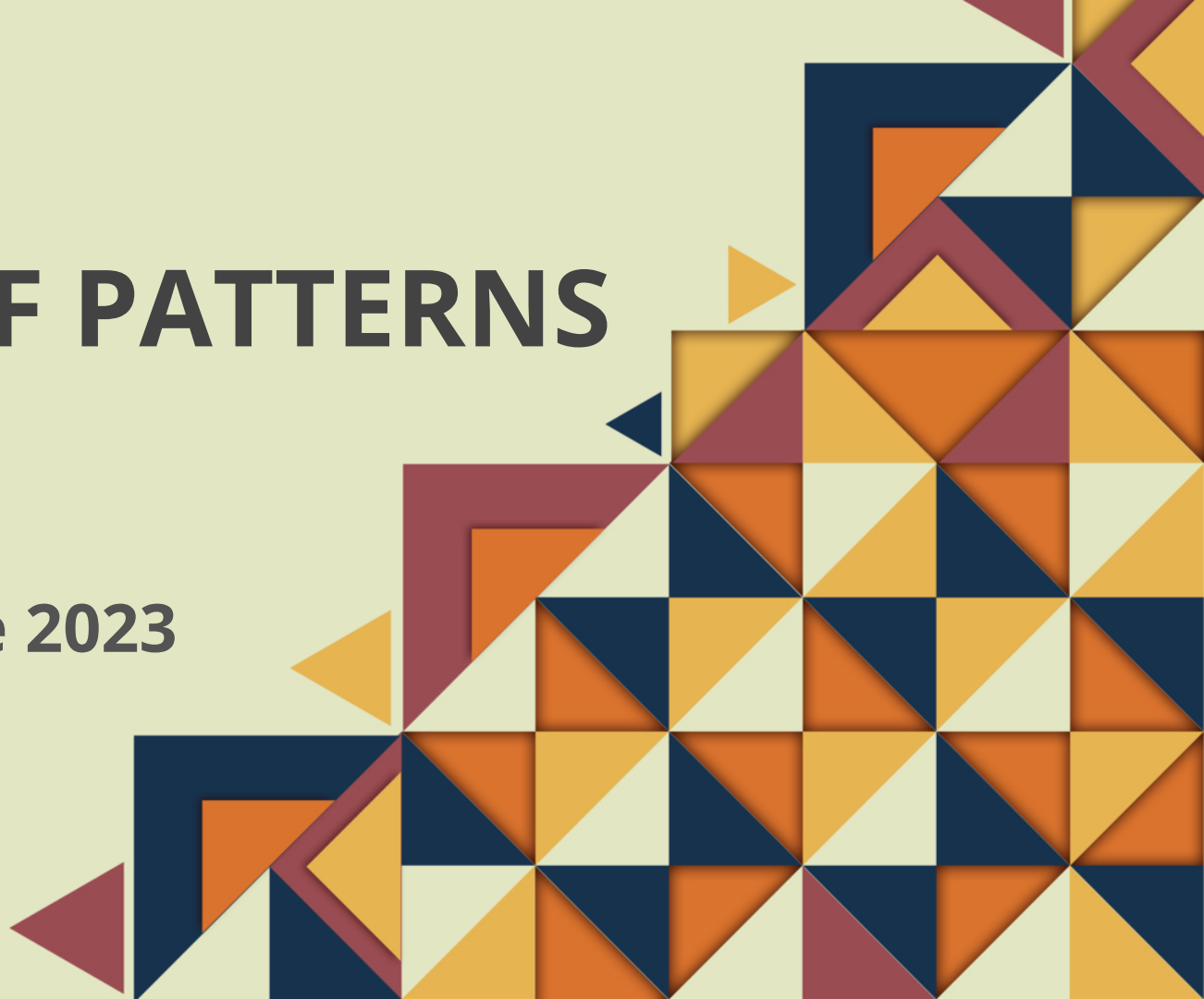


A GAME OF PATTERNS

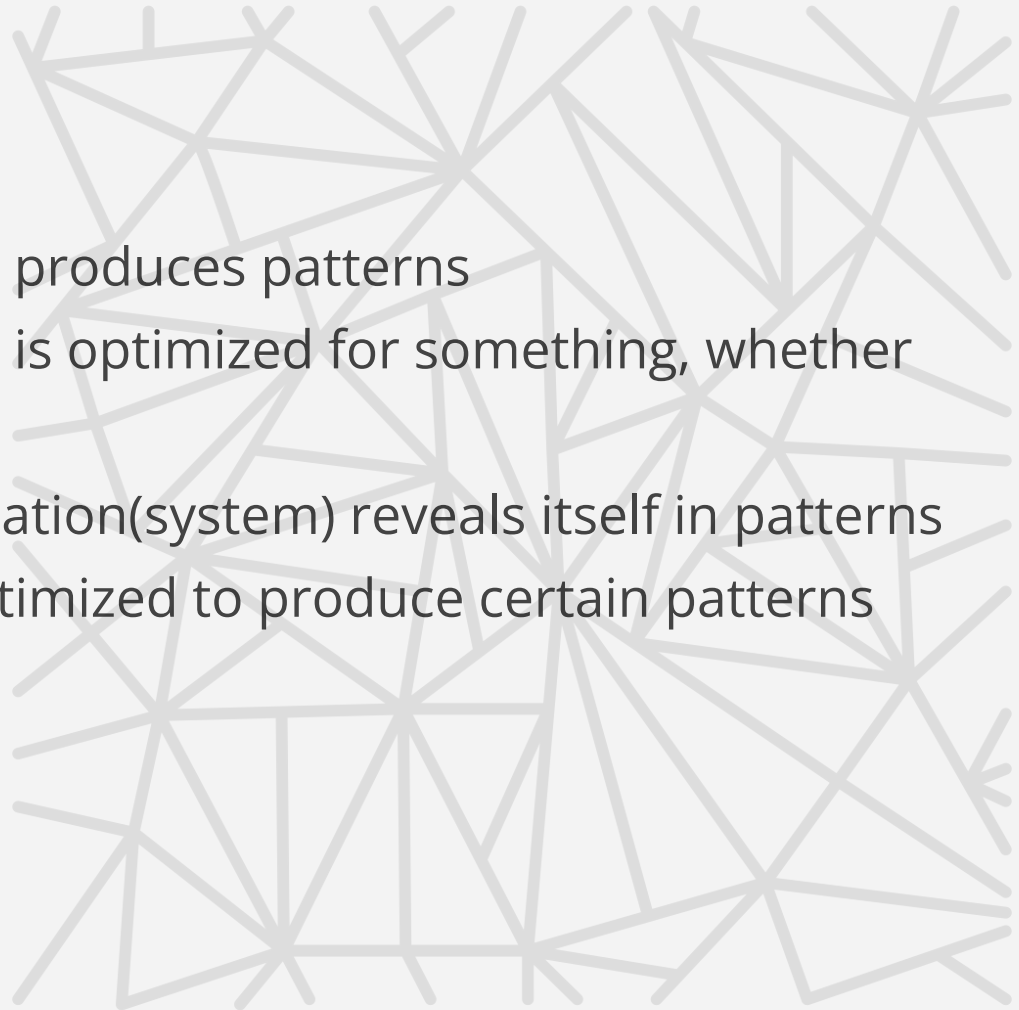
Agile Cambridge 2023

Tiani Jones
Proper Science, Ltd



WHY PATTERNS?

- Every organization (system) produces patterns
- Every organization (system) is optimized for something, whether acknowledged or not
- The behavior of the organization(system) reveals itself in patterns
- Therefore, the system is optimized to produce certain patterns



Many organizations
pick practices and
think these will
automatically solve
problems ...



WHY “A GAME OF
PATTERNS”?



Recognizing patterns is
the primary game in
complex-adaptive
systems



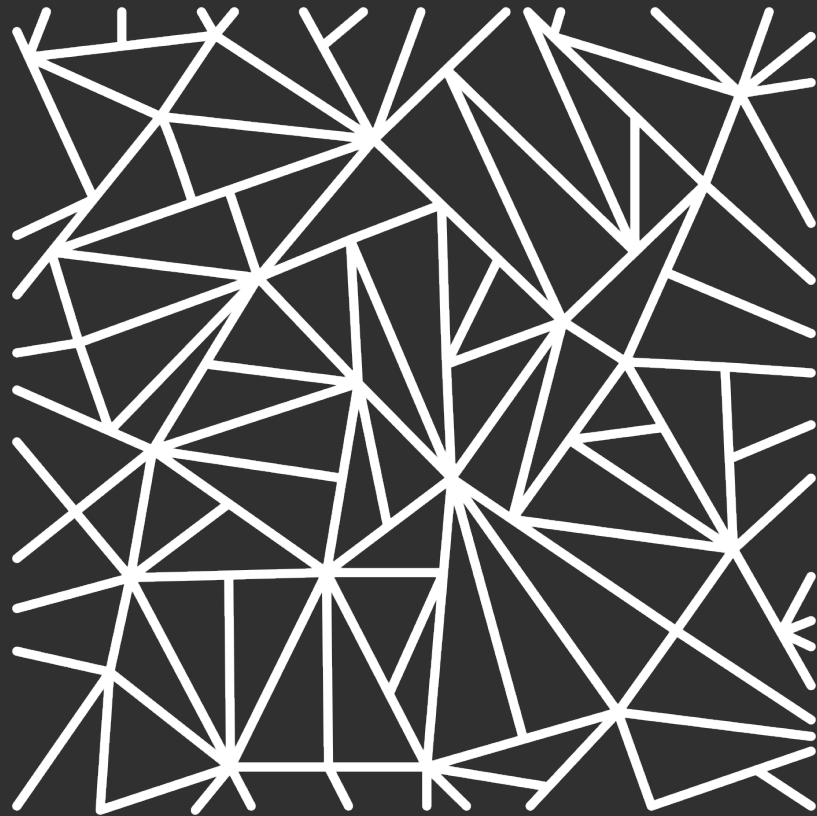
RECOGNIZING PATTERNS

- Recognizing patterns is understanding the difference between the rules of the game and knowing how to play the game

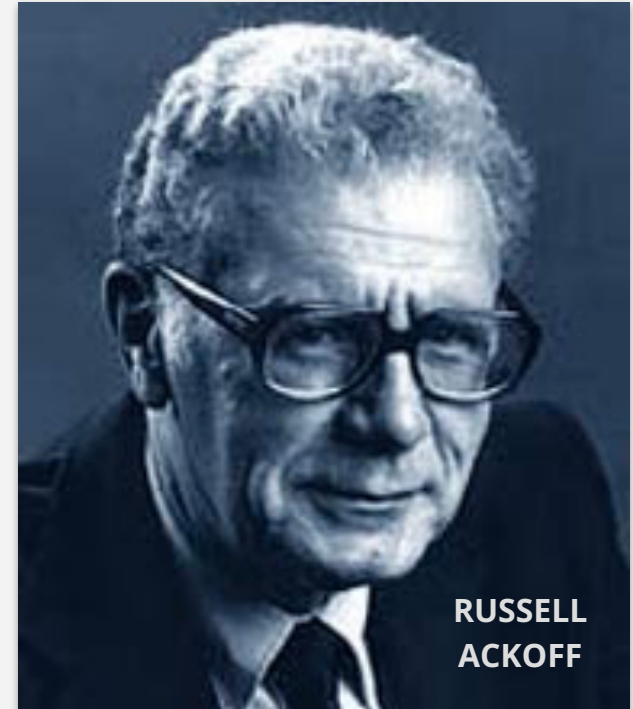


On Systems

... a couple types

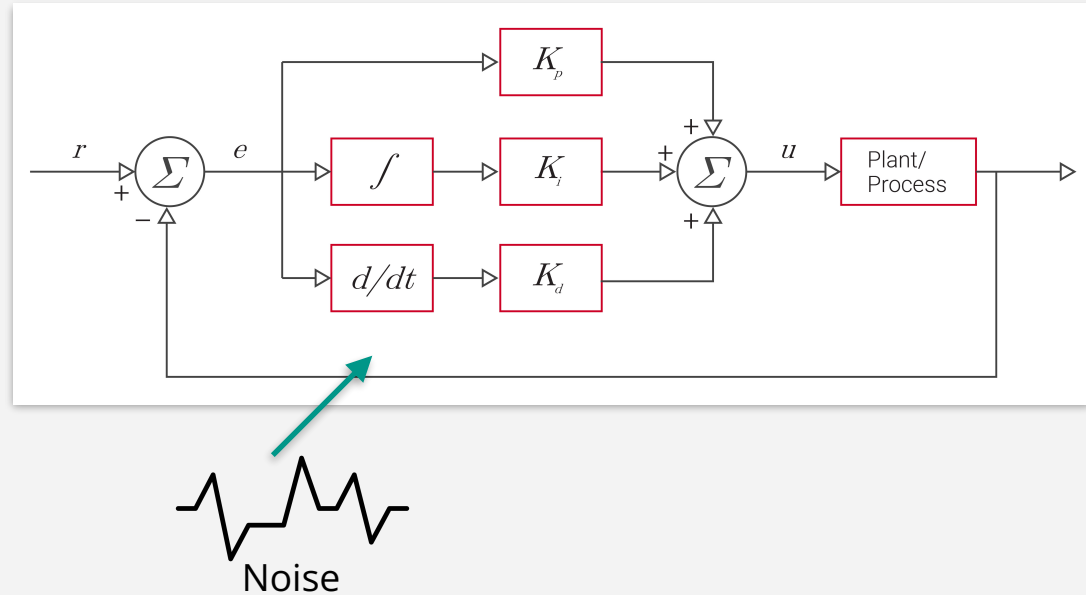


A system is never the sum of its parts; it's the product of their interaction.



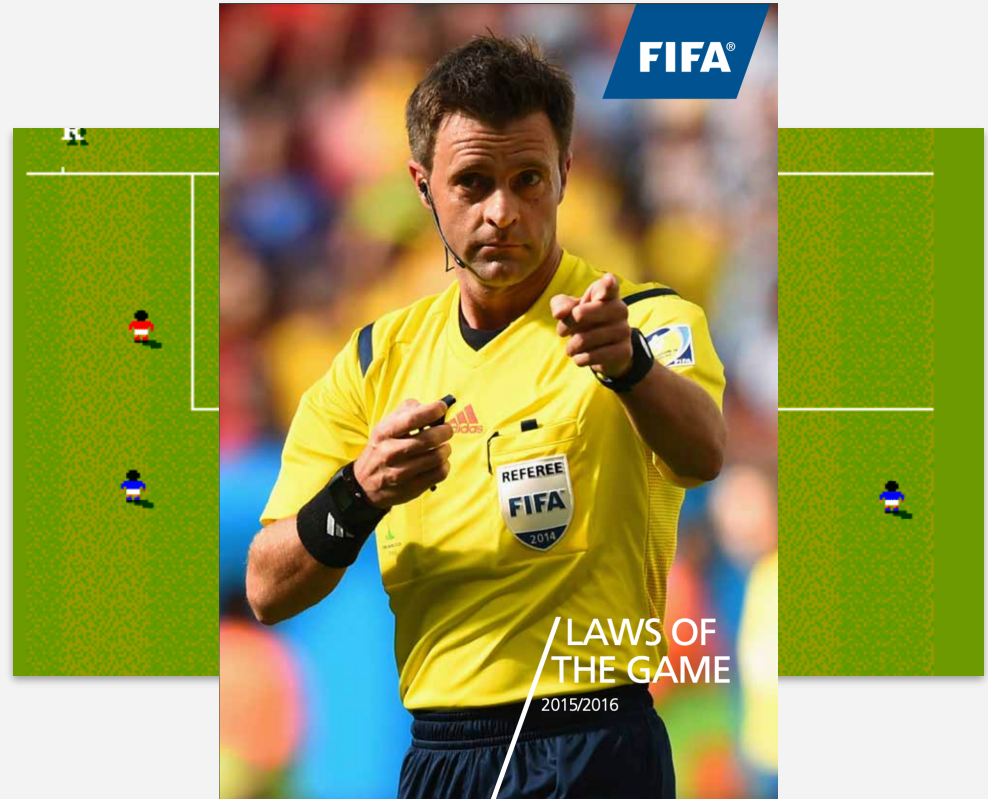
Systems (Thinking)

- Systems thinking focuses on steady-state systems with constraints of the parts
- The interactions and behaviors are knowable
- Example: feedback control systems



COMPLEX, ADAPTIVE SYSTEMS

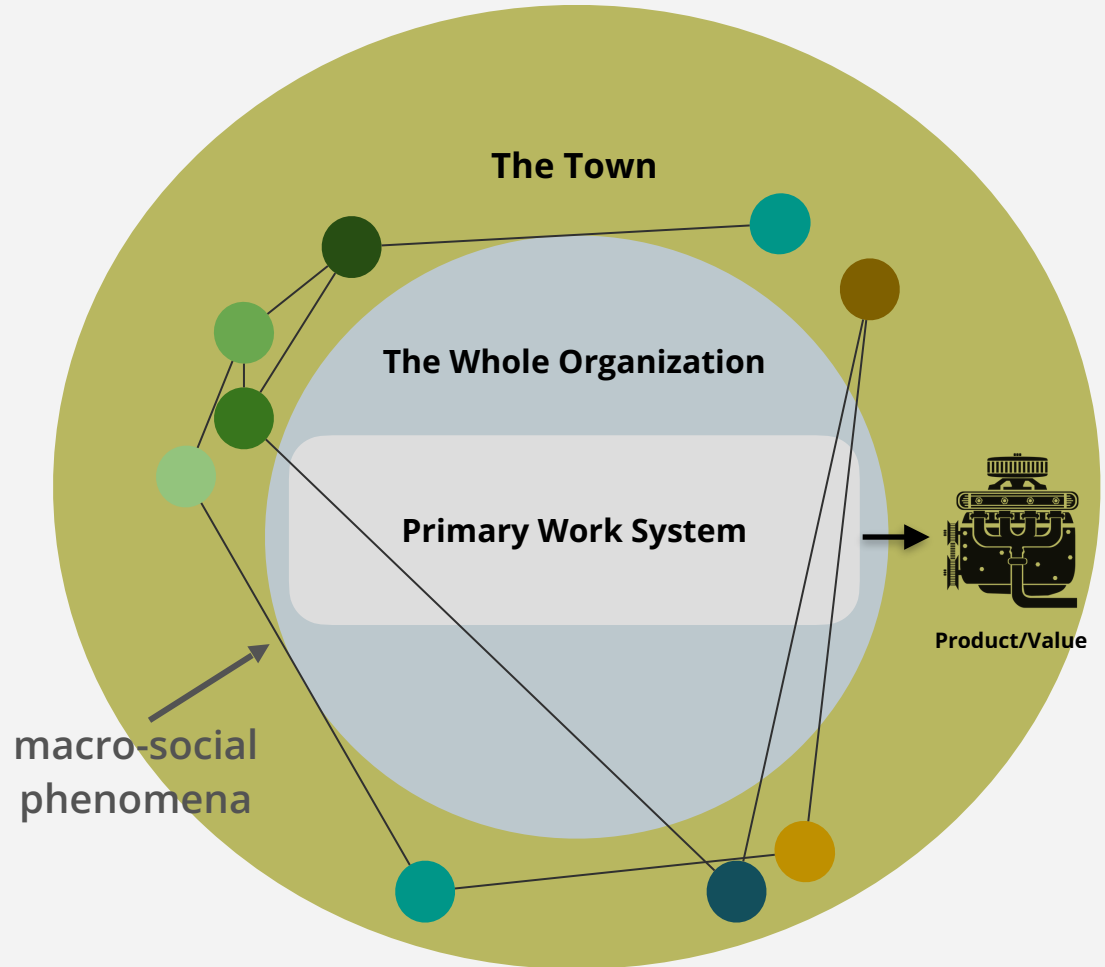
- Knowability - critical aspects only
- Parts are less constrained and they adapt and change in ways that cannot be predicted.
- As defined by Peter Checkland, *human activity systems* have uncertainty and unknowability due to the human element.



Socio-technical Systems

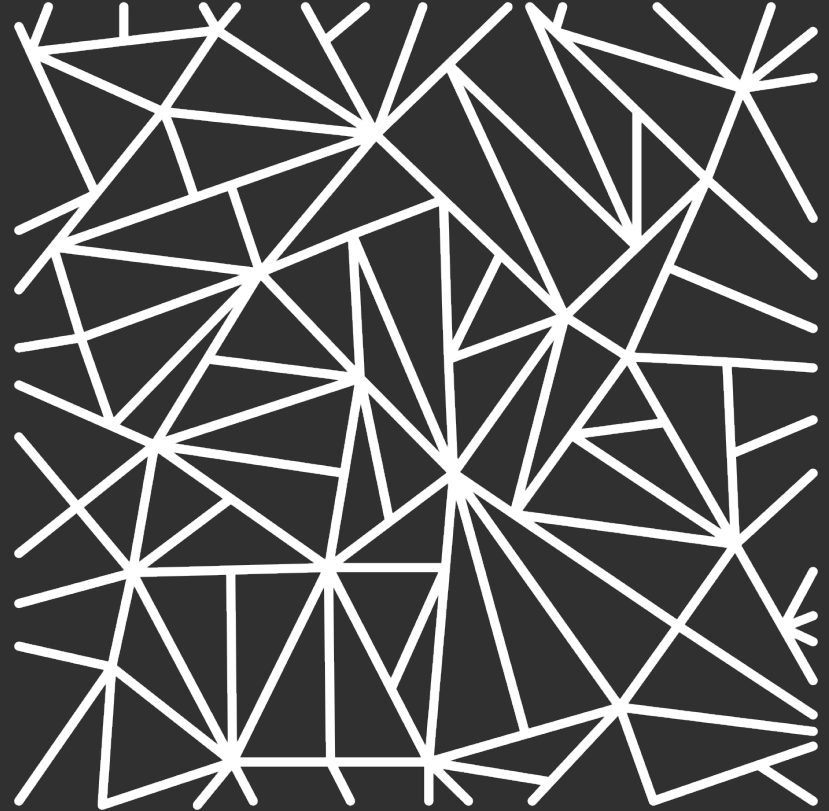
“Socio-technical analysis is made at three levels: the primary work system; the whole organization; and macro-social phenomena.”

- The Evolution of Socio-technical Systems, Trist, 1981



On Patterns

... and behaviors



WESTRUM'S TYPOLOGY

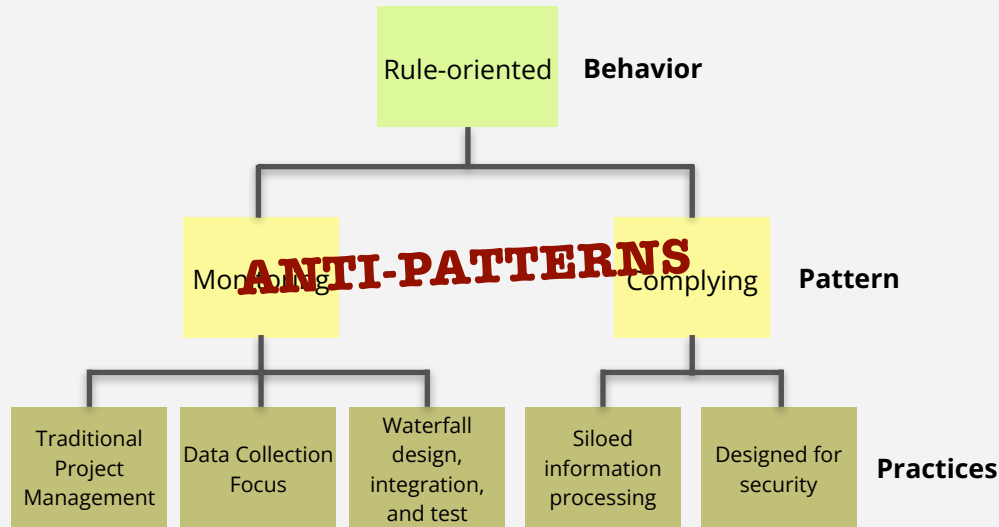
PATHOLOGICAL	BUREAUCRATIC	GENERATIVE
Power-oriented	Rule-oriented	Performance-oriented
• Cooperation low • Messengers shot • Responsibilities shirked • Bridging discouraged • Failure > scapegoating • Novelty > crushed	• Cooperation modest • Messengers neglected • Responsibilities narrow • Bridging tolerated • Failure > justice • Novelty > problems	• Cooperation high • Messengers trained • Shared risks • Bridging encouraged • Failure > inquiry • Novelty > enacted

Behavior Patterns

Diagram adapted from A Typology of Organisational Cultures (Westrum, R.) (2004)

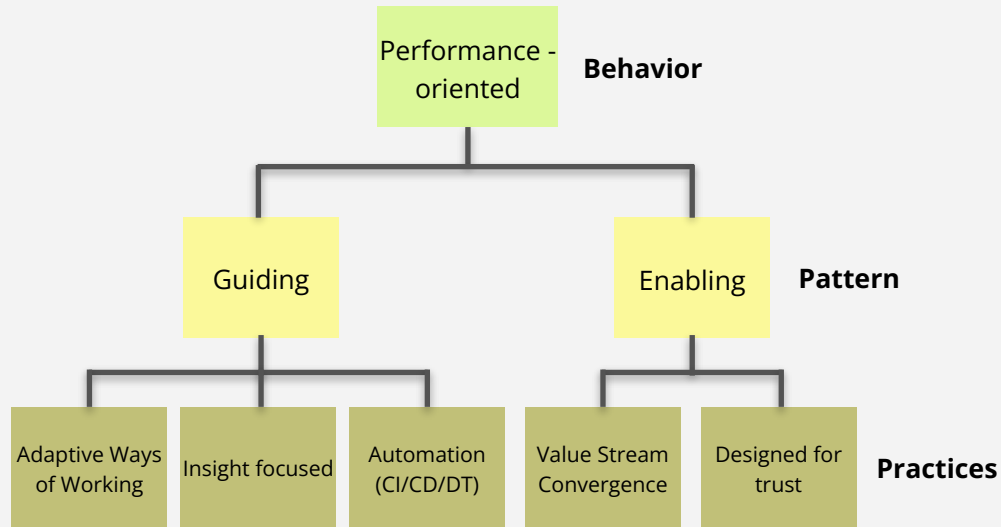
PATTERNS ARE JUST PATTERNS ... UNTIL THEY AREN'T

Outcome: Leaders enable a generative culture where technology, products, people, and the OS continuously evolve to enact innovation in the marketplace.



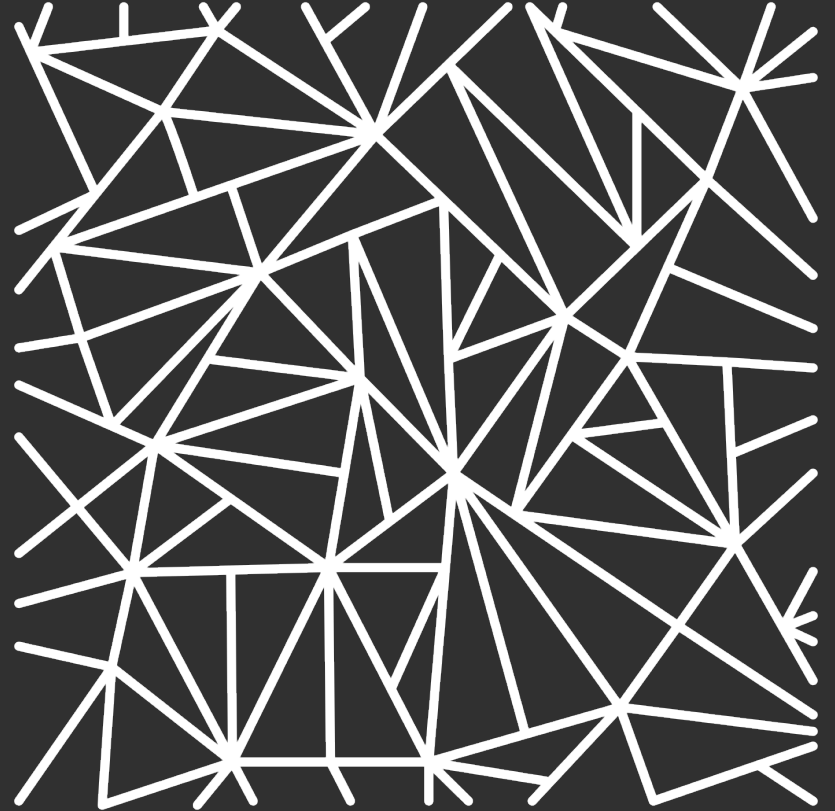
PATTERNS ARE JUST PATTERNS

Outcome: Leaders enable a generative culture where technology, products, people, and the OS continuously evolve to enact innovation in the marketplace.



Base Patterns

... of agility



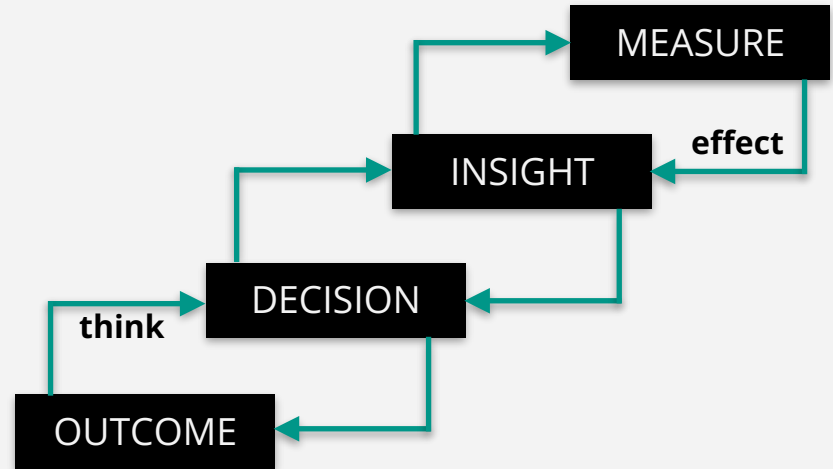
AGILE BASE PATTERNS

- Measure Economic Progress
 - Proactively Experiment to Improve
 - Limit Work-in-Process
 - Embrace Collective Responsibility
 - Solve Systemic Problems
- 
- The diagram consists of teal lines connecting the list items to their corresponding outcomes. A bracket on the right side of the first three items (Measure Economic Progress, Proactively Experiment to Improve, and Limit Work-in-Process) points to the word 'Agility'. A horizontal line connects 'Embrace Collective Responsibility' to 'Resiliency'. Another horizontal line connects 'Solve Systemic Problems' to 'Agility beyond the actor boundary'.
- Agility
- Resiliency
- Agility beyond the actor boundary

Whitepaper: Agile Base Patterns in the Agile Canon, Conference Paper January 2016, Daniel R. Greening, Senex Rex

AGILITY

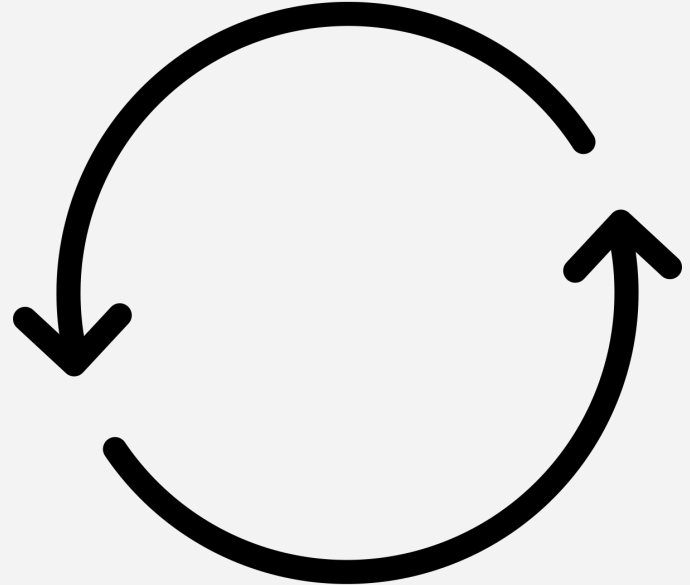
- **Measure Economic Progress**
- Proactively experiment to improve
- Limit Work-in-Process



By Larry Maccherone

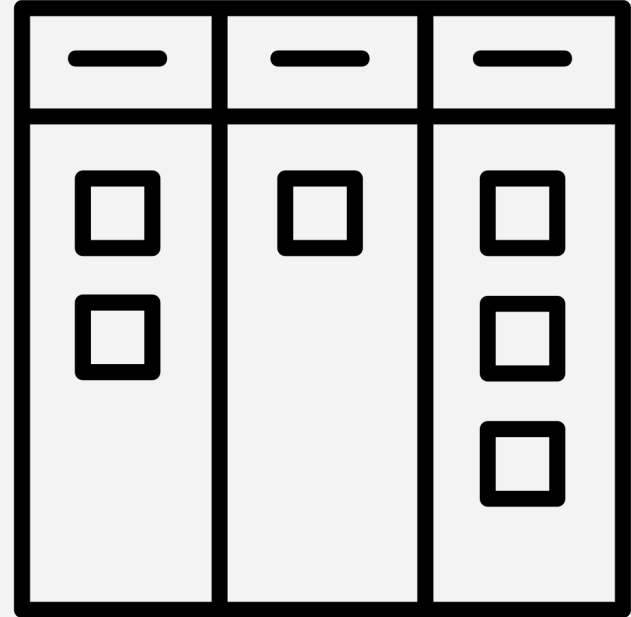
AGILITY

- Measure Economic Progress
- **Proactively experiment to improve**
- Limit Work-in-Process



AGILITY

- Measure Economic Progress
- Proactively experiment to improve
- **Limit Work-in-Process**



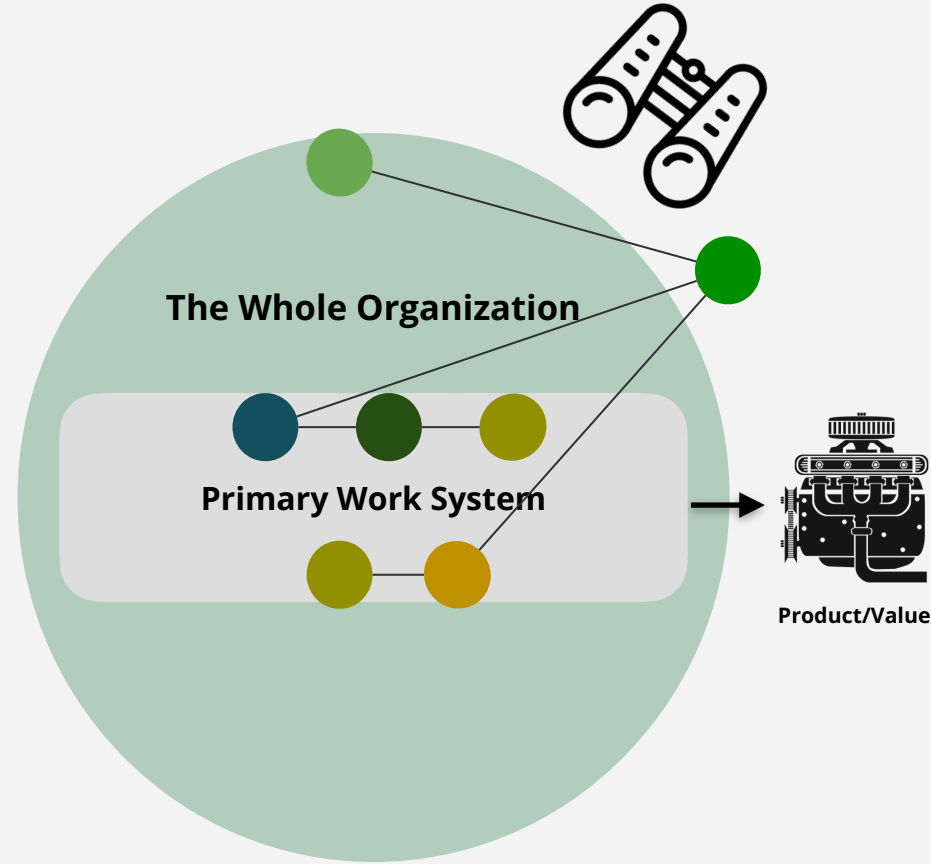
RESILIENCY

- Measure Economic Progress
- Proactively experiment to improve
- Limit Work-in-Process
- **Embrace Collective Responsibility**



AGILITY BEYOND THE ACTOR BOUNDARY

- Measure economic progress
- Proactively experiment to improve
- Limit work-in-process
- Embrace collective responsibility
- **Solve systemic problems**



The Fan Team

Patterns in a cyber-physical
environment



CASE STUDY: The Fan Team

Industry: Aerospace and Defense

The Mission:

- Get funding to design and build an engine fan from a new material and prove it can work IRL.
- Do the above in a new way. Agile?

Team composition:

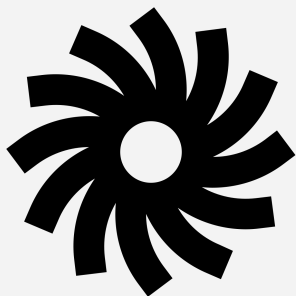
- Aerospace Engineers/Rocket Scientists



CASE STUDY: The Fan Team

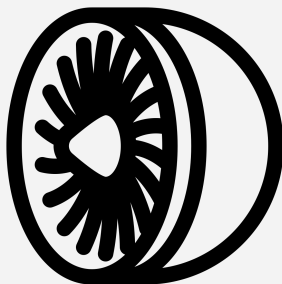
Experiment 1

- Logistics: Equipment (test bench)
- Experiment details
- Measurement/metrics
- Deferred commitment on some of the blade efficiency design



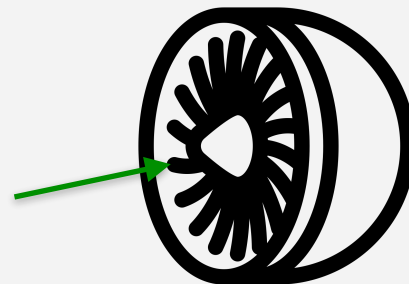
Experiment 2

- Logistics: Equipment (test bench)
- Experiment details + more details
- Measurement/metrics



Experiment 3

- Logistics: Equipment (test bench)
- Experiment details + more details + even more details
- Measurement/metrics



CASE STUDY: The Fan Team

They **visualized their work/workflow** on an Excel kanban and had a system for updating it as a team.

[illegible]

Visualizing WIP

Limiting Work-in-Process

Embrace Collective Responsibility

Measure Economic Progress

Solve Systemic Problems

Value Delivery

Adaptation

CASE STUDY: The Fan Team

They **worked cross-functionally** and met several times a week. They paired up on work rather than handing it off between functions.

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	Aug 1	2	3	4	5
6	standup	8	standup	10	standup	12
13	standup	15	standup	17	18	19
20	standup	22	standup	24	25	26
27	standup	29	standup	31	Sep 1	2
3	4	5	6	7	8	9

Visualizing WIP

Limiting Work-in-Process

Embrace Collective Responsibility

Measure Economic Progress

Solve Systemic Problems

Value Delivery

Adaptation

CASE STUDY: The Fan Team

They discovered and **solved systemic problems** within their control.



Visualizing WIP

Limiting Work-in-Process

Embrace Collective Responsibility

Measure Economic Progress

Solve Systemic Problems

Value Delivery

Adaptation

CASE STUDY: The Fan Team

The team, in **collaboration** with leadership, rid themselves of review gates.



You cannot inspect quality into a product; it is already there. - W. Edwards Deming

- Visualizing WIP
- Limiting Work-in-Process
- Embrace Collective Responsibility
- Measure Economic Progress
- Solve Systemic Problems
- Value Delivery
- Adaptation

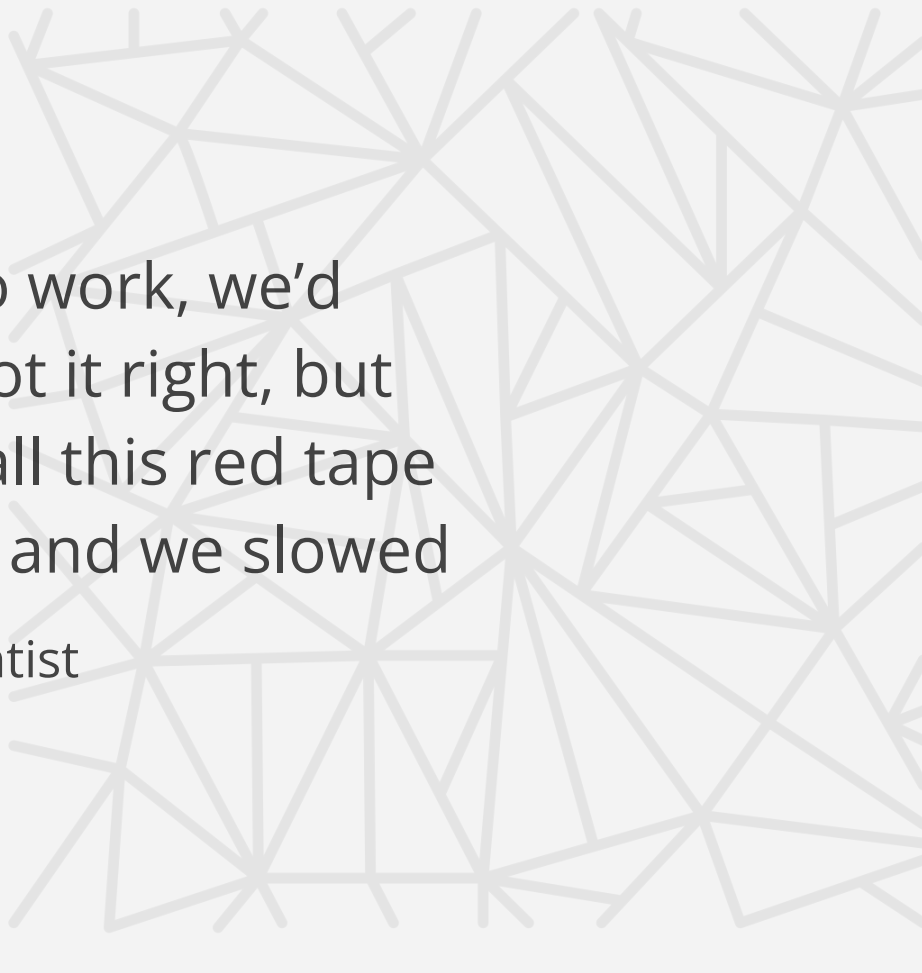
CASE STUDY: The Fan Team

What were the observed patterns?

What emerged?

How did this work?

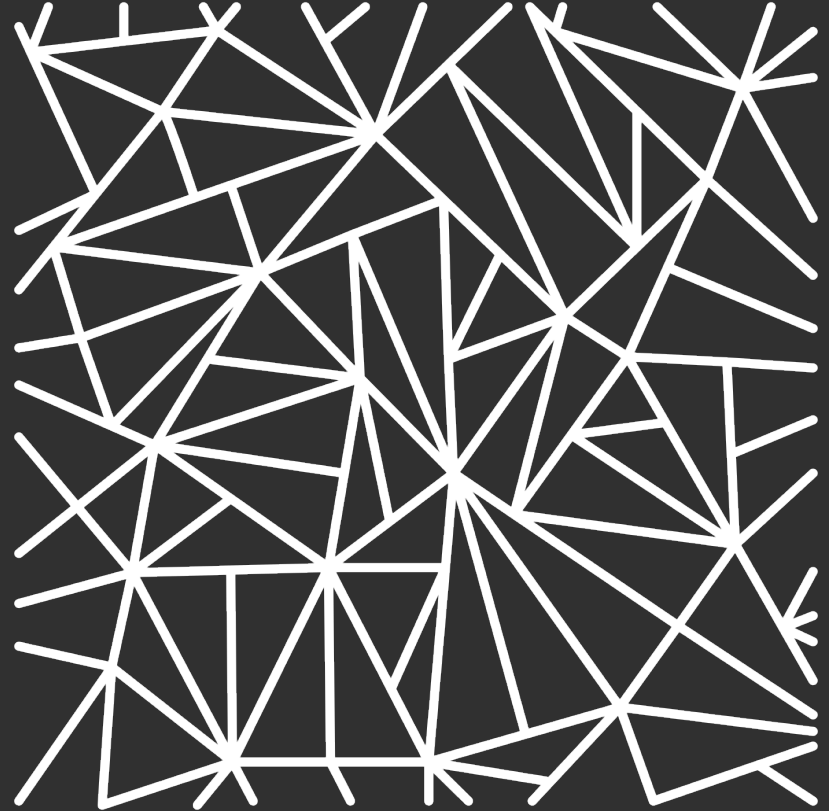




'I remember how we used to work, we'd just start building until we got it right, but somewhere along the way, all this red tape and standard work came in, and we slowed down.' - experienced rocket scientist

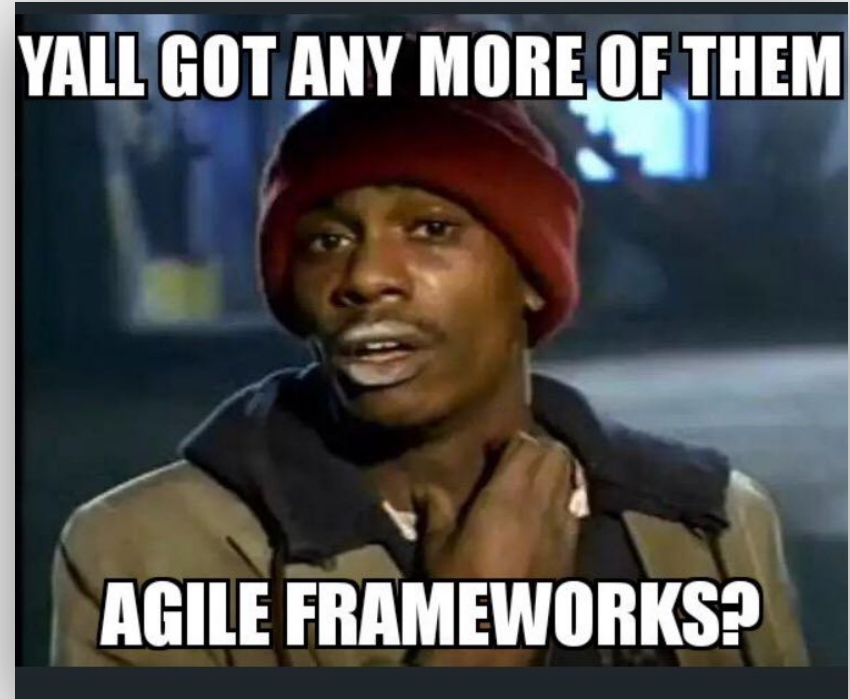
My conclusions

I make no apologies for
learning - W. E. Deming



Bounded Applicability

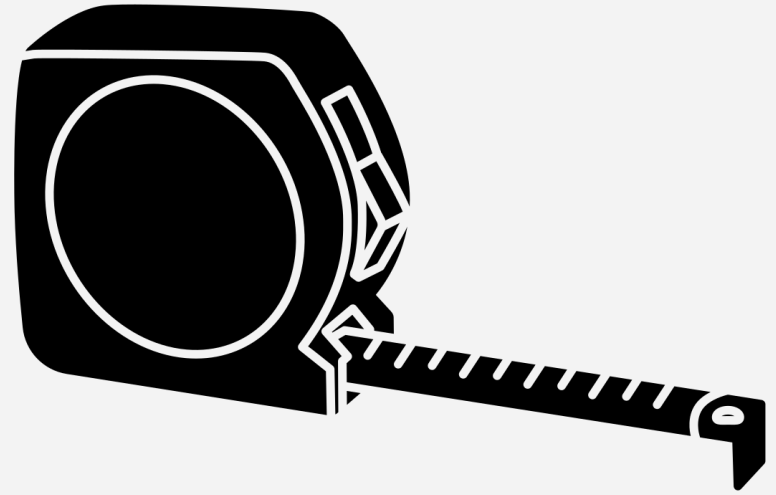
(aka Requisite
Applicability)



Learn how to
play well.



Awareness of
anthro-
complexity in
socio-technical
systems changes
our expectations.



THANK YOU!



@tiani_original



@tianijones



tiani@properscience.limited

