FROM SOFTWARE TO SYSTEMS

Diana Montalion

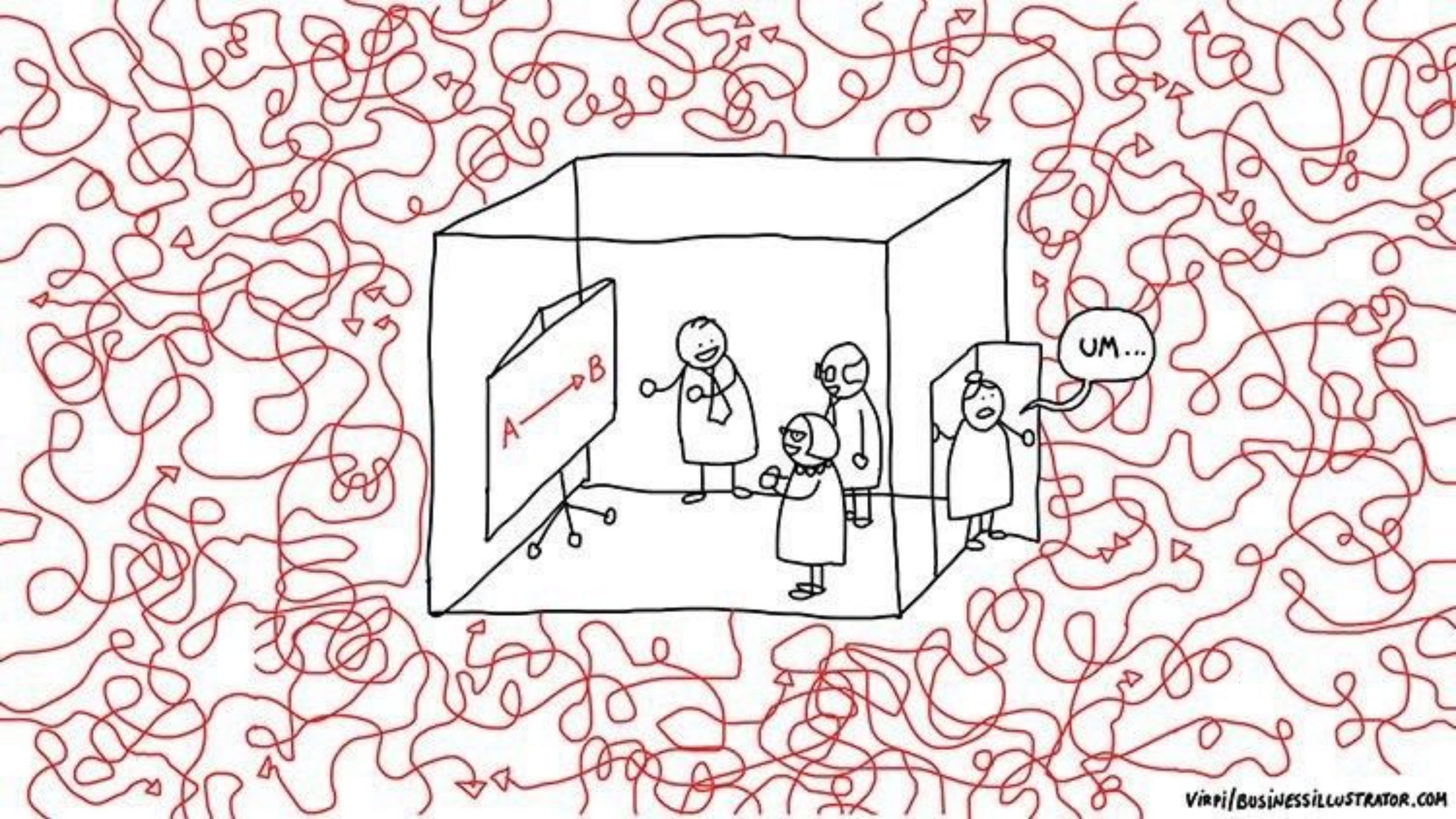
@dianamontalion

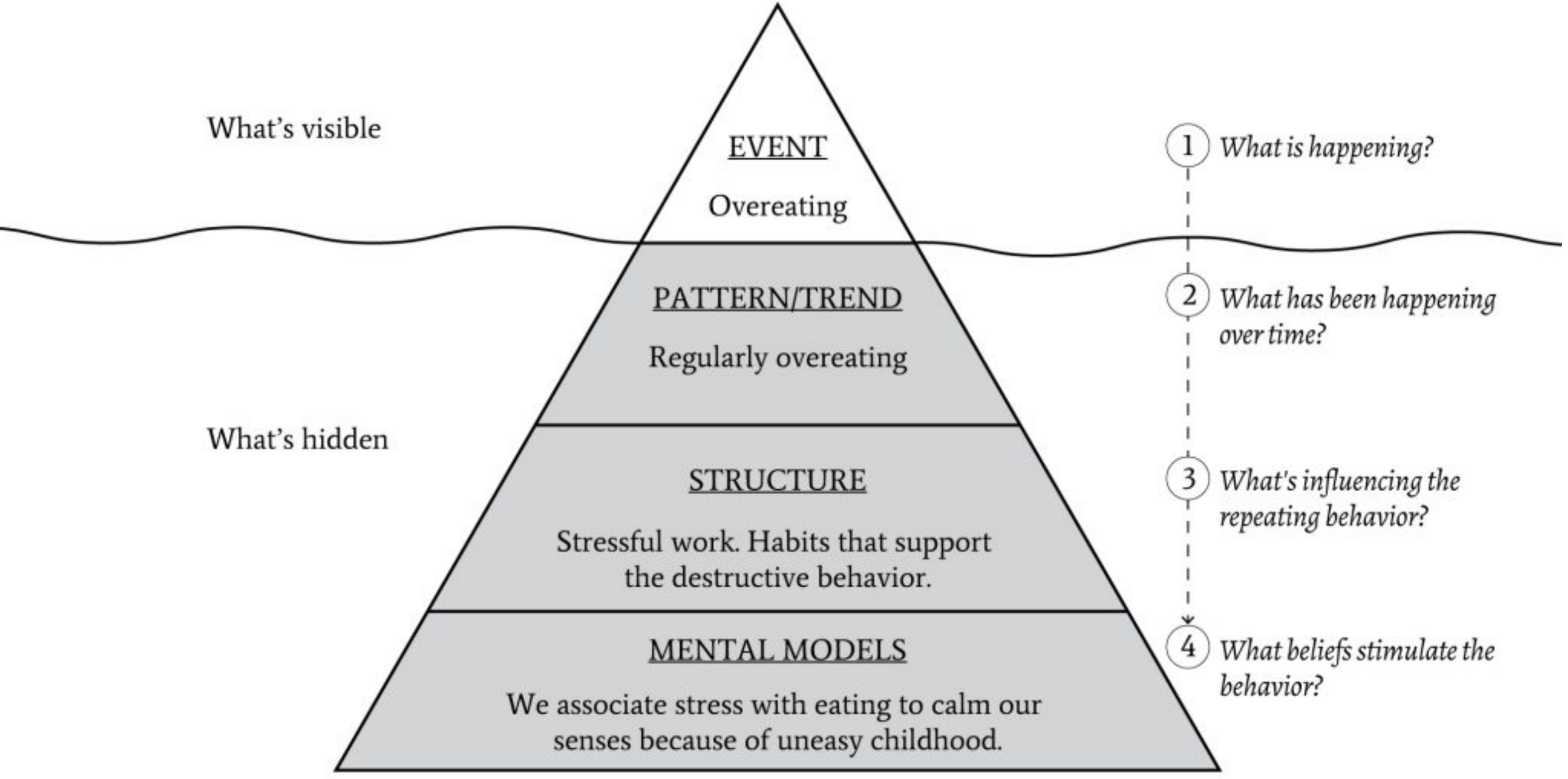
DOGGOS

We are moving from

SOFTWARE TO SYSTEMS

RATIONAL,
TOP DOWN,
PROCEDURAL,
PREDICTABLE,
CONCERNED
WITH CONTROL


A
B
UM...
VIRPI/BUSINESSILLUSTRATOR.COM


What's visible
What's hidden
EVENT
Overeating
PATTERN/TREND
Regularly overeating
STRUCTURE
Stressful work. Habits that support the destructive behavior.
MENTAL MODELS
We associate stress with eating to calm our senses because of uneasy childhood.
1 What is happening?
2 What has been happening over time?
3 What's influencing the repeating behavior?
4 What beliefs stimulate the behavior?

What is technology

LEADERSHIP?

“

THE TRUE SYSTEM, THE REAL SYSTEM, IS OUR CONSTRUCTION OF SYSTEMATIC THOUGHT ITSELF, RATIONALITY ITSELF

Robert M Pirsig: Zen and the Art of Motorcycle Maintenance

“

**IF A FACTORY IS TORN DOWN
BUT THE RATIONALITY WHICH PRODUCED IT
IS LEFT STANDING,
THEN THAT RATIONALITY WILL SIMPLY
PRODUCE ANOTHER FACTORY.**

Robert M Pirsig: Zen and the Art of Motorcycle Maintenance

We are
terrible at
systems thinking

“

ORGANIZATIONS WHO DESIGN SYSTEMS, ARE CONSTRAINED TO PRODUCE DESIGNS WHICH ARE COPIES OF THE COMMUNICATION STRUCTURES OF THESE ORGANIZATIONS

Conway’s Law

Systems thinking is a
PRACTICE

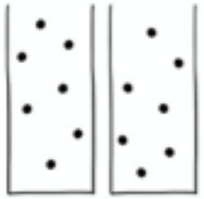
TOOLS OF A SYSTEM THINKER

DISCONNECTION

INTERCONNECTEDNESS

LINEAR

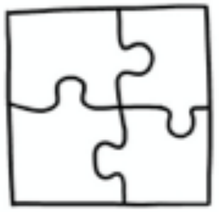
CIRCULAR



SILOS

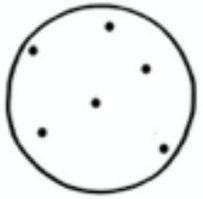
EMERGENCE

PARTS



WHOLES

ANALYSIS



SYNTHESIS

ISOLATION

RELATIONSHIPS

Leyla Acaroglu - https://disruptdesign.co/

DISRUPT DESIGN

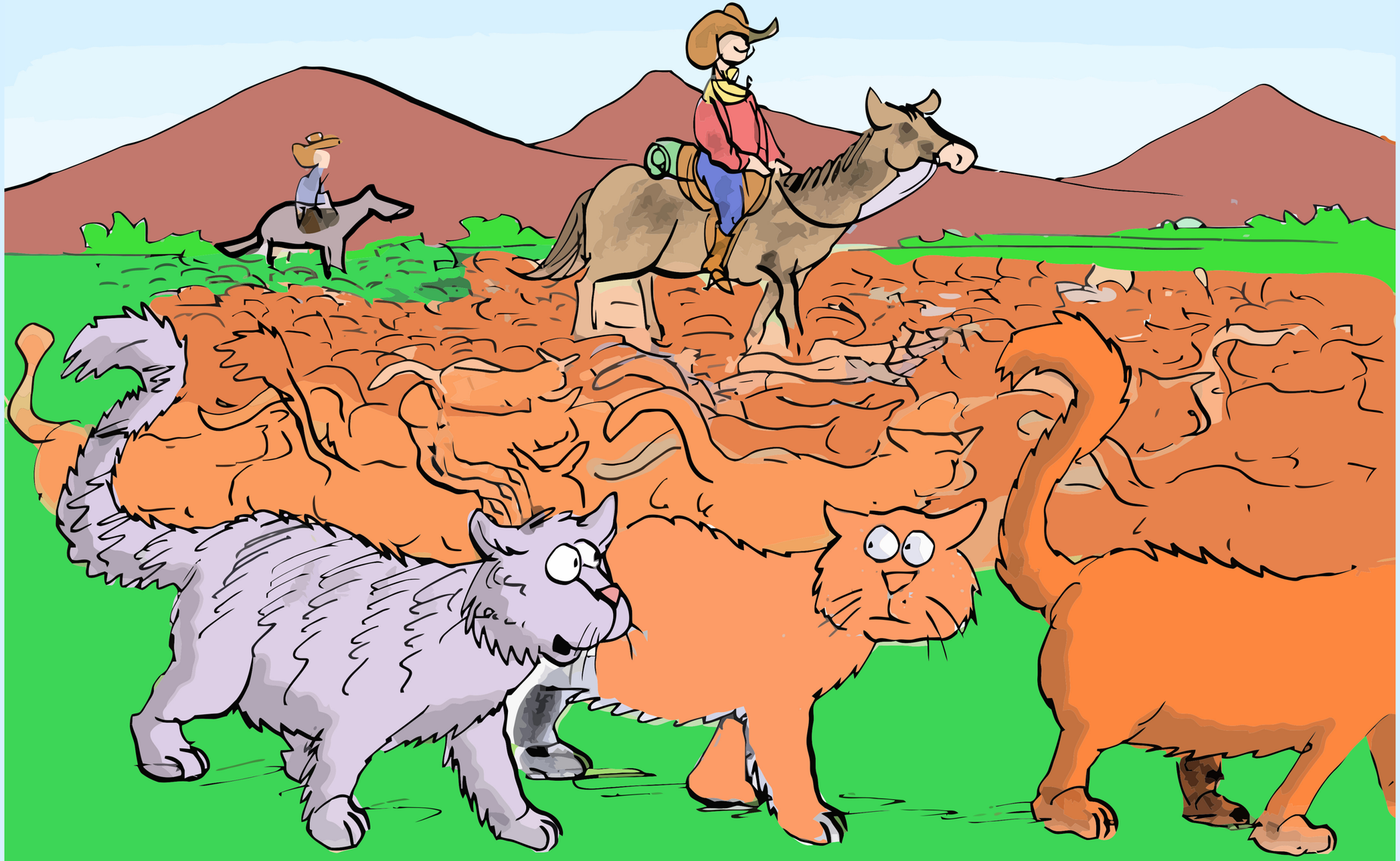
Some

SKILLS

we need now

1

Don't be a **CAT**



“I tried to organize a stampede, but everybody has their own agenda.”

!THIS

2

Be excellent at

SYSTEMIC REASONING

Leadership is not

OPINION GIVING

BEST POSSIBLE CONCLUSION, UNDER THE CIRCUMSTANCES, WHEN CONDITIONS ARE UNCERTAIN*

* conditions are always uncertain

SYNTHESIZING KNOWLEDGE, EXPERIENCE AND SOUND JUDGEMENT INTO RECOMMENDATIONS BASED ON VALID REASONS.

RECOMMENDATIONS INCLUDE ...

- Your idea, action or theory
- Three to five reliable, relevant, sound and cogent reasons that justify your idea, action or theory
- A clear description of why this idea is highly impactful and matters today
- Other people's relevant point of view

3

Practice

METACOGNITION

“

PEOPLE WHO DESIGN SYSTEMS WILL PRODUCE COPIES OF THEIR THINKING AND COMMUNICATION PATTERNS

~~Conway's~~ Diana's Law

PRACTICES

- Writing (especially systemic reasoning)
- Discourse
- Modeling
- Walking (or other rhythmic movement)
- Making art: constant decision making and discernment

“

BUGS IN OUR THINKING PRODUCE BUGS IN OUR ARCHITECTURES

Strawman

Hollis recommends offloading complexity by using cloud-native tools.

Briar responds: "Hollis hates open source."

Ad hominem

Hollis recommends offloading complexity by using cloud-native tools.

Briar responds: "Hollis hates open source."

Anecdotal

Hollis recommends building a new capability using microservices, with detailed reasons supporting it.

Briar says: "We tried microservices and it was a disaster."

Burden of proof

Hollis shares a new data model that suits the evolving circumstances.

Briar says: “That looks like a graph. Graphs don’t scale.”

4

Focus on

RELATIONSHIPS & PATTERNS

“

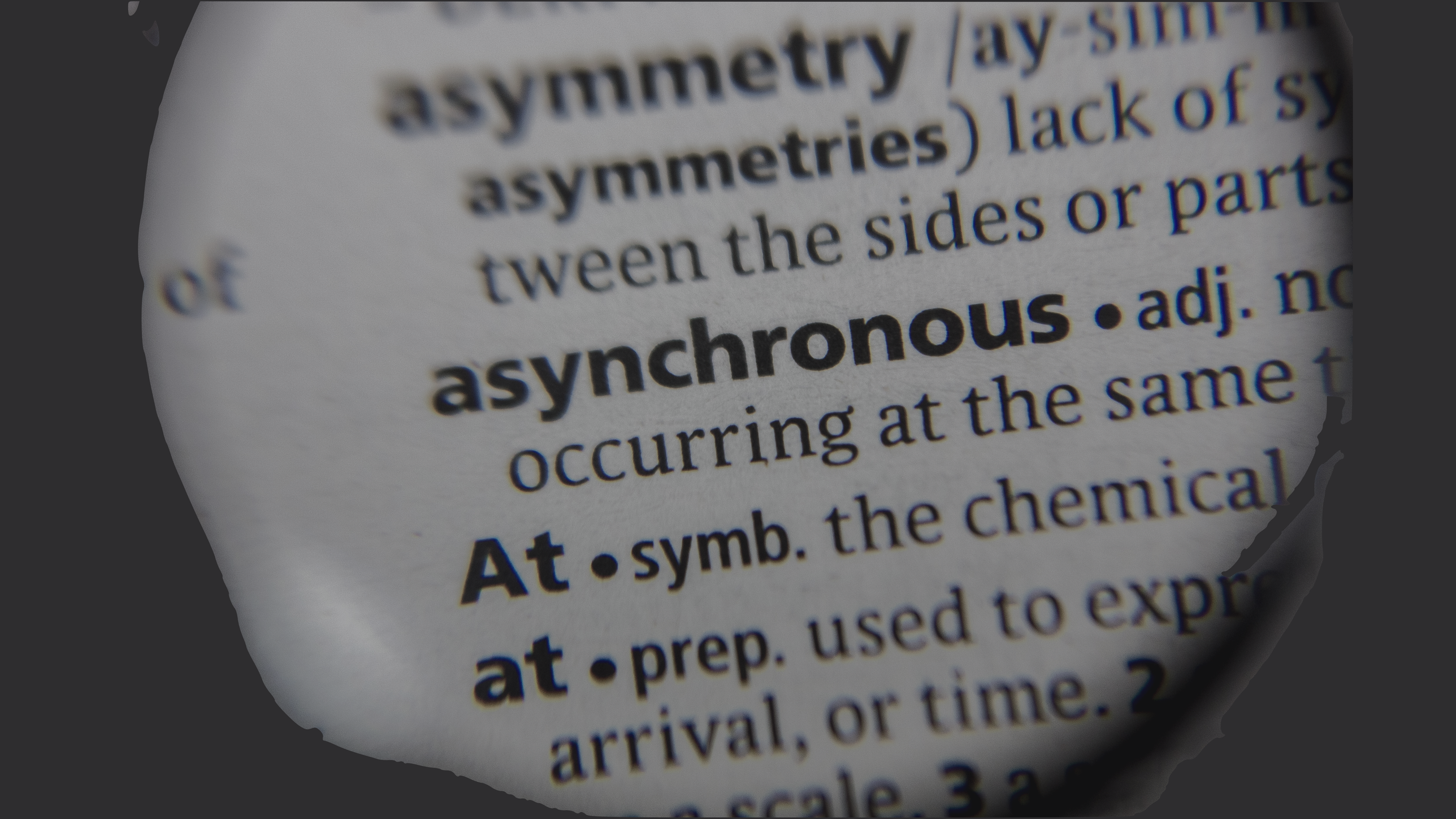
“YOU THINK THAT BECAUSE YOU UNDERSTAND “ONE” THAT YOU MUST THEREFORE UNDERSTAND “TWO” BECAUSE ONE AND ONE MAKE TWO. BUT YOU FORGET THAT YOU MUST ALSO UNDERSTAND “AND.”

Donella Meadows, Thinking in Systems

“

A SYSTEM IS NEVER THE SUM OF ITS PARTS — ITS THE PRODUCT OF THEIR INTERACTION.

Russell Ackoff


asymmetry /ay-
asymmetries) lack of sy
tween the sides or parts
asynchronous • adj. nc
occurring at the same t
At • symb. the chemical
at • prep. used to expr
arrival, or time. 2
scale. 3

“

SYSTEMS THINKING OFTEN INVOLVES MOVING FROM OBSERVING EVENTS OR DATA, TO IDENTIFYING PATTERNS OF BEHAVIOR OVERTIME, TO SURFACING THE UNDERLYING STRUCTURES THAT DRIVE THOSE EVENTS AND PATTERNS

Michael Goodman

5

Improve the

SOCIOTECHNICAL SYSTEM

“

PEOPLE DON'T RESIST CHANGE. THEY RESIST BEING CHANGED.

Peter M. Senge

“

THROUGH LEARNING WE BECOME ABLE TO DO SOMETHING WE NEVER WERE ABLE TO DO.

Peter M. Senge

6

Be really good at

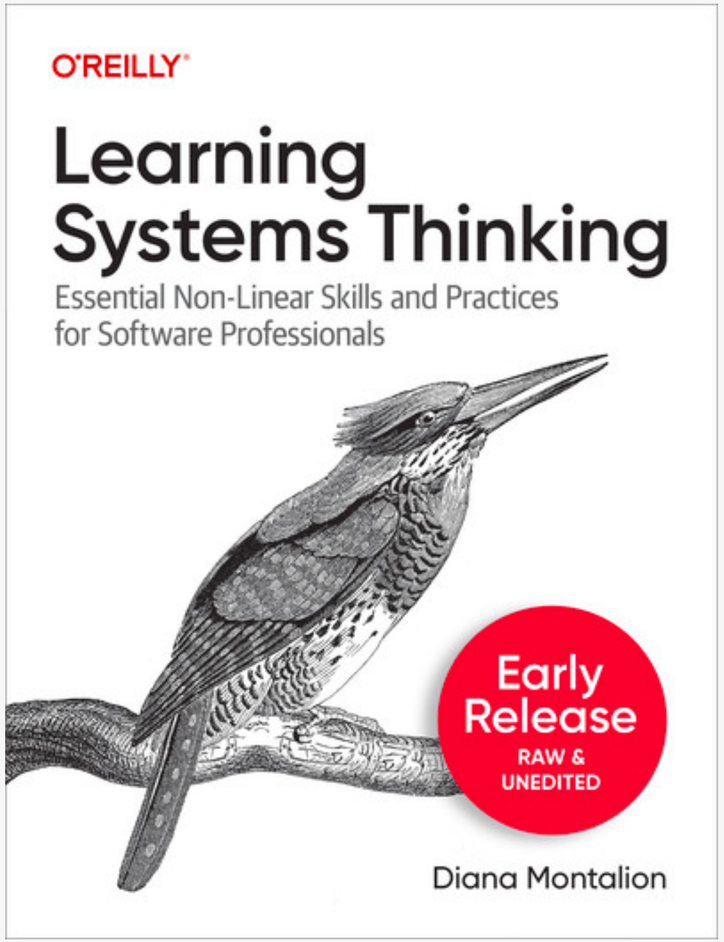
BUILDING TECH

IMAGINE WHAT YOU CAN ACCOMPLISH WITH THESE QUALITIES PLUS TECHNOLOGY EXPERTISE

1. **Don’t be a cat**
2. **Be excellent at systemic reasoning**
3. **Practice metacognition**
4. **Focus on relationships and patterns**
5. **Improve the sociotechnical systems**

And be great at building tech

LEARNING SYSTEMS THINKING

Essential Non-Linear Skills and Practices for Software Professionals

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