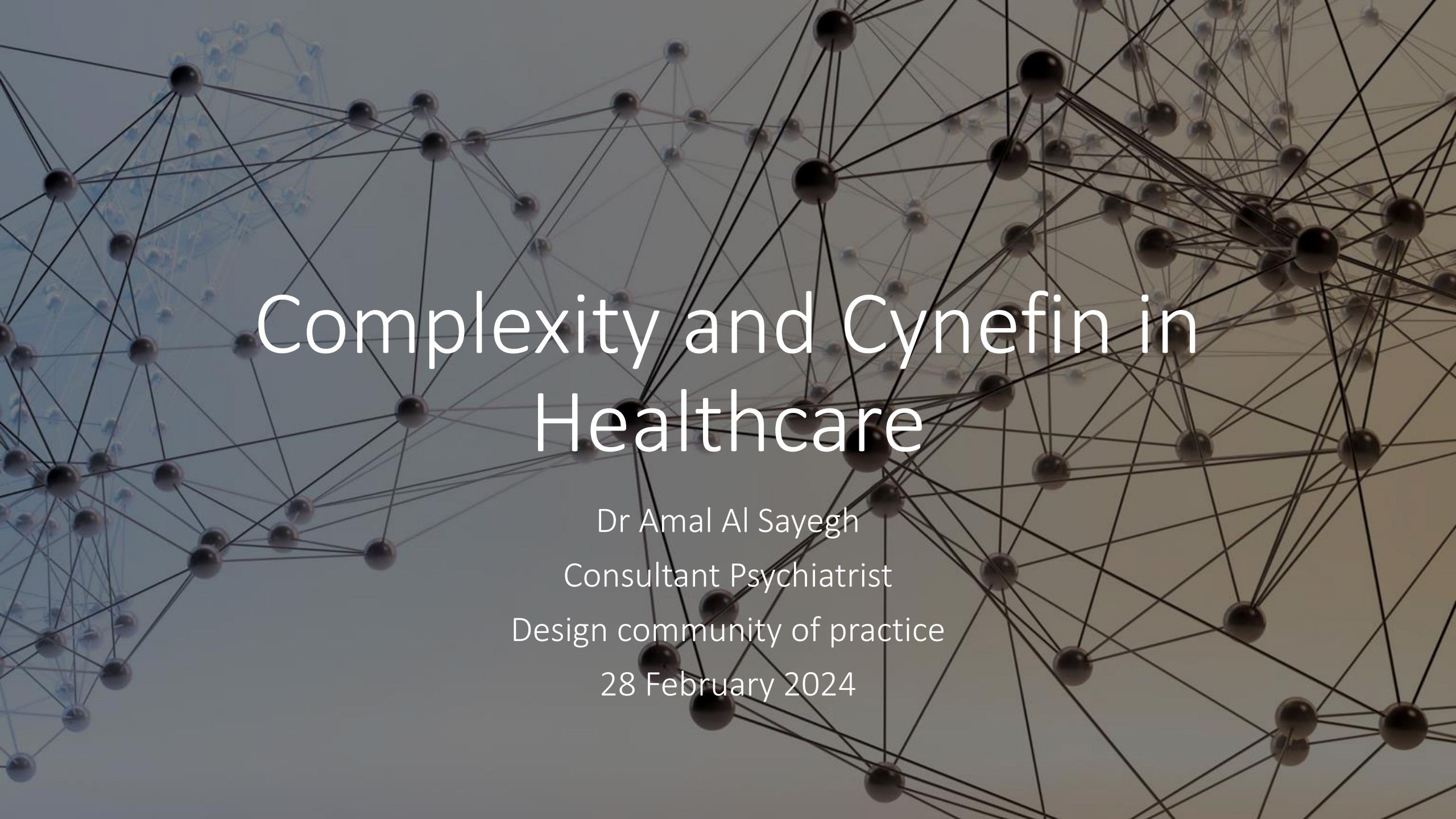


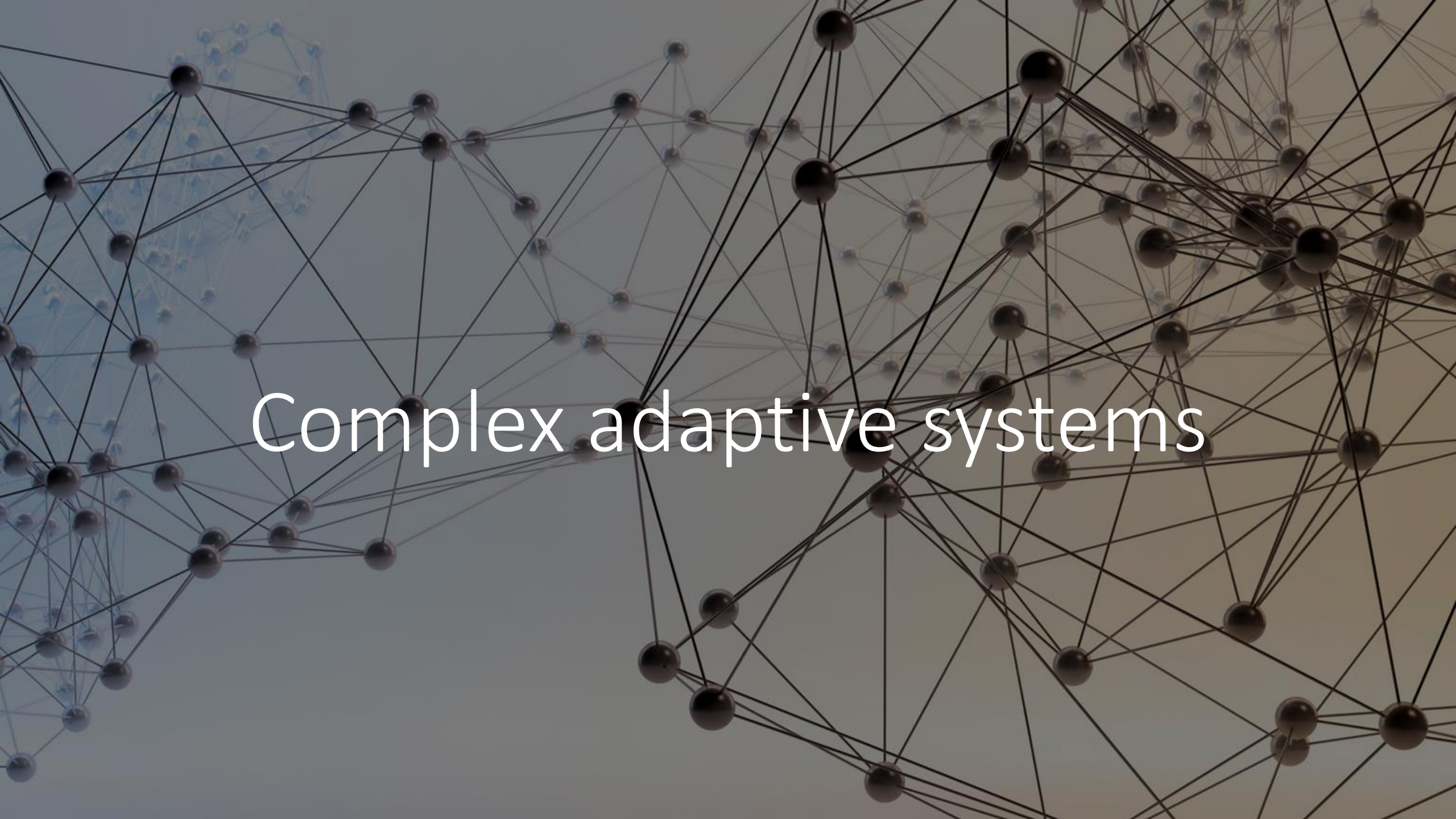
Complexity and Cynefin in Healthcare

Dr Amal Al Sayegh

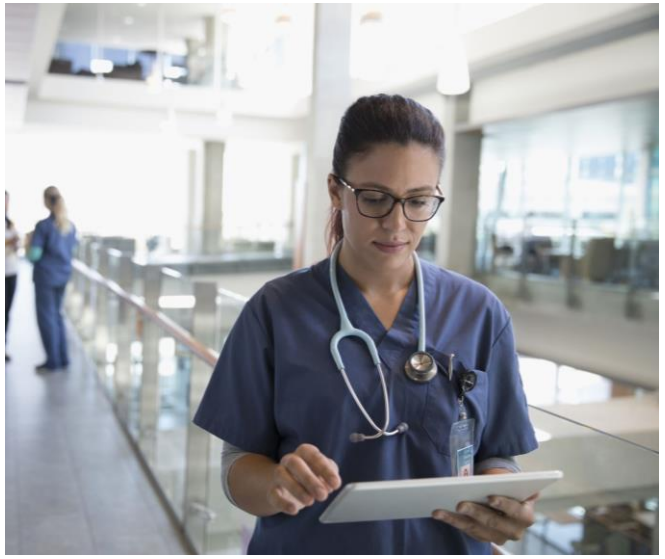
Consultant Psychiatrist

Design community of practice

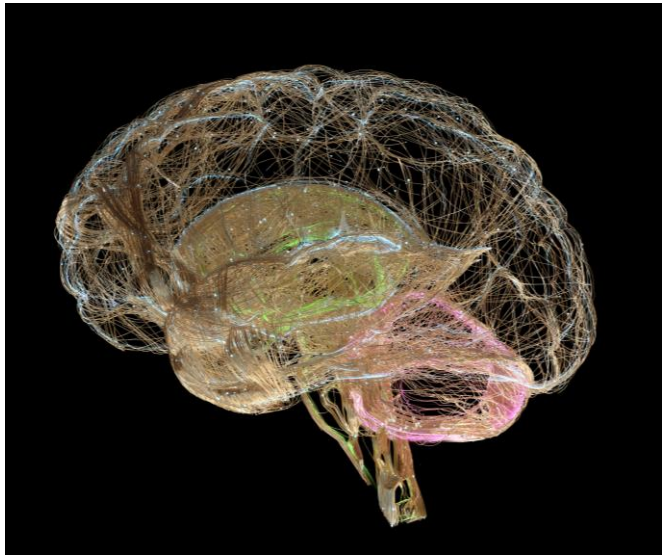
28 February 2024

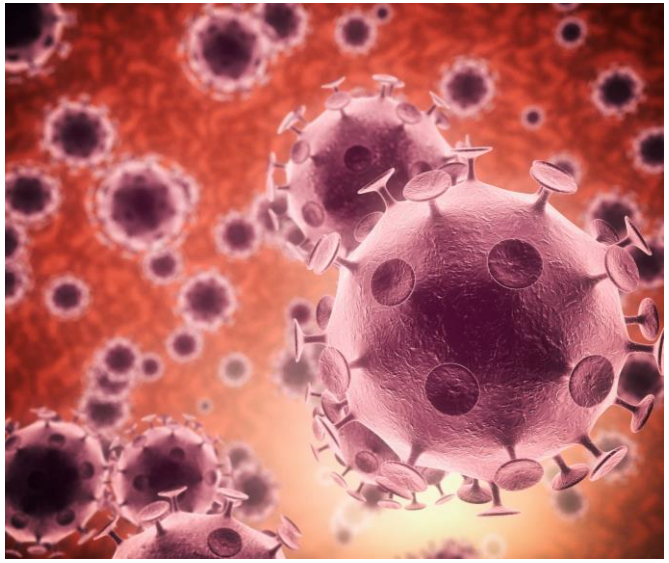


Complex adaptive systems



Dec





Complex

Diversity

Great number of connections between a wide variety of elements

Adaptive

Capacity to alter or change

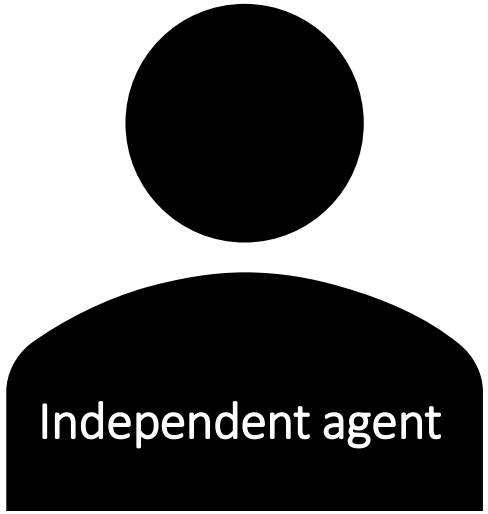
Ability to learn from experience

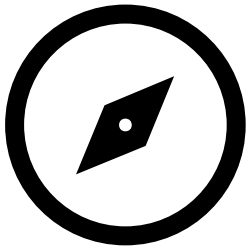
Systems

A set of connected and interdependent things

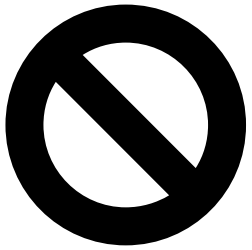
“Things”

Independent agents

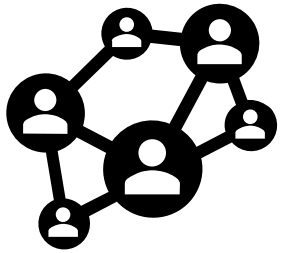




Local knowledge and conditions

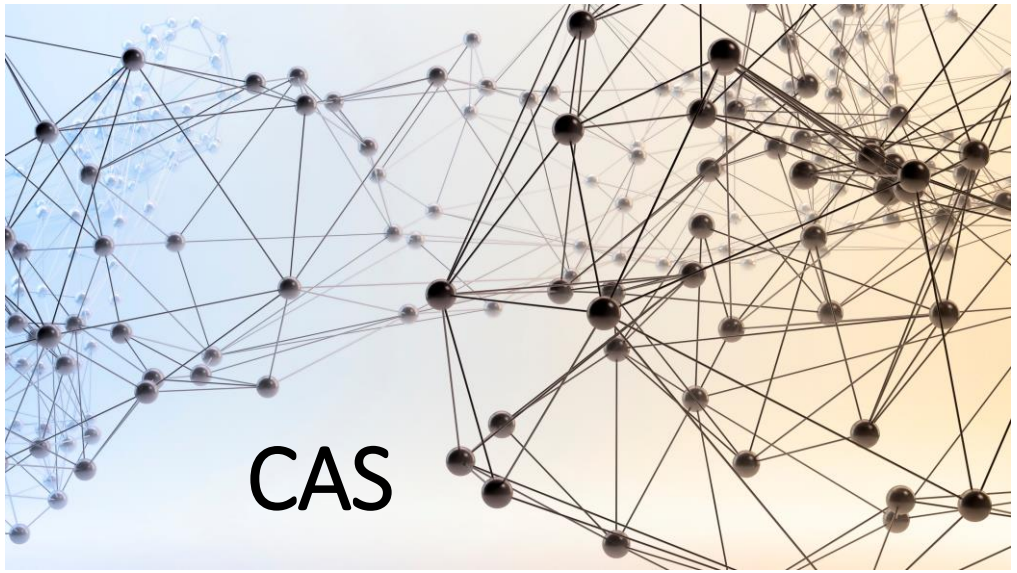


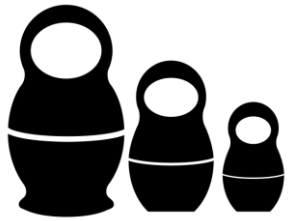
Not controlled by any central force



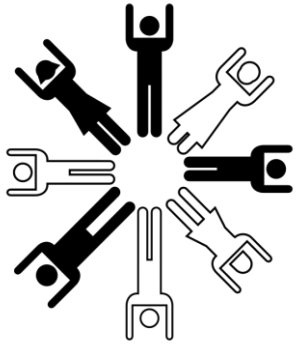
Part of a densely connected web of interconnecting agents

Unique schema

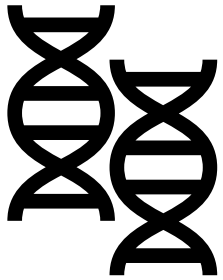




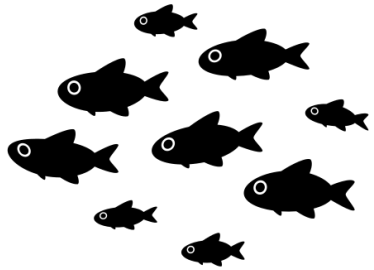
Nested



Diversity



Crossover

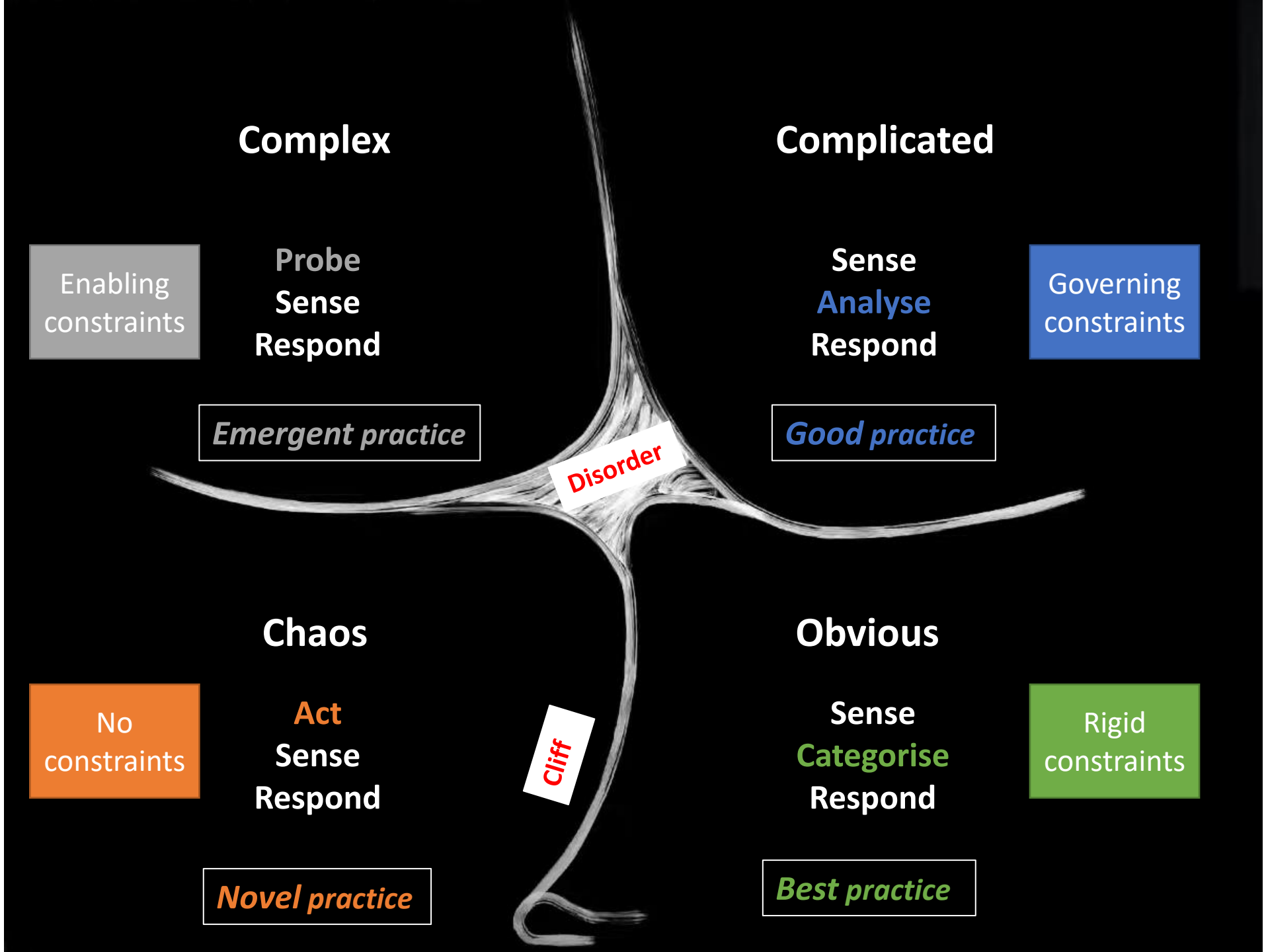


Distributed control

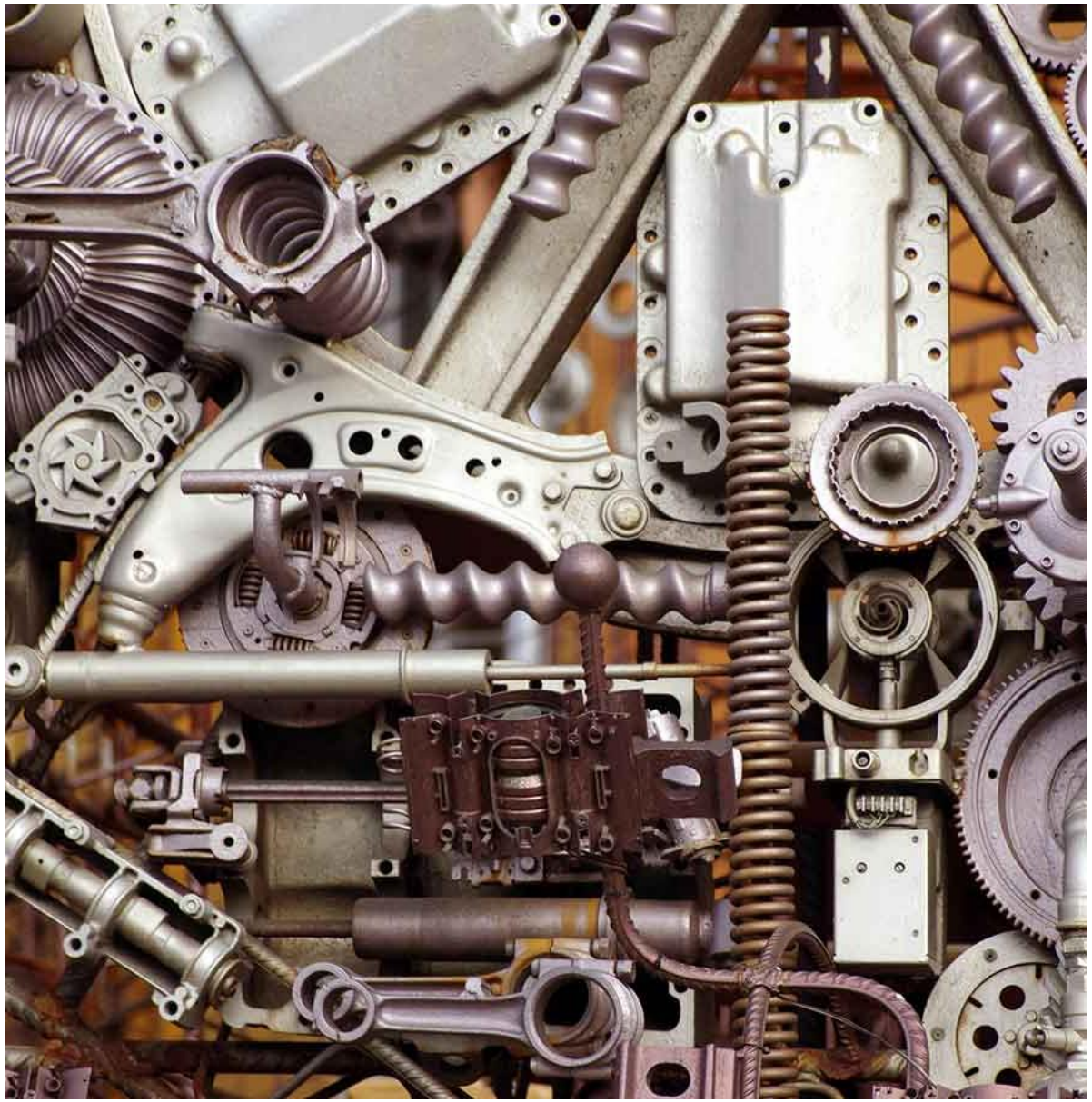
Nonlinear

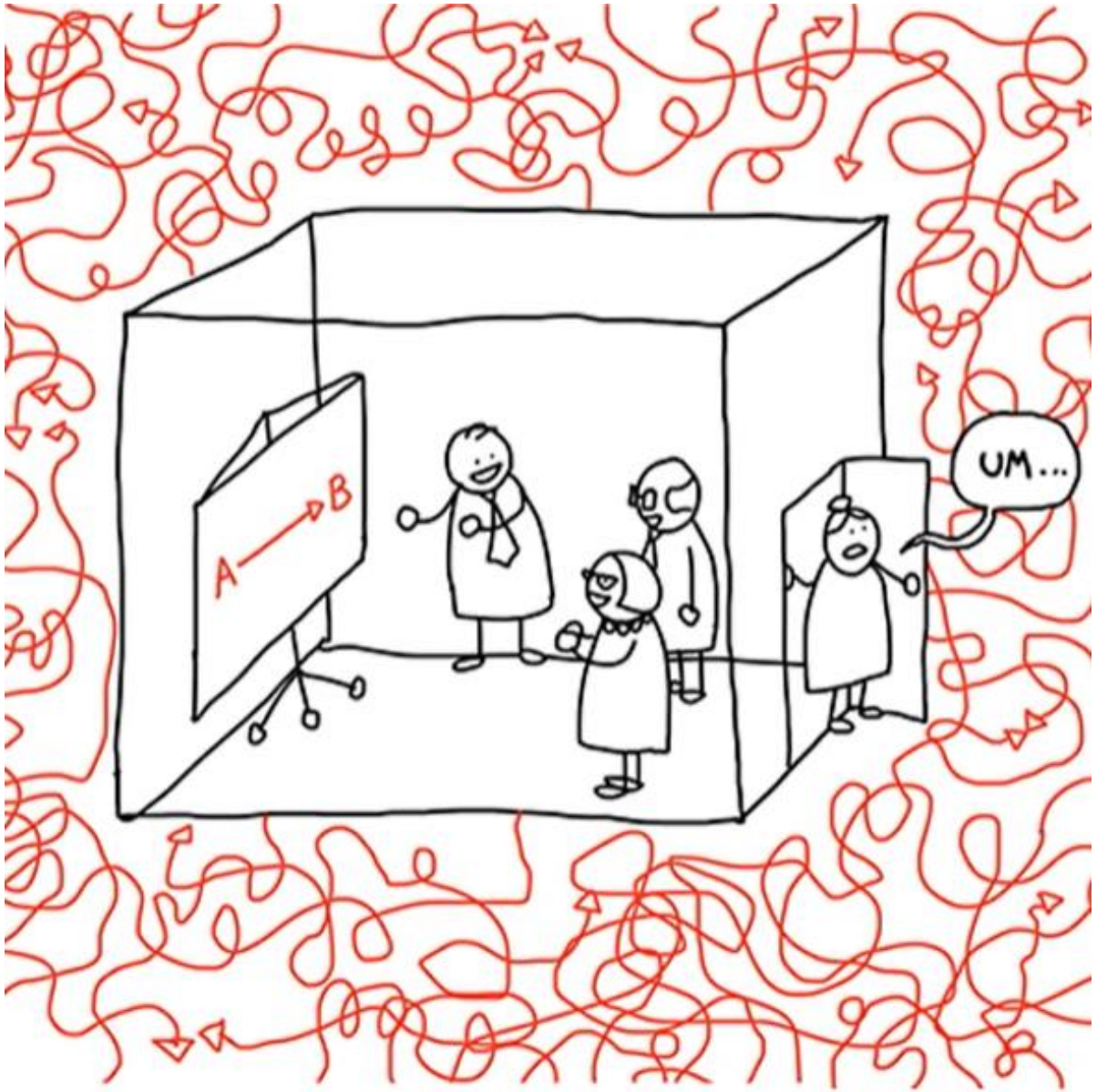
Complex adaptive systems are history-dependent

Cynefin sense-making model


Complex
Probe
Sense
Respond
Enabling constraints
Emergent practice
Complicated
Sense
Analyse
Respond
Governing constraints
Good practice
Disorder
Chaos
Act
Sense
Respond
No constraints
Novel practice
Cliff
Obvious
Sense
Categorise
Respond
Rigid constraints
Best practice

Organisation and leadership principles




A → B
UM...

Relationships matter

Opportunity for creativity and innovation exists within relationships among parts of complex systems, not with individuals

Generative relationships: “occur when interactions among parts of a complex system produce valuable, new and unpredictable capabilities that are not inherent in any of the parts acting alone”

David Lane and Robert Maxfield

Image credit: https://www.quora.com/What-are-some-examples-of-symbiotic-relationships-in-the-animal-kingdom

Diversity is necessary

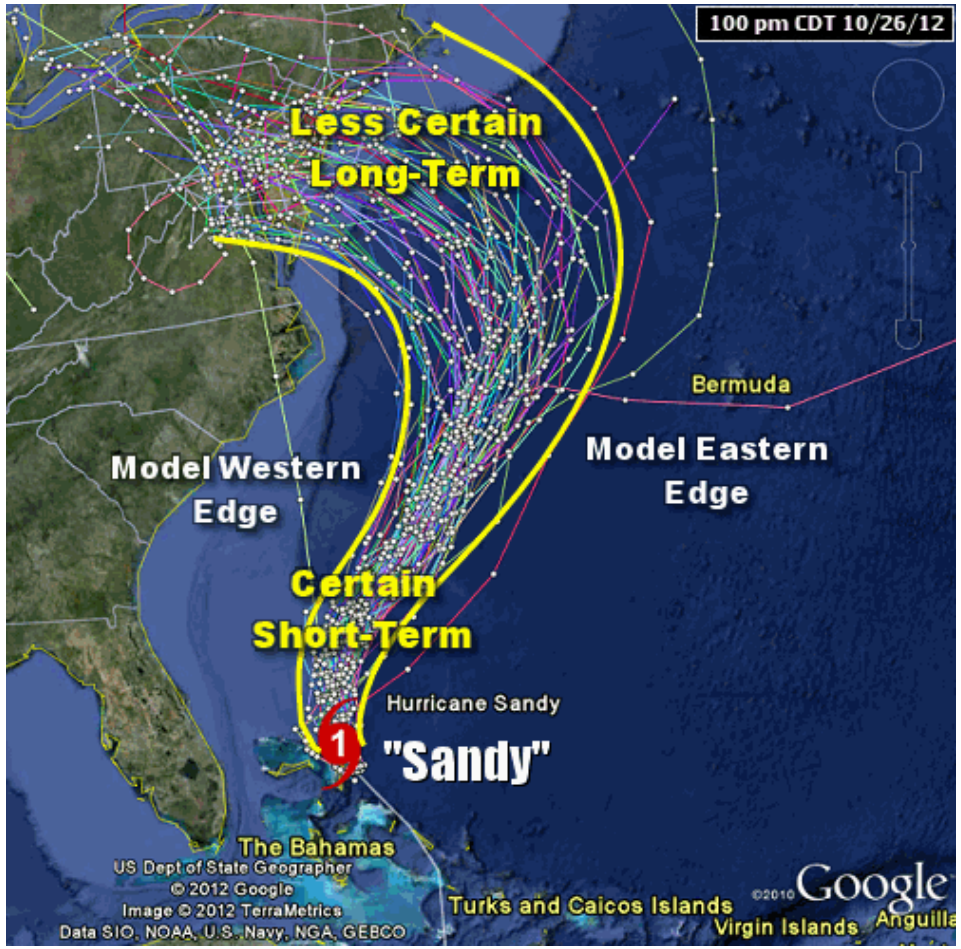
For complex systems to be sustainable there must be diversity

Key to innovation and long-term viability

Embrace diversity, value our differences

Constructive opposition rather than conflict

Predictability deteriorates over time



The ability to predict in detail what will happen due to any given change in a system rapidly deteriorates over time

Experiment
Good enough plans and minimum specifications
You don't need to be sure before you start

Image credit: https://www.npr.org/2012/10/31/164046039/high-def-storm-models-yielded-accurate-predictions

Butterfly effect

We cannot predict the effect of the change based on the size of the input

Small inputs can result in large changes
Large inputs can result in no change

Start anywhere
Learn and adapt as you go

Image credit: yogadigest.com/the-butterfly-effect/

Distributed control

Complex systems do not have one command centre

Issuing orders from the top won't work, solutions to problems are not confined to the top

Need to find ways to attract the system to change rather than directing

Give the change problem back to those who need to change

Lead through enabling rather than directing

Image credit: https://allthatsinteresting.com/schooling-fish

Paradoxes are normal

Feeling of being pulled and pushed

Respond with BOTH/AND not EITHER/OR

Power through hierarchy AND power through connection
Mission & vision AND shared purpose
Making send through rational argument AND making send through emotional connection
Top-down innovation AND grass roots creativity
Tried and tested, based on experience AND open approaches, sharing and co-creating
Transactions AND relationships

Image credit: Escher from https://www.cassone-art.com/magazine/article/2015/11/the-amazing-world-of-mc-escher/?psrc=featured-reviews

Thank you