tuesday, 8 september, 2020 - session one

an introduction to complex challenges

course objectives

Understand what makes systems “complex” and the characteristics of complexity

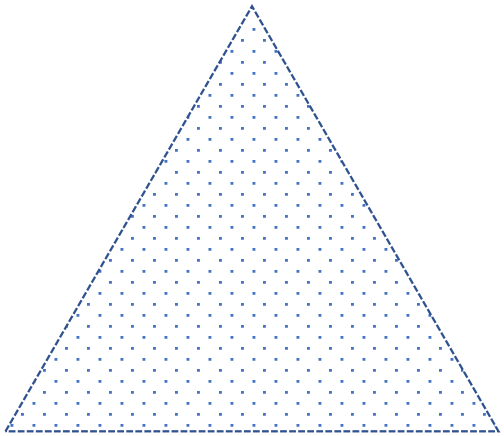
Understand what makes challenges characterised by complexity different from other situations (for example technical problems)

Understand the differences between responses to complexity that are “fit for purpose” and those that are not.

what is complexity?

three characteristics of complexity

emergent



adaptation

information

“pigeon” vs “rocket”

“complex” vs “non-complex”

this is our training

“complex” vs “non-complex”

aka

“technocratic”

but we live here

these are two different paradigms for seeing the world

why do the paradigms we believe in matter?

axiom 1

paradigms are built from practices

axiom 1

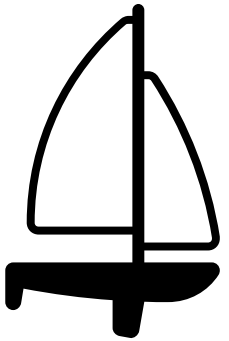
paradigms are built from practices ;

practices are built from tools, processes, spaces, ingredients, and customs

axiom 2

you cannot “practice” two contradictory paradigms at the same time ie. the world is both flat and a sphere

how do I sail a boat?



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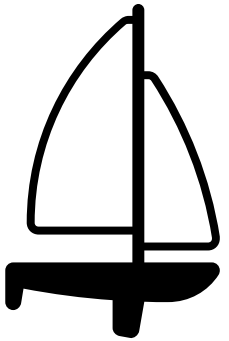
if I believe the world is flat?



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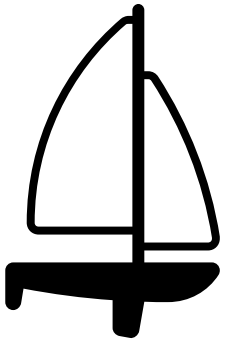
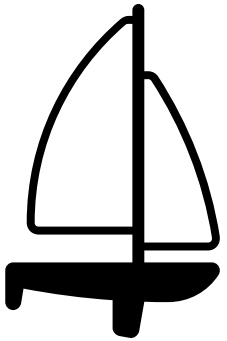
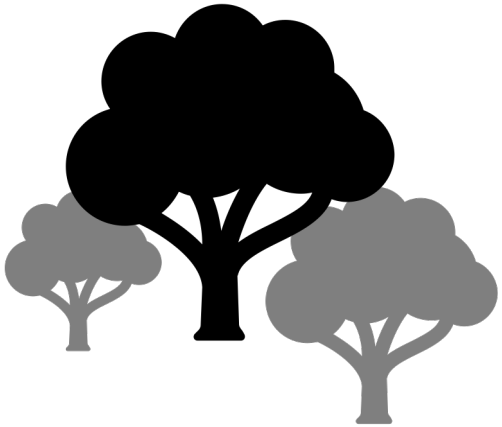
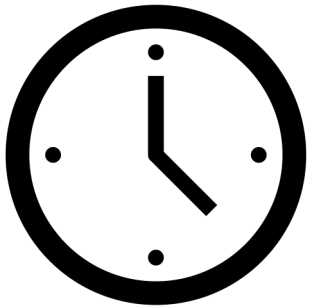


how do I sail a boat?

your practice is different depending on the paradigm you believe in





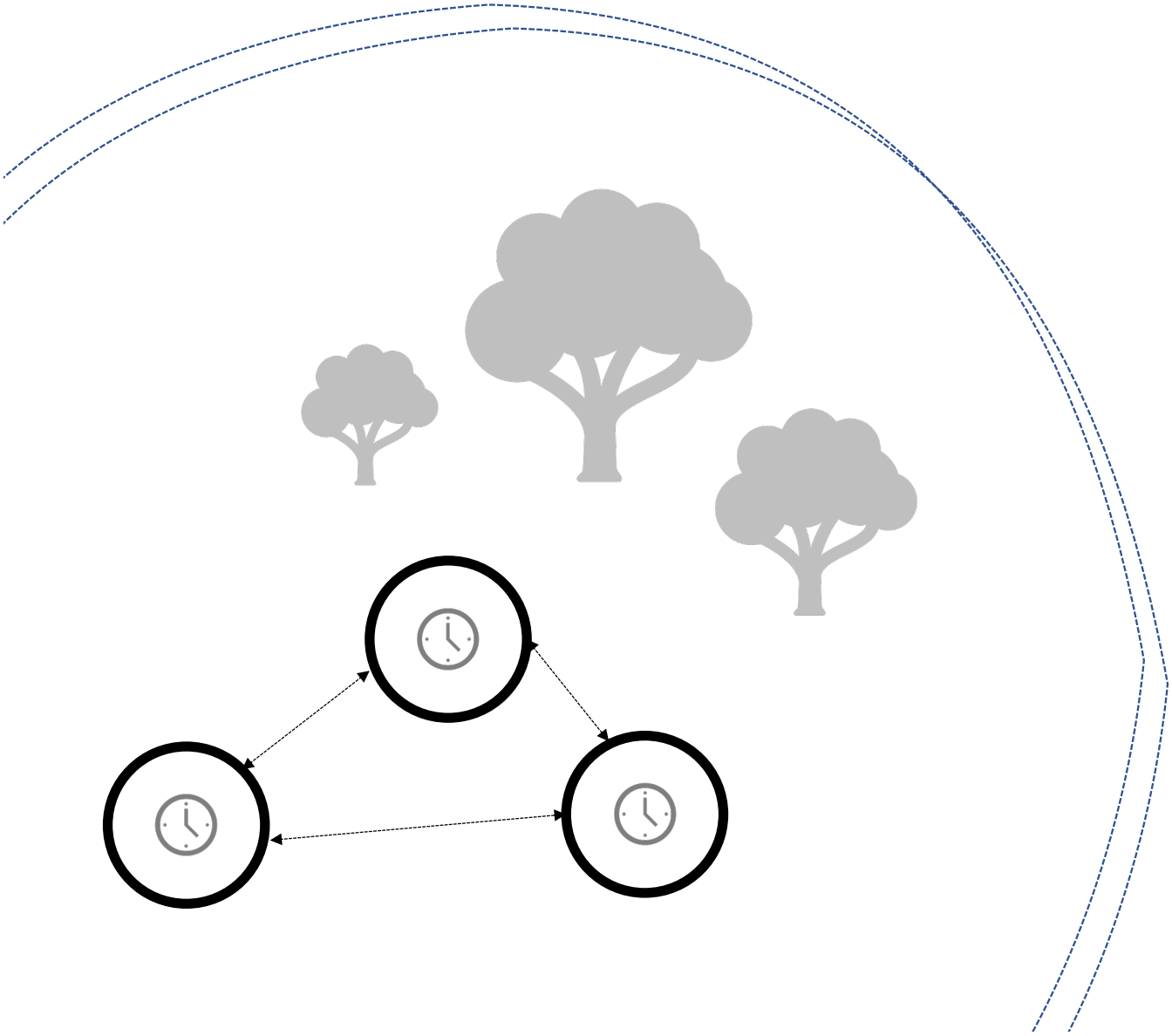


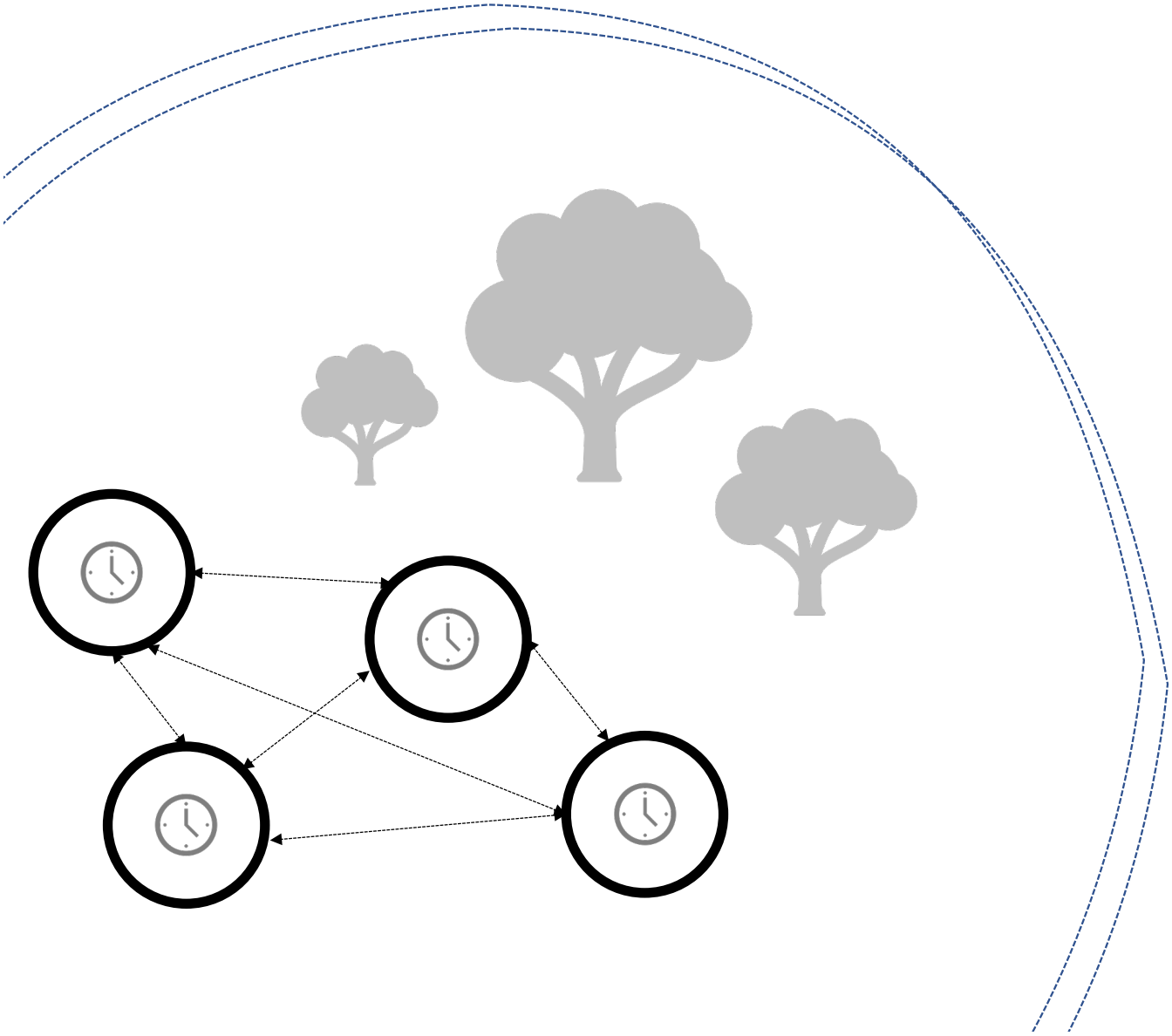
axiom 3

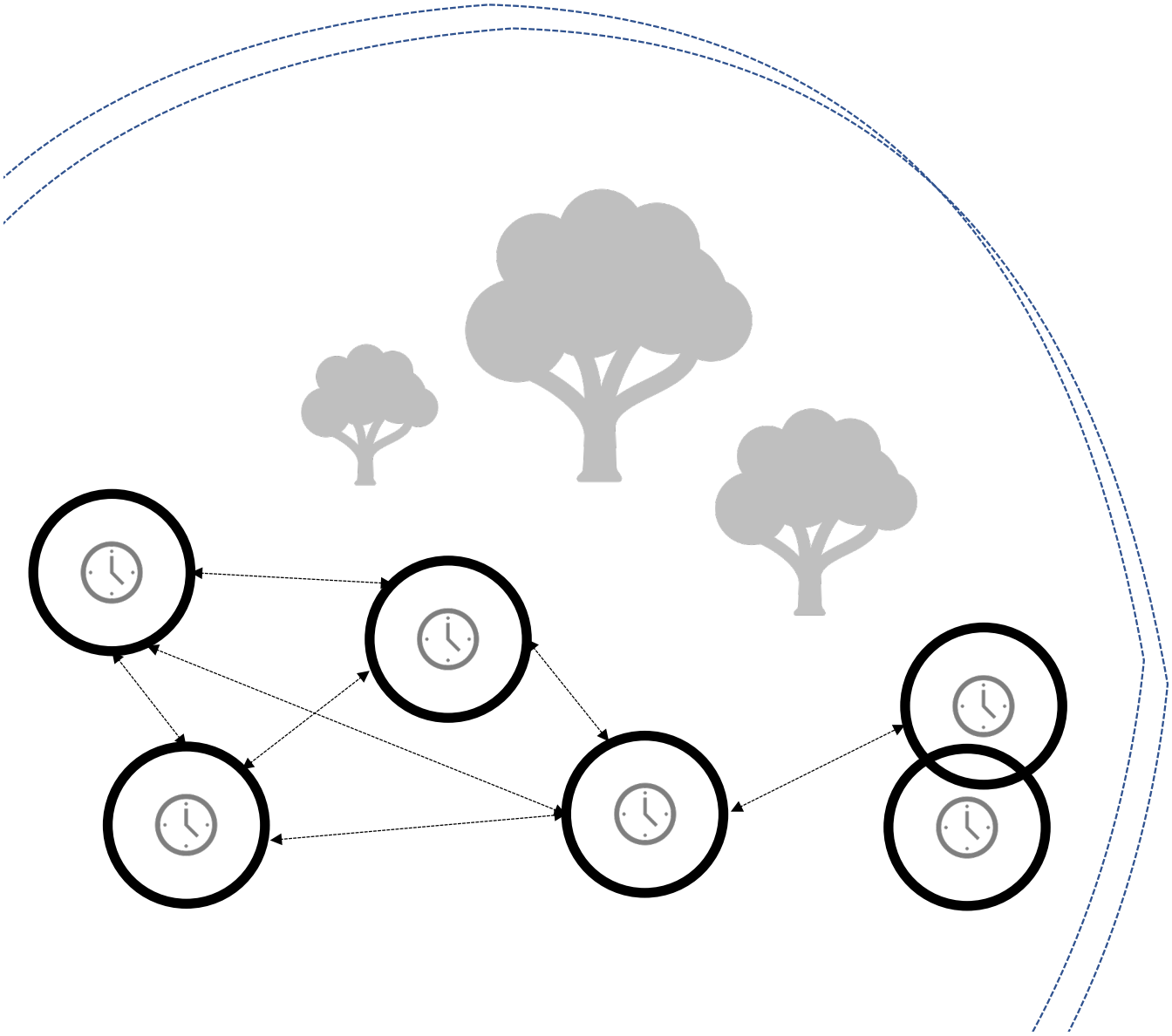
non-complex systems are always part of complex systems

but complexity is increasing

but complexity is increasing as non-complex systems grow







what is does it mean? what is at stake?

what happens when we ignore axiom 3?

non-complex systems are always part of complex systems

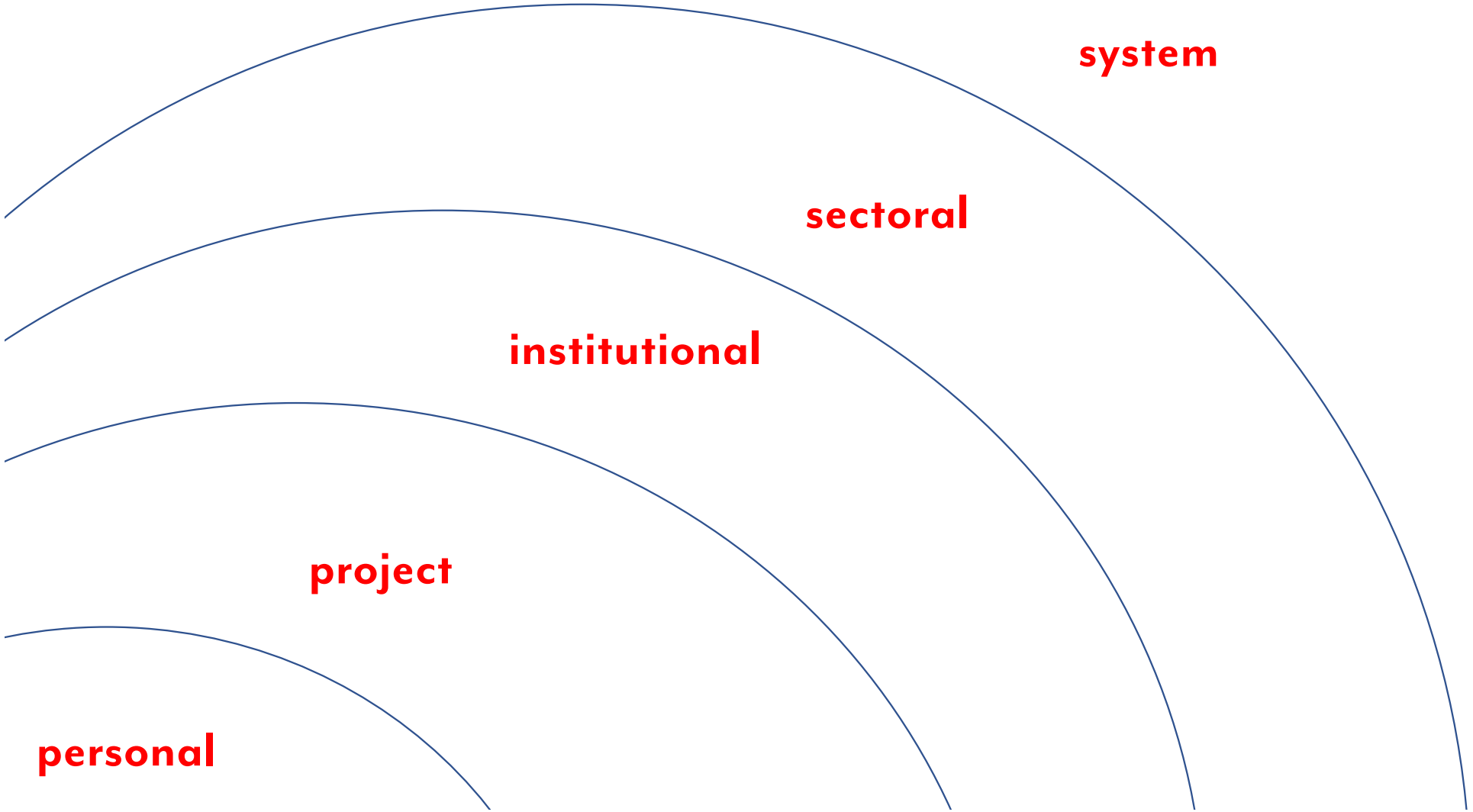
the probability of catastrophic failure grows

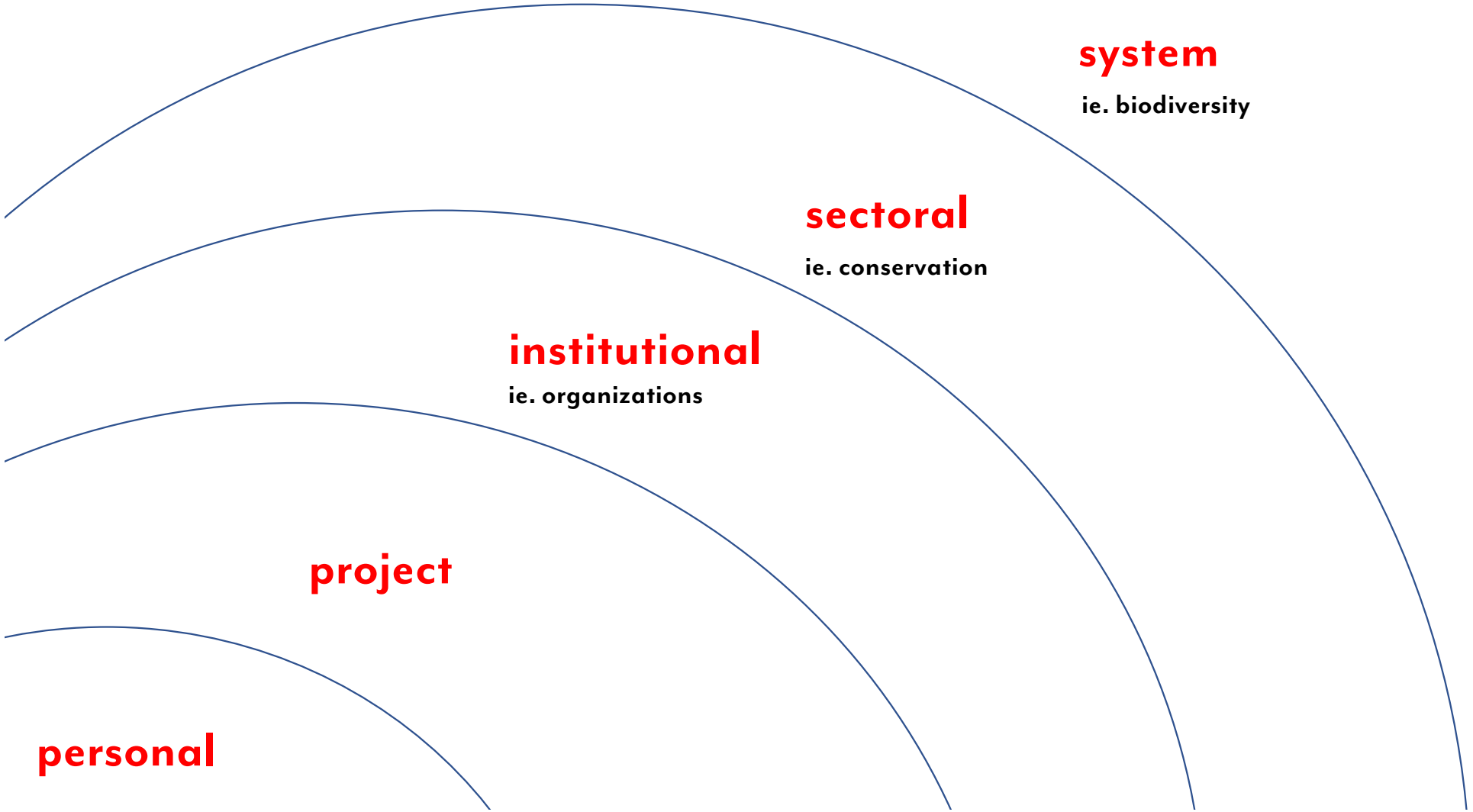
the probability of catastrophic failure grows

how? why?

“[In a crisis] We don't rise to the level of our expectations, we fall to the level of our training.”

- Archilochus


system
sectoral
institutional
project
personal


system
ie. biodiversity
sectoral
ie. conservation
institutional
ie. organizations
project
personal

axiom 3

non-complex systems are always part of complex systems

axiom 4

we adapt and learn our way into catastrophic failure

how?

demand for multiple forms of capital increases

(natural resources, infrastructure, services)

our ability to supply demand decreases

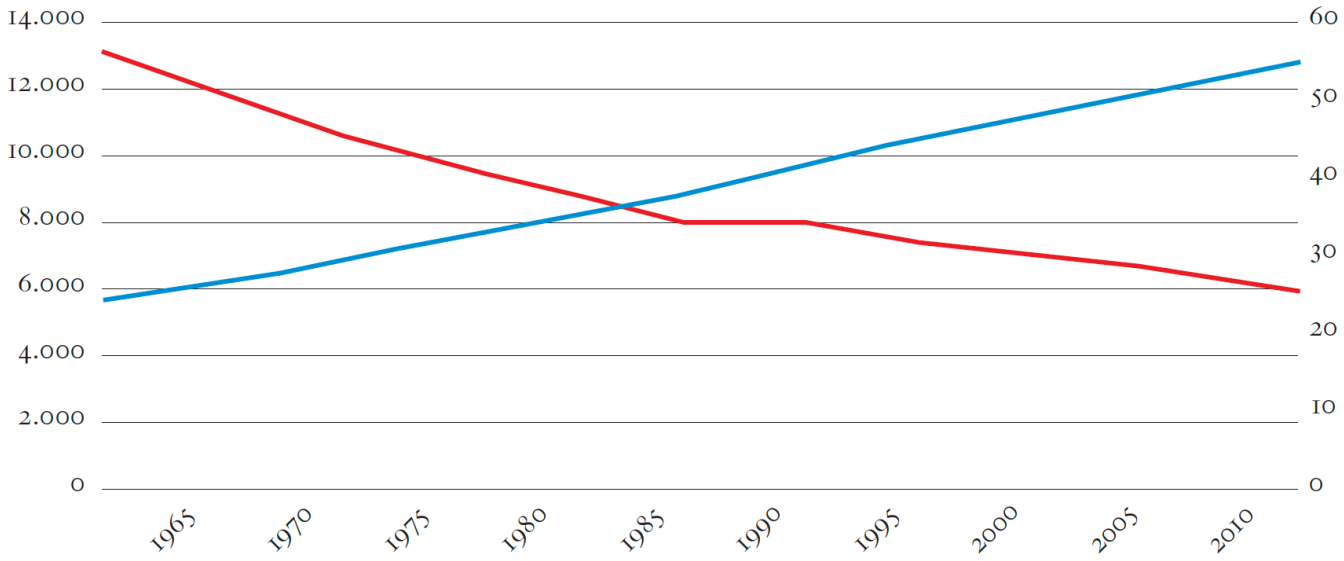


Figure 1: World Renewable Internal Freshwater Resources Per Capita vs World Population Density
Source: Data from World Bank

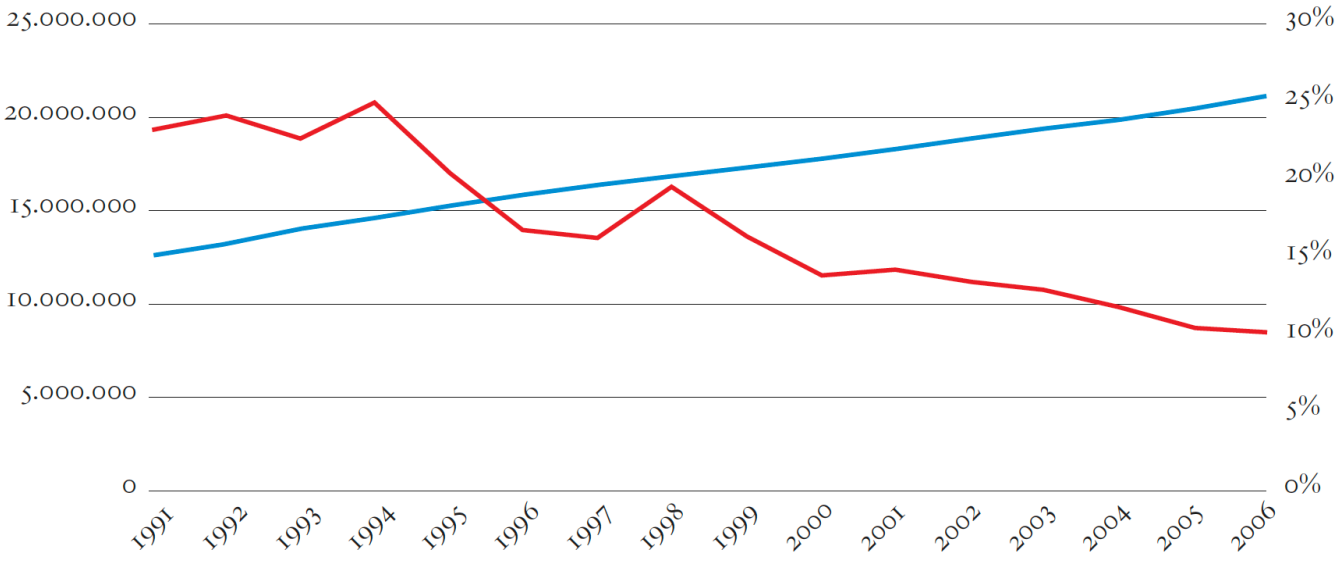


Figure 2:Yemen Population vs Agriculture Value Added

Source: Data from World Bank

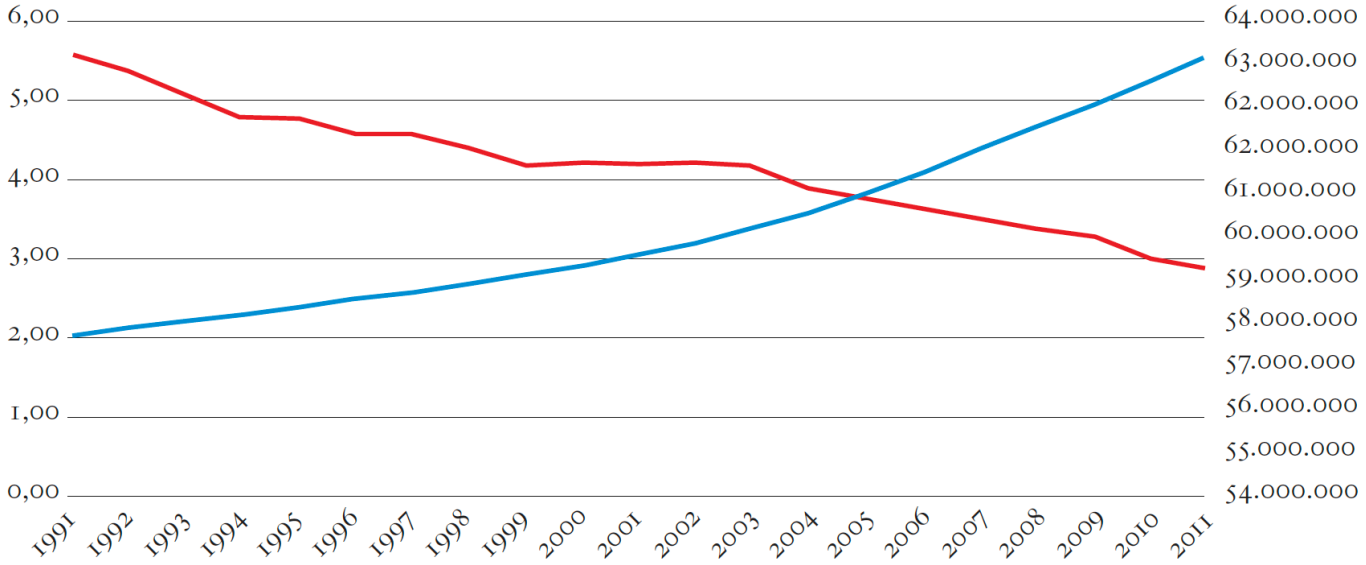


Figure 3: UK Population vs Available Hospital Beds
Source: Data from World Bank

Discuss in small groups, instances, where you see in systems you're a part of, demand increasing while supply is constant or declining…

session #2 avoiding catastrophic failure in complex systems

thursday, 10 september, 2020 - session two

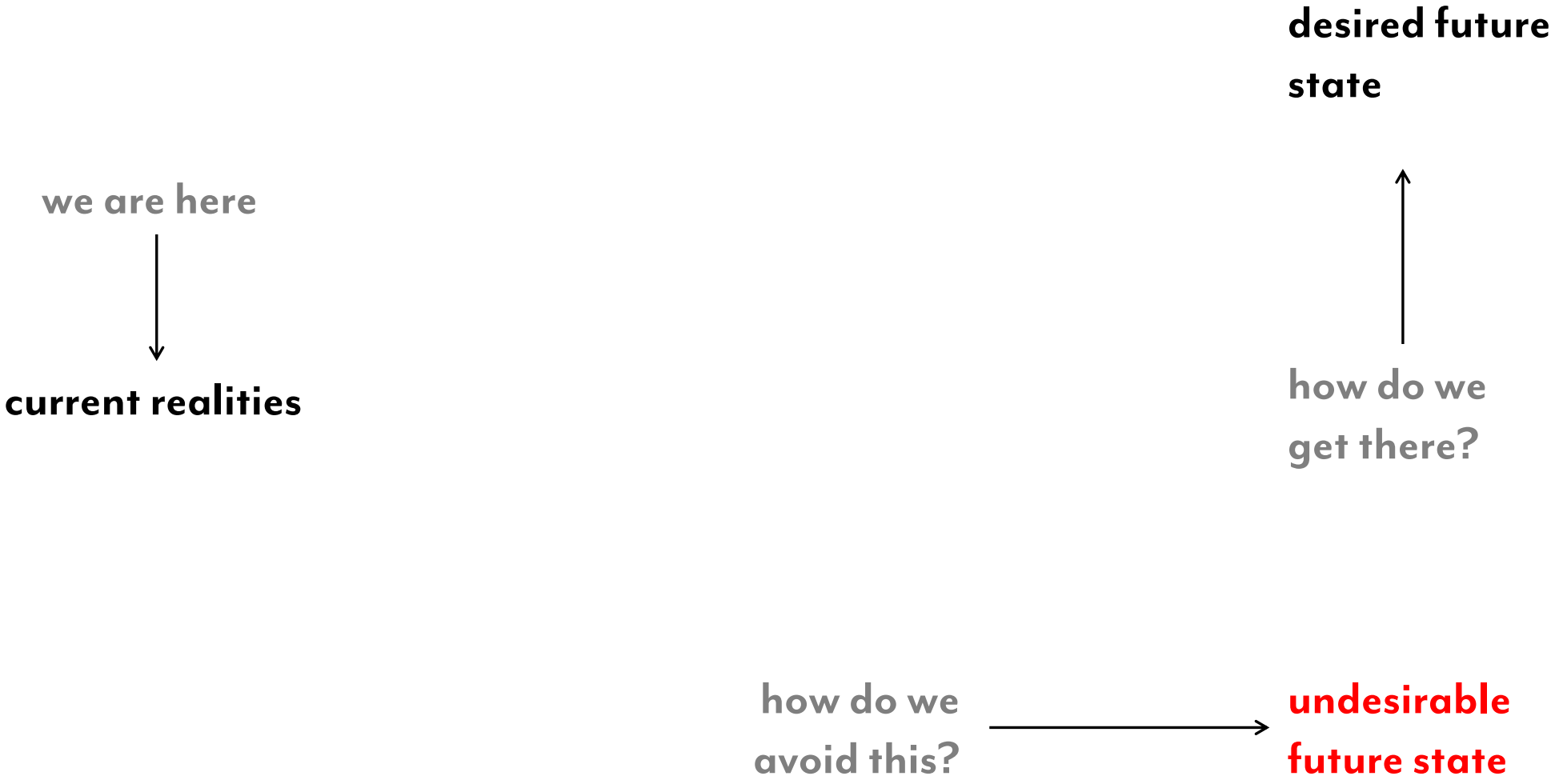
an introduction to complex challenges

session #2 avoiding catastrophic failure in complex systems

desired future state

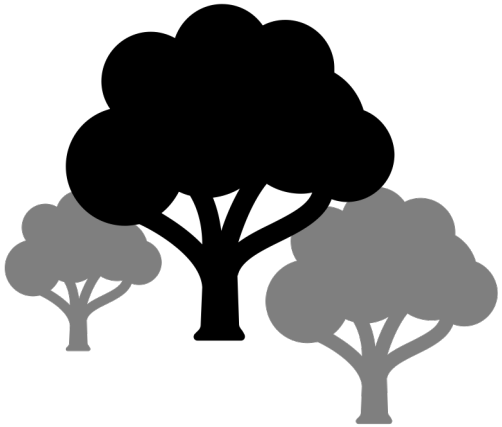
current realities

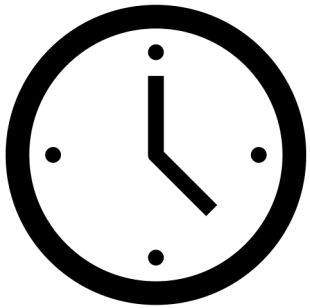
undesirable future state


desired future state
we are here
how do we get there?
current realities
how do we avoid this?
undesirable future state

how do we get there? how do we avoid the undesirable?

two approaches



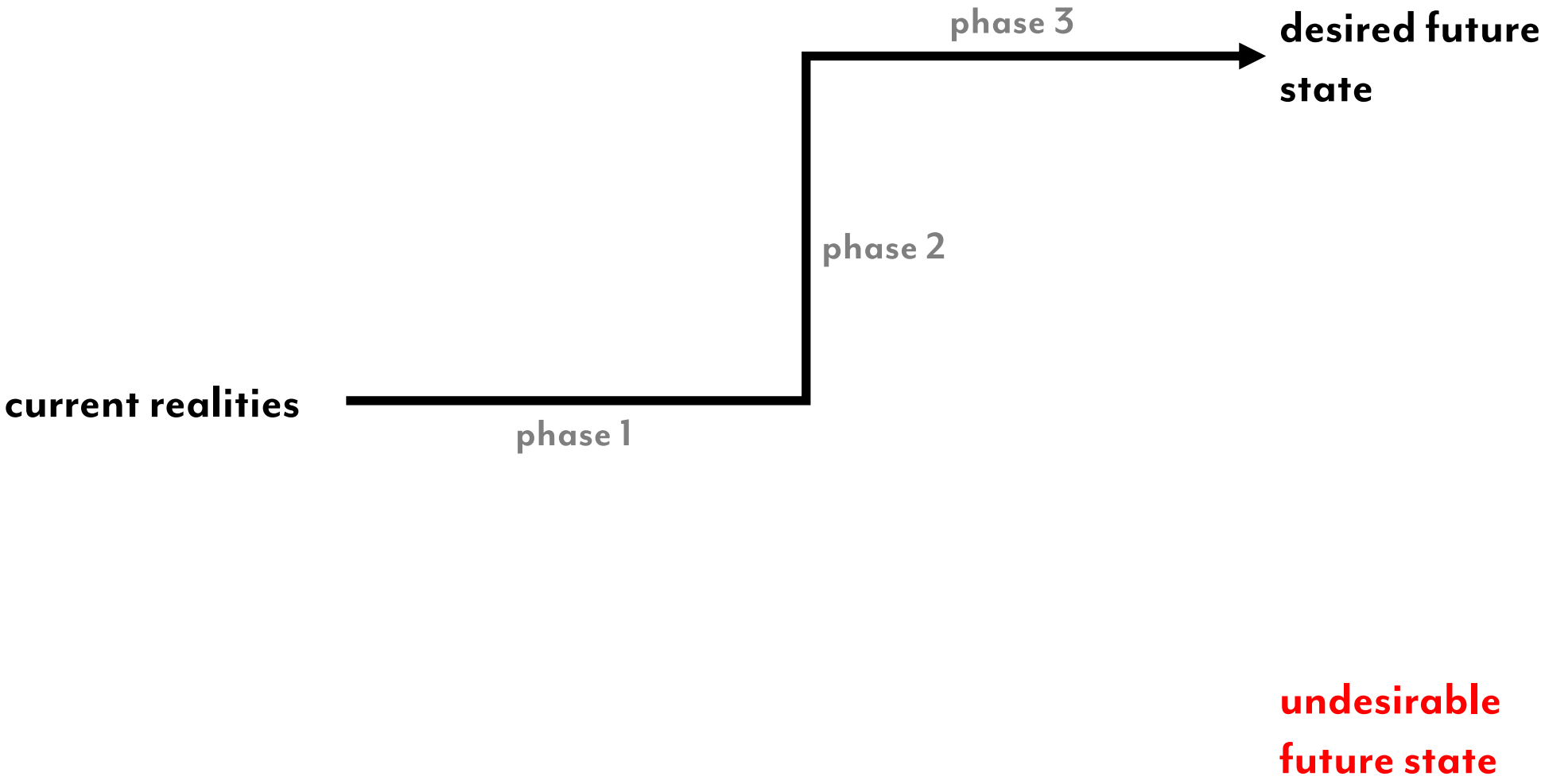


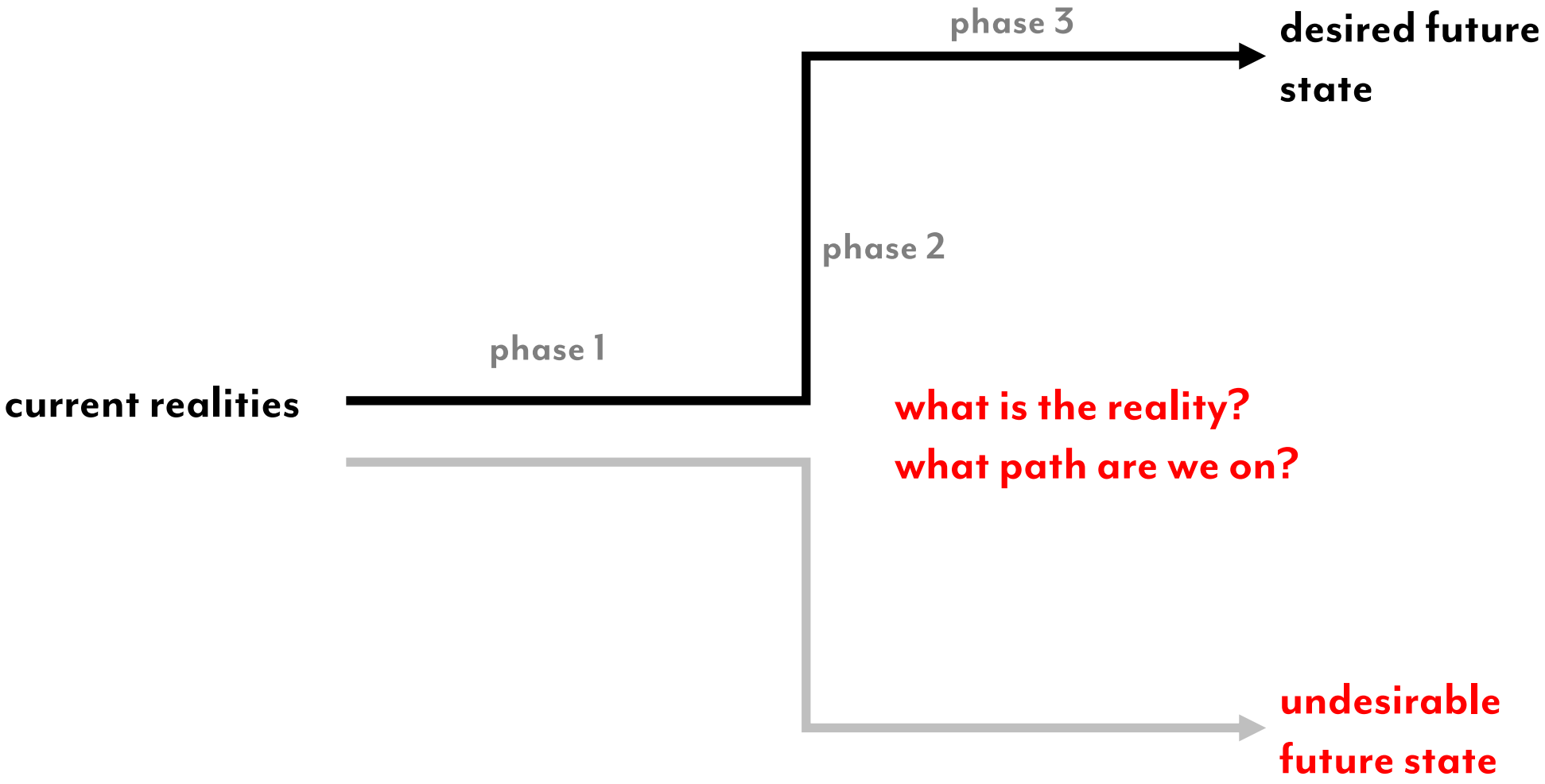
the dominant response = strategic planning

desired future state

current realities

undesirable future state


phase 3
desired future state
phase 2
current realities
phase 1
undesirable future state


phase 3
desired future state
phase 2
phase 1
current realities
what is the reality?
what path are we on?
undesirable future state

strategic planning aims for optimisation

optimisation as a strategy in situations of diverging supply + demand curves does not work

(if we can get gravity wrong for 20 centuries,
shouldn't we consider possibility that we've gotten
strategic planning wrong?)

the culture of strategic planning is not fit for purpose

strategic planning in complexity is malpractice

just don’t do it

axiom 3

non-complex systems are always part of complex systems

axiom 4

we adapt and learn our way into catastrophic failure

one day at a time

axiom 5

if demand is increasing and supply is constant or declining in a system, it is heading for catastrophic failure

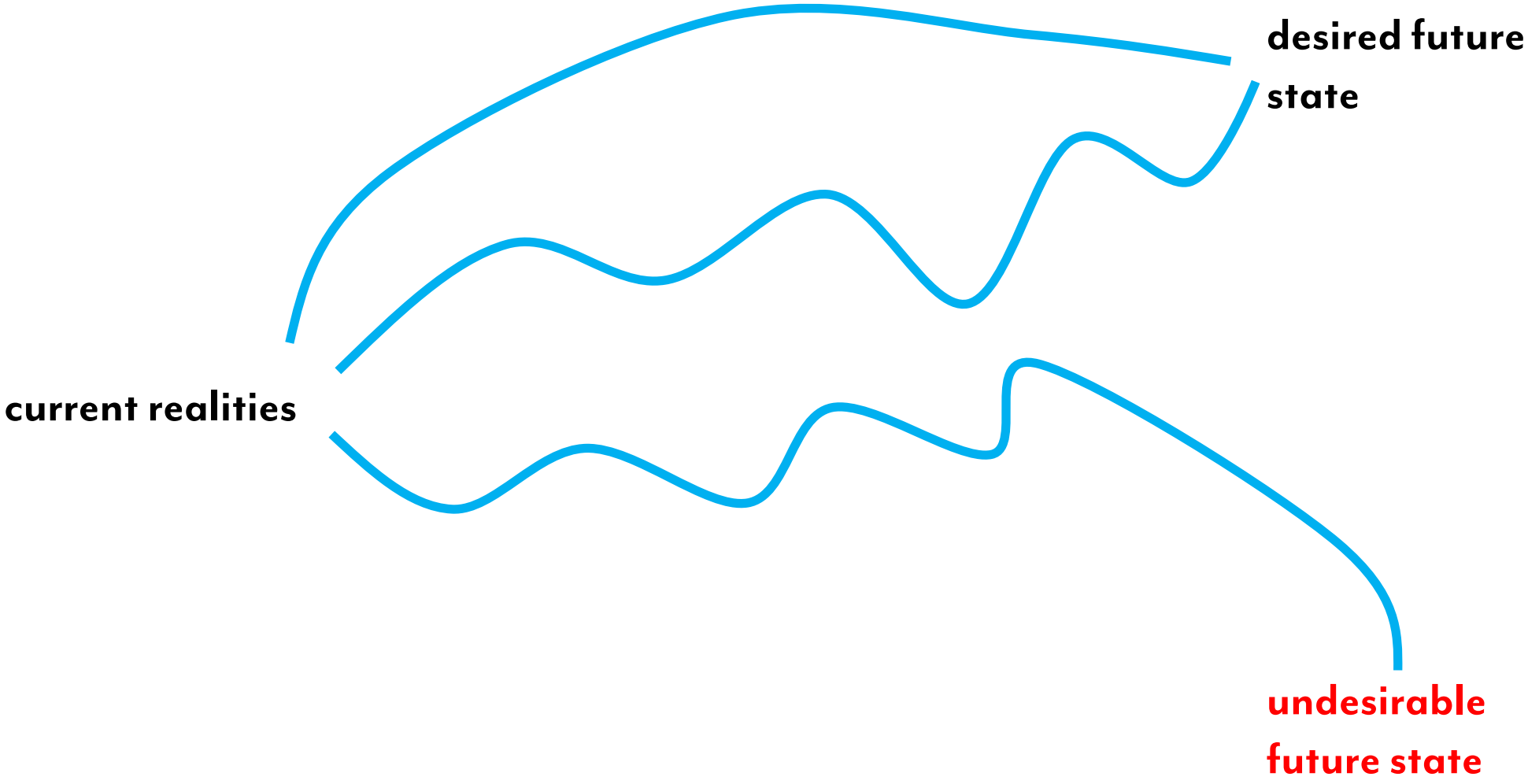
what is a better way?

a better response = the prototyping paradigm[1]

(1) Note the “prototyping paradigm” is different from “prototyping processes”

axiom 6

there are multiple pathways to desirable future system states but they are all emergent (unpredictable)


desired future
state
current realities
undesirable
future state

axiom 7

we cannot see very clearly into the future

axiom 7

we cannot see very clearly into the future

we live in an era of the law of regression to the tail

desired future
state
current realities
undesirable
future state

we don’t see the pathway as a whole

we don’t see the pathway as a whole

we have a very partial view

we don’t see the pathway as a whole

we have a very partial view, the journey is unpredictable

desired future
state
current realities
undesirable
future state

think of a good journey you went on, think of a bad journey
what were the differences?

“… the future is a teenage crackhead who makes shit up as he goes along.” – Chuck Klosterman

so what do we do then?

axiom 8

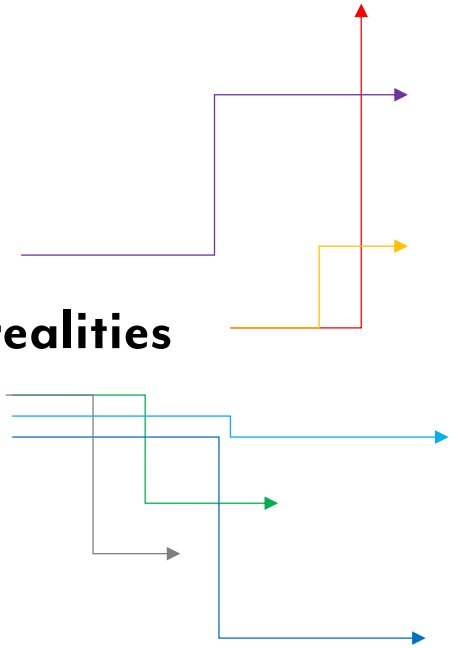
test as many pathways to desirable systems states as possible - the more we test, the more likely we are to find a way through

desired future state

current realities

undesirable future state

desired future state



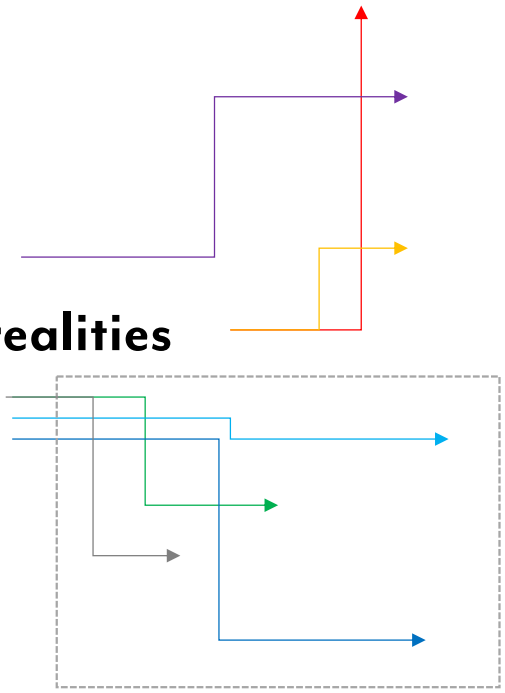
current realities

undesirable future state

Axiom 9

be disciplined when testing in complex systems,
draw boundaries (including temporal), be frugal
in testing (jugaad innovation)

desired future state



undesirable future state

axiom 10

“effective” practice in a complex system is reflexive

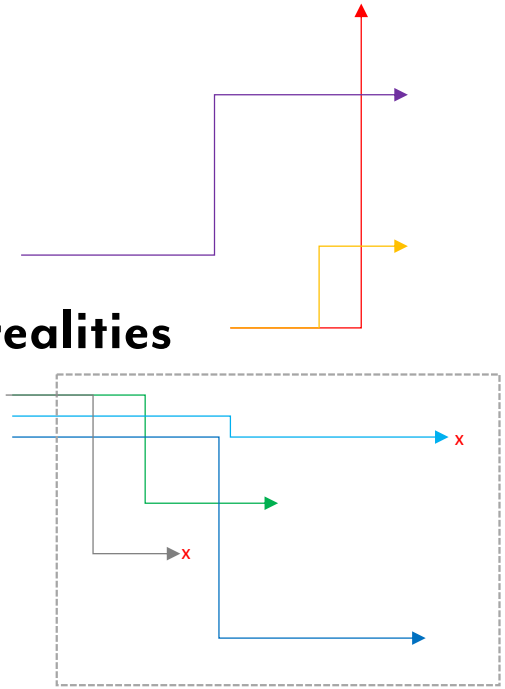
+ contextual

axiom 10

“effective” practice in a complex systems is reflexive

+ contextual - there is no such thing as “best practice”

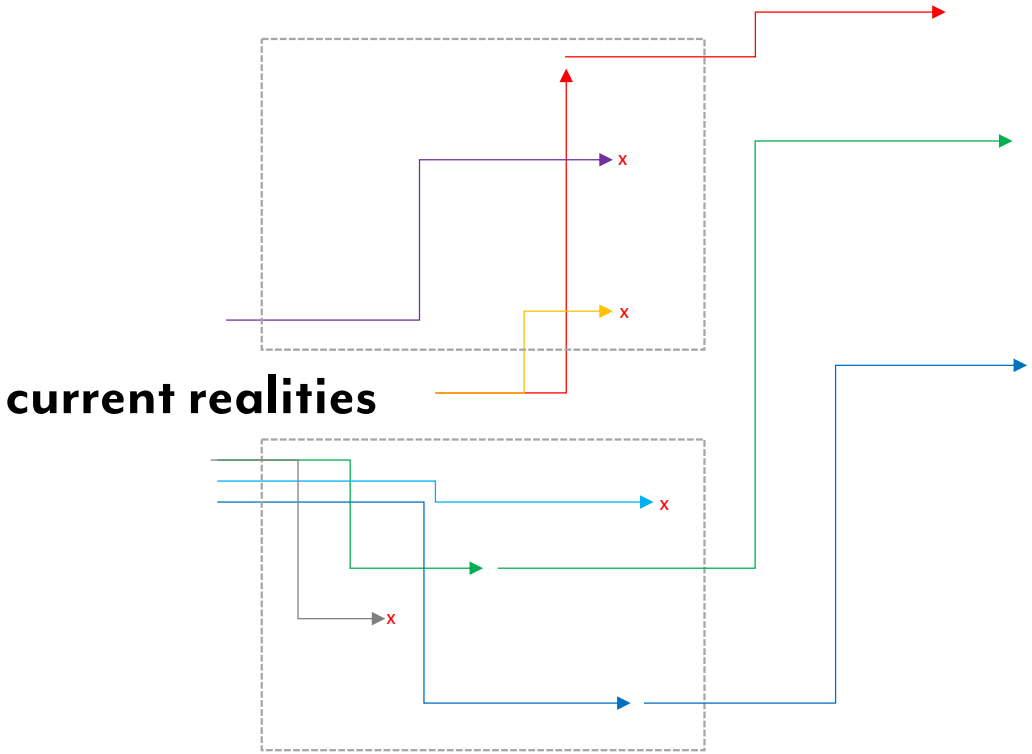
desired future state



current realities

undesirable future state

desired future state



undesirable future state

axiom 10

effective practice in complex systems is reflexive + contextual

“best practice” is an oxy-moron

axiom 11

the real innovation in complex systems are teams (not plans)

the best teams are the product of reflexive practice

axiom 12

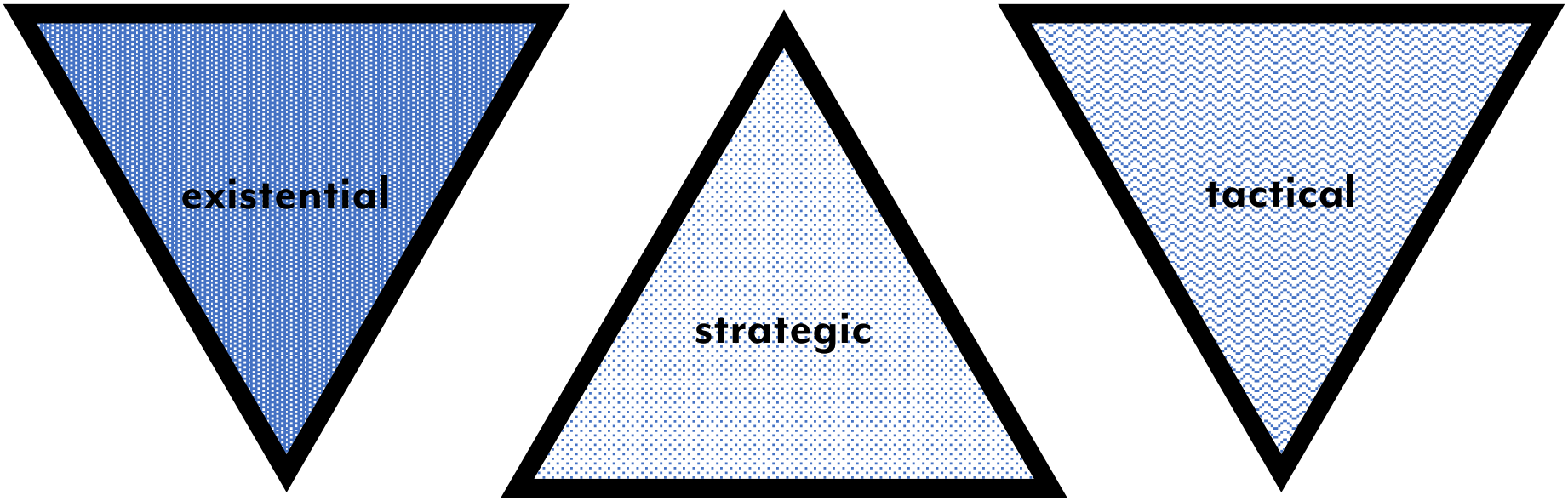
effective strategy in complex systems is a practice

it is about what you actually do (not what you might do)

the three practices of effective strategy

strategy as story-telling

strategy as action



strategy as inner-game

the twelves axioms of complex challenges

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foundations of complexity

part one / an introduction to complex challenges

part two / an introduction to effective strategy

part three / an introduction to multiple capitals