# Agile Project Management

*Managing Projects under Uncertainty*

Nariman Dorafshan, 2022

*An opportunity for wonder*

*The pleasure of finding things out*

~ Richard Feynman

Part 0

# Introduction and Course overview

# Nariman Dorafshan

- PMIS Developer 1399-present
- Project Scheduling and Control 1393-present
- .NET Programmer 1390-1398

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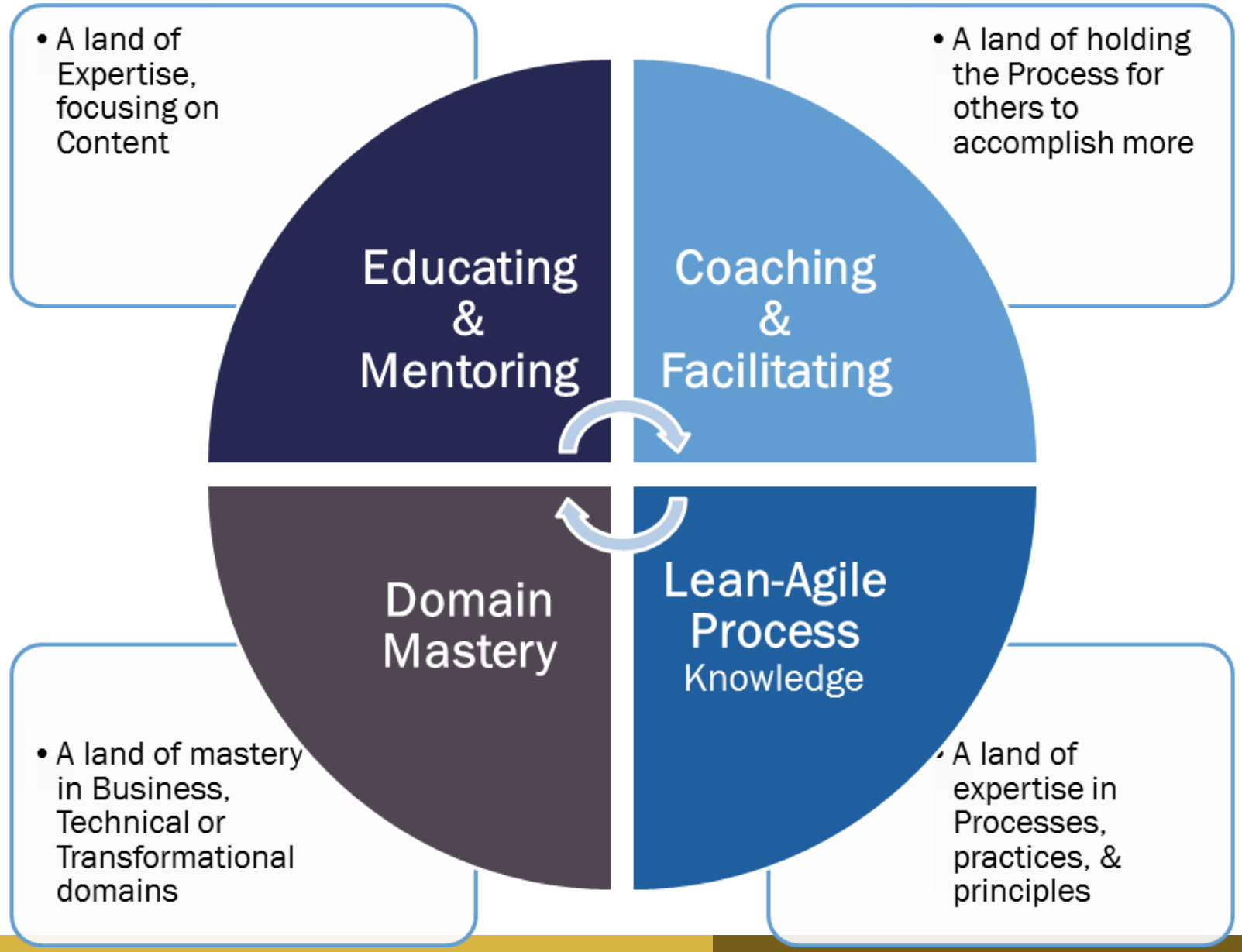
Licenses and Certificates:

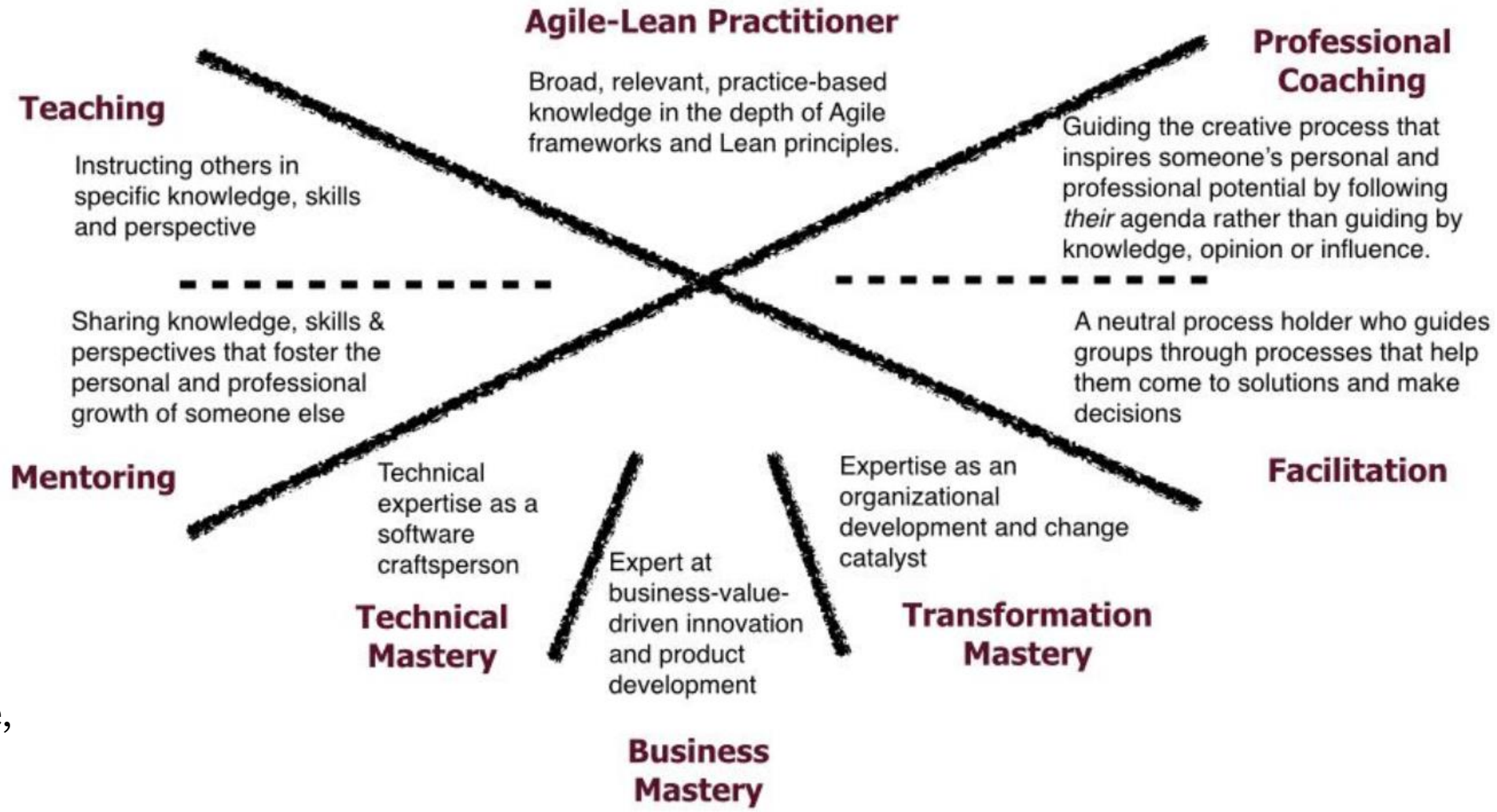
- Licensed Trainer and Facilitator of Agendashift's Leading with Outcomes
- Kanban System Design (KSD), Team Kanban Practitioner (TKP)
- Professional Scrum Master II & I, Professional Scrum Facilitation Skill (PSFS)

# Agile Coaching Competency Model



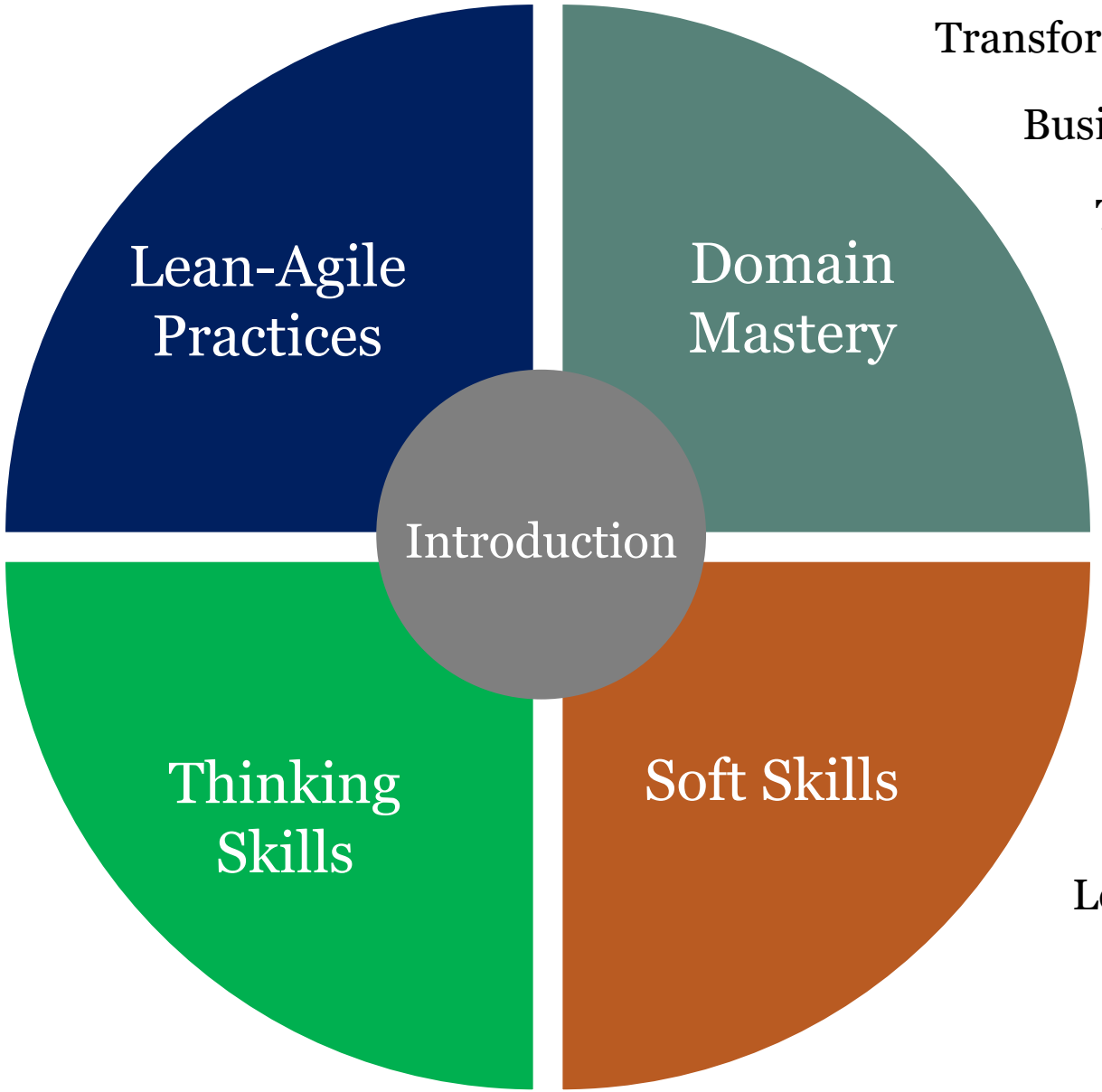

Agile Coaching Institute, 2011

# Agile Coaching Competency Framework




Agile Coaching Institute, 2015

# Course Structure




Transformation Mastery

Business Mastery

Technical Mastery

Facilitation

Coaching and Mentoring

Leadership

# Some Collaboration Environments

Mural.co

Miro.com


Conceptboard.com


Docs.google.com


jamboard.google.com


# Let's visit our Collaboration Board

1 – Sandbox Board

2 – Main Board

Part 1.1

# Mega-Trends that Shape Tomorrow

# What happened after Dinosaurs' Extinction?

- The meteorite clash of 65 million years ago resulted in their extinction

- If we just looked at the previous dominant predators, which species would rise after?
- Can be applied to analyze Markets and Strategy too



- Previous Apex Predators: Over-Optimization for previous era
- The new Apex Predator: Smaller and more Energy efficient

# IBM Case

- In the early days of computing, IBM radically repurposed their existing capability in the use of punch cards to give them a first-mover advantage in a new field whose full potential was yet to be disclosed.
- Their dominance of hardware meant they didn’t see the shift to software.
- This shift was made worse by the commodification of the hardware market, but IBM's market dominance meant they escaped the price pressure of competition.

# IBM Case - Continued

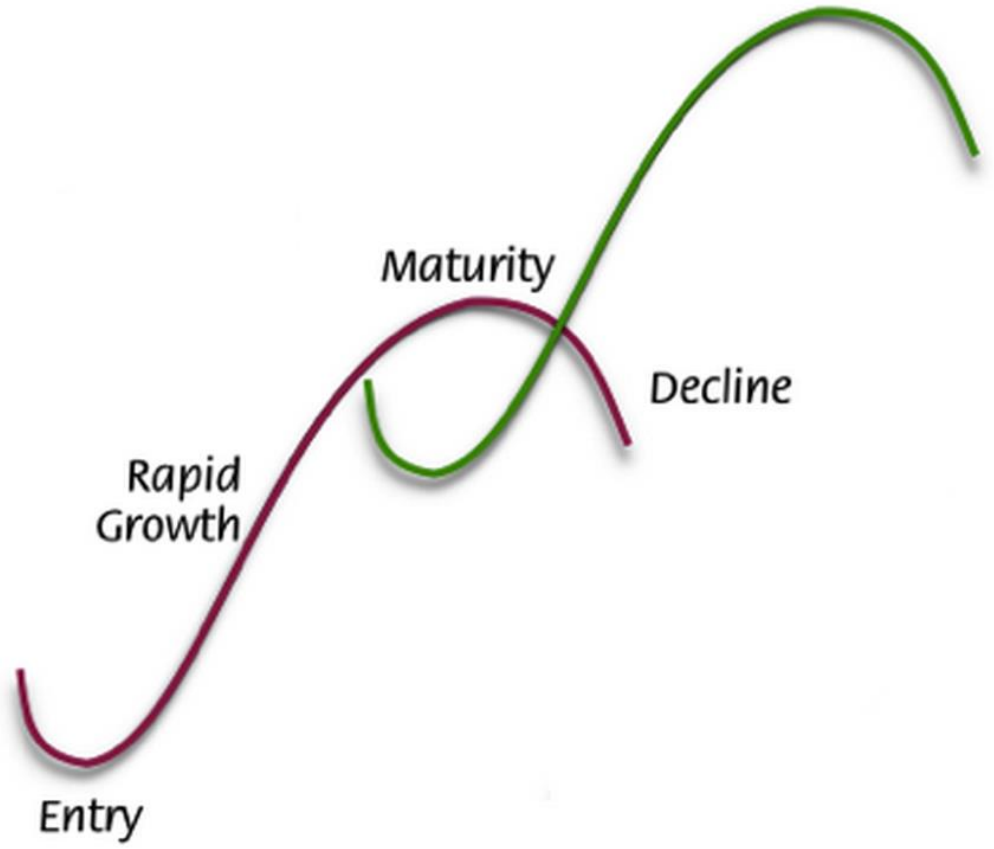
- When failure hit it was massive: a sudden catastrophic failure.
- IBM recovered, and made a delta pivot by becoming a services company. They have not recovered the same position of dominance.

- What about Microsoft?
- What about Kodak?
- What other examples you can give?

# S-Curve Cycle of Development

- Based on product life-cycle development (PLCM)
- Four distinct stages:
  - Entry
  - Rapid Growth
  - Maturity
  - Decline

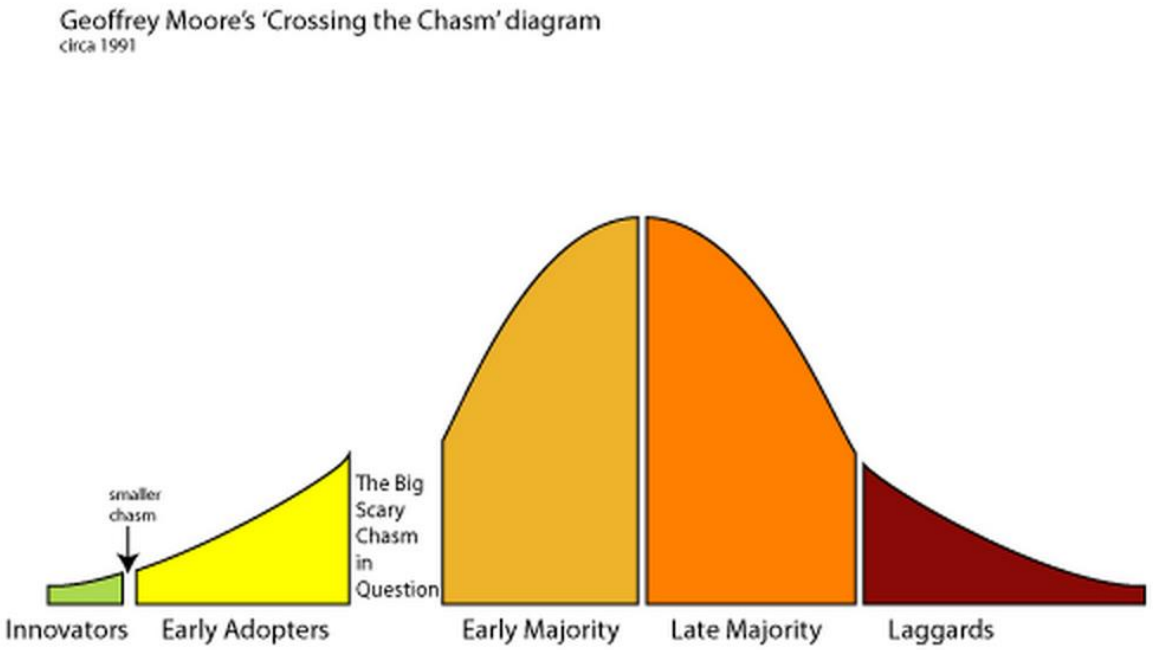




# Crossing the Chasm

- This examines the market dynamics faced by innovative new products, with a particular focus on the "chasm" or adoption gap that lies between early and mainstream markets.
- a novel idea or product, seeking to scale, hits inertia surrounding the dominant approach.
- **How to cross it?**





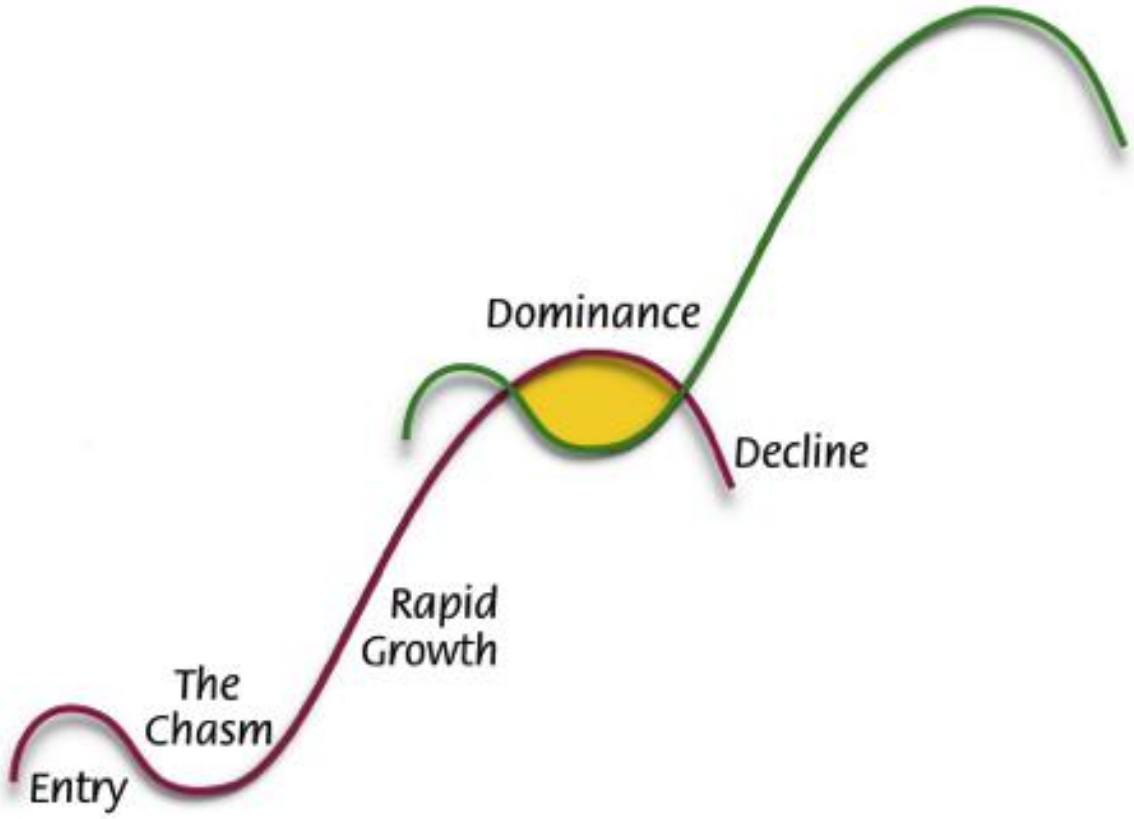

Goeffrey A Moore, "***Crossing the Chasm***", Harper Business Essentials, 1991

# Flexuous curves

brings together ideas such Apex Predator and Keystone theory, with PLCM

- 6 Main Points
- 5 different states

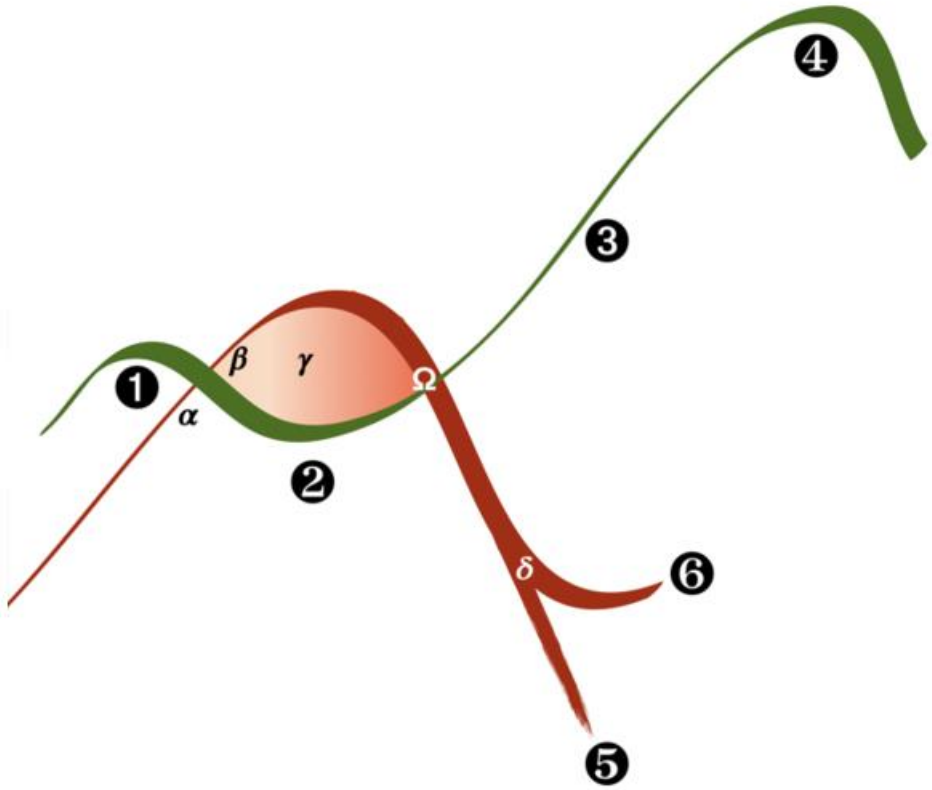




# Point 1

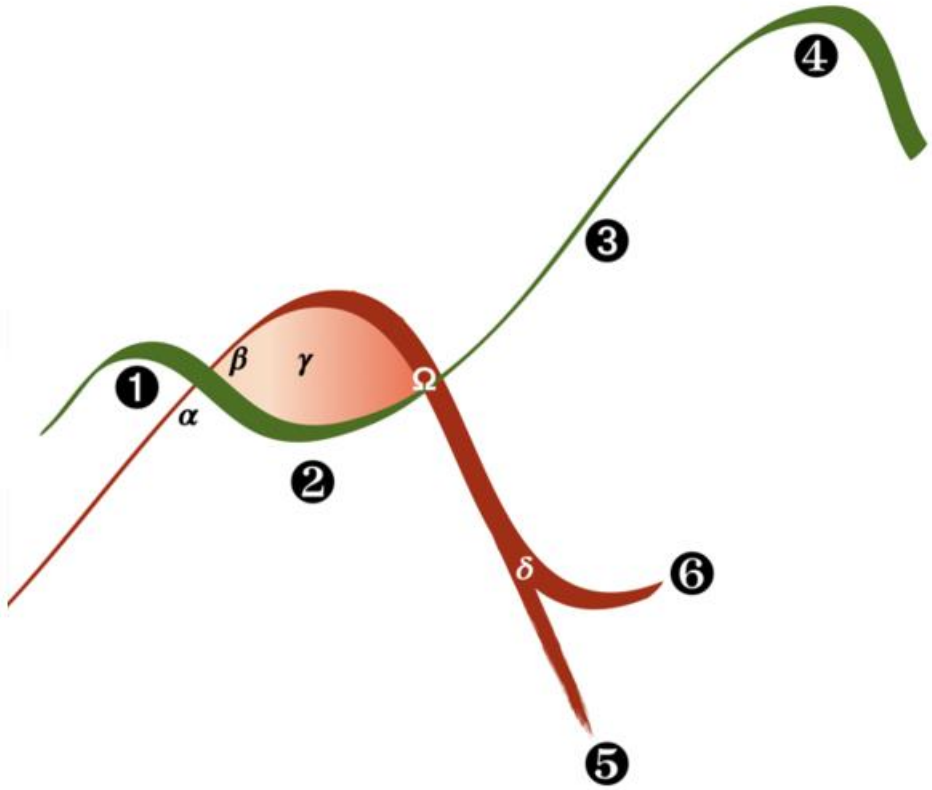
- Something novel emerges, gains some form of traction with :
  - those frustrated by the dominant paradigm of the day, or
  - who are seeking some form of functionality that is not a part of the current affordance landscape.





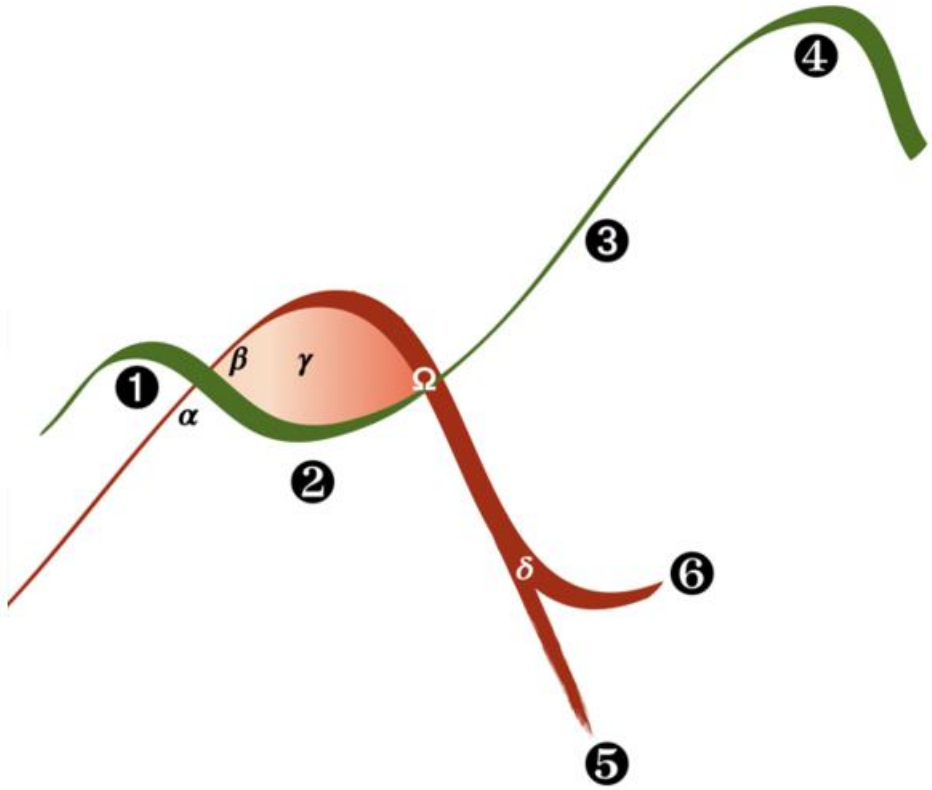
# Point 2

- The initial enthusiasm for the idea is difficult to maintain,
- there are few risk-takers around than innovators would like and scale is never easy.
- For products, this is Moore's chasm where the next level of purchaser wants more proof before they will commit.



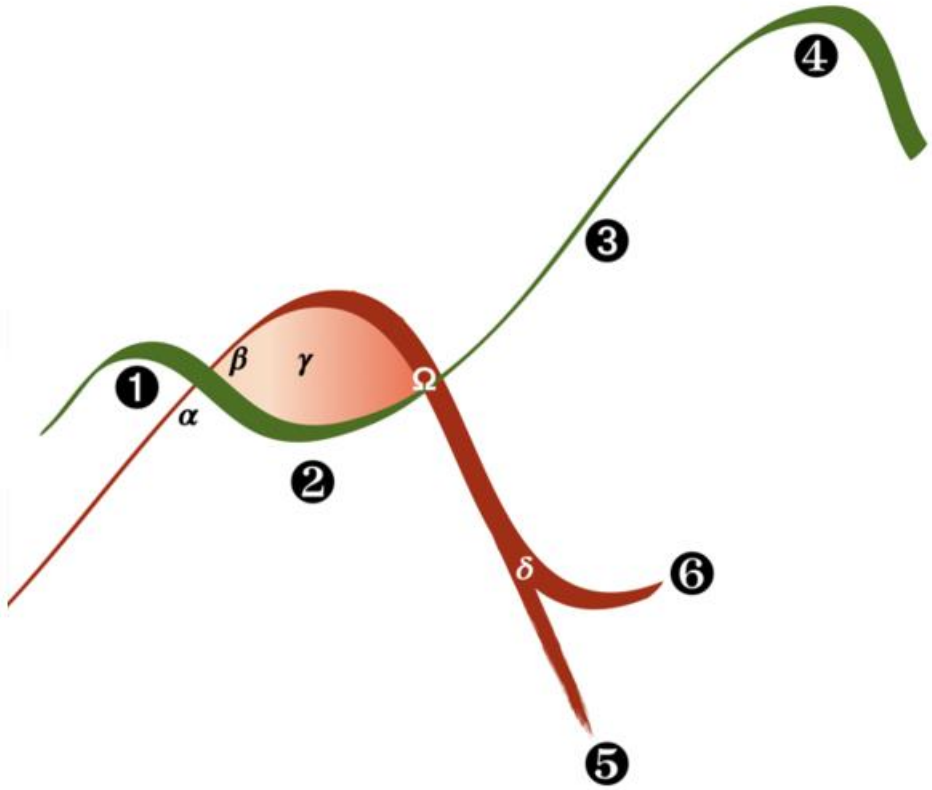
# Point 3

- The novel left-field idea becomes orthodoxy,
- it suddenly sees mass adoption although by this stage it may be compromised.
- It is on everyone's lips, popular articles are written, forms its language
  - and all novel ideas generally have some specialist language and seeing its third-party use is a buying signal



# Point 4

- The novelty is now wearing off,
- the idea is starting to reach the end of its life cycle, limitations of scale and context adaptability are starting to show and frustration is building in progressive circles, but it is now the orthodoxy, the thing that everyone else is doing so there is little risk in its adoption.



# Points 5 and 6

- Point 5:

  is oblivion, a fond memory at best

- Point 6:

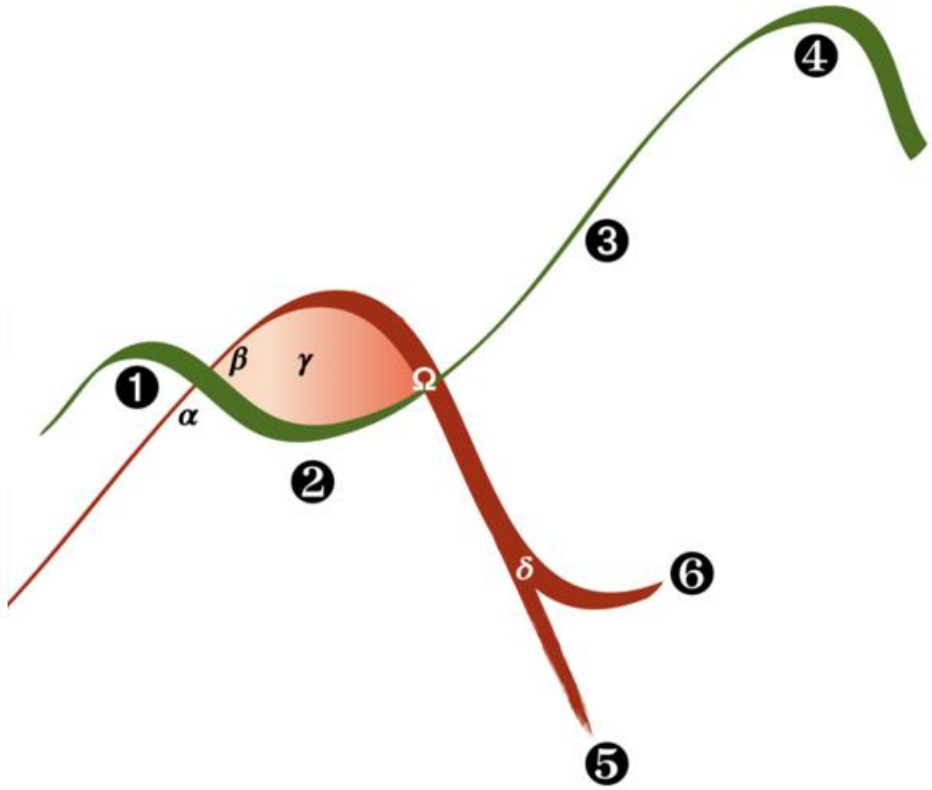
  is sustainable and you live to fight another day,

  but it will take the significant distraction of the

  overall eco-system for you to gain a new

  opportunity

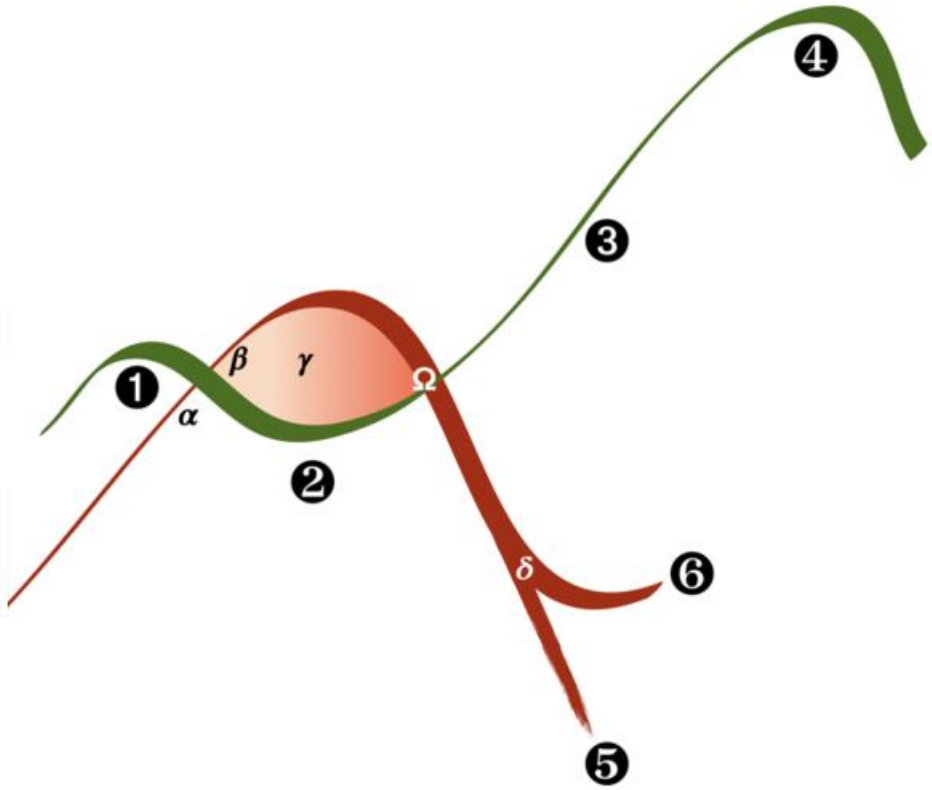




# State 1: The alpha point (α)

Read it yourself

- The actor seeks to actively trigger the shift into liminal by legitimizing novelty.
- One way to do this is by Exaptive Innovation (link) or radical repurposing, finding something you are already pretty good at, and using it for something novel.

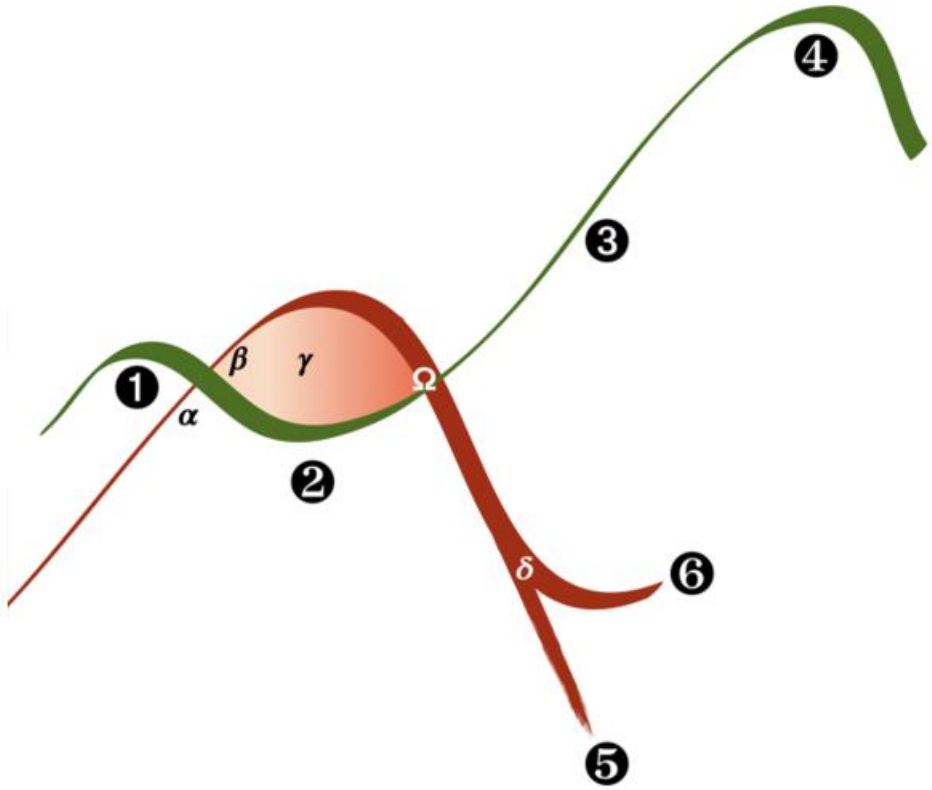


# State 2: The beta point (β)

Read it yourself

- You would have to be astute to see that things have changed,
- but the energy cost of experimenting with novelty is not too high.

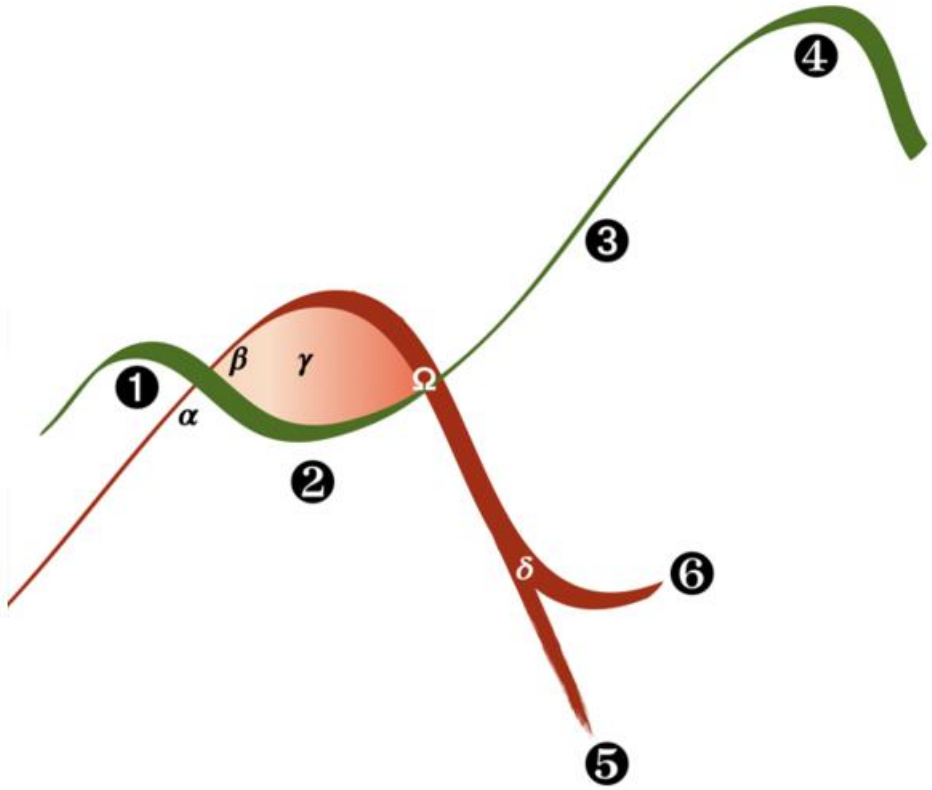




# State 3: The gamma phase (γ)

Read it yourself

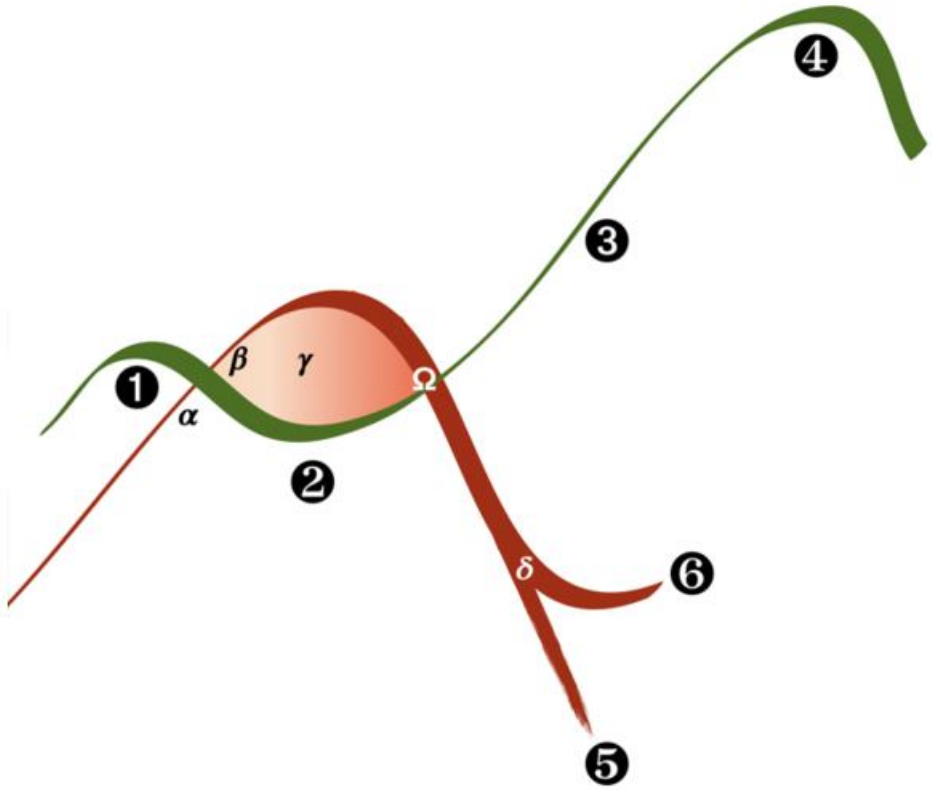
- "Last chance saloon" for Red, who has topped its curve and is heading down.
- It's increasingly obvious that it's no longer sustainable.
- New entrants or ‘dangerous’ ideas are starting to get previously unheard of attention.



# State 3: The gamma phase - Continue

- While the apex or dominant play is not threatened, there are now enough weak signals that they can legitimately be accused of complacency.
- It's still possible to do something, but the cost will be high.



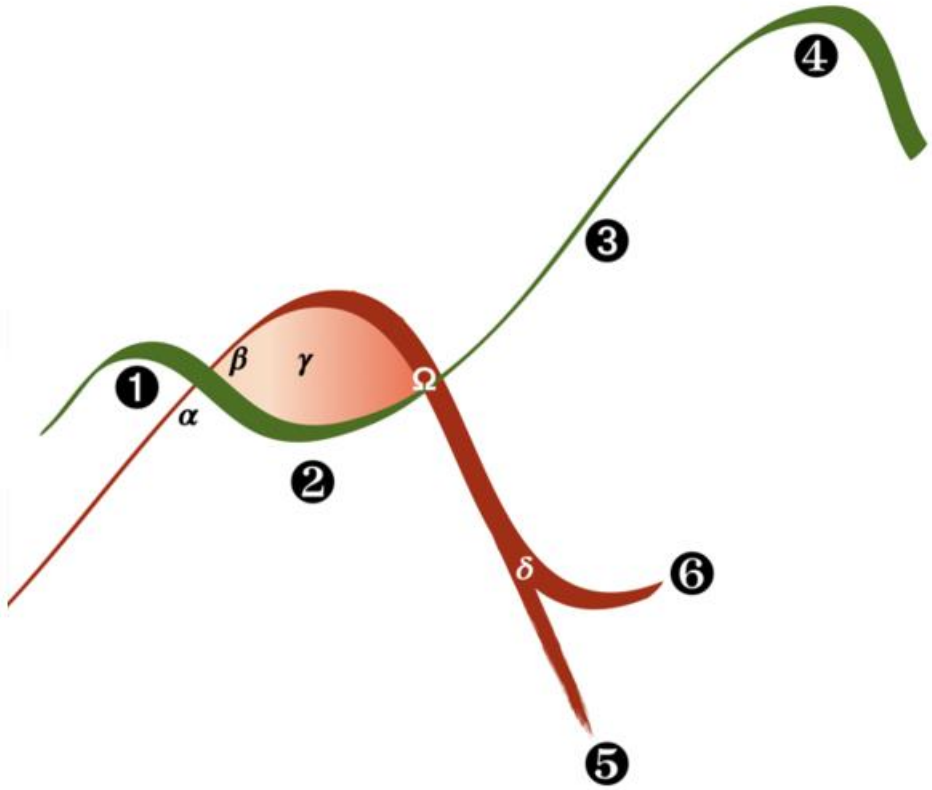


# State 4: The omega point (Ω)

Read it yourself

- This is the goal for Red, with resources transferring from the old to the new, the upwards curve.
- But if you don't take action until after the gamma stage it may be too late and you end up in free fall.
- Also called Kodak point



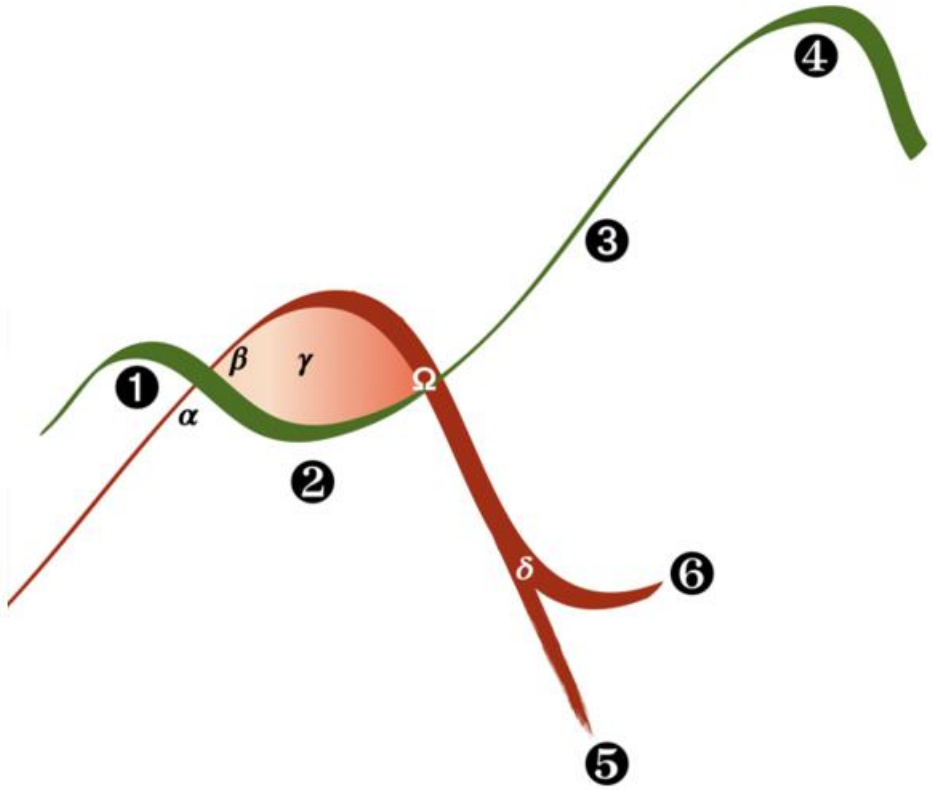


# State 5: The delta moment (δ)

Read it yourself

- A last point of recovery for organisations who missed the omega point.
- Some arrest failure and recover, but never with the same level of dominance.
- From it we get two new phases in the cycle.





# State of Agile: Commodification

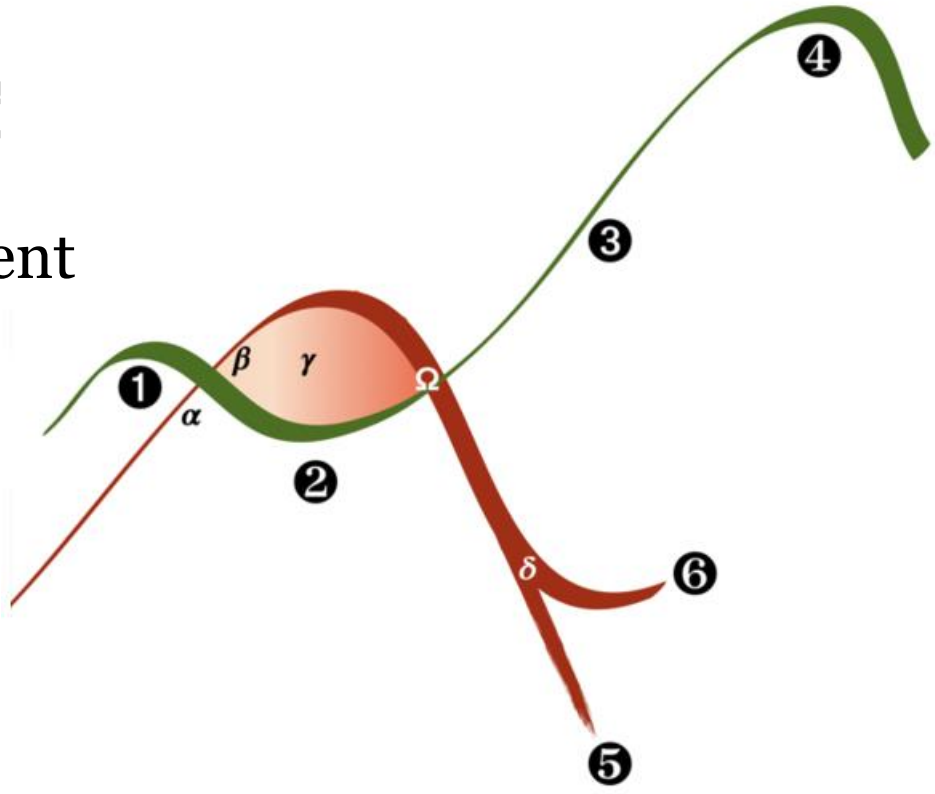
- We have clear signs of emergence that we are in near the 4th point, in gamma state
- Once it was:

  a novel idea, radical, small, highly energy efficient
- Now:

  Rigid, codified frameworks,

  Certifications and accreditations as commodity

  Even Big 6 consultancies entered the market



# A Review of Educational Objectives

Keywords:

- Over-optimization
- Product life-cycle development (PLCM)
- Chasm
- Flexus Curve

- Remember the idea of Apex Predator theory
- Can give different examples of life-cycle development
- Remember name of points and stages

Part 1.2

# Complexity History

## A Brief Rendezvous

1. Historical Settings
2. Chaos Theory and Dissipative Structures
3. Complex Adaptive Systems

# Why is Complexity Appealing to Business Managers?

# Setting the Scene for Complexity

In the second half of the 19th century,

two discoveries changed the way that scientists think about the world,

enabling new ideas and new tools to emerge,

thus, paving the way for Complexity

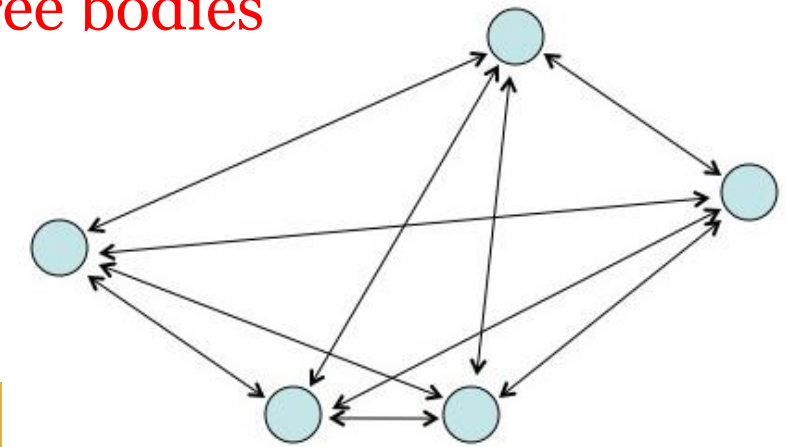
# 19th Century Achievements – *n-body problem*

Newtonian Mechanic Laws were fine for predicting the behavior of two bodies exerting gravitational forces on one another,

$$m_1 \mathbf{a}_1 = \frac{G m_1 m_2}{r_{12}^3}(\mathbf{r}_2 - \mathbf{r}_1) \qquad \text{Sun–Earth}$$

$$m_2 \mathbf{a}_2 = \frac{G m_1 m_2}{r_{21}^3}(\mathbf{r}_1 - \mathbf{r}_2) \qquad \text{Earth–Sun}$$

But it was extremely difficult to extend them even to three bodies subject to mutual attraction.



# The importance of Initial Conditions

**1890:** The first one to grasp the nature of the problem:

Even if the laws of motion are known perfectly,

small differences in initial positions, masses, and velocities of objects can lead to significant differences in the way system behaves in the future.

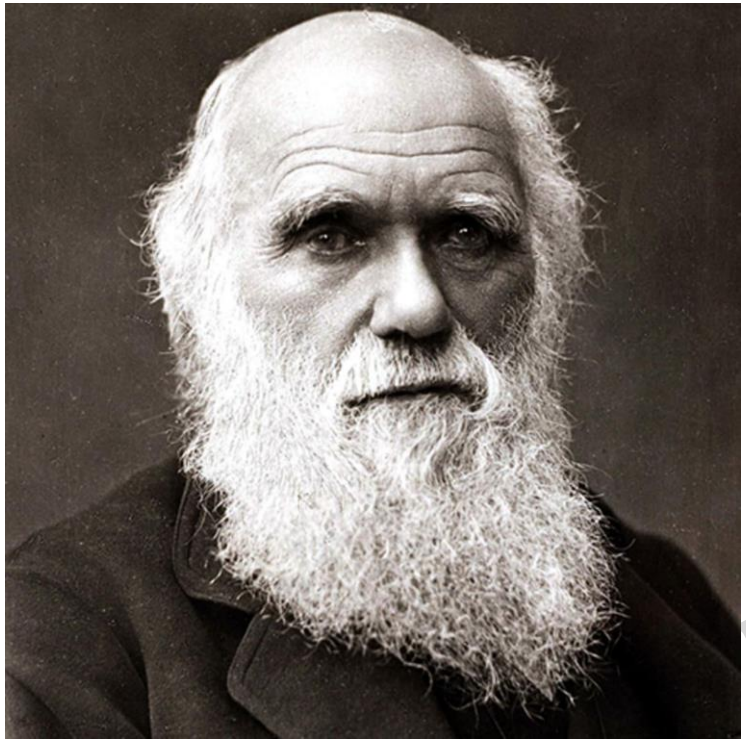
Henri Poincaré
(1854 – 1912)



It is called "Sensitive Dependence on Initial Conditions."

The mathematics and computational tools of that time were too lacking to model these

# 19th Century Achievements – *Darwin's Theory*



Charles Darwin
(1809 – 1882)

**1859:** *On the Origin of Species*

Random variations in the traits possessed by individual organisms, passed on by inheritance, can lead to a particular species flourishing because the new traits are well adapted to the environment.



Evolution proceeds not on the basis of determinism, but as a result of the "natural selection" of the outcome of chance events.

# Indeterminism

Now, the only possible way of accounting for the laws of nature and the uniformity in general is to suppose them the results of evolution.

> This supposes them not to be absolute, not be obeyed precisely.
>
> It makes an element of indeterminacy, spontaneity, or absolute chance in nature.

# Edward Lorenz

- The meteorologist was working on the problem of long-range weather
- Running his computations mid-way, and the result changed drastically
- He discovered:

  Changes in the output are disproportionate to changes in input and causes are interlinked in complex feedback structure

Edward N. Lorenz
(1917 – 2008)

His 1972 paper:
"Does the flip of a Butterfly's wings in Brazil Set off a Tornado in Texas?"

# LGP-30

## desktop computer

- Word length: 31 bit
- Memory Size: 4096 words
- Clock Rate: 120 kHz
- Power Consumption: 1500 W
- 16 Commands
- 113 Electronic Tube
- 1450 Diodes

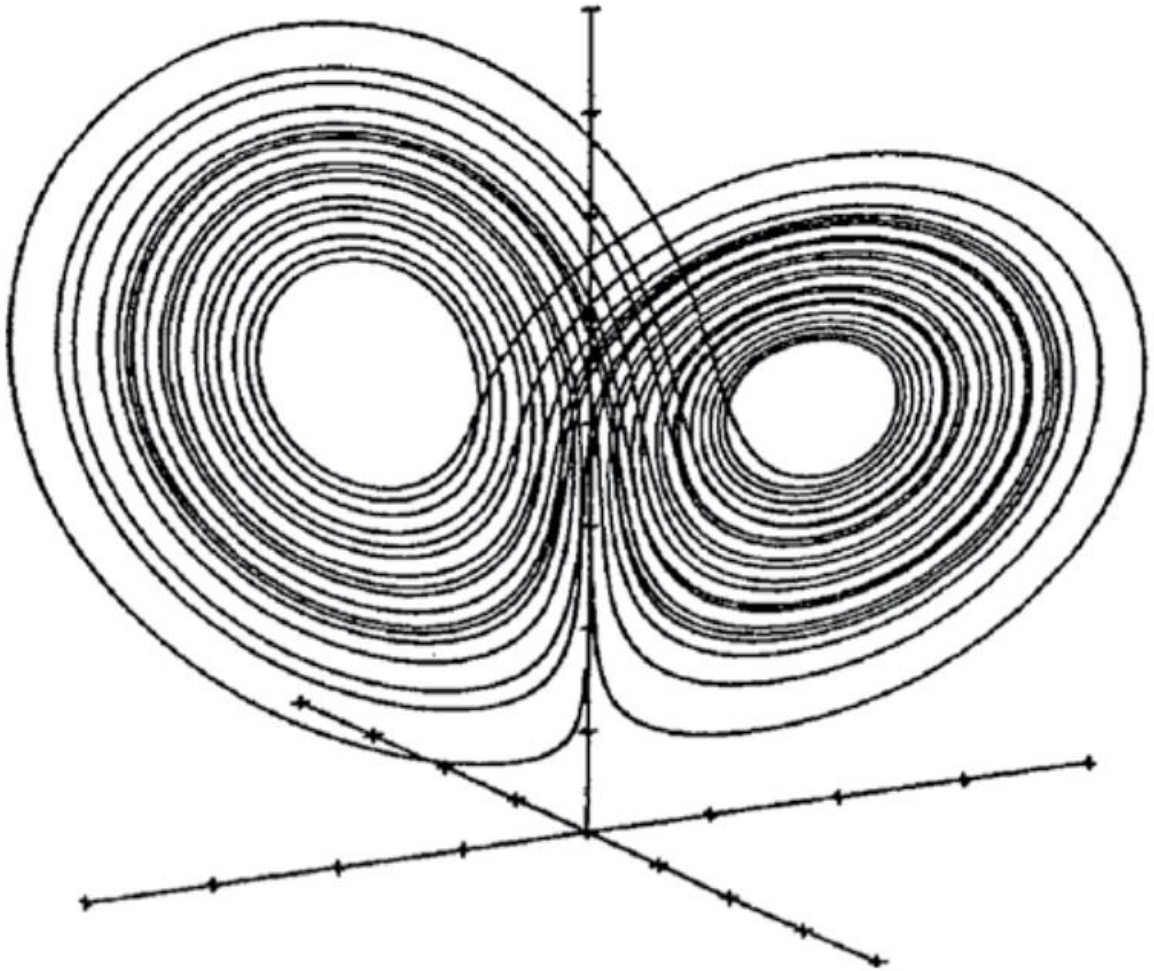
- First delivery: 1956
- Price: $ 47000 (about $ 500k today)
- Weight: 360 kg
- 6 decimal place memory, 3 decimal place display

# Sensitive Dependence and Non-linear behavior

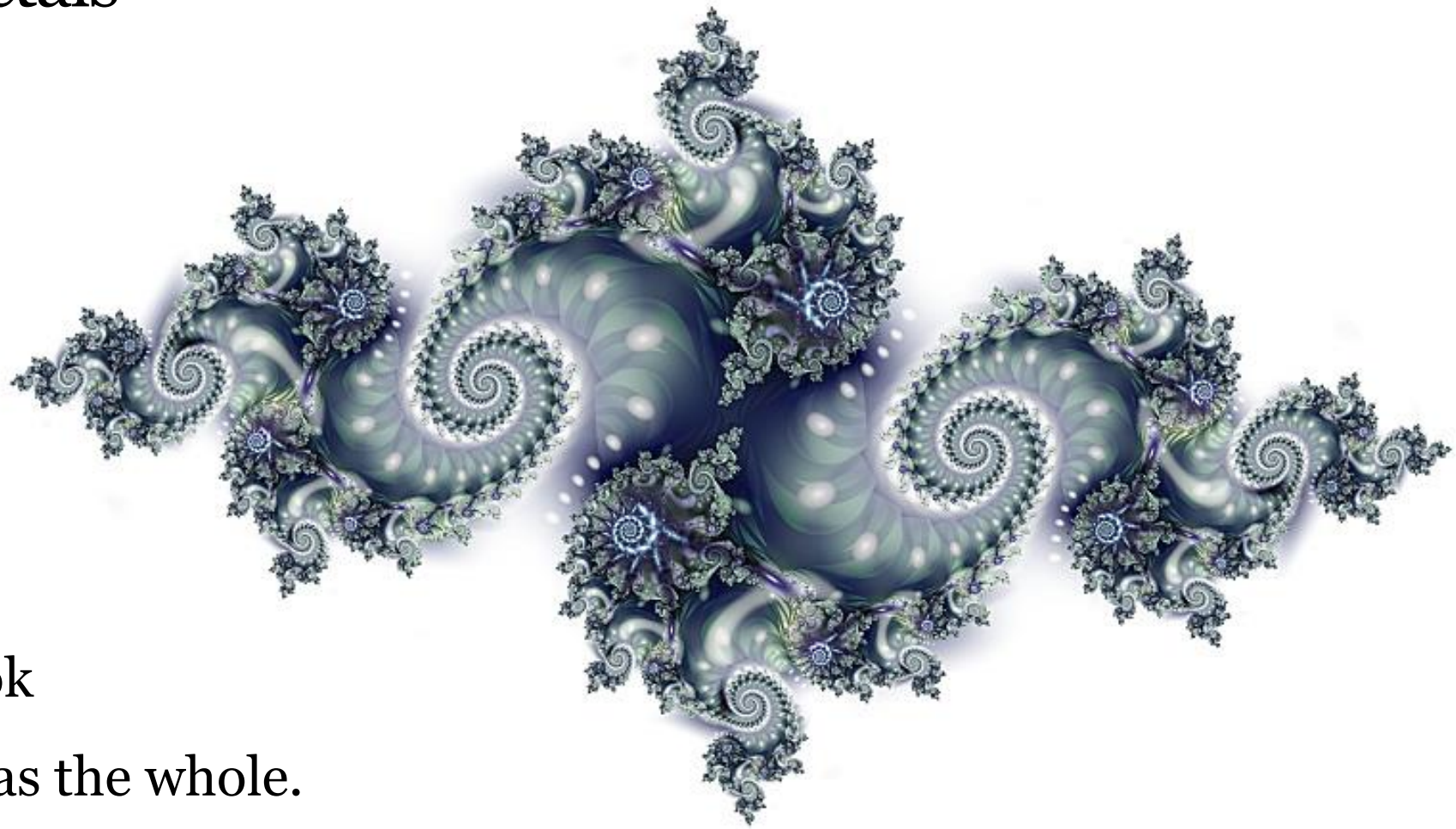
- The behavior of the whole system becomes impossible to predict on the basis of its parts and emergent properties are displayed.
- The output as a whole is different than the sum of its parts.
- It is the ubiquity of nonlinear relationships that makes prediction impossible in complex natural and social systems.
- it is called "sensitive dependence to changes in initial conditions"

# Emergent Patterns

- The system never repeats itself, but never intersects also,
- It is called to patterns called "Attractors"



# Mandelbrot & Fractals



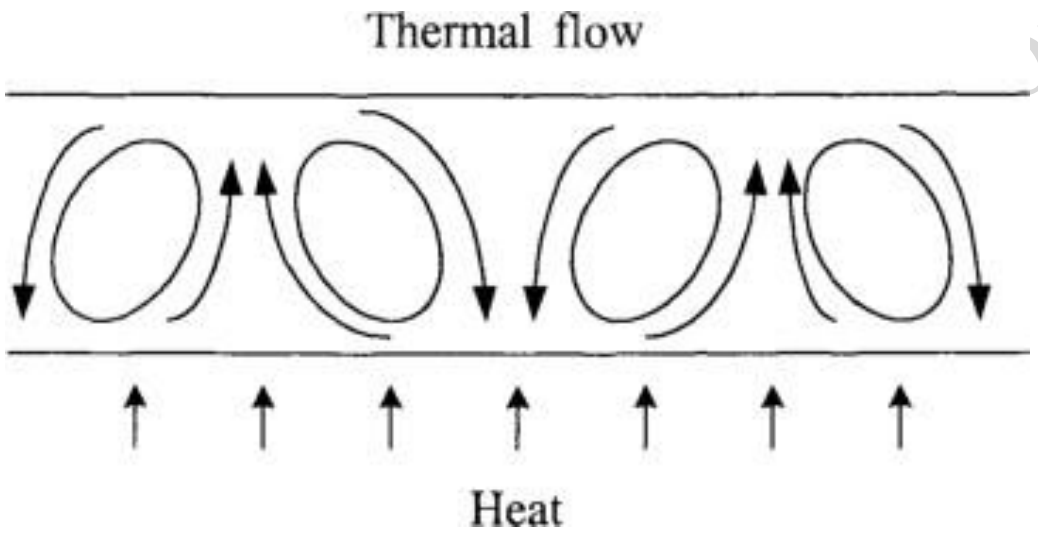
- Self-Similar patterns
- Systems, at any scale, look approximately the same as the whole.

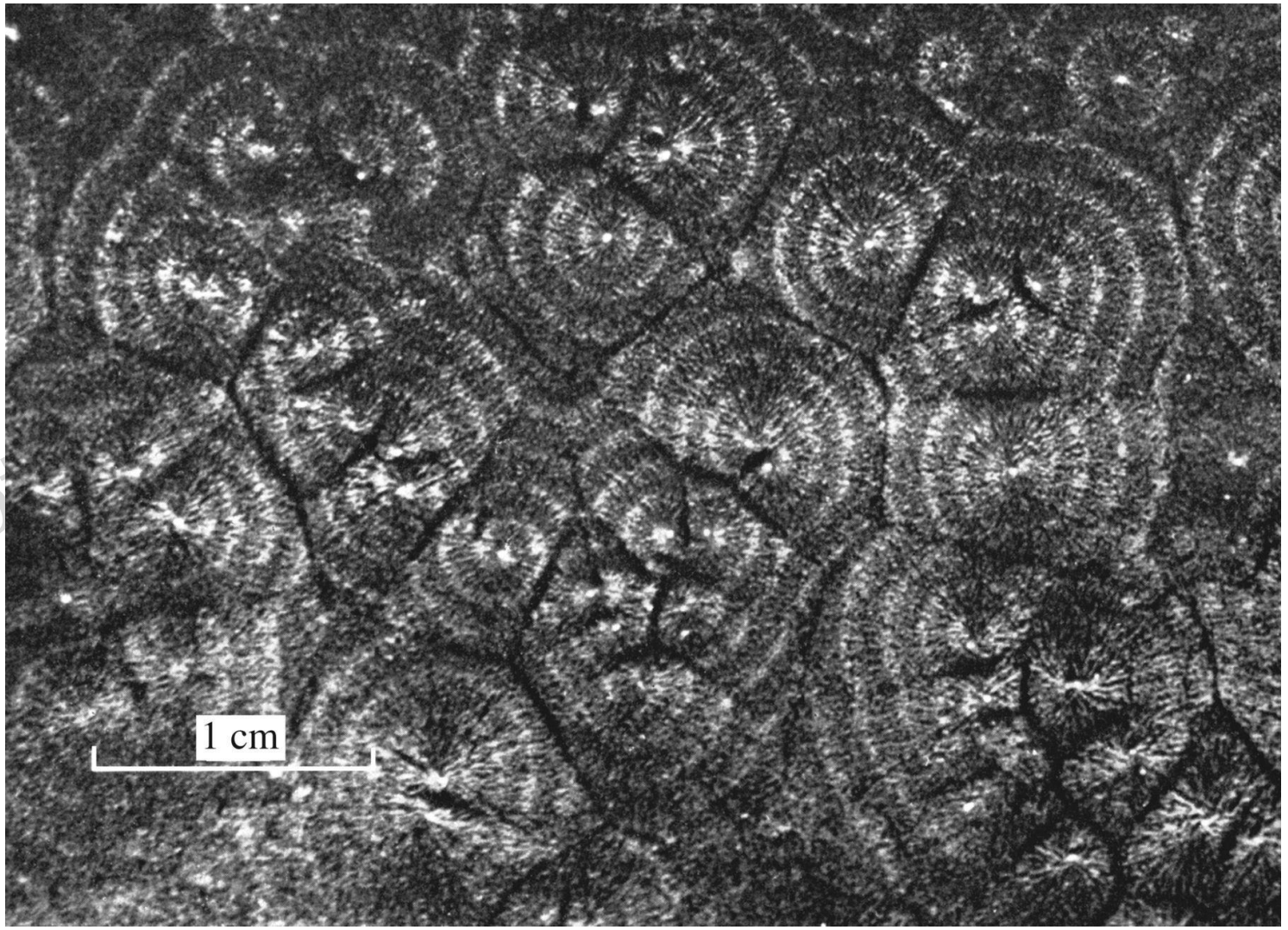
# Chaos Theory

- The name coined in 1972 by …
- The forerunner of “Complexity Theory”
- One the three landmark achievements of the 21st century science
- The idea of Edge of Chaos

# Dissipative Structures

Under the effect and pressure, patterns emerge



# Complexity in Biology

- **1960-1975:** Discovering and explaining that ants communicate primarily through the transmission of chemical substances known as pheromones
- A pioneer of Evolutionary Biology: exploring how natural selection and other forces could produce something as extraordinarily complex as an ant colony
- A pioneer in the study of biological diversity; developing a mathematical approach to questions about why different places have different numbers of species.

Edward O. Wilson
(1929 – 2021)

# Complex Adaptive Systems Theory

- Santa Fe institute, established in 1984
- To unify all the different disciplines around the idea of Complexity



# Complexity and Other Traditions

Although some complexity theorists acknowledge their debt to earlier systems thinker,

> More often, complexity theory likes to present itself as a "radical break" with what has gone before and, as a result, fails to acknowledge the achievements of the systems and cybernetics traditions that, particularly in terms of practical advice to managers are far ahead of their upstart rival.

# Different Complexity Types

Technical Complexity

Process Complexity

Structural Complexity

Organizational Complexity

People Complexity

Coercive Complexity

# Different Approaches for Navigating Complexity

Hard Systems Thinking

System Dynamics

Vanguard Method

Interactive Planning

Socio-Technical Systems Thinking

Organizational Cybernetics

Viable System Model

Soft Systems Methodology

Strategic Assumption Surfacing & Testing

Team Syntegrity

Critical Systems Heuristics

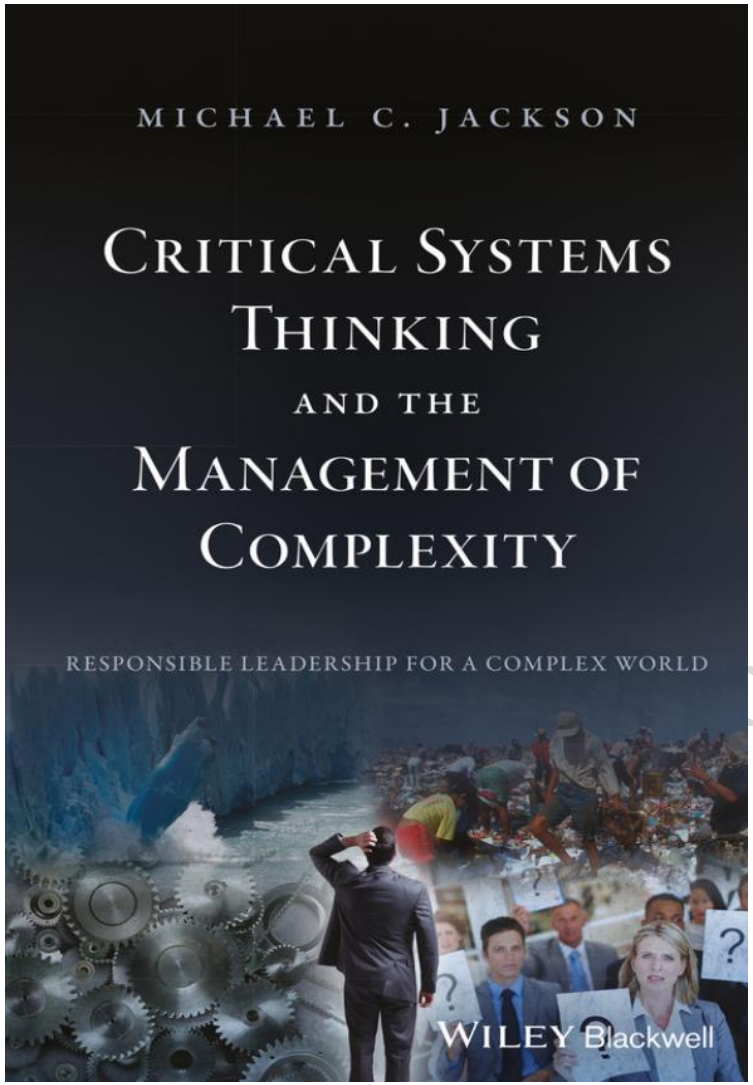
## A Review of Educational Objectives

Keywords:

- Chaos Theory
- Initial Condition dependency
- indeterminacy

- Understand the historical concepts behind Complexity
- Can give examples of Complex systems and their behaviors
- Can explain emergent behavior of complex systems
- Remember 6 different kinds of complexity
- Remember some of different approaches to navigating complexity

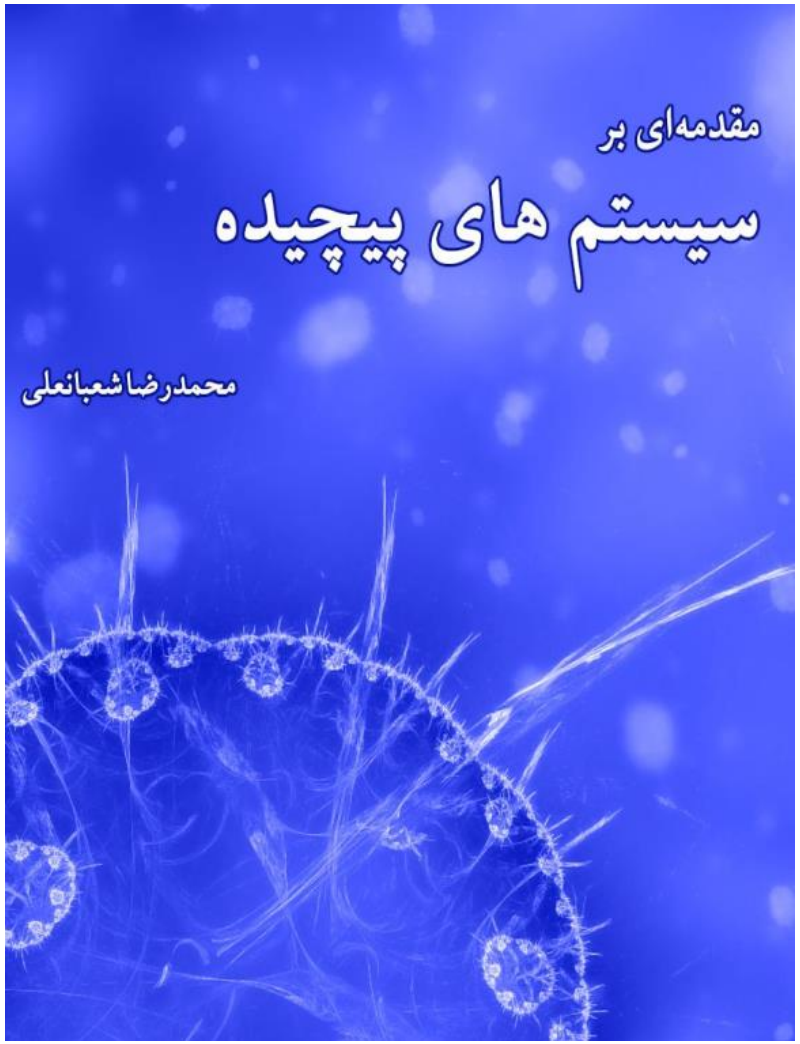
# Further Readings




Main Reference of this section:

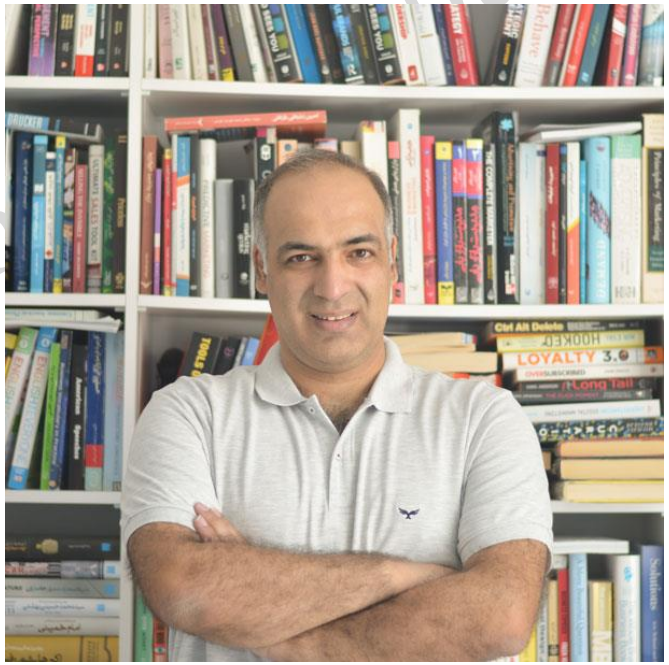
- Michael C Jackson, "Critical Systems Thinking and the Management of Complexity", Wiley and Sons, 2019
- Chapter 7: Complexity Theory

# Further Readings




- محمدرضا شعبانعلی، «مقدمه‌ای بر سیستم‌های پیچیده»، در دست نگارش
- دریافت به صورت رایگان از وبسایت نویسنده:

نسخه PDF رایگان کتاب پیچیدگی و سیستم های پیچیده



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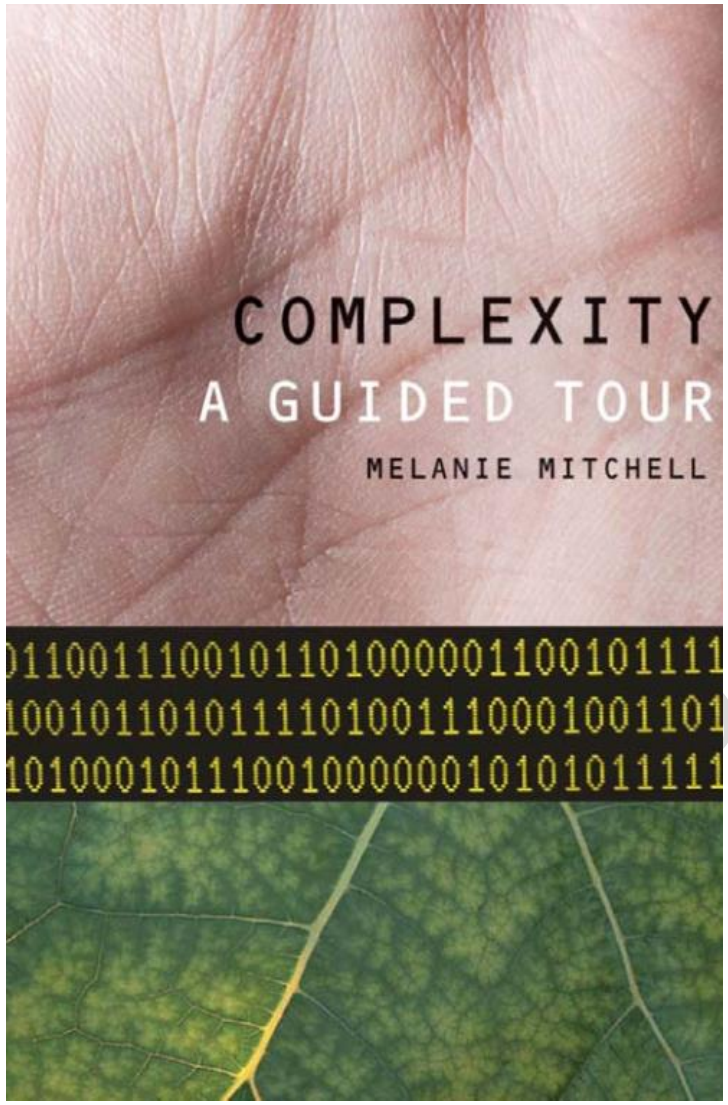
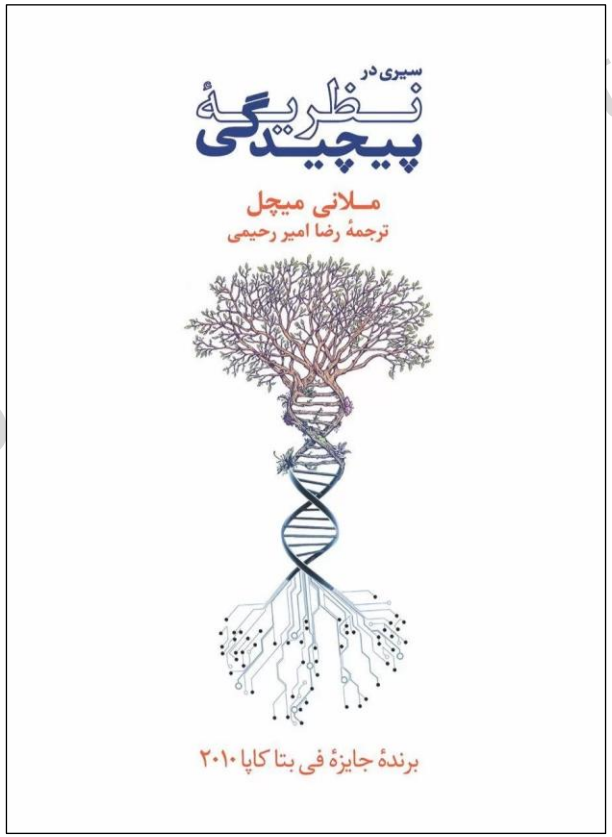



- Melanie Michell, “Complexity: A Guided Tour”, Oxford University Press, 2009




- ملانی میشل، «سیری در نظریهٔ پیچیدگی»، ترجمه رضا امیررحیمی، نشر نو، ۱۳۹۵

Part 3.1

# Leading with Outcomes

A Short Course on Transformation Mastery
Foundation Level

# 1 – INTRODUCTION

The Situation

Three Approaches

Agendashift's Meta strategies

# The Situation

- We are troubled by something, it bugs us
- We are frustrated
- We face lots and lots of problems
- Previous attempts to transform situation resulted in failure, or haven't delivered as much as promised
- Everyone is disheartened

# Some of the topic of interest to us …

Leadership

Transformation

Strategy

Learning

Participation

Change

Engagement

What ties all these together?

# Three Possible Approaches

## Solution-driven

Available solutions dictate our choices

## Problem-driven

Look for Problems, start solving them as much as possible

## Outcome-driven

What is really our desired outcome?

# Know the limit of your tools!

*The problem of over-reliance*


If the only tool you have is a hammer, **you tend to see every problem as a nail**

Abraham Maslow

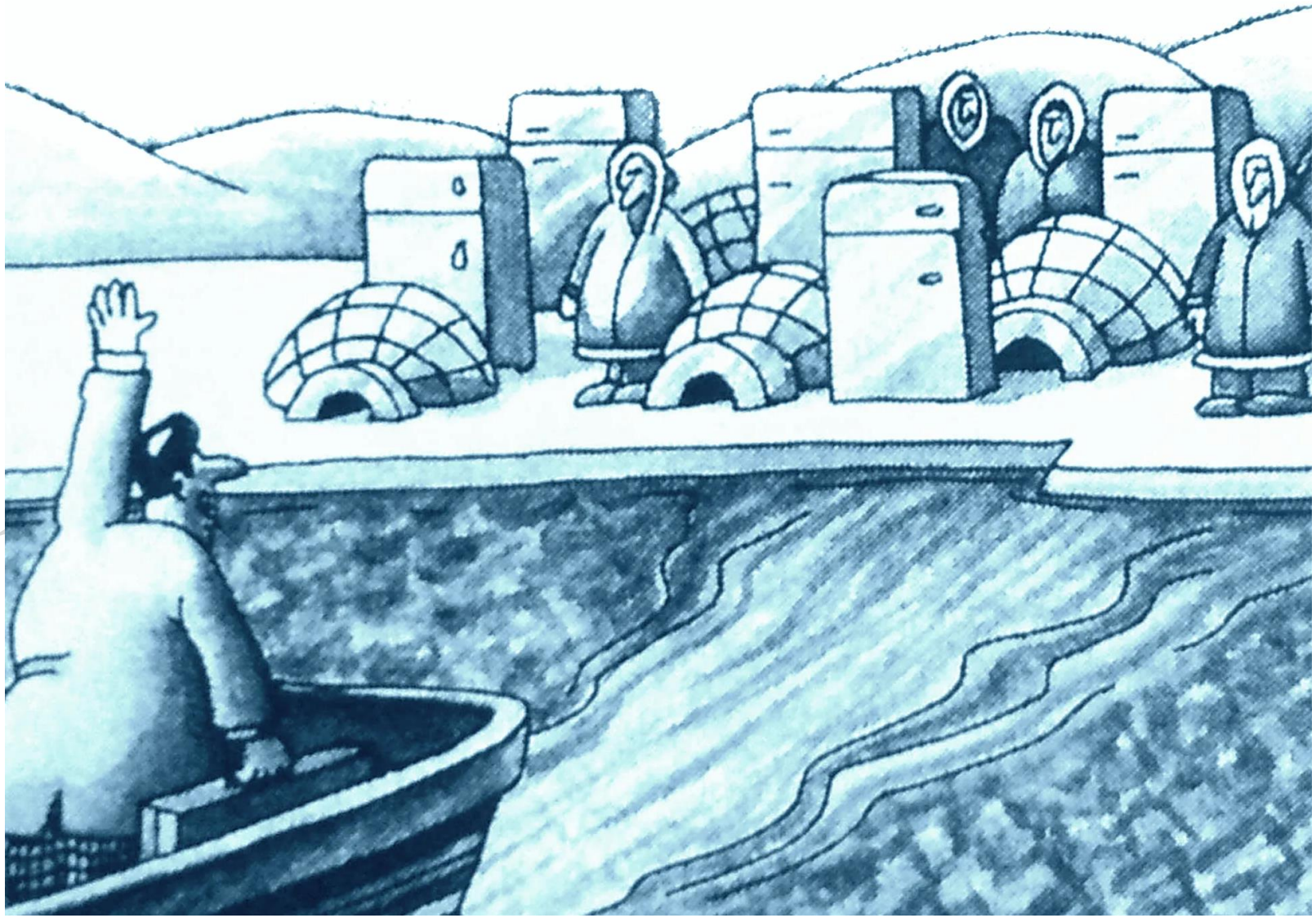
See Also: Bounded Applicability

# Selling

Selling fridges to Eskimos

1. Sell it as a must-have cabinet!
2. Sell it as a heater! (with 0.5% efficiency)

*Very easy to fall in this trap*



# Suboptimal Problem Solving

- **Suboptimization**:

  the practice of focusing on, or making changes to, one component of a total system, without consideration of the impact on the whole.

- Leads to the optimization of the one component – that is, the individuals and functions will do well on their own measures of success – but it leads to damage to others, and the organization as a whole is likely to suffer.



Dean Spitzer, "Transforming Performance Measurement", 2007

# Indicator Dysfunction: Suboptimization

- Most organizational measurement systems are made up of many disparate measurement "silos".
- These "mini measurement systems" (sales measurement, marketing, finance, etc.) actually work at cross-purposes – attempting to optimize their own numbers – rather than optimizing the whole.



Compare it with Lean philosophy and its Kanban System

# Suboptimization Example

After a cost audit, a company cut its inter-building mail runs by 50%, thus saving the mail room a significant amount of operational cost.

These cuts resulted in functional groups supplementing the mail runs by having their own personnel deliver mail from building to building, at a cost far exceeding the mail room's savings.

"Optimizing" mail room expenses actually increased the total cost of the organization.

Dean Spitzer, "Transforming Performance Measurement", 2007

# Ackoff Automotive

Russell L. Ackoff
(1919-2009)

Three Type of Problems:

1. Flaws in Elements
2. Problematic Interactions
3. Ineffective Processes

Let's choose the best parts of the bests!

To manage a system effectively, you might focus on the interactions of the parts, rather than their behavior taken separately.

# Outcome-driven

**Authentic agreement** meaning

the right people in the room,

agreeing on things that matter,

express in their own words.

**Principle**

Agreement on outcomes before solutions



Meaningful outcomes,

not just numbers, not just targets,

but needs met, happy endings to stories, the world changed for people in meaningful ways

# What if we put agreement on outcomes before solutions?

# Using outcomes to find solutions, not to sell them

With enough agreement on enough of the right kind of outcomes we have

some raw material for strategy,

very often the kind of strategy that energizes transformations.

Any many of those outcomes will lead the way to solutions –

solutions emerging from the people closest to the problem,

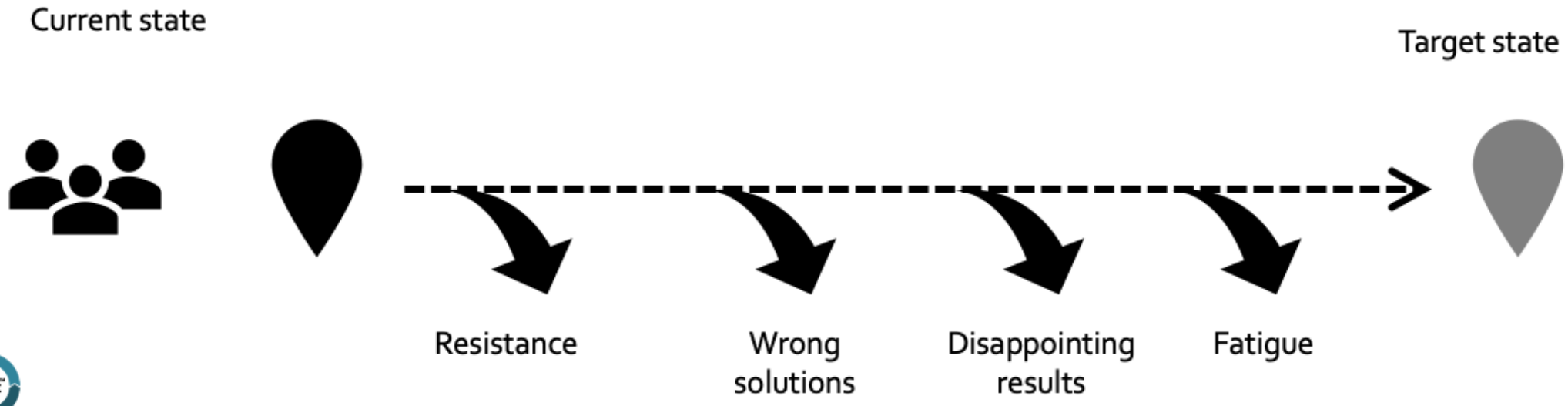
people already motivated to find them.



A completely different paradigm from 1990s Models of Managed Change: overcoming resistance to change

# Solution-driven Rollout meets *adaptive challenge*

*How's that working for you?*




Headscratchers

# Agendashift


- the **wholehearted** engagement model
- as an open framework for continuous, outcome-oriented transformation.
- Its top-level elements are its strategies, generative patterns, the agenda for change, and core activities.
- Through those run a golden thread, the language of outcomes.

# Meta-Strategies

strategies for getting better at the kinds of strategy that tend to drive transformation

## Strategies for getting better at strategy

**– meta strategies, leadership principles**

**1** Keep asking the *agreement on outcomes* question[1]

**2** Keep bringing outcomes to the foreground


**3** Keep finding new places to do strategy

[1] What if we put *agreement on outcomes* ahead of solutions?



Agendashift™

## A Review of Educational Objectives

- Solution-Driven
- Problem Driven
- Outcome-Driven
- Selling
- Suboptimization
- Authentic Agreement

- Give some examples of the three different approaches discussed
- Describe suboptimization and a situation that you've experienced it in your organization
- Explain the idea behind "authentic agreement on outcomes" and the principle derived from it
- Explain how this approach differs from 1990s' models of managed change

# From somewhere, there's a desire for change

# From somewhere, there's a desire for change

- Innovation, adaptability, responsiveness
- Alignment, cohesion, purpose
- Collaboration, sharing, learning



✓Visible from the outside

✓More internal, what holds us together: some specific purpose perhaps tp be clarified, organisational mechanisms, or some combination

✓More about how we work and how we develop

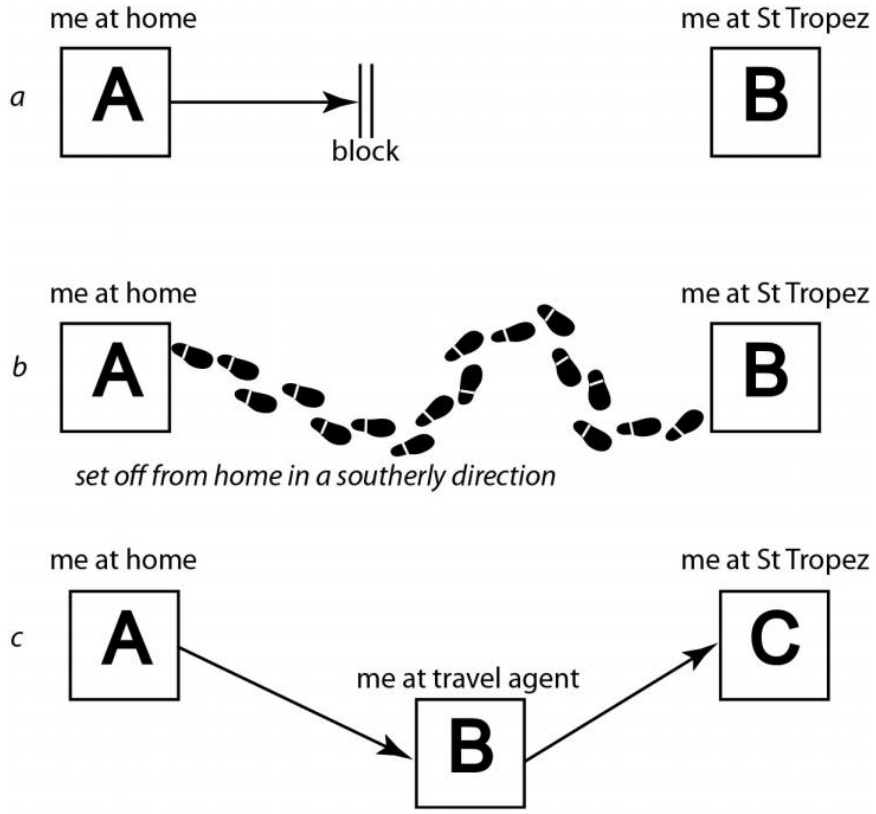
# INTERLUDE 1 –
# A PEAK INTO PROBLEM SOLVING PROCESS

Problem Solving and Decision-making stages

# What is exactly a problem

A problem arises when a living creature has a goal but does not know how this goal is to be reached. Whenever one cannot go from the given situation to the desired situation simply by action, then there is recourse to thinking … Such thinking has the task of devising some action which may mediate between the existing and the desired situation.

Dunker, 1945






Ian Robertson, “Problem Solving: Perspectives from Cognition and Neuroscience”, 2e, 2016

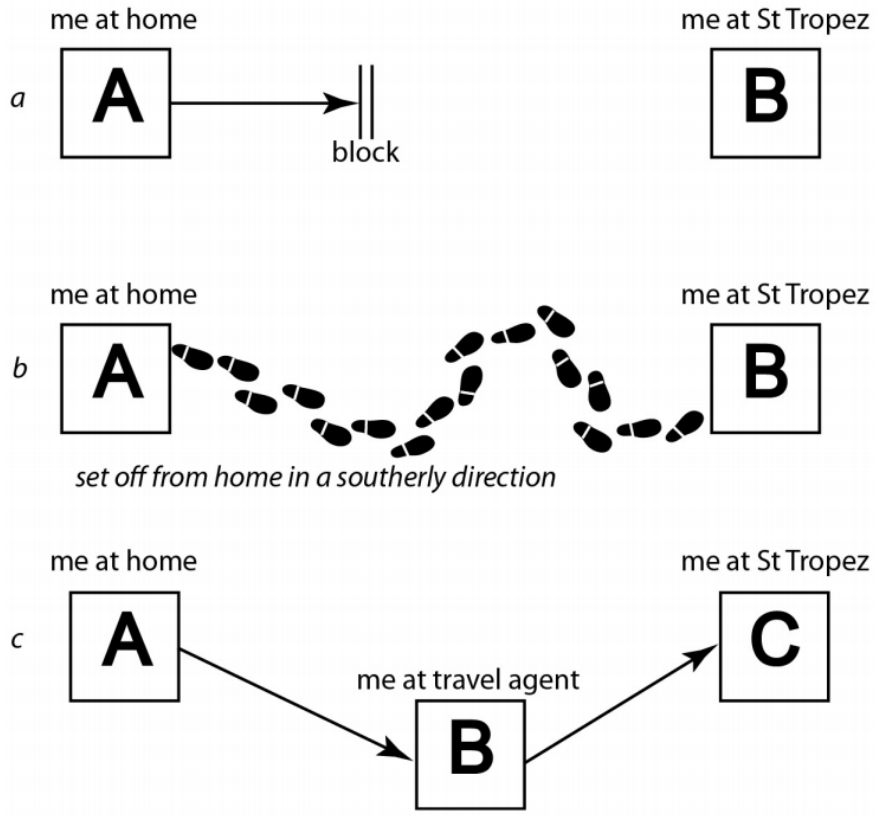
# Representation of problem solving as a blocked goal

- A problem exists when

  there is an obstacle or a gap between where you are, and where you want to be.

- We are not faced with much of a problem when

  we can use learned behaviors to overcome or get round the blocked goal.



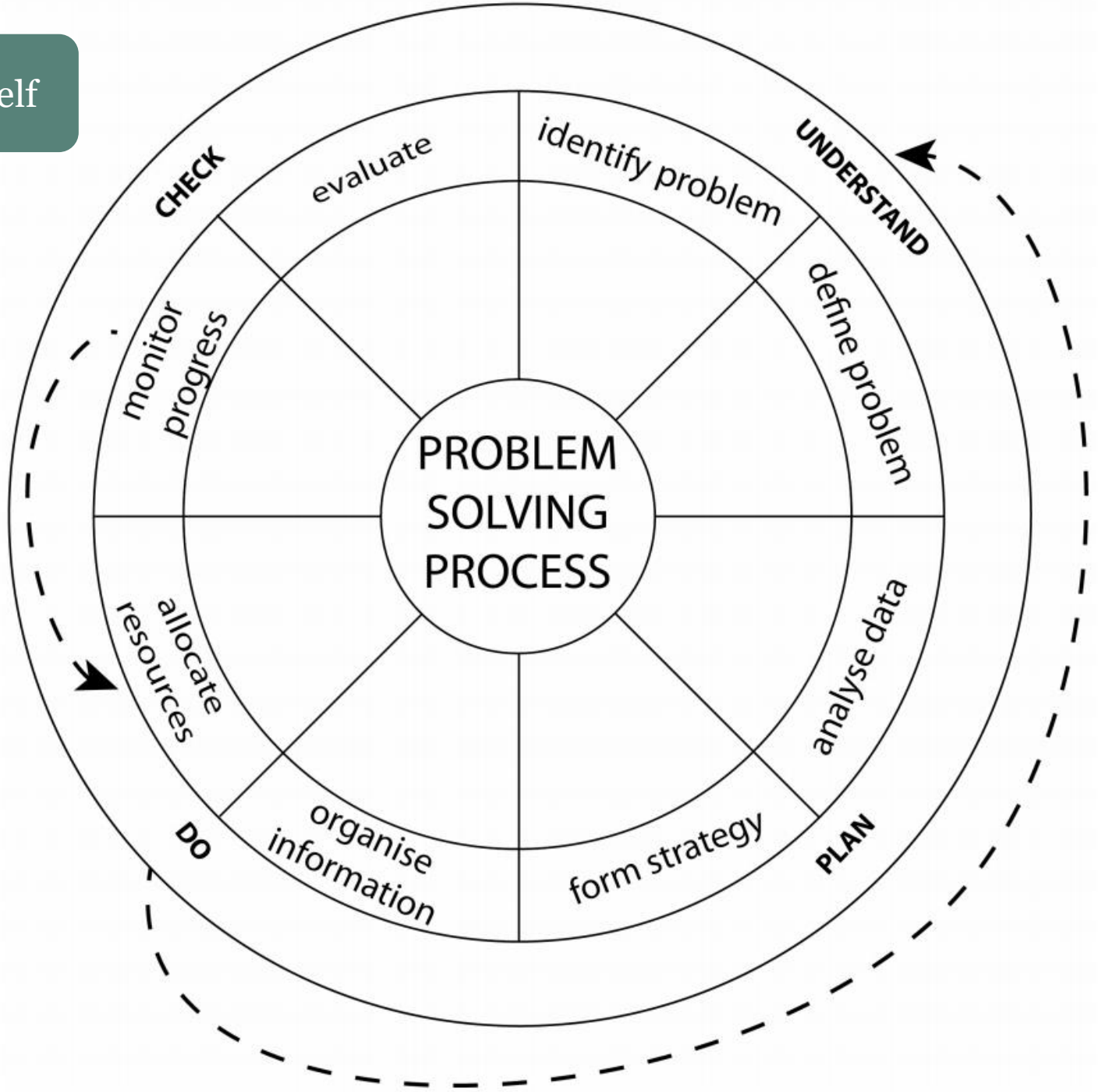
# Problem Solving and Decision-Making Stages

Read it yourself

# 4 stages in Problem Solving

1. We have to understand the problem; to see clearly what is required
2. We have to see have the various items are connected, how the unknown is linked to the data, in order to obtain the idea of the solution, to make a plan
3. We carry out our plan.
4. We look back at the completed solution, we review and discuss it.

Polya (1957)



# Outcomes are Needs Met

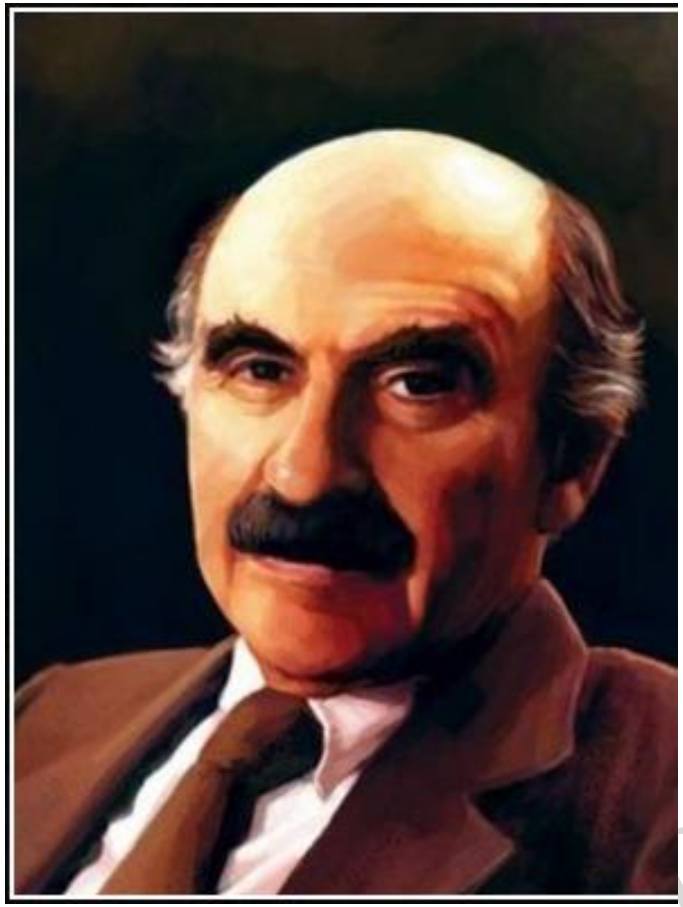
If you don't know what the user needs are, you won't build the right things.

UK Government's Digital Service
(Government Design Principles)



Whether it's change to products and services or to organization and process, if your idea of driving change consists of handing down requirements from your ivory tower, you don't get the needs thing at all.

*You can satisfy a long list of requirements and still not meet needs.*



Theodore Levitt

(1925 – 2006)

*People don't want quarter-inch drills.*

*They want quarter-inch holes.*



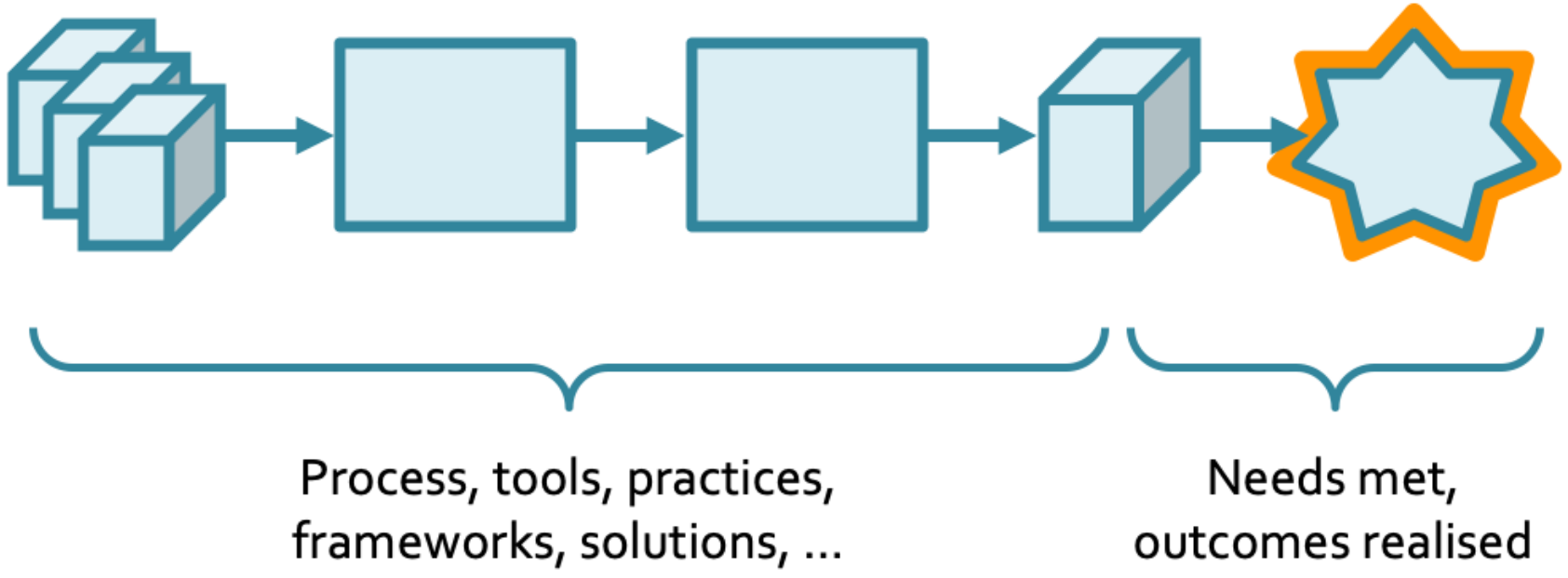
# Where to start?

From the Right

The Needs!

*Right to Left strategy development*

## What if we put the things on the right ahead of the things on the left?




Remember Value Stream?

# Needs

Get a sense of what's needed,

based on an appreciation of

where we are now, and

our ambitions for where we'd like to get to

**Principle**

Start
– and finish –
with needs

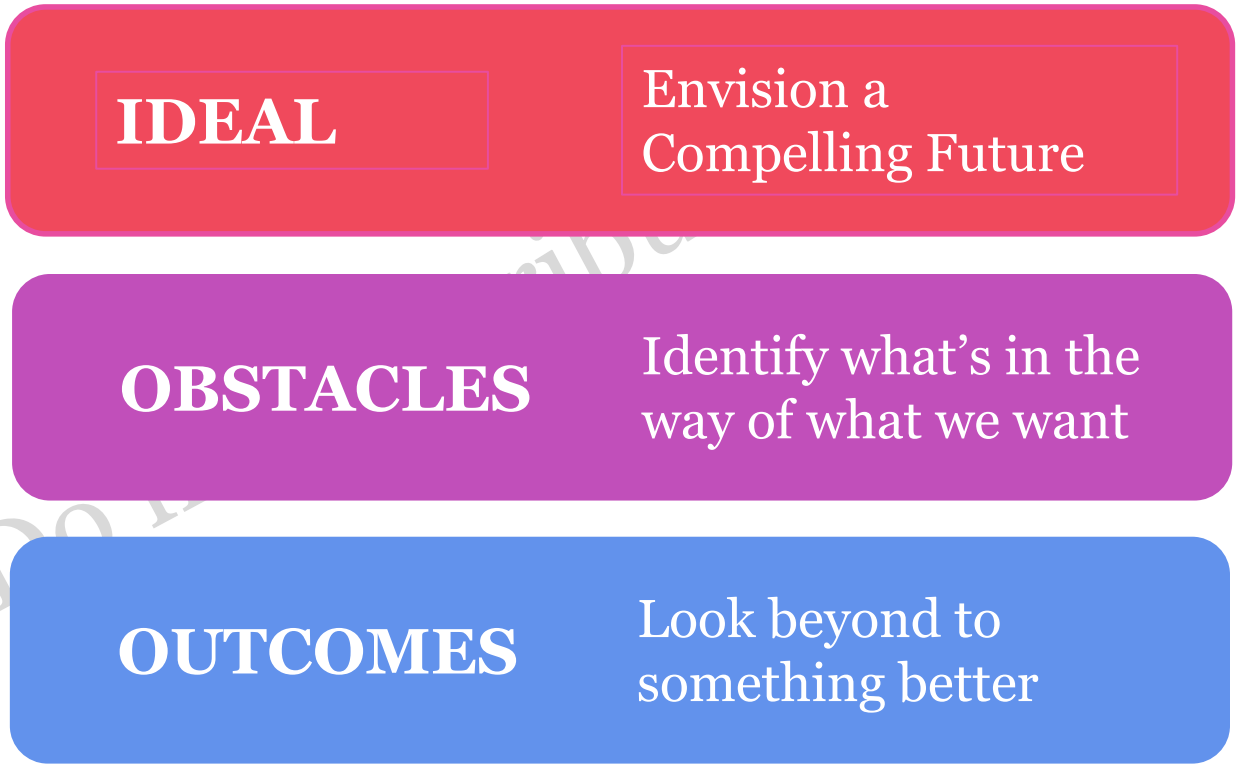


Understanding why the organization should continue to exist,

discovering and rediscovering the needs of customers, employees, and the stakeholders that it must serve

# 3 – THE “IDOO” PATTERN

# How to do Strategy: Introducing IdOO pattern



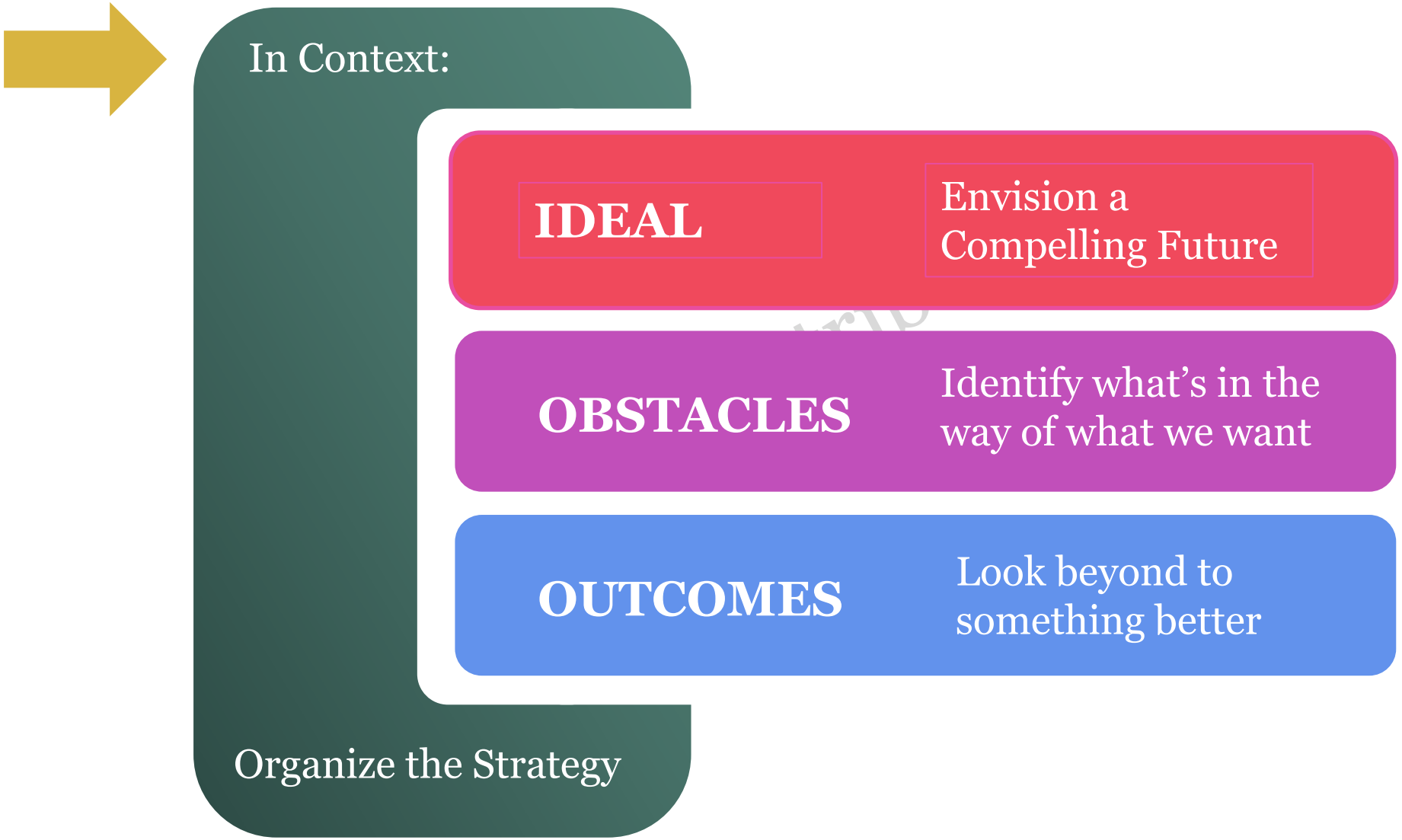
# Exercise 1) Delay Analysis

- Formulate “Delay Analysis” with IdOO pattern
- 1) From Contractor’s perspective
- 2) From Owner’s perspective
- 3) can we combine these two?

# Exercise 2) Gemba Walk

- Which IdOO formulation resulted in Gemba Walk as a Solution?

# How to do Strategy: Introducing IdOO pattern



# Context

- With just having “Ideal”, “Obstacles”, “Outcomes”,

  it’s not quite a strategy or at least not a good one, not a fully-fledged one!

- What we need to do is start with our context,

  remembering we want to **fit** to that context.



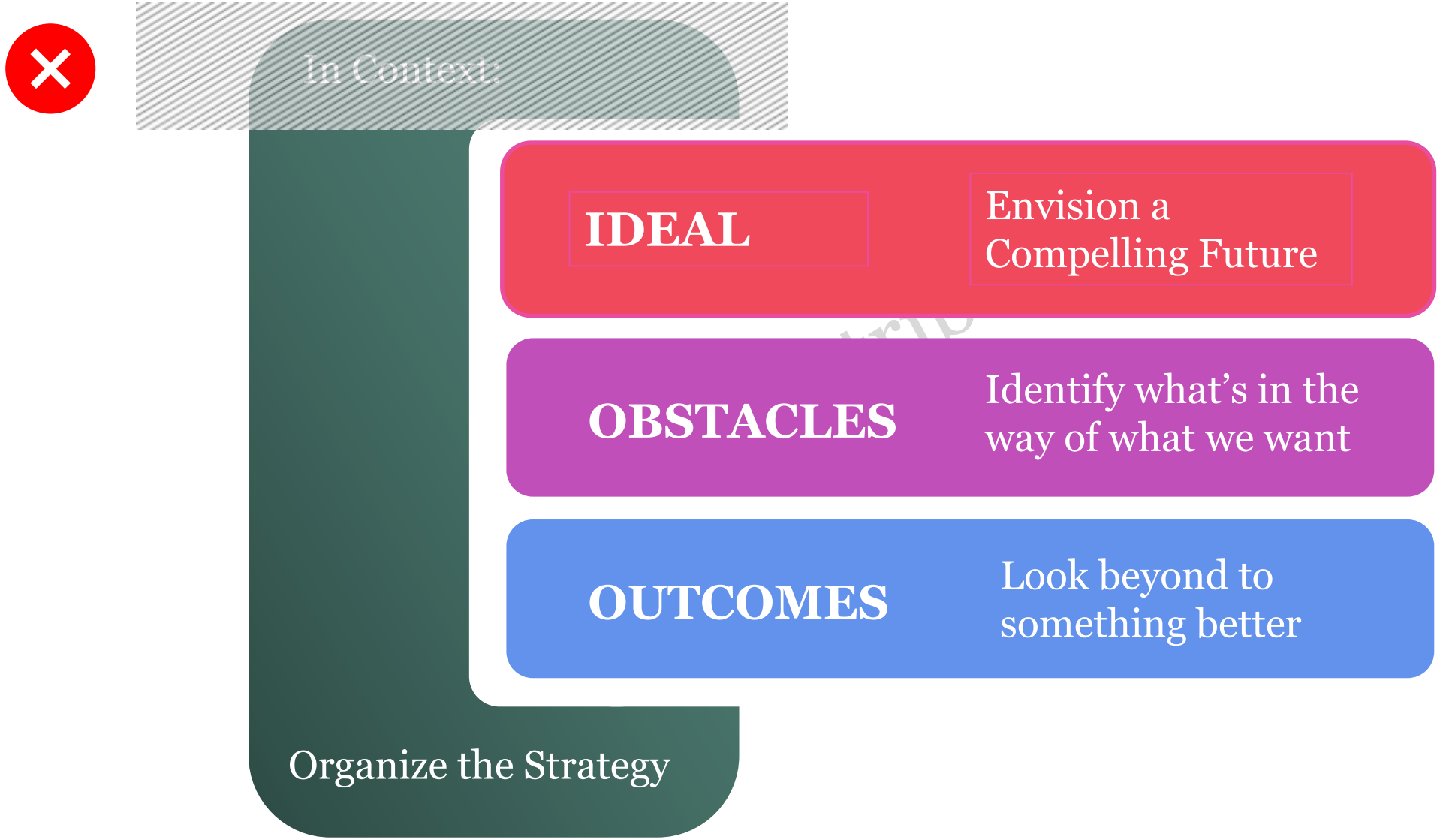
# Strategy

- Also, at the end of the conversation,

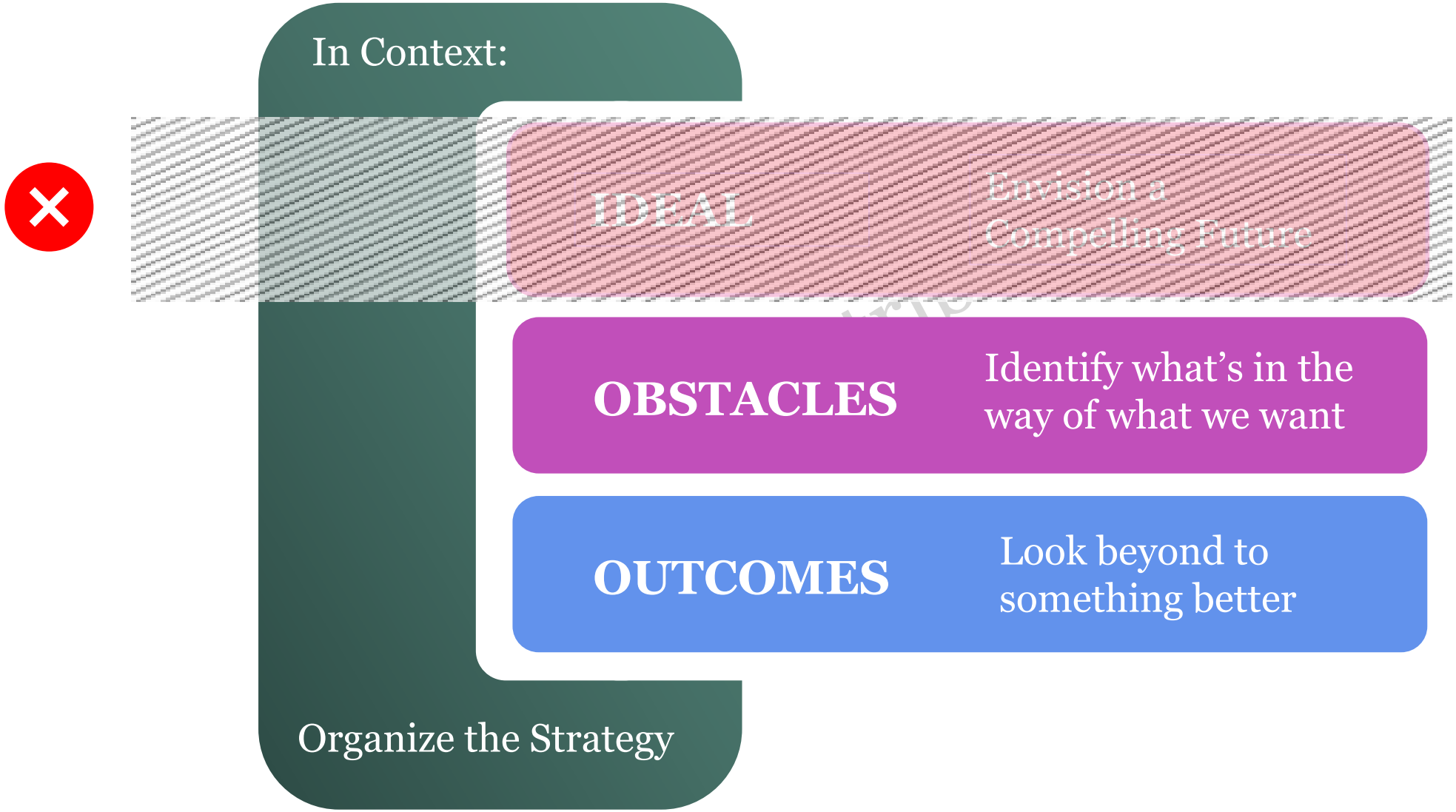
  we need to make sure we've got something that really adds up.

- We need to
  - organize the strategy,
  - make sure we've identified the right outcomes, and
  - it's going to take us somewhere useful quickly enough.

# What if we don't have .... ?



# What if we don't have …. ?



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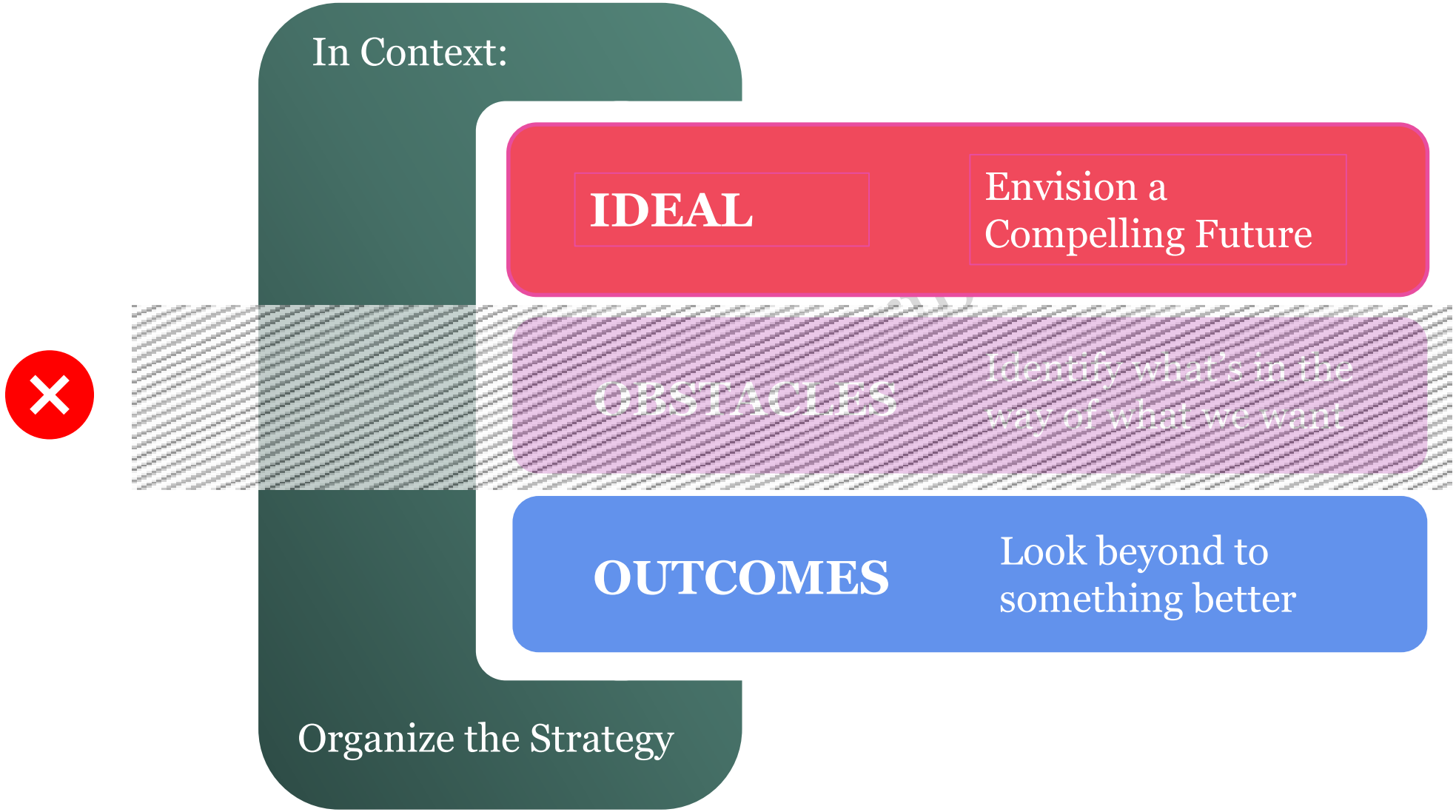

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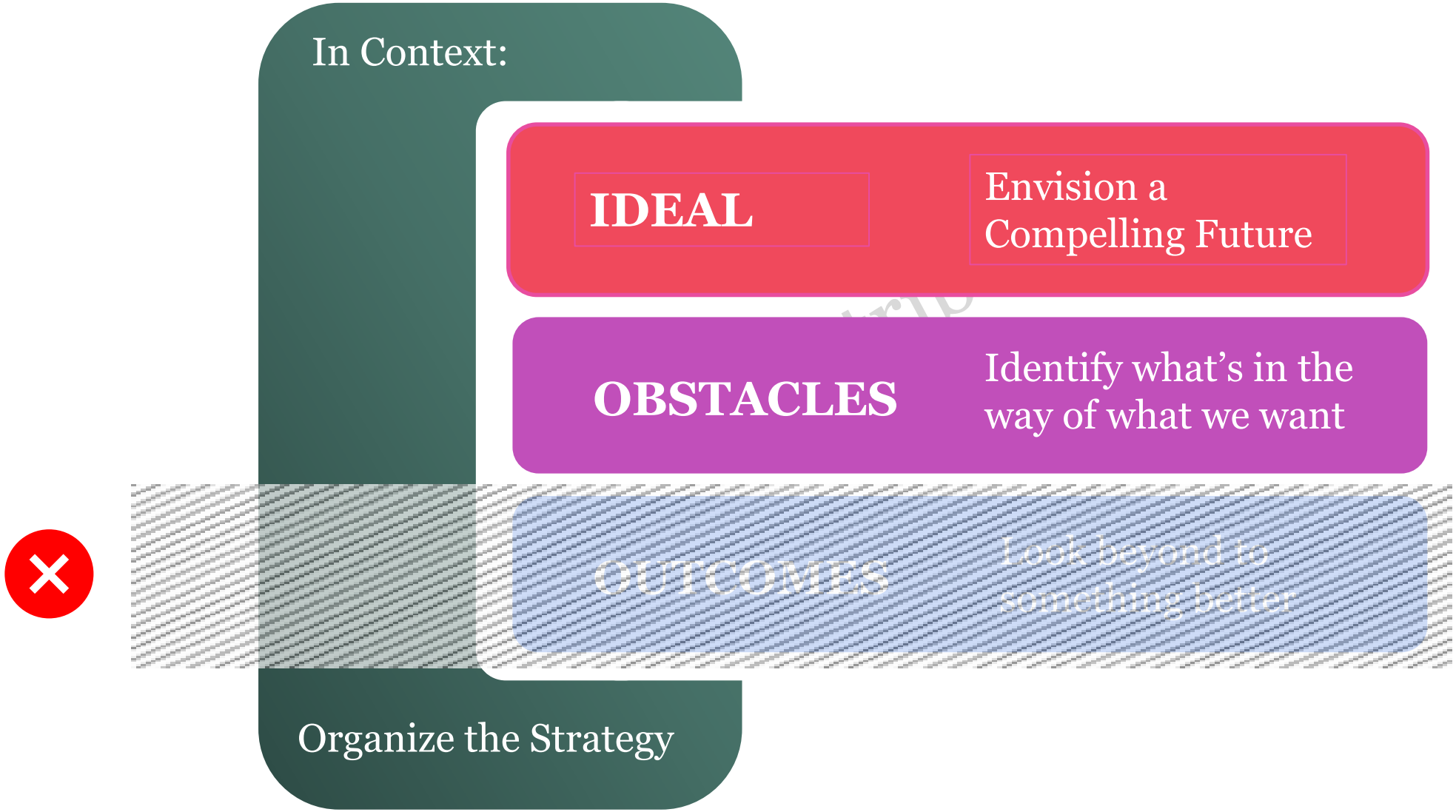

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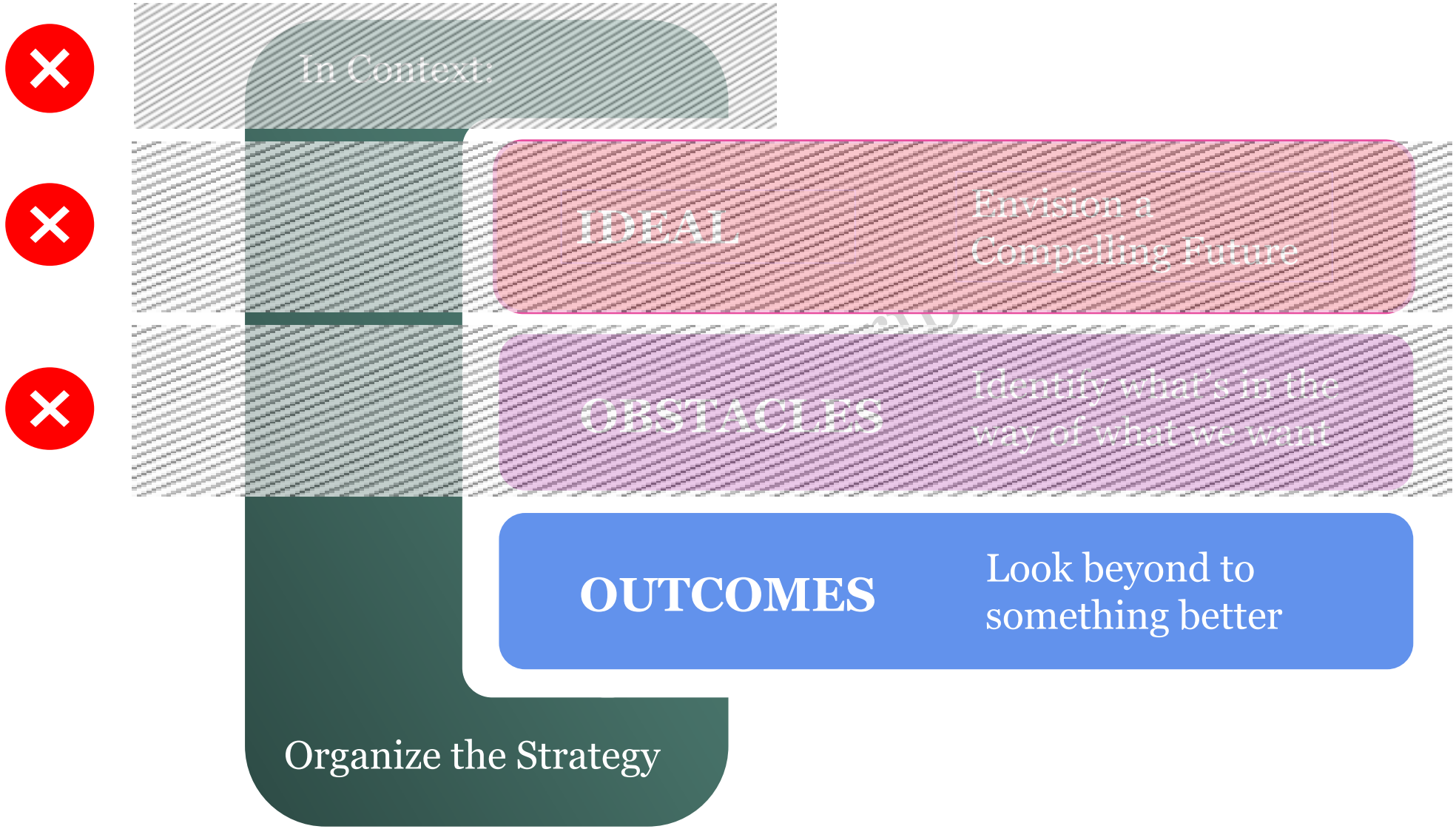
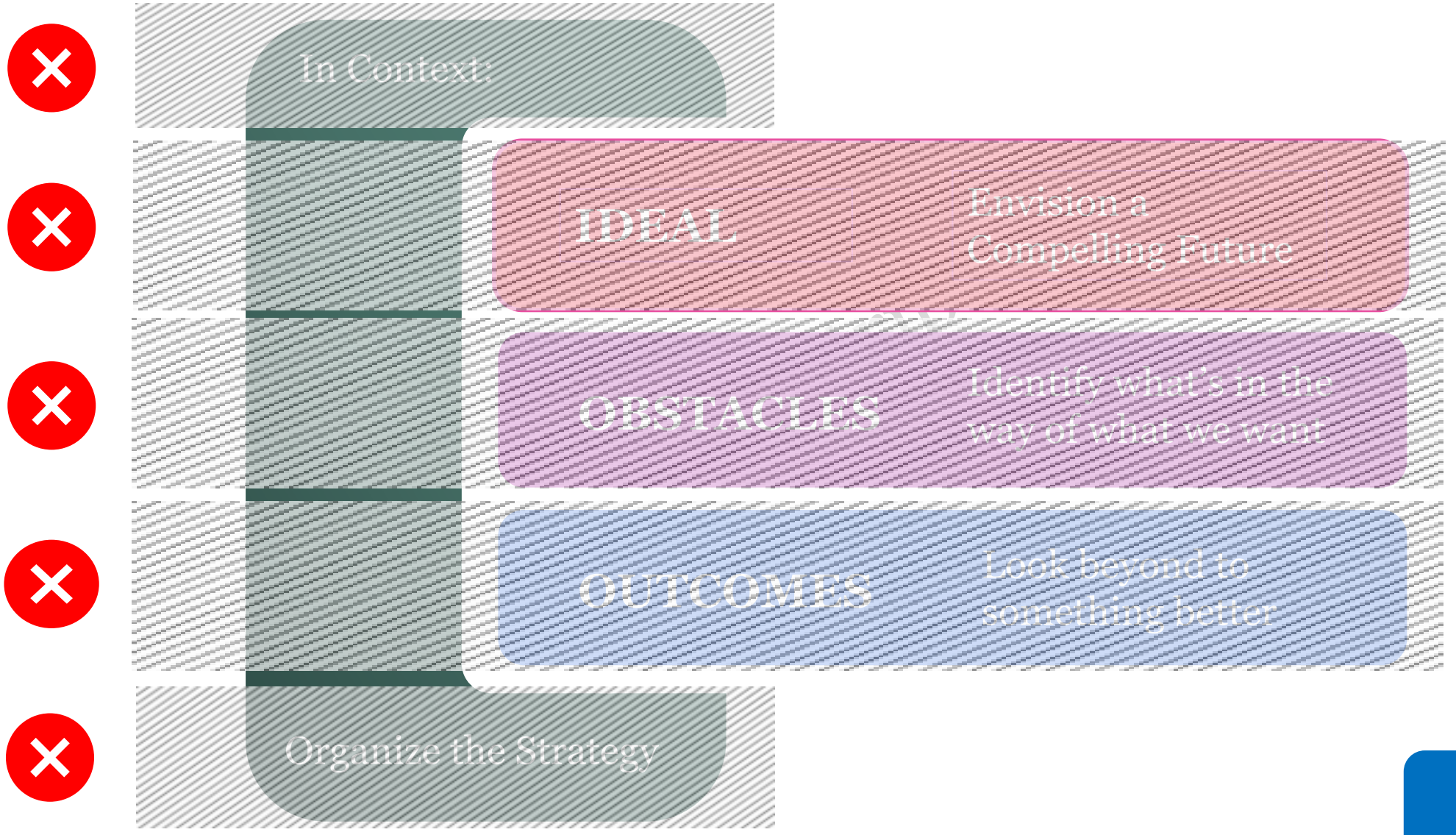
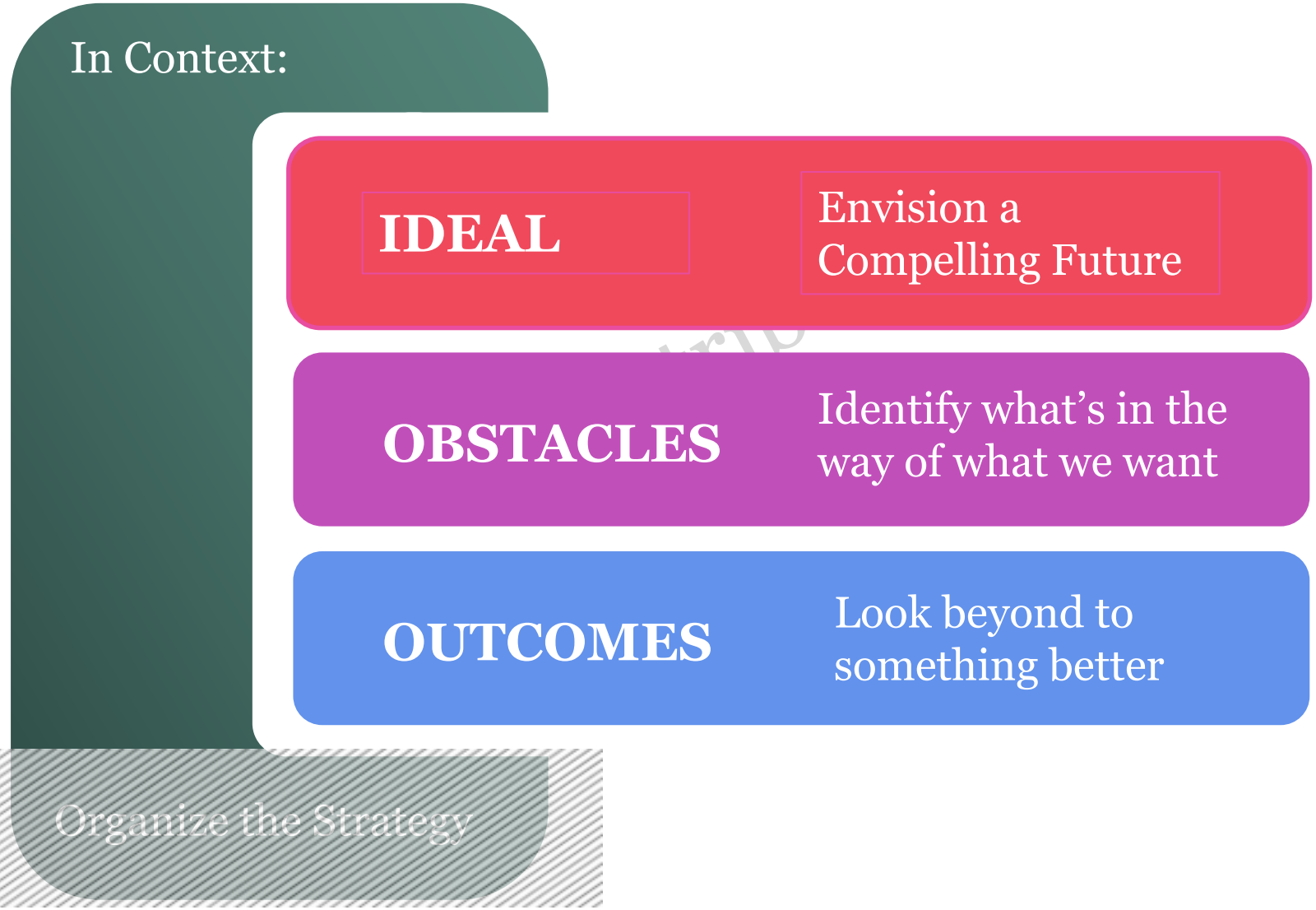


# What if we don't have .... ?




**SOLUTIONS**

# What if we don't have …. ?



Not a Linear Process !

# IdOO /ʌɪduː/ (“I do”)

A mnemonic for this *generative pattern*:

**Ideal** – or ***ideal best*** – reflection

**Obstacles** – real, relevant, representative

**Outcomes** – generated



agendashift.com/**idoo**