowska @jbeltowska



**It's easy to recognize  
miscommunication,  
but more difficult to  
identify *why* it  
happens.**

# Mental Models

are the images, assumptions, and stories which we carry in our minds of ourselves, other people, institutions, and every aspect of the world. They can help us understand why miscommunications happen.





# Our Filter

Mental Models help us sift through and process huge amounts of data daily. Without them, we'd be overwhelmed by existence.





# Unique Perception

They profoundly influence our lives on an individual level, like a colored lens becoming more saturated over time.



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## Unique Perception

They profoundly influence our lives on an individual level, like a colored lens becoming more saturated over time.



**Like computer models or architectural models, mental models offer an imperfect but useful representation of reality.**



# Mental Models are tacit

*understood or implied without being stated*



# Mental Models are tacit

---

*Exercise:*


*There is a list of words on the next page.  
Look at the list for 10 seconds, memorize as  
many as you can, and then move on to the  
next slide.*





# Mental Models are tacit

*Look at the list for 10 seconds, memorize as many as you can, and then move on to the next slide.*



★ Slumber	★ Pillow
★ Dream	★ Night
★ Bed	★ Blanket
★ Quiet	★ Pajamas
★ Nap	★ Snooze



# Mental Models are tacit

---

*How many did you remember? Write them all down.*





# Mental Models are tacit

*Was sleep in there? We thought so.  
This is one of your many mental  
models playing tricks on you.*

- ★ Slumber
- ★ Dream
- ★ Bed
- ★ Quiet
- ★ Nap
- ★ Pillow
- ★ Night
- ★ Blanket
- ★ Pajamas
- ★ Snooze



*In addition to being tacit...*

# Mental Models are flawed

---





# Mental Models are flawed

---

*Exercise:*

*Match the images below with a job title.*



**DOGSITTER  
MCDONALD'S EMPLOYEE  
ASTROPHYSICIST**

# Mental Models are flawed

---

*Making choices like this reveals a unique underlying framework for decision making: all of our past experiences. In moments like this, assumptions run rampant.*



**MCDONALD'S  
EMPLOYEE**



**ASTROPHYSICIST**



**DOGSITTER**



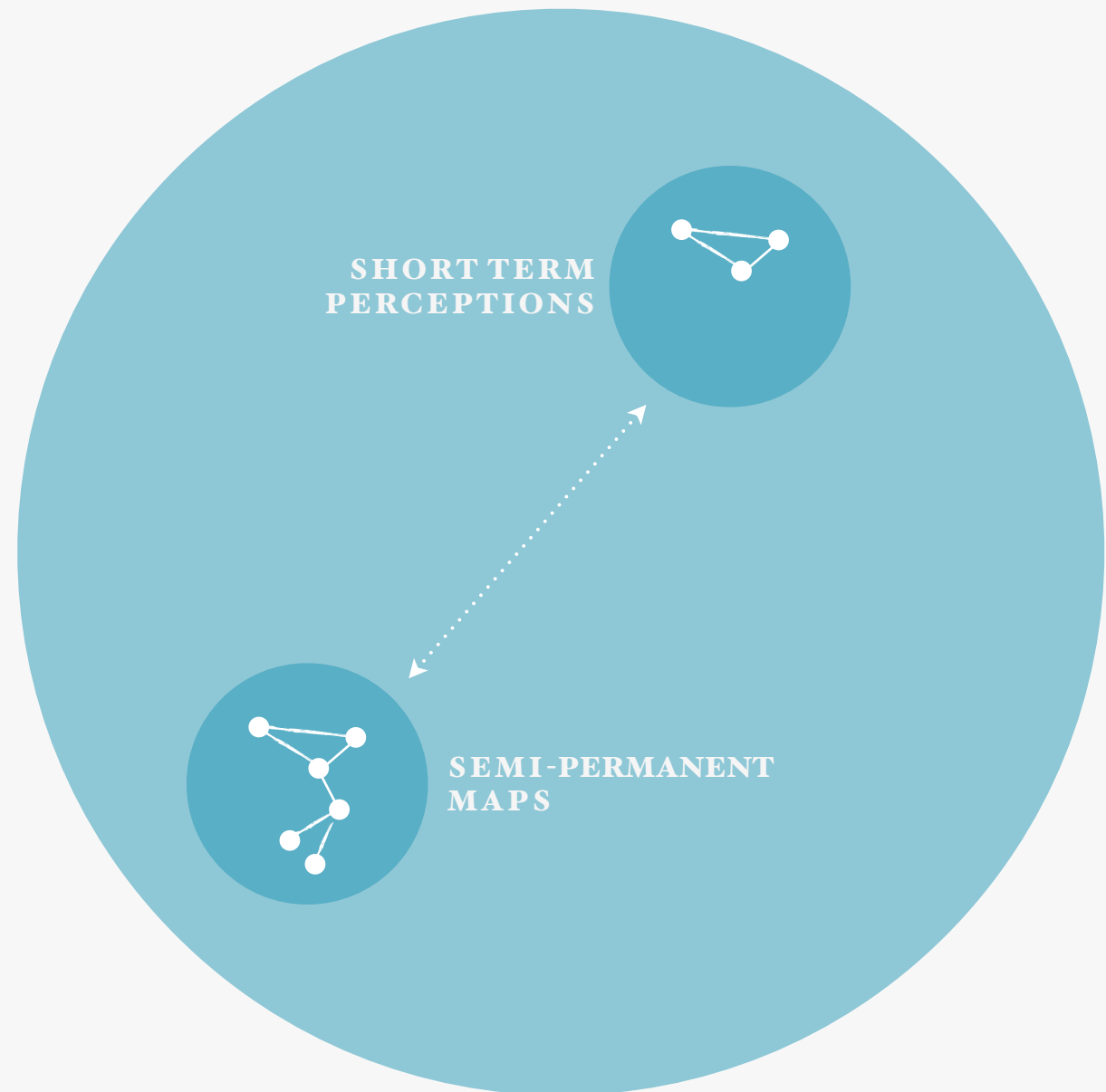
**These exercises helped us reflect  
on our own models momentarily.  
True exploration, though, is only  
found through continuous inquiry  
and deep reflection over time.**

**GMC Motors**  
**Trucks**  
FOR ALL PURPOSES  
23<sup>RD</sup>. STREET N.W.

**So, how are mental models built?**

# Your Social Life

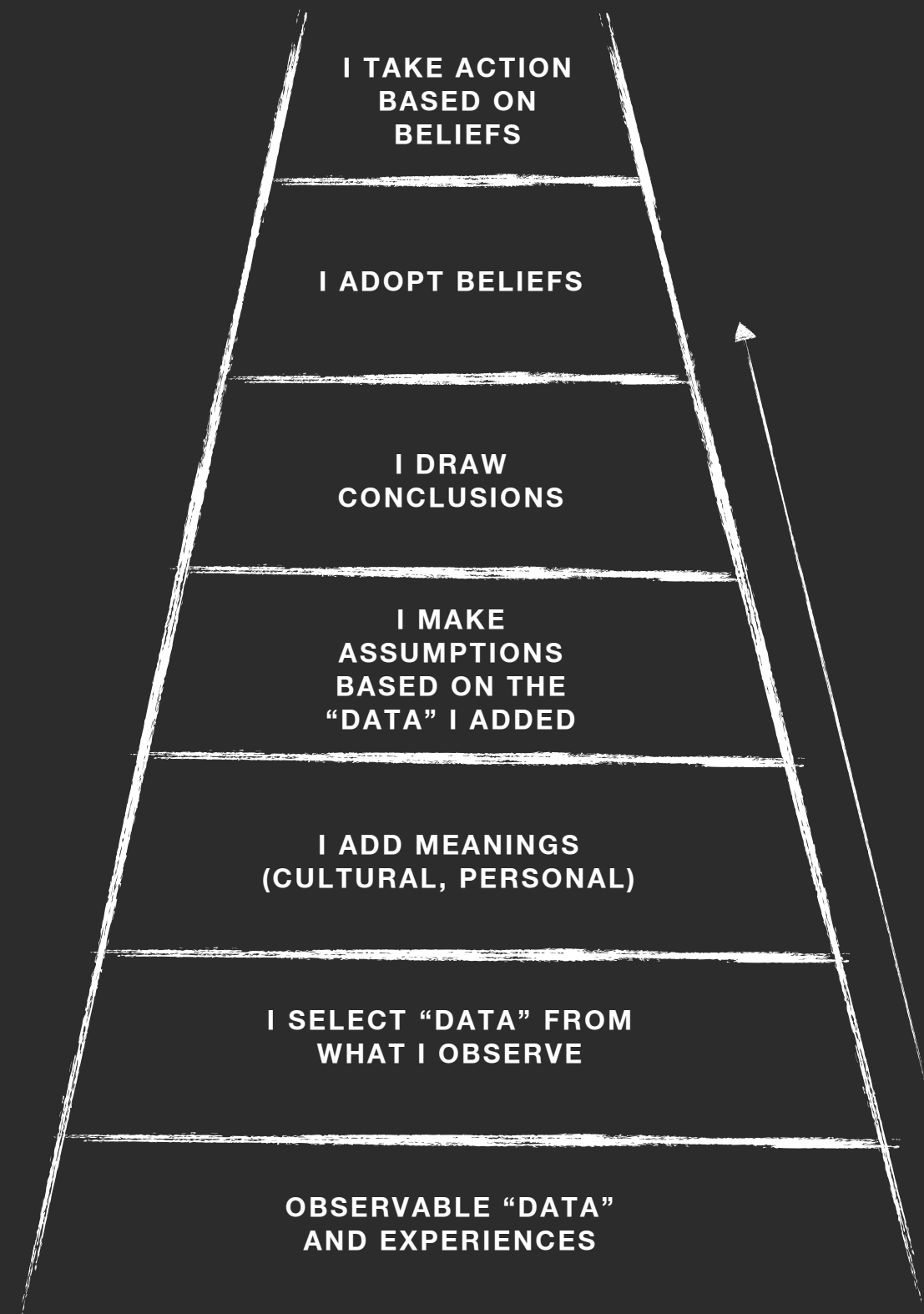
matters more than you think. Each interaction creates neurological pathways, like ruts and grooves in your brain. The more we think, behave, and interact in a certain way, the deeper ruts and grooves become. Ultimately, these are our neural networks: the science behind mental models.



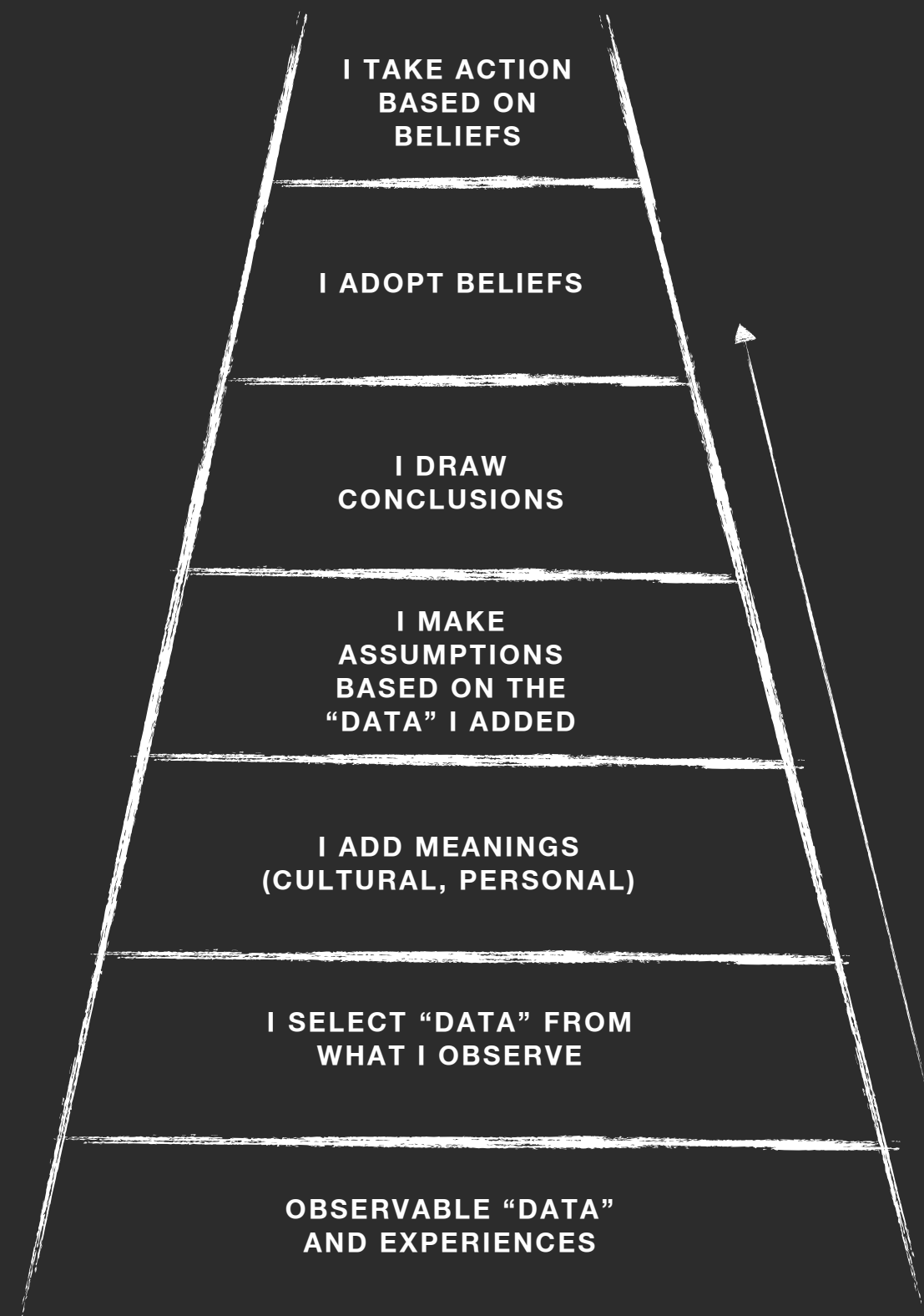


# Ladder of Inference

How Mental Models are Formed



The more frequent the climb, the easier it becomes.



# The “Expert Problem”

Specialists fall into Mental Models’ traps easily, because we tend to work with those who share a common worldview. This can get us into trouble when trying to communicate with others who do not share our expertise.





# User Experience

Those who design for others, specifically digital user experience, should be very aware of Mental Models. Each design must account for individuals' unique knowledge and expectations.



# Your Colleagues

Everyone wants to work in a harmonious, tolerant work environment. Thinking about your colleagues' Mental Models before jumping to conclusions will yield more hugs and better work. We promise.



VERY TOLERANT COLLEAGUES AT  
UNDERCURRENT: @TAFTCARD  
AND @MATTHEWCARLIN

# Mental Models in Business

Why corporations should (and do) care.





# Shell: A Realization That Ushered In A New World View

BY DISCOVERING AND ACKNOWLEDGING MENTAL MODELS, SHELL COMPLETELY TRANSFORMED THEIR BUSINESS

★ PREDOMINANT MENTAL MODEL

**The oil industry is stable and predictable.**

Managers failed to take predicted scenarios seriously.

★ MODEL OF INQUIRY

**Scenario planning**

★ SUGGESTED ACTION

**Scenario forecasting for managers**

★ OUTCOME

**1970:** The weakest big oil company

**1979:** The **strongest** big oil company



# NASA: The Perils of Mental Models

TWO DISASTERS THAT WERE NOT A FAULT OF ENGINEERING BUT CAUSED BY NASA'S MENTAL MODELS

★ PREDOMINANT MENTAL MODEL

**NASA is flawless.** Successful outcomes caused people to ignore disconfirming information, out of spec performance and dysfunctional decision processes.

★ MODEL OF INQUIRY

**Investigative report** post Columbia accident

★ SUGGESTED ACTION

**Unknown**

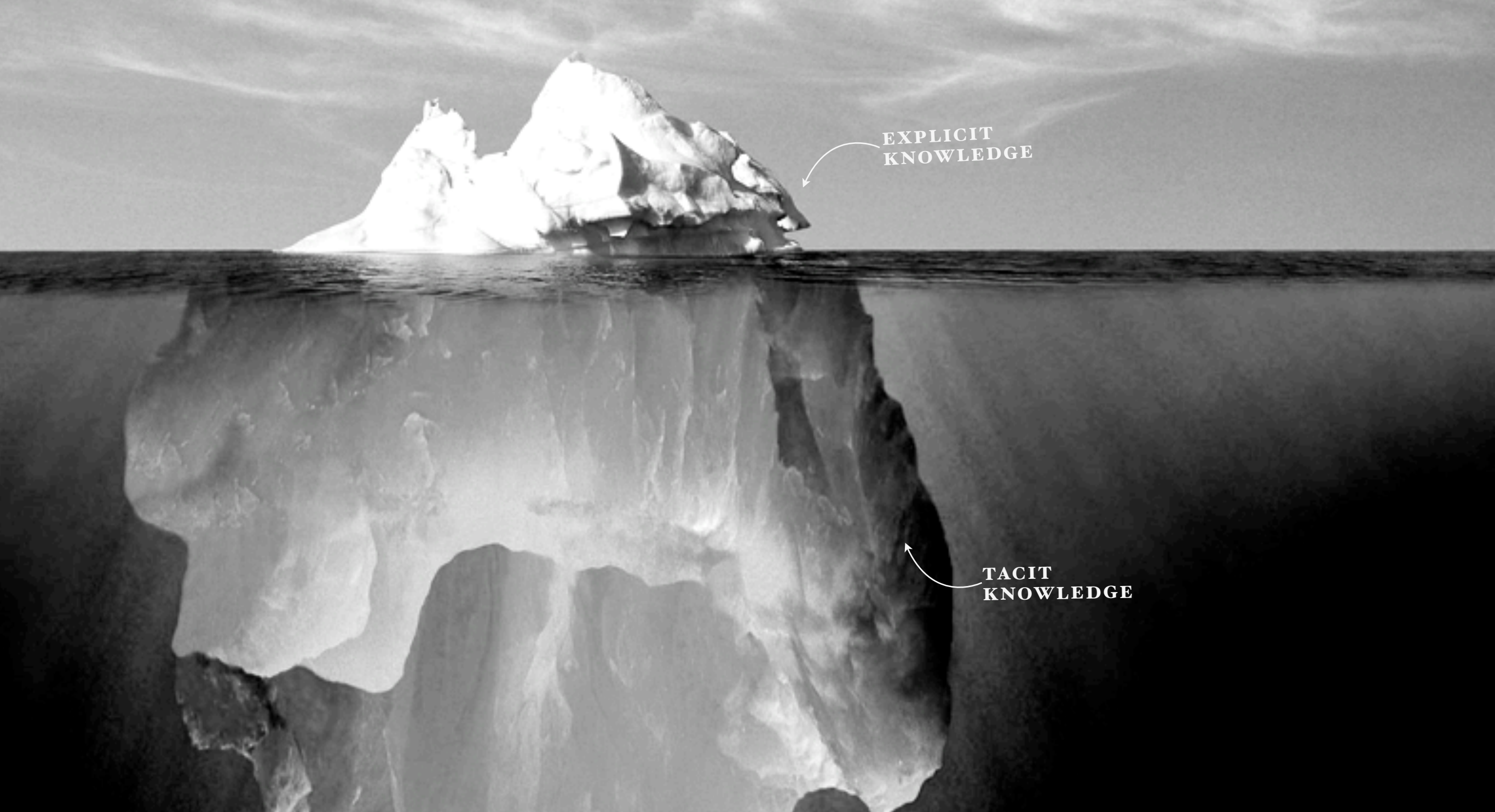
★ OUTCOME

**Halted replacement of orbiter**



**“Creativity is mixing and matching patterns of everything you've ever experienced or come to know in your lifetime. It's saying "this is kinda like that." The neural mechanism for doing this is everywhere in the cortex.” - *On Intelligence*, Jeff Hawkins**





EXPLICIT  
KNOWLEDGE

TACIT  
KNOWLEDGE

**When interacting with others, never forget to appreciate the vast amount of lived experience and knowledge below the surface.**

**Special thanks to our mentors and friends at**  
**UNDERCURRENT**

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