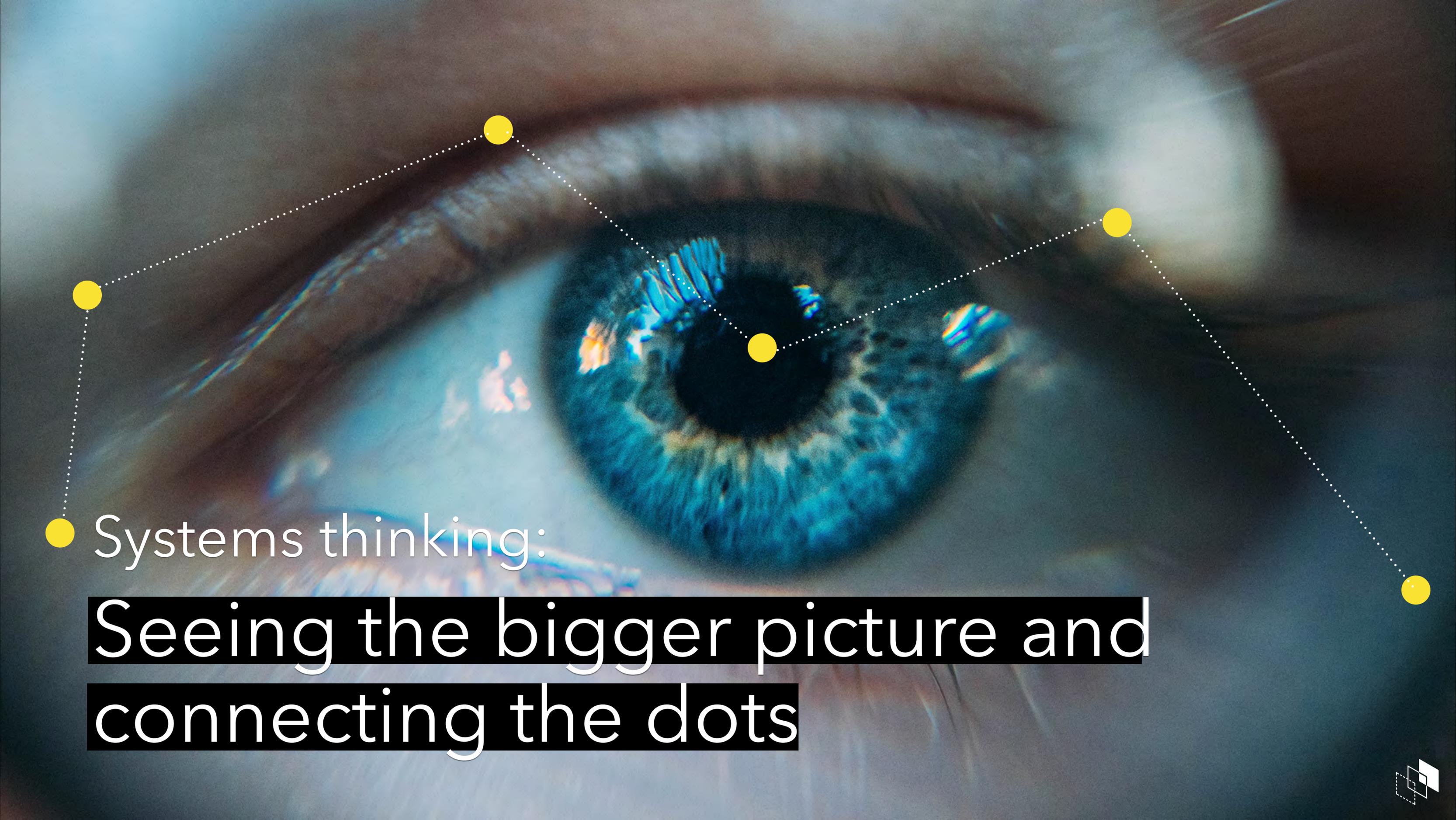


“ You can't solve problems
with the same thinking
that got you there. ”

Using systems thinking to shift your mindset to
unravel complex problems

SOL PANDIELLA-MCLEOD





● Systems thinking:

Seeing the bigger picture and
connecting the dots

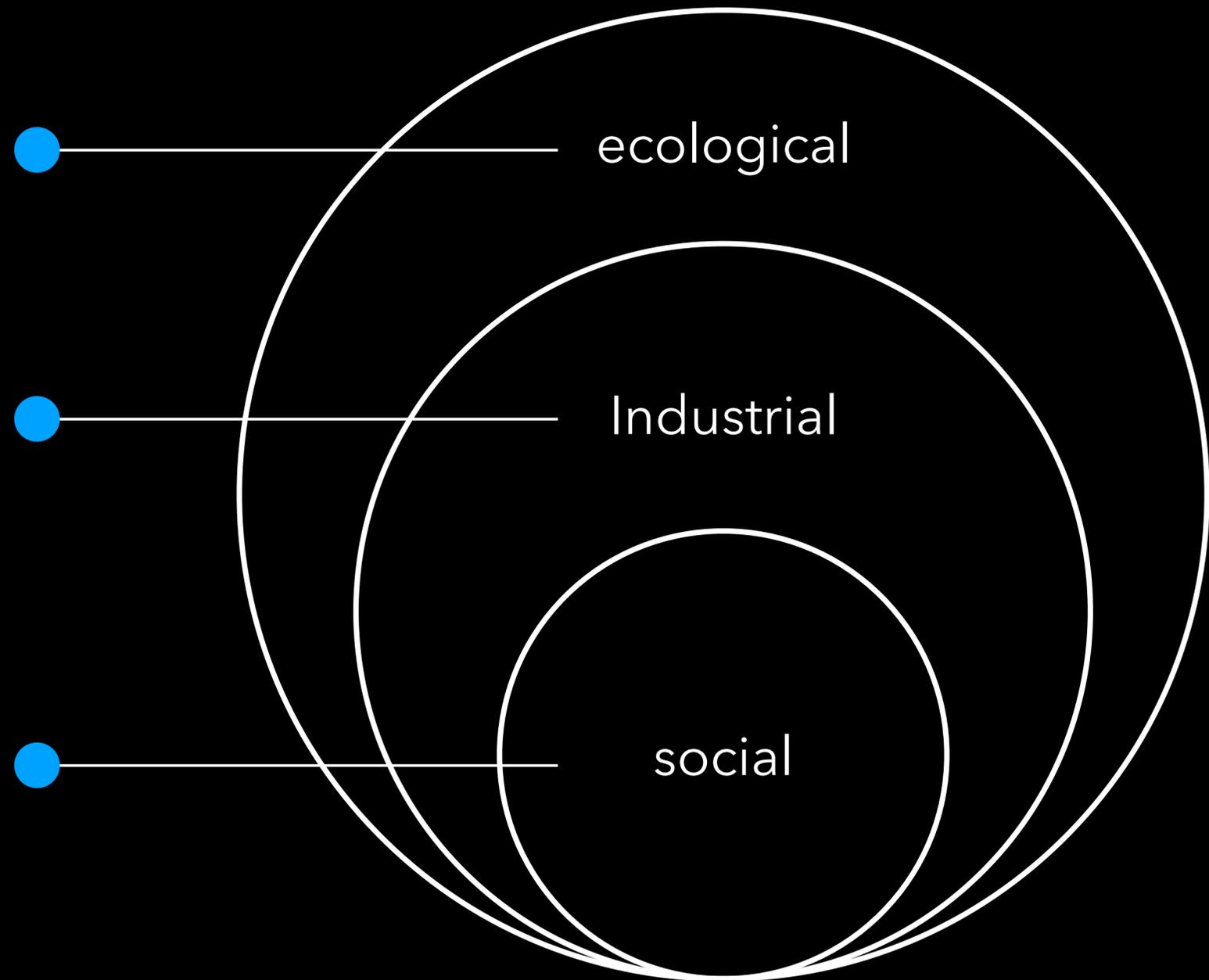


All systems can be divided into 3 key systems

The natural systems that support life on earth

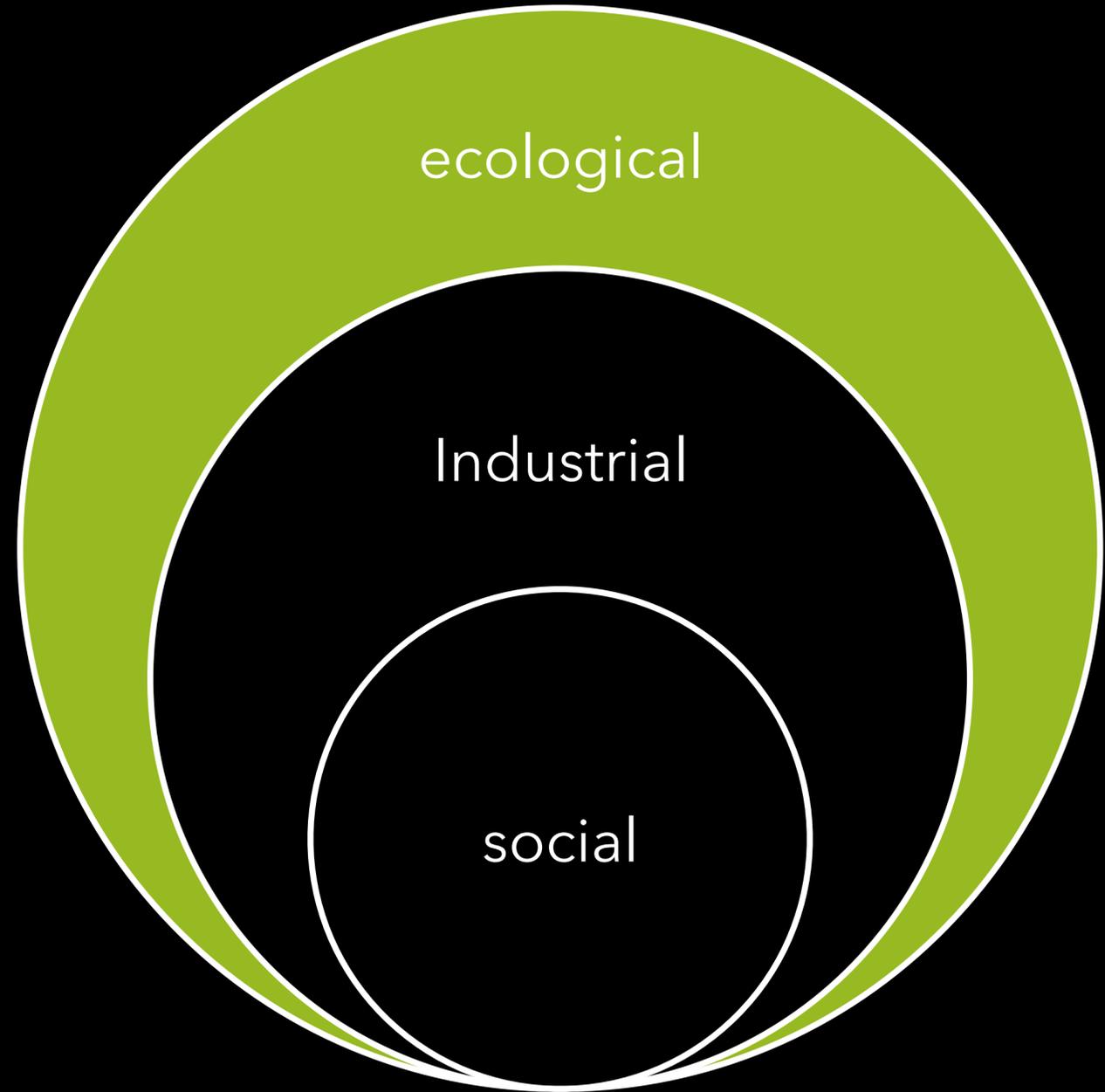
The manufactured, material based systems produced for humans

The intangible systems created by humans for social cohesion



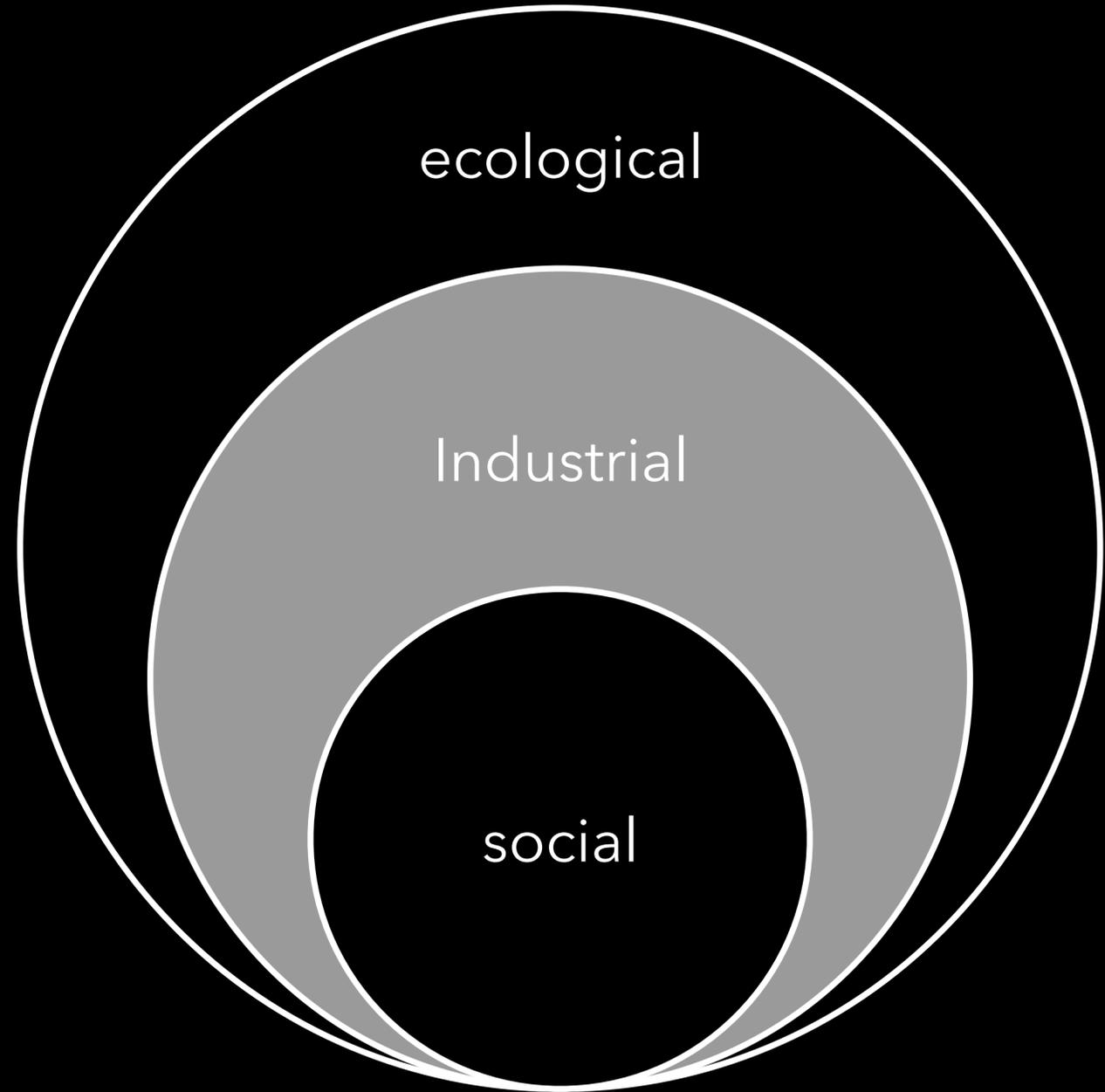


Land & soil
Climate
Water
Food chain
Living creature

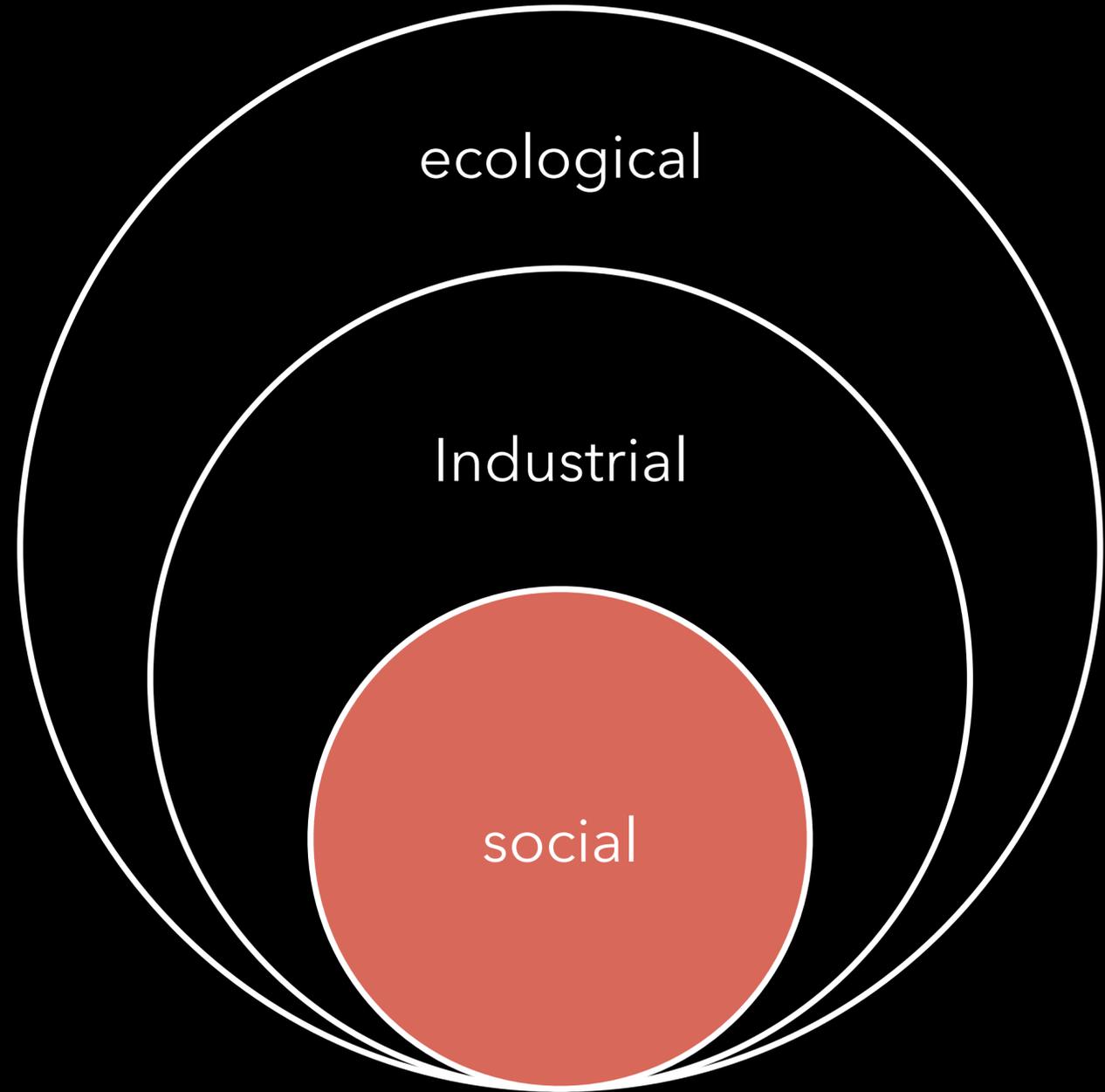




Settlements (cities)
Transportation routes
Communication systems
Manufacturing
Infrastructures



Economics
Class & status
Education
Culture
Families



A system is a whole that cannot be divided into independent parts.



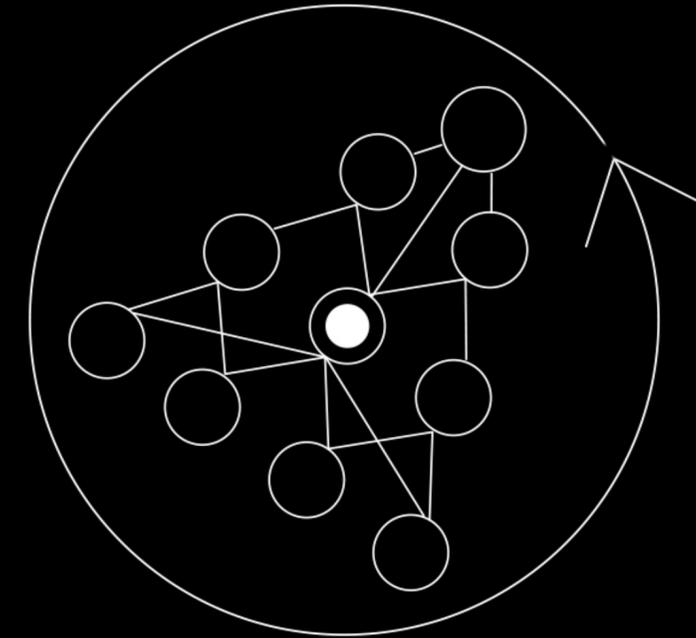
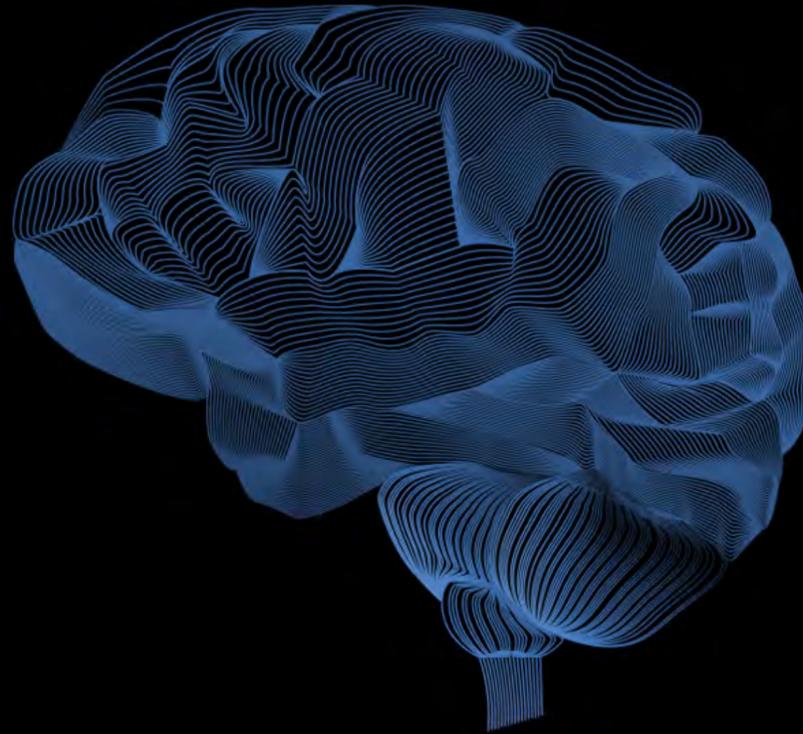
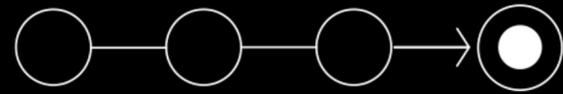
The behaviour of each element has an effect on the whole.

The behaviour of the elements and their effects on the whole are interdependent.

The human body contains many systems

Digestive, circular, skeletal systems, etc.





LINEAR THINKING

Break things into component pieces

Try to fix symptoms

Try to control chaos to create order

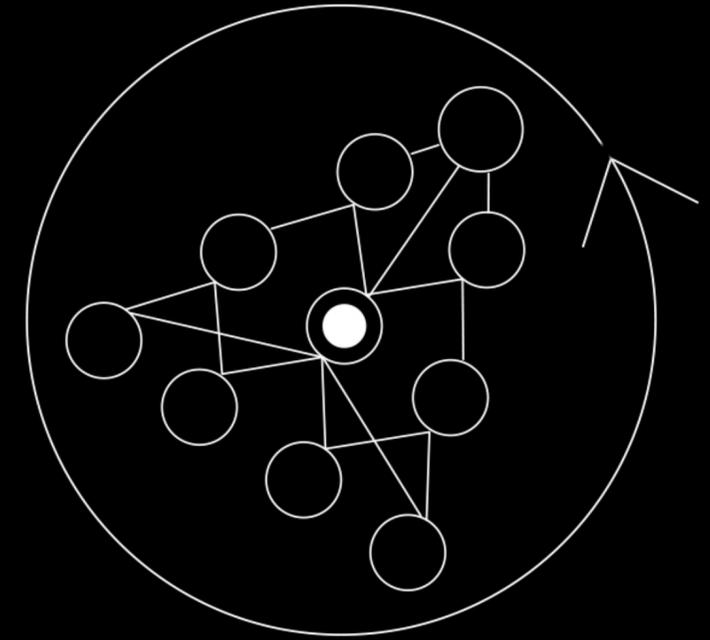
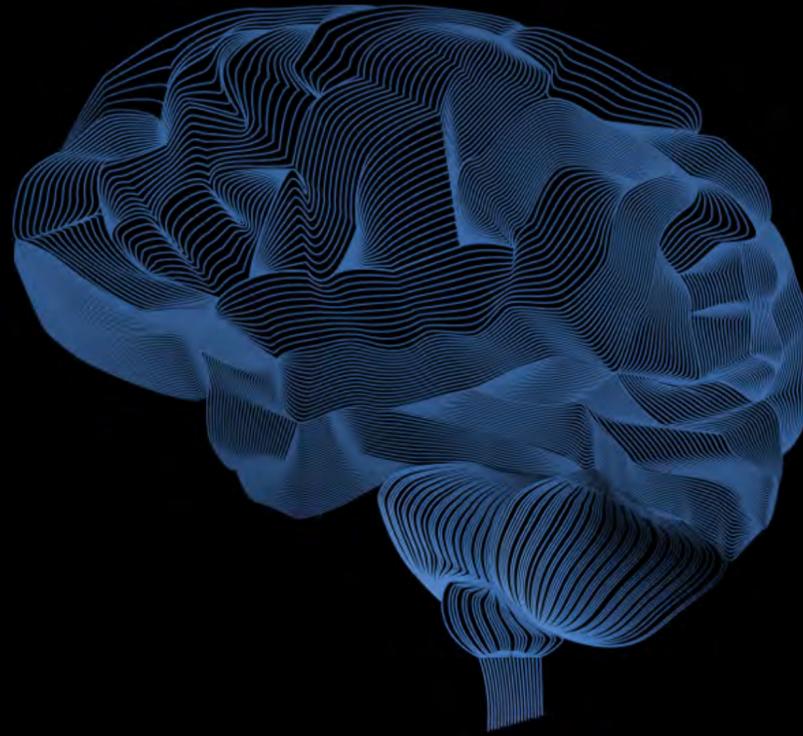
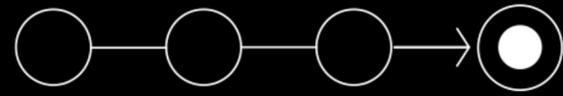
SYSTEMS THINKING

Are concerned with the whole

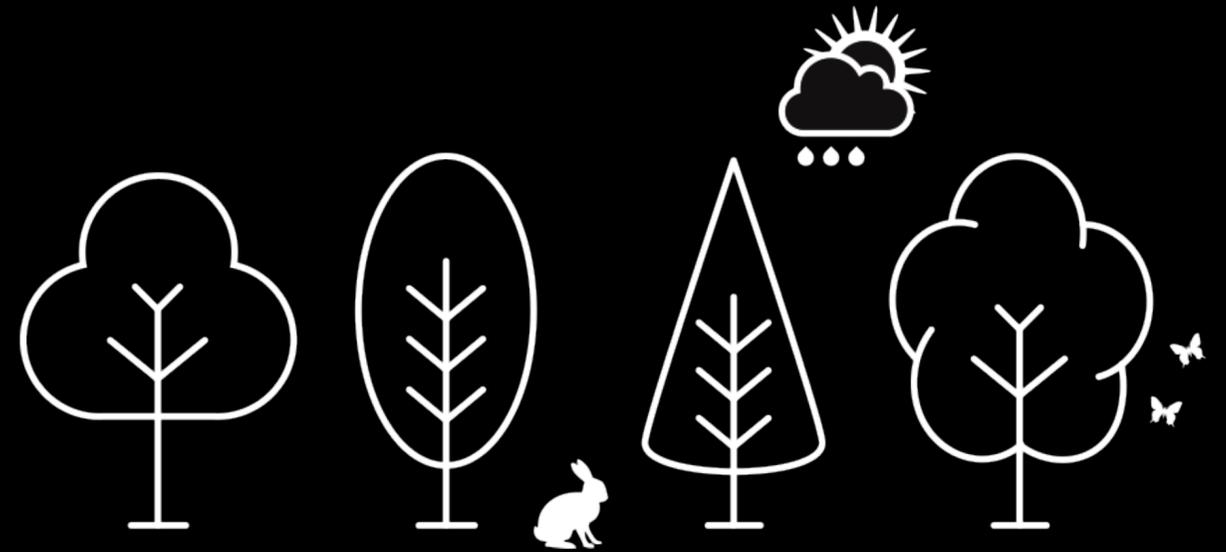
Are concerned with underlying dynamics

Try to find patterns amid the chaos





LINEAR THINKING



SYSTEMS THINKING

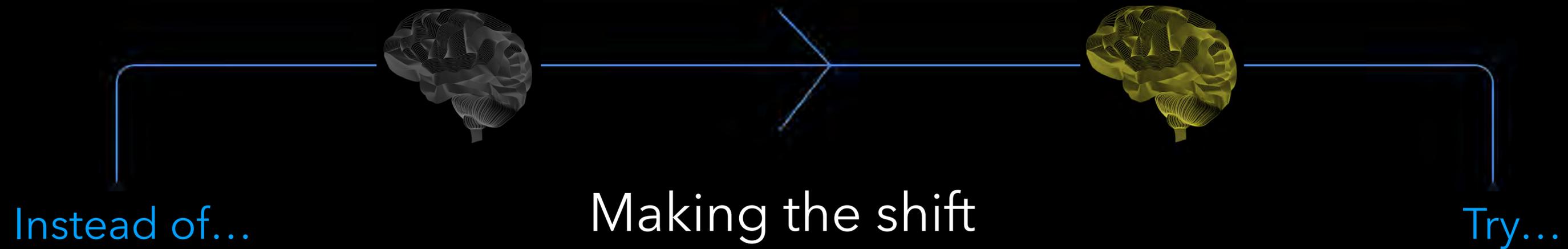




Shifting your thinking

process requires more effort





Instead of blaming someone, ask...

"What influences that person?"

Instead of thinking you know the answer...

Always look for evidence to confirm or disconfirm your theory.

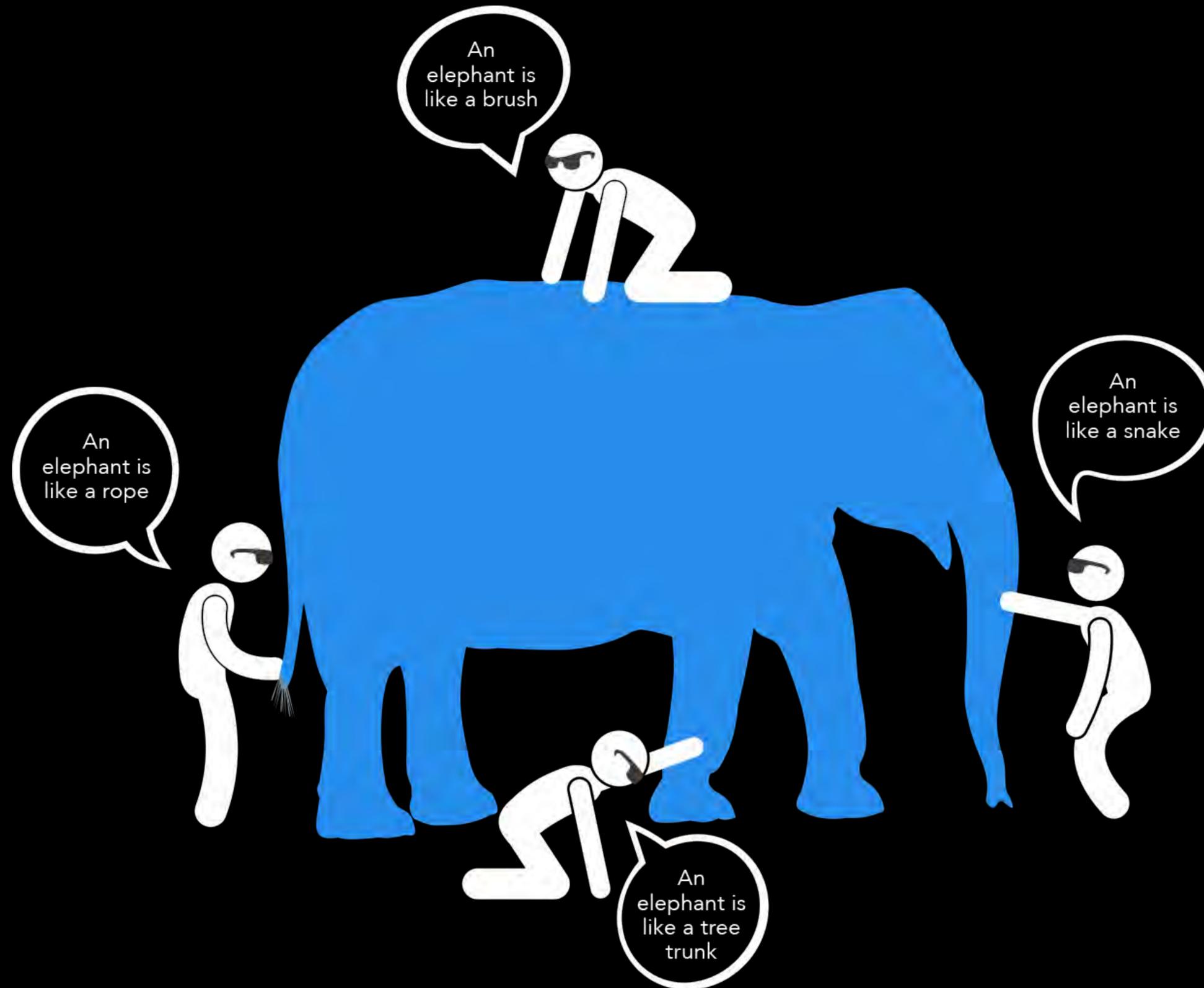
Instead of focusing on the one item...

Look at all the variables that affect that item.

Instead of focusing on negative behaviours...

Look at what's motivating these behaviours or if they are masking a deeper problem.





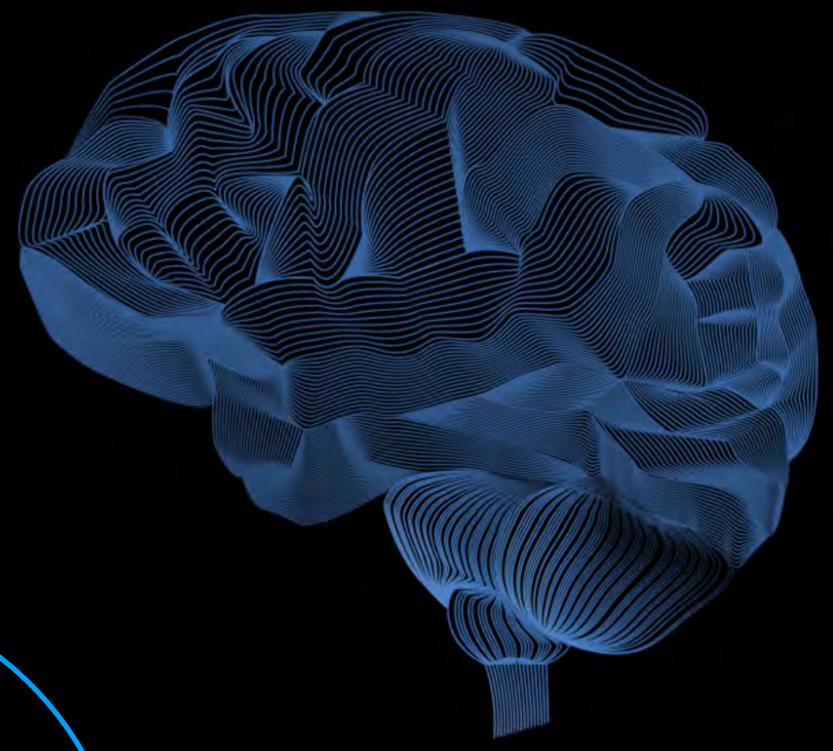
The whole is greater than the sum of its parts.

The blind men and the elephant.

Everyone sees part of a more complex reality and tends to assume that what they see is the whole picture.

Mental models

Schemas



Biases

an individuals construction of social reality





Understanding and **being aware** of our limitations with how we see the world.

Everyone views the world through a different lens.



Systems thinking tools



Tools you can use to become a **systems thinker**.

Define the problem

Find the
root cause of the
problem

See the BIG picture

Understand the
players

Problem Canvas

Co-creating

Context Map

The W Canvas

Iceberg Model

The 5 why's

Fish bone diagram

Iceberg Canvas

Archetype mapping

User Journeys

Touchpoint diagrams

3 Systems Mapping

User Research

Empathy maps

User Segments & Personas

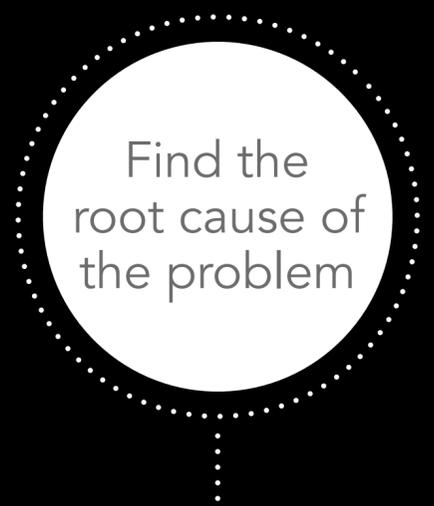
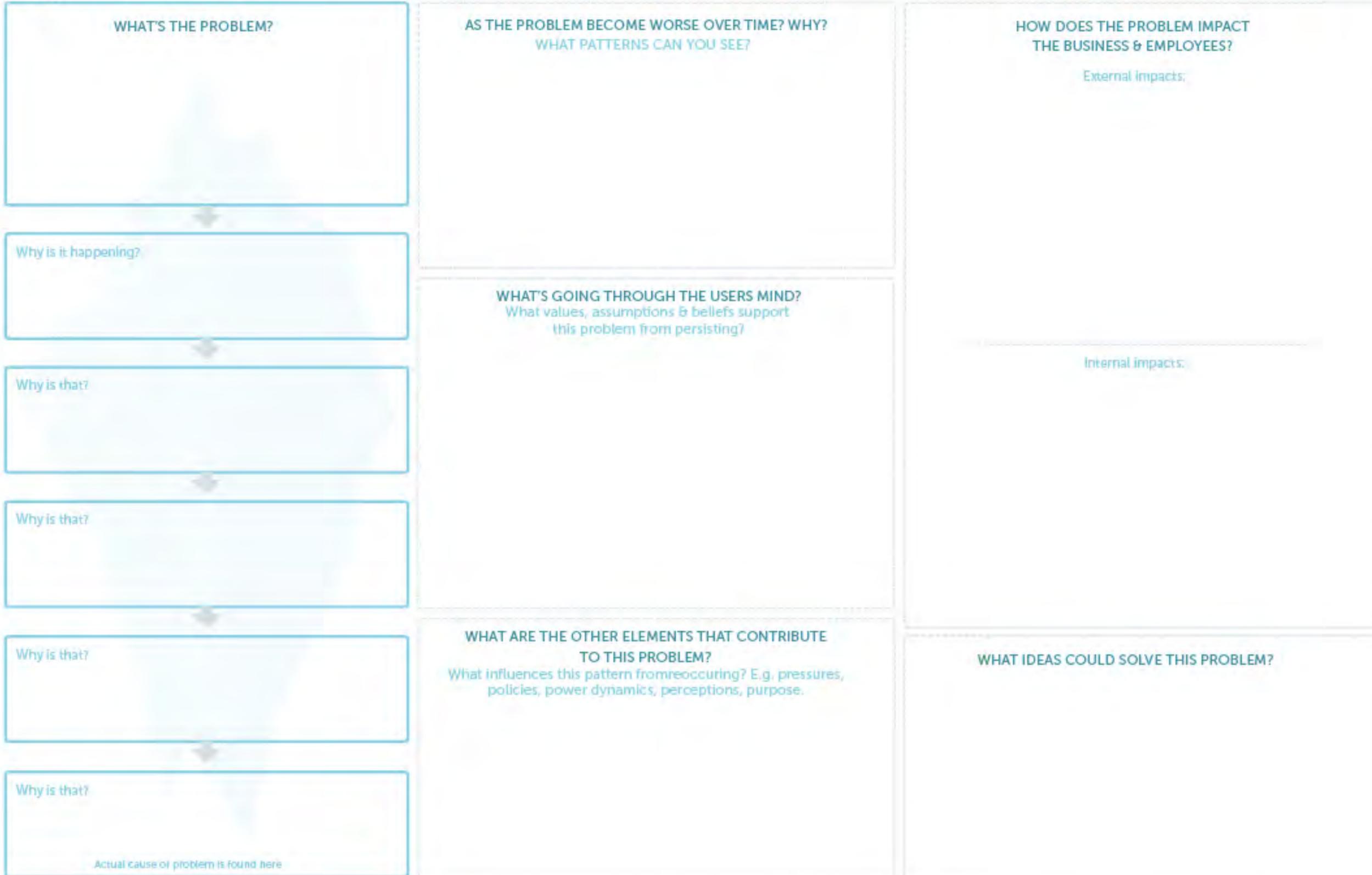
Defining mental models





ICEBERG CANVAS

The iceberg model helps you to think more systematically, by allowing you to distinguish a problem's symptoms from its root causes.



Iceberg Canvas

When to use:

Project start phase, problem scoping phase, Discovery/ inceptions, kickoffs.

Duration:

1hr group of 10 add more time for more people.

What you need:

A0 printouts of canvas OR draw up segments on whiteboard or large sheet and use extra sticky post it notes, fine tip sharpies



ICEBERG CANVAS

The iceberg model helps you to think more systematically, by allowing you to distinguish a problem's symptoms from its root causes.



WHAT'S THE PROBLEM?

People are using plastic bags only once and throwing them away.

AS THE PROBLEM BECAME WORSE OVER TIME? WHY? WHAT PATTERNS CAN YOU SEE?

Yes.

Plastic bags as the main source of debris pollution in the ocean killing millions of creatures.

HOW DOES THE PROBLEM IMPACT THE BUSINESS & EMPLOYEES?

External impacts:

Marine life will continue to die, the amount of algae will be reduced and we will eventually deplete the oxygen levels in the atmosphere which will affect the health of humans and animals on earth.

Why is it happening?

It's convenient to just use the ones supplied at the stores.

WHAT'S GOING THROUGH THE USERS MIND? What values, assumptions & beliefs support this problem from persisting?

It's what I've always done, its convenient.

Why are plastic bags so bad anyway?

Internal impacts:

Businesses don't want to annoy customers which might potentially deter them from shopping in their stores if they don't provide free plastic bags.

Why is that?

People can't be bothered to carry around their own

Why is that?

They are lazy and don't realise the impact

WHAT ARE THE OTHER ELEMENTS THAT CONTRIBUTE TO THIS PROBLEM?

What influences this pattern from reoccurring? E.g. pressures, policies, power dynamics, perceptions, purpose.

Social norms to do with shopping.
Most stores just give them away for free.
There are no regulations in stores.

WHAT IDEAS COULD SOLVE THIS PROBLEM?

Policies in stores.
Education campaigns to inform people of the impact of plastic bags.

Why is that?

It's not seen as a bad thing & convenience wins over real issue

Why is that?

Lack of education on the adverse effects

Find the root cause of the problem

Iceberg Canvas

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PROBLEM DEFINITION CANVAS

We want to gain a clear understanding of the problem in order to solve the right problem



<p>What is the key issue you are trying to address and why is it important?</p>	<p>Who is it a problem for?</p>	<p>Can you think of any actions that can be taken to solve this problem?</p>
	<p>Why, when and where is this problem experienced?</p>	
	<p>What social/cultural factors shape this problem?</p>	<p>What is the long term change you hope will occur?</p>
	<p>What evidence do you have that this is worth the investment?</p>	



Define the problem

Problem Canvas

When to use:

Project start phase,
Discovery/inceptions,
kickoffs, ideations

Duration:

1-2hrs for a group of 10
Add more time if the
number of people
increases.

What you need:

A3 printouts of canvas &
fine tip sharpies

PROBLEM DEFINITION CANVAS

We want to gain a clear understanding of the problem in order to solve the right problem



What is the key issue you are trying to address and why is it important?

Reduce the use of single-use plastic in particular plastic grocery bags.

It's important because it is causing negative environmental impact & having an adverse reaction on marine ecosystems and also using fossil fuels.

Who is it a problem for?

Marine ecosystem & fossil fuels

Why, when and where is this problem experienced?

Convenience

Every day, every minute.

Shopping experiences in super markets, retail stores and fast food outlets

What social/cultural factors shape this problem?

lack of awareness of the negative impact of plastic on the environment.

Laziness

Branding, expected norm

What evidence do you have that this is worth the investment?

Depleting fossil fuels

Environmental impacts

Can you think of any actions that can be taken to solve this problem?

Bring awareness & education to consumers about how long plastic takes to break down, environmental impacts etc.

What is the long term change you hope will occur?

Start education programs at school at a very early age, so the change in awareness and mindset grows with new generations.

Define the problem

Problem Canvas

When to use:

Project start phase, Discovery/inceptions, kickoffs, ideations

Duration:

1-2hrs for a group of 10
Add more time if the number of people increases.

What you need:

A3 printouts of canvas & fine tip sharpies

ARCHETYPE WORKSHEET - SHIFTING THE BURDEN

I want to identify possible solutions for shifting the burden archetype



Archetype diagram Mapping

When to use:

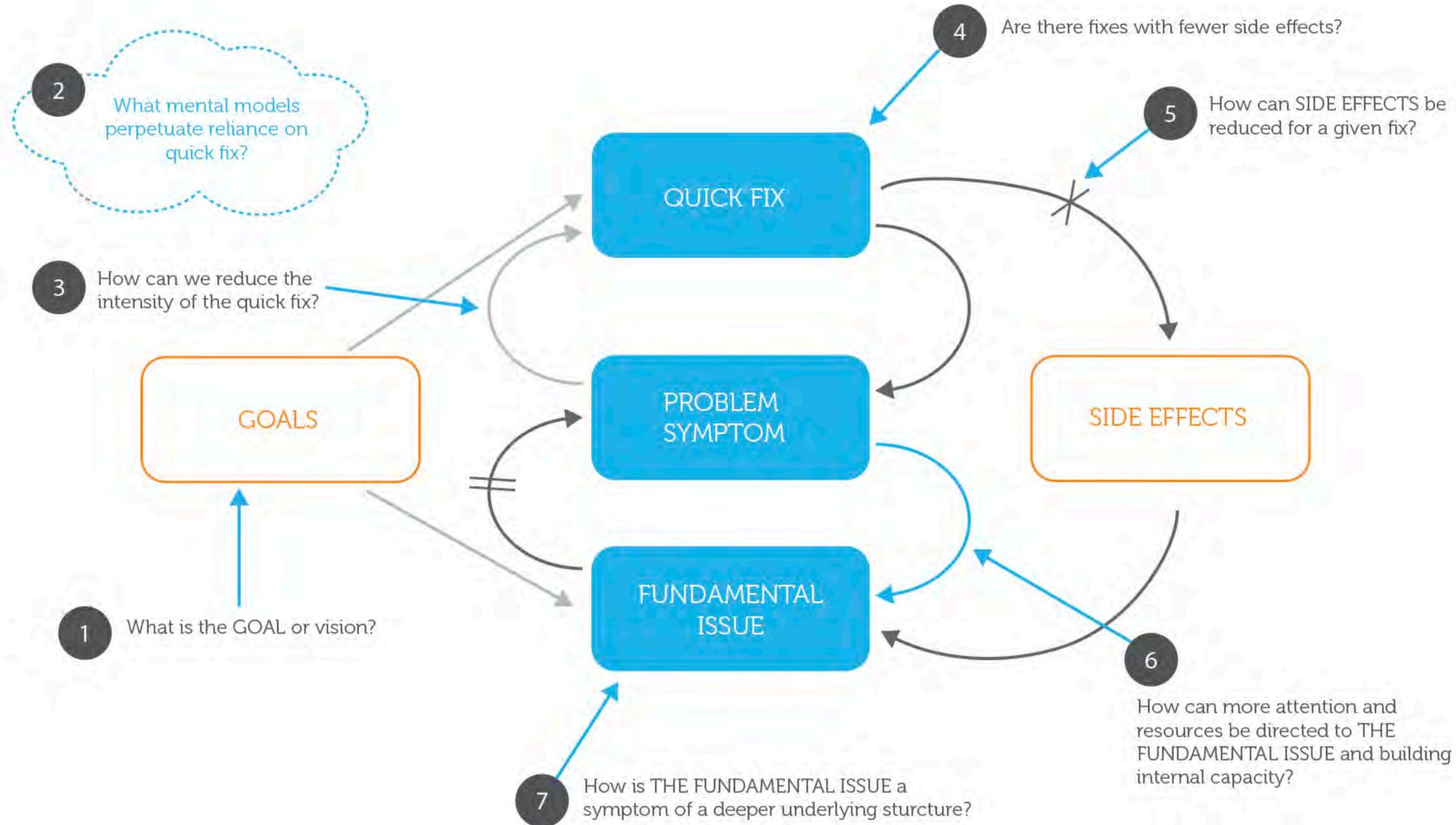
Project start phase, problem scoping phase, Discovery/ inceptions, kickoffs.

Duration:

30-60mins

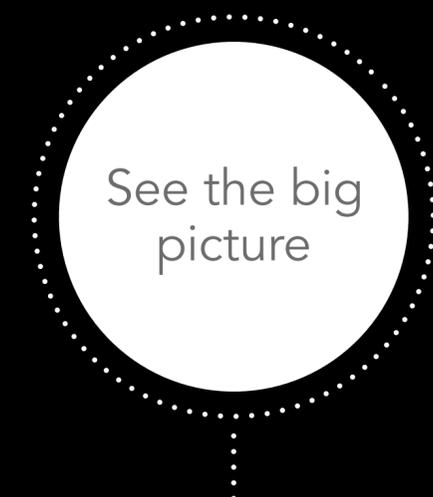
What you need:

Sheet of paper or whiteboard.



ARCHETYPE WORKSHEET - SHIFTING THE BURDEN

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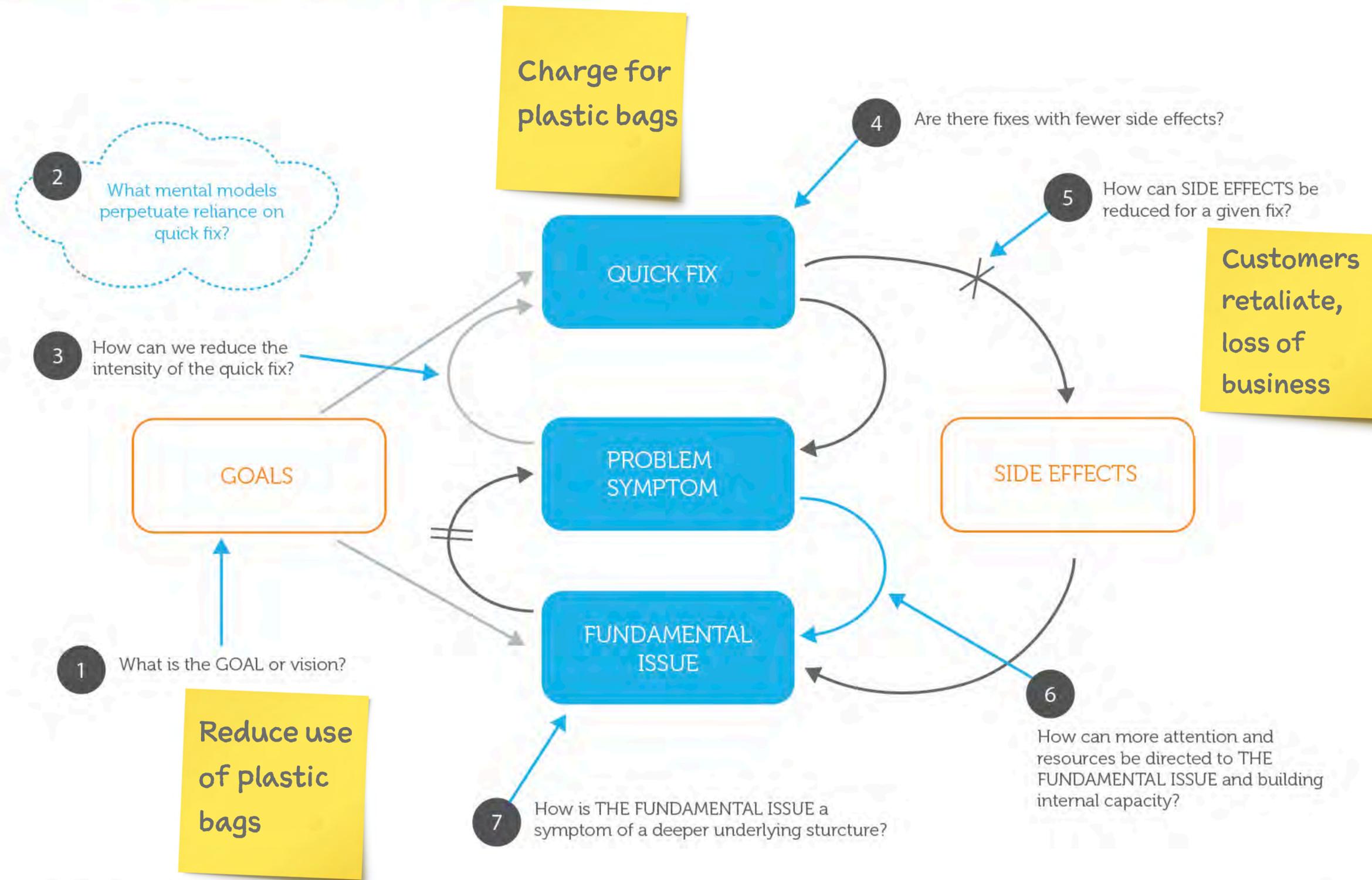


Archetype diagram Mapping

When to use:
Project start phase, problem scoping phase, Discovery/ inceptions, kickoffs.

Duration:
30-60mins

What you need:
Sheet of paper or whiteboard.



The problems.



Disposable coffee cups.

How might we reduce the amount of disposable coffee cups that are used?

Half a trillion disposable cups are manufactured annually around the world; that's over 70 disposable cups for every person on the planet. Disposable coffee cups are difficult to recycle because there is plastic in the lining to reduce leaks. Inconsistent recycling infrastructures around the world mean that most are not recycled.



Single use plastic waste.

How might we get products to people without generating plastics waste?

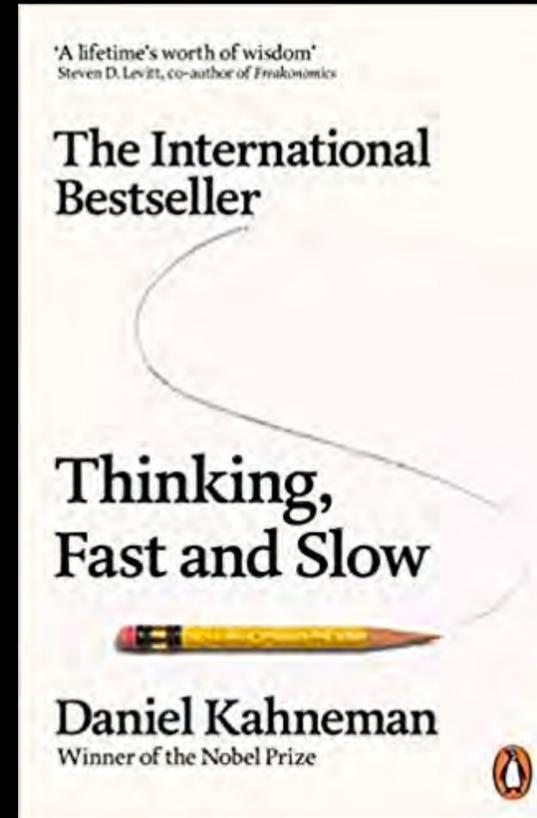
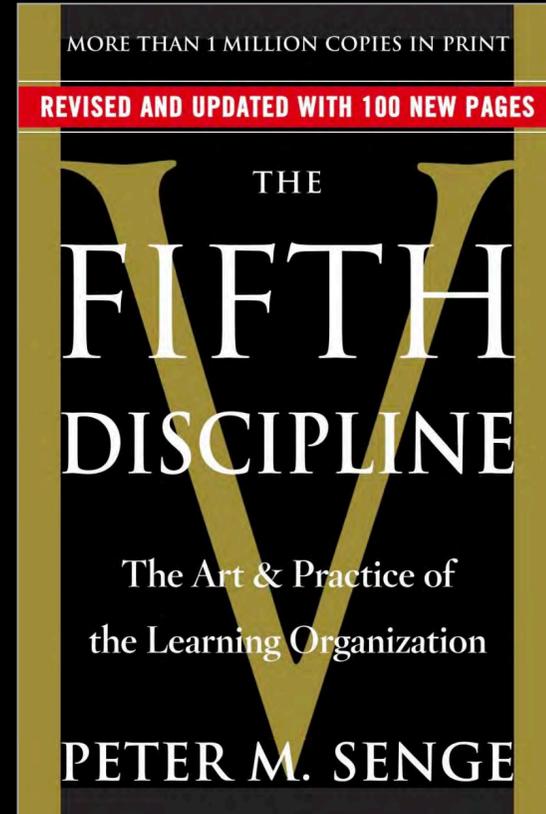
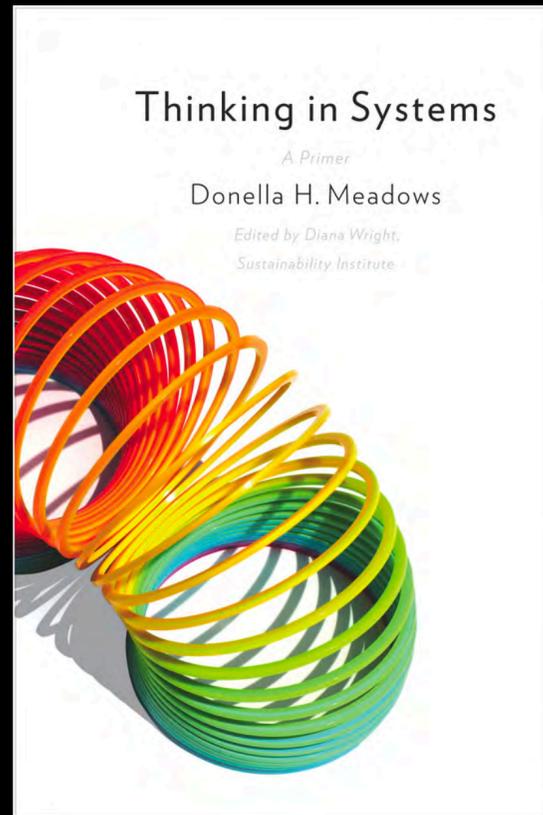
Demand for plastics is projected to double over the next 20 years, and if consumption habits and production processes don't change, there could be more plastics than fish in the ocean by 2050. If we want to free our ocean from plastics, we have to do more than just cleaning up beaches or removing plastic from the ocean.

Keep learning.



Adopt a growth mindset.

BOOKS



WEB RESOURCES

www.thesystemsthinker.com

www.online.unschools.co

SYSTEMS THINKING HEROES

Donella Meadows

Peter M. Senge

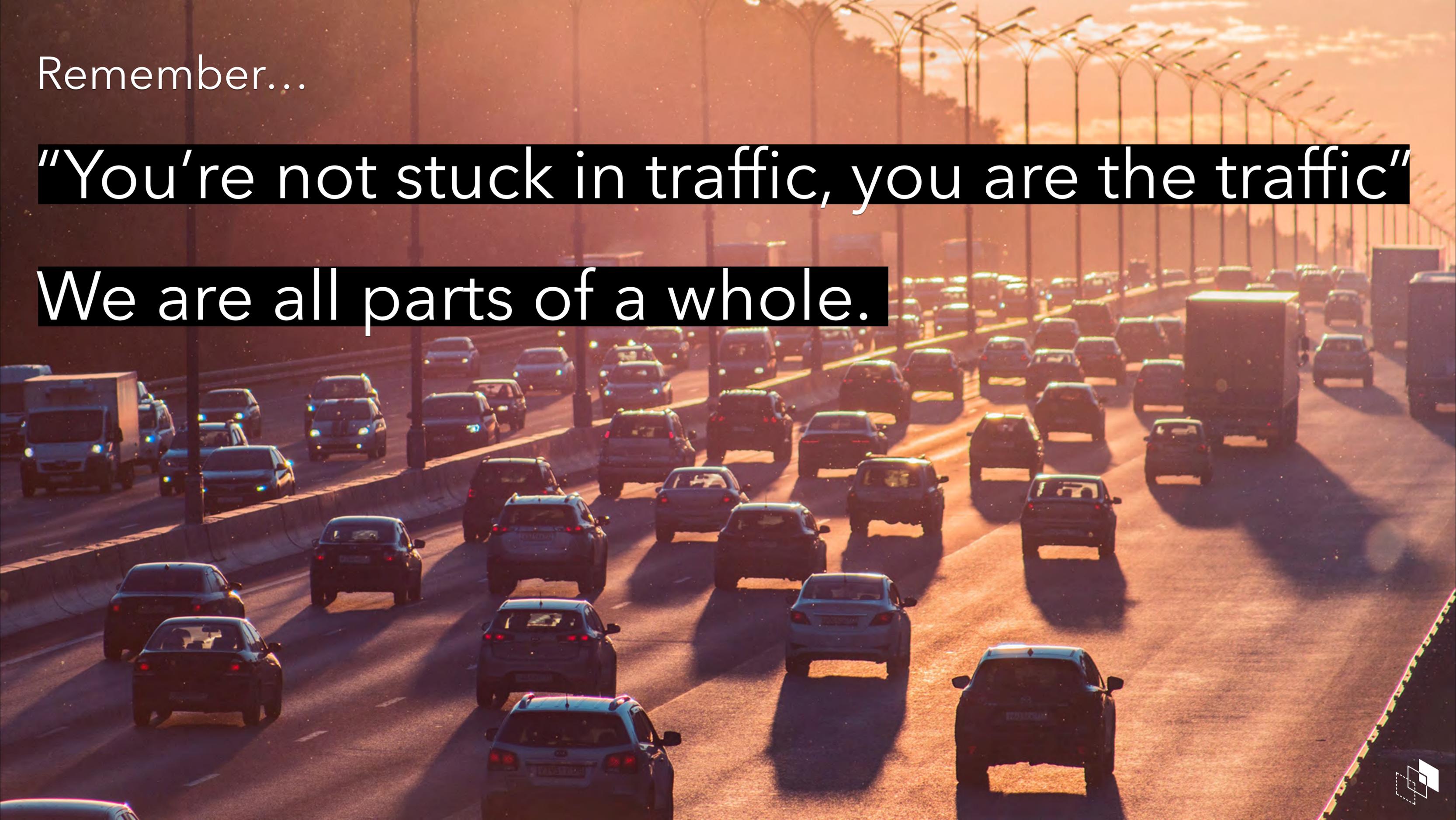
Leyla Acaraglu



Remember...

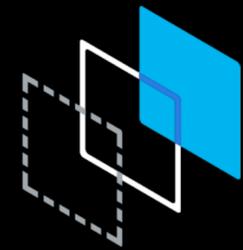
“You’re not stuck in traffic, you are the traffic”

We are all parts of a whole.



Thank you.

DIUS



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