

Beyond Quick Fixes

Using Current Reality Trees to Overcome Software Delivery Challenges

Suzanne Morrison

About Me



Suzanne Morrison

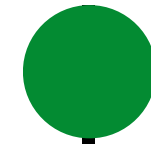


LET'S CONNECT

I'm an Agile Coach and Trainer with over 20 years of experience working with Agile teams.

I am passionate about helping teams and organisations to make long lasting improvements using a mix of lean, agile and systems thinking

Overview



Complex Adaptive Systems - what are they and why does it matter for continuous improvement?



Theory of Constraints - how the ToC toolkit can help us to navigate complexity.



Building Current Reality Trees (CRTs) - what they are, how to build and validate a CRT.



Practical Tips - top tips for using CRTs based on my own failures and learnings.

01

Continuous Improvement in Complex Adaptive Systems

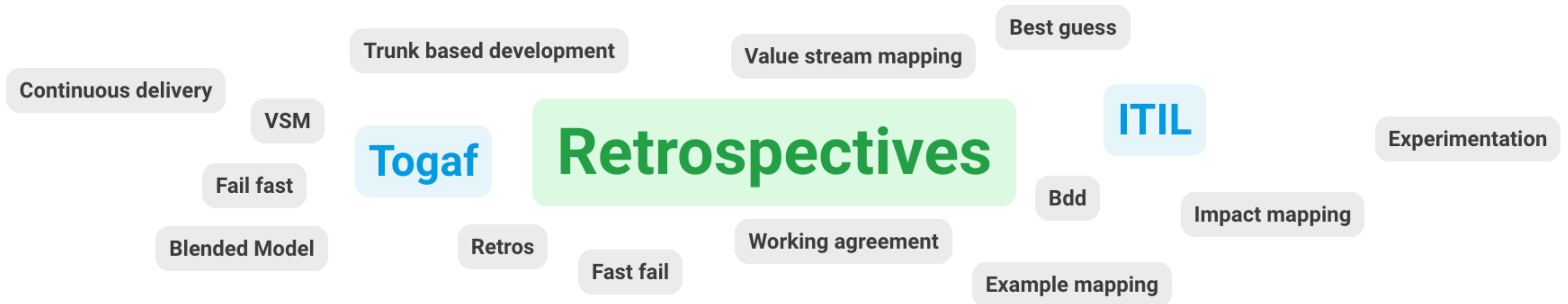


Poll: What techniques have your team or organisation used to improve?



Visit <https://slido.com> and
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code

Poll: What techniques have your team or organisation used to improve?



Continuous Improvement



Plan, do, check,
act (PDCA)



Visualising Work



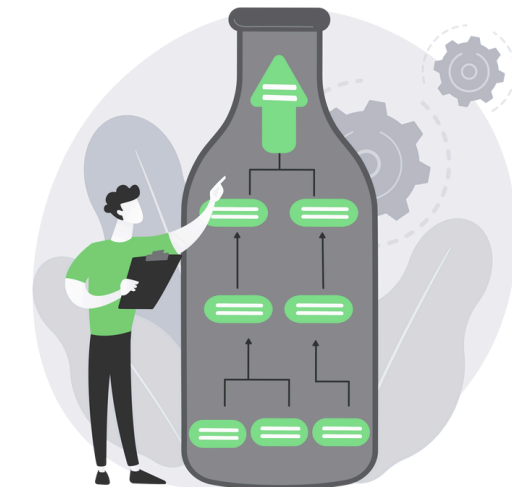
Pair Programming



Retrospectives



Experimentation



Theory of Constraints
(ToC)

What are Complex Adaptive Systems?



Credit - [airwolfhound](#) RSPB Minsmere

What is a Complex Adaptive System?

SYSTEM

A set of parts that
interconnect to achieve a
purpose

COMPLEX

The behaviour of the
whole can't be predicted
by looking at the parts

ADAPTIVE

Can change its
behaviour according
to the environment

More Examples of Complex Adaptive Systems



Forest



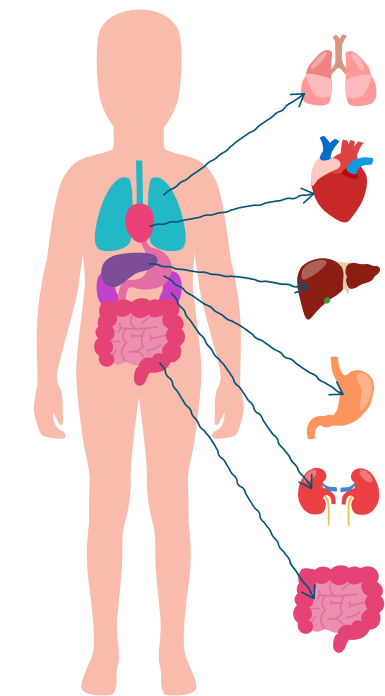
Teams and Organisations



Stock Market

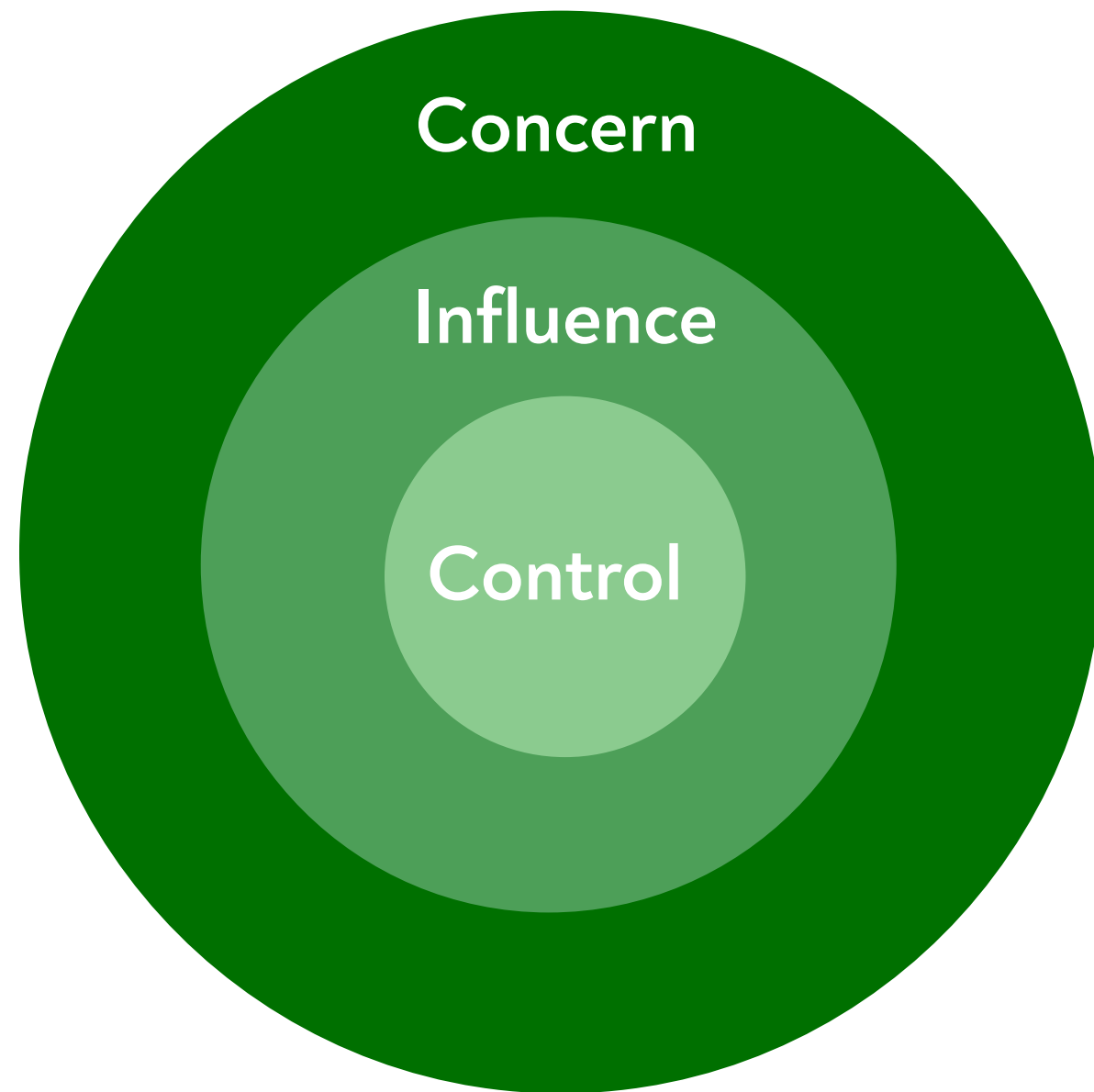


City



Human Body

Retrospectives - Common Challenges



**Sticking plaster
“solutions”**

02

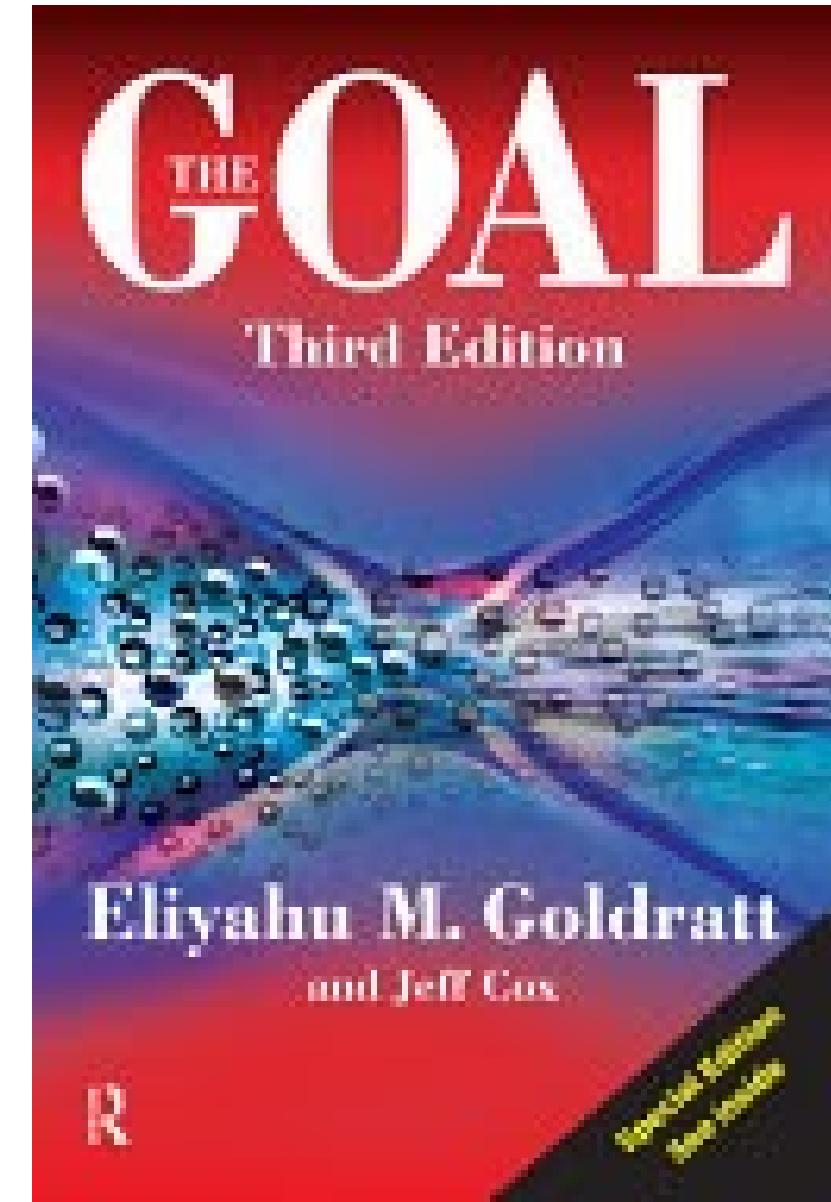
Theory of Constraints (ToC)



Theory of Constraints



Eliyahu Goldratt



Goldratt's Thinking Processes

WHAT TO CHANGE?

- Current Reality Trees
- Evaporating Clouds

WHAT TO CHANGE TO?

- Future Reality Trees
- Evaporating Clouds

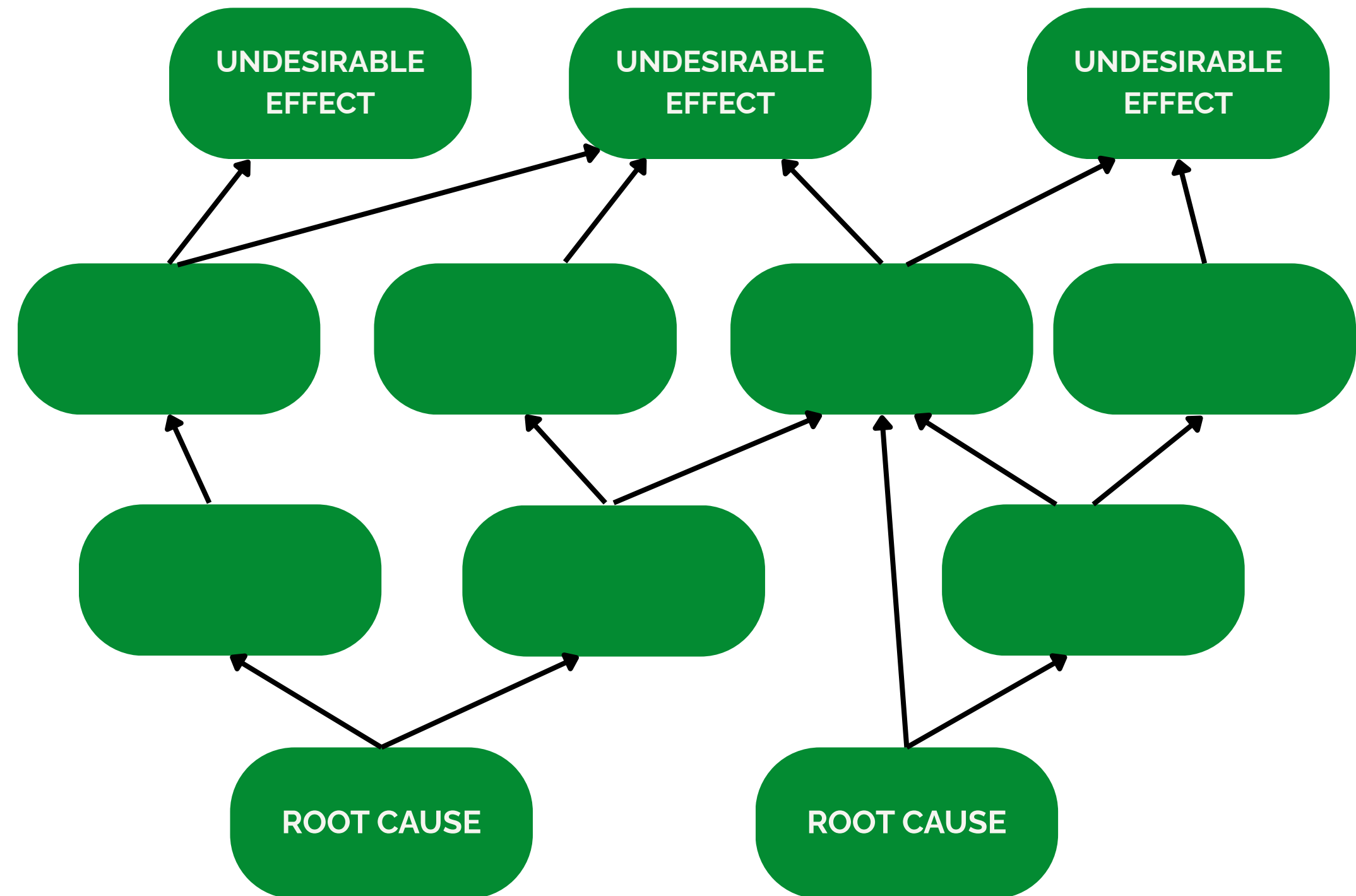
HOW TO CAUSE THE CHANGE?

- Transition Trees
- Pre-requisite Trees

“A **Current Reality Tree** (CRT) is a logical structure designed to depict the state of reality as it currently exists in a given system.

It reflects the most probable chain of cause and effect, given a specific fixed set of circumstances”

- William Dettmer (The Logical Thinking Processes)



I've used CRTs for...



Improving the speed of integration of partners on to the Skyscanner website



Getting management buy-in to invest in addressing technical debt

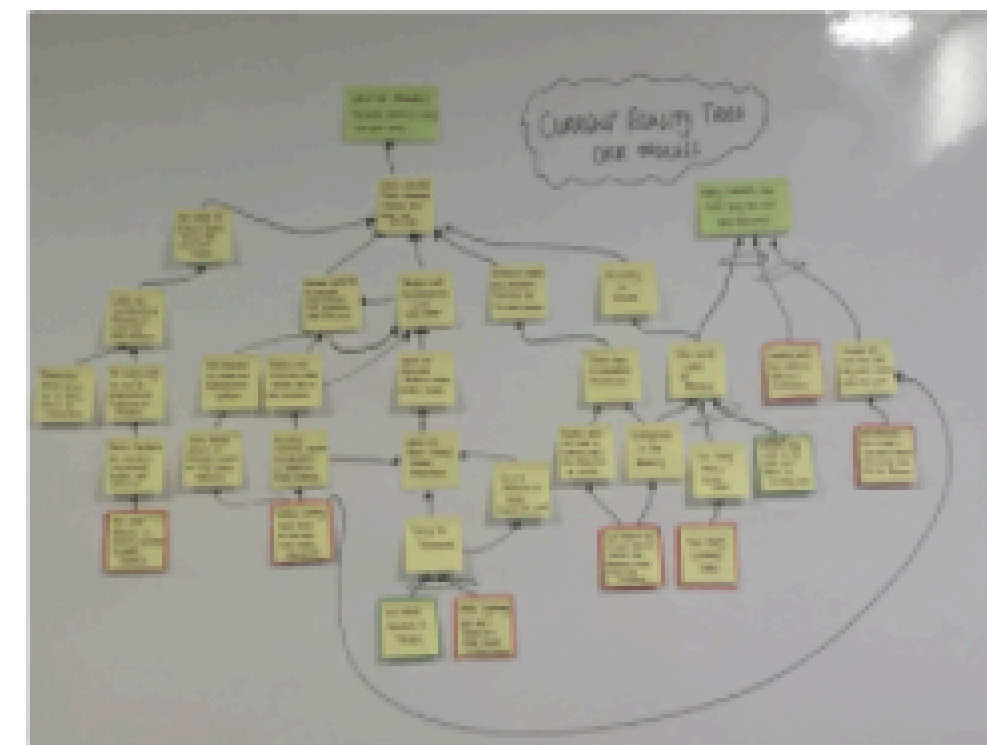
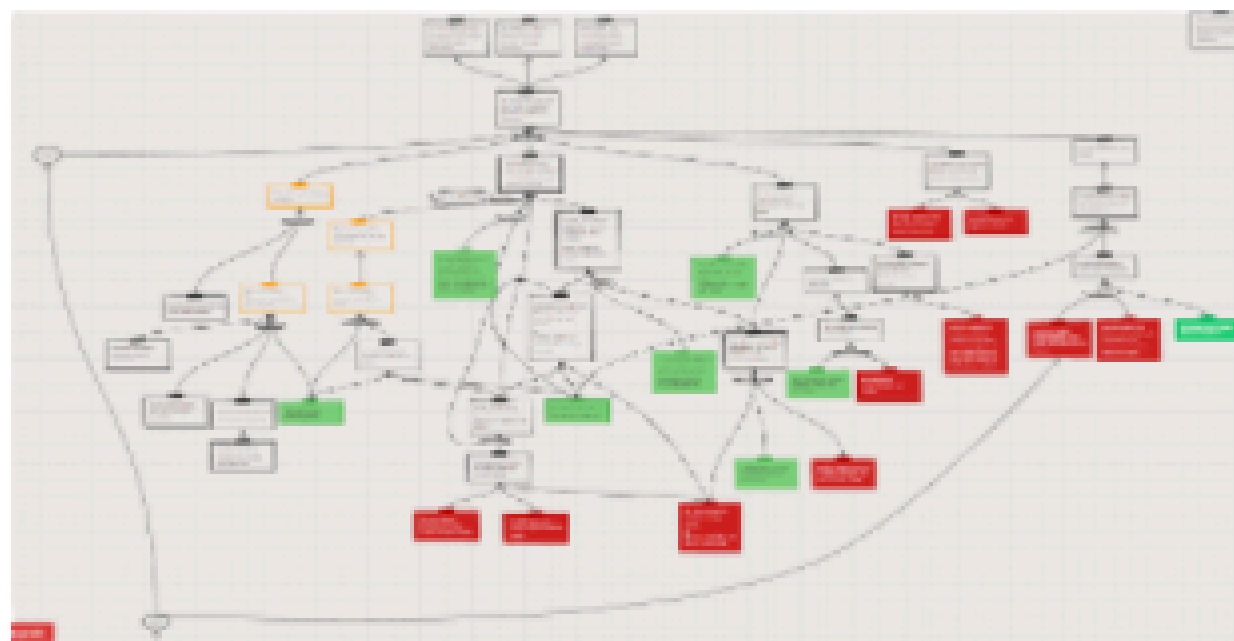
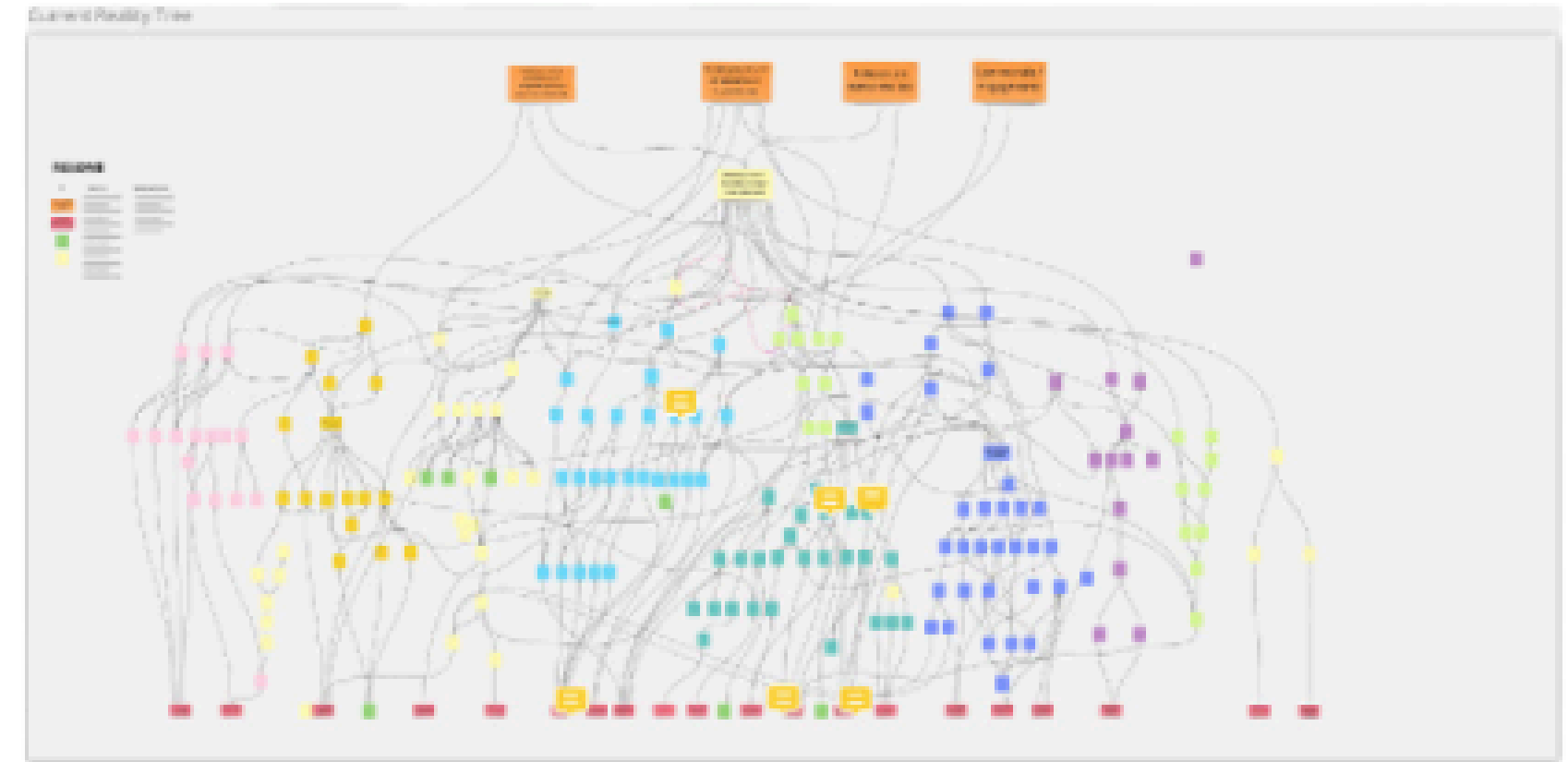


Improving the recruitment process



Understanding why an OKR process rollout didn't work as planned

Current Reality Tree - Real Examples



03

Building a Current Reality Tree



Let's Build A Current Reality Tree



**Operation Cat Drop -
MEOW!!!**

STEP 1 - Identify the Undesirable Effects (UDEs)



“An UDE is essentially the first indication you have that something might be amiss in the system. It is something that really exists and is negative on its own merits”

- William Dettmer (The Logical Thinking Processes)



Operation Cat Drop

What are the UDEs?



Join at
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Active poll

What are the Undesirable Effects (UDEs) in Operation Cat Drop?

Overpopulation of rats

☐ 0%

People are dying from the Plague

☐ 0%

Cats died of DDT poisoning

☐ 0%

Caterpillars eating peoples' roofs

☐ 0%

Lack of shelter

☐ 0%

Cats are being chunked out of planes



What are the Undesirable Effects (UDEs) in Operation Cat Drop?

People are dying from the Plague



Lack of shelter



Overpopulation of rats



Cats died of DDT poisoning



Caterpillars eating peoples' roofs



STEP 1 - Identify UDEs

Many people do not have sufficient shelter

Many people are dying from the plague

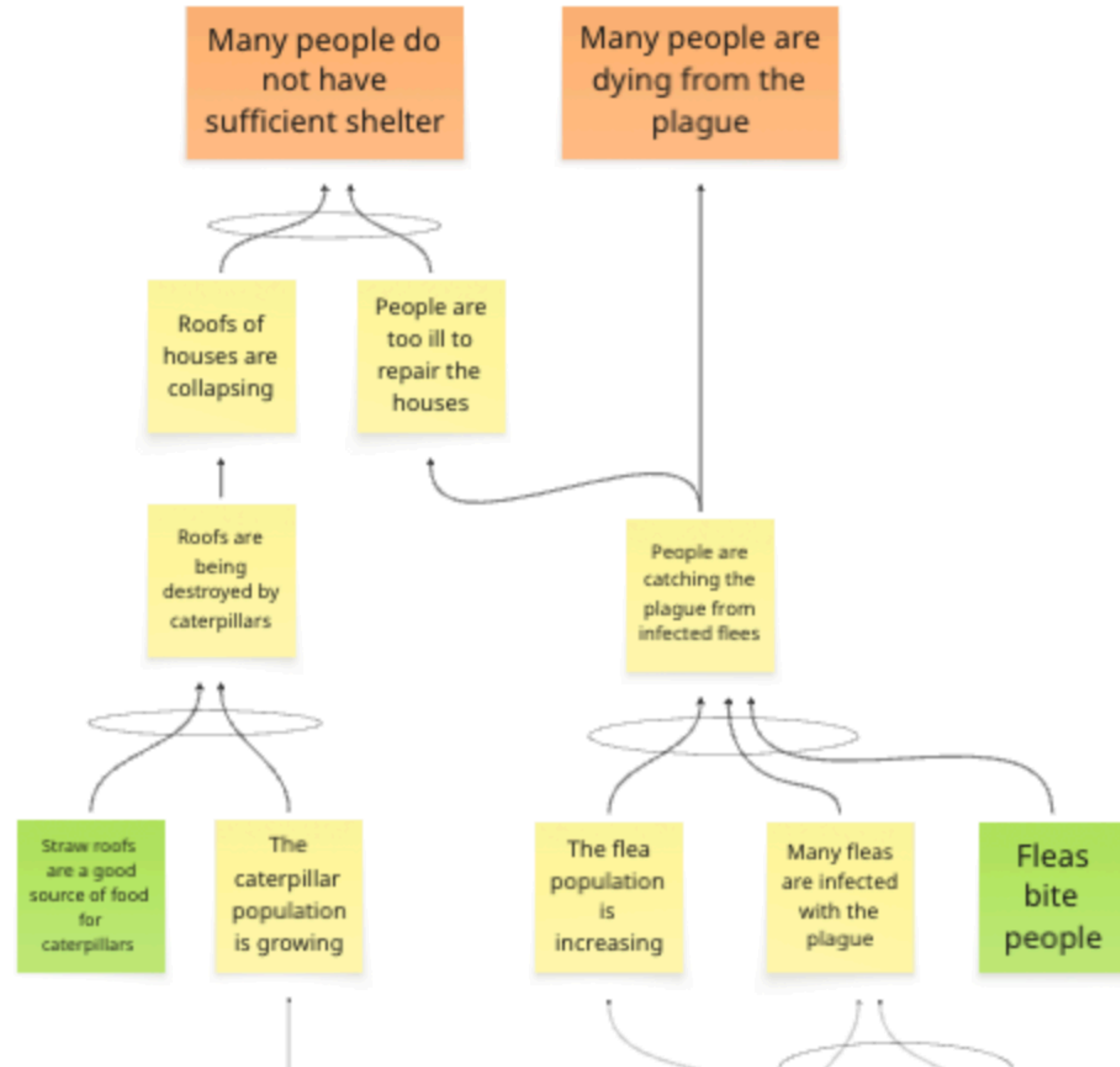
CHECK

- Is it negative?
- Is it happening right now?
- What if I ask “what is the impact of that....”

STEP 2 - Identify Intermediate Effects

TIPS

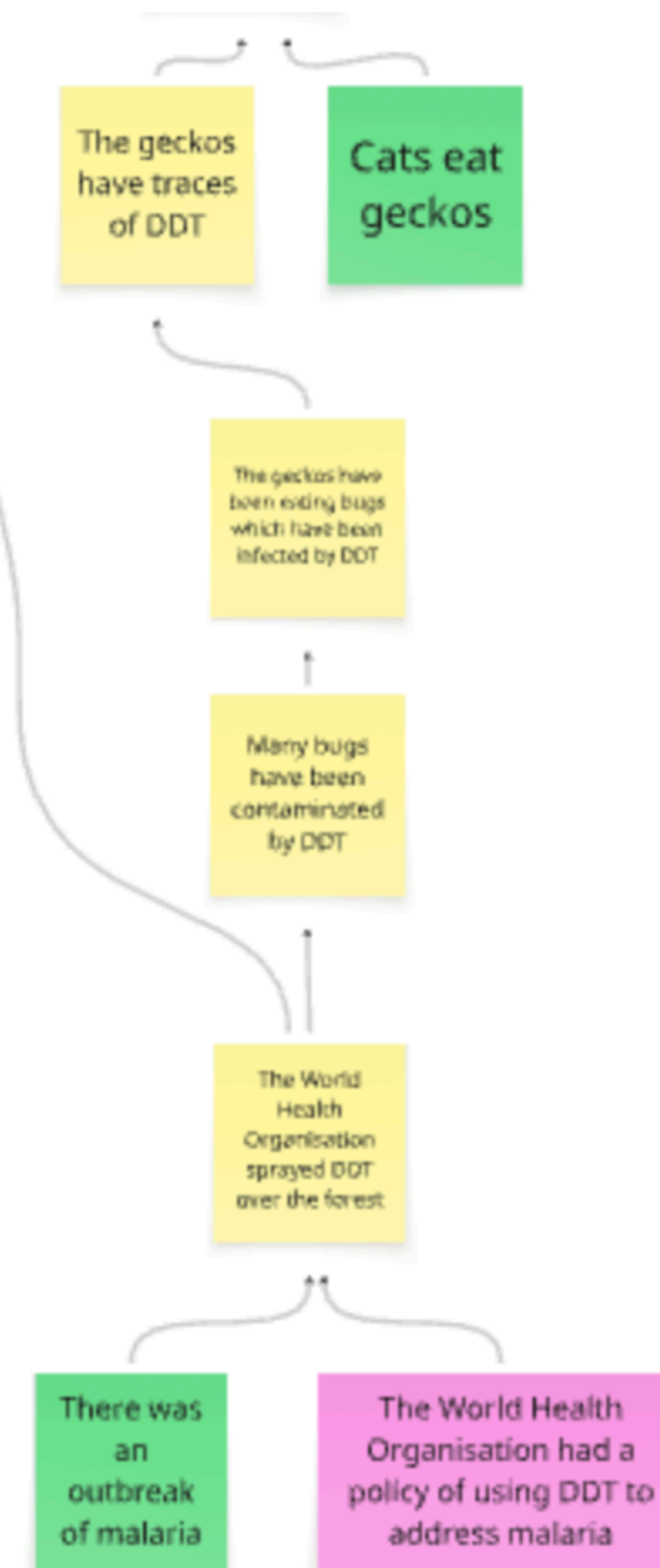
- Ask why?
- Ask what else?
- Keep going...



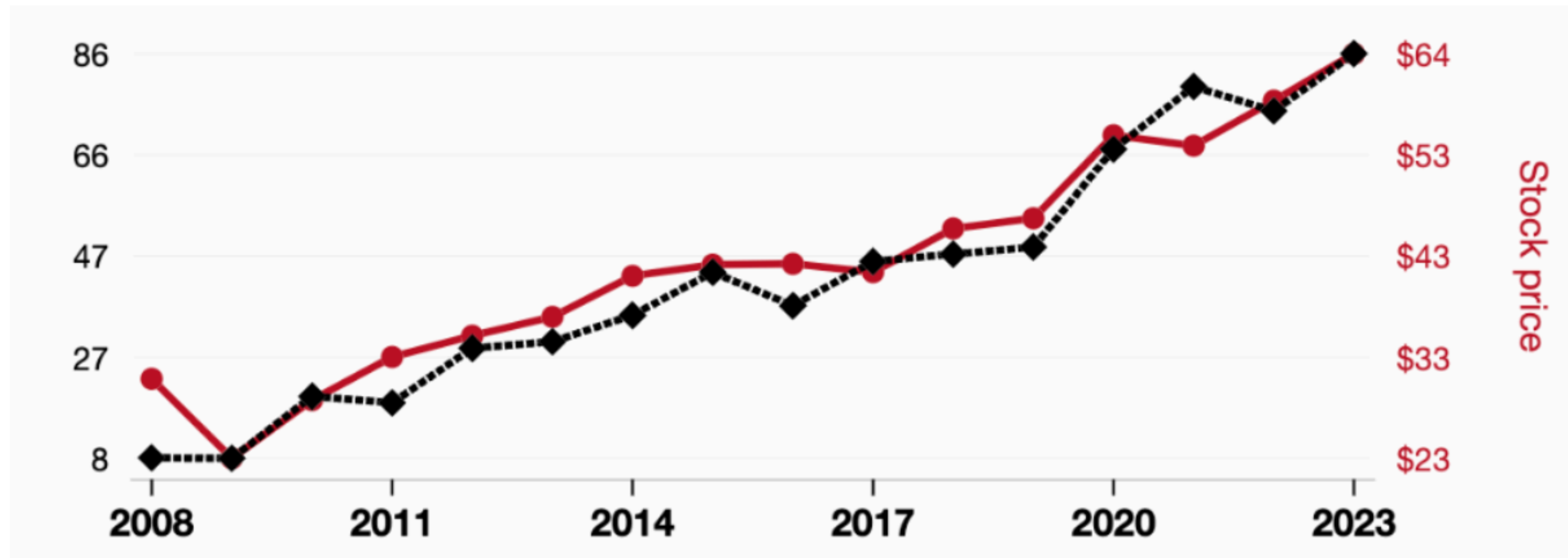
STEP 3 - Identify the Root Cause(s)

TIPS

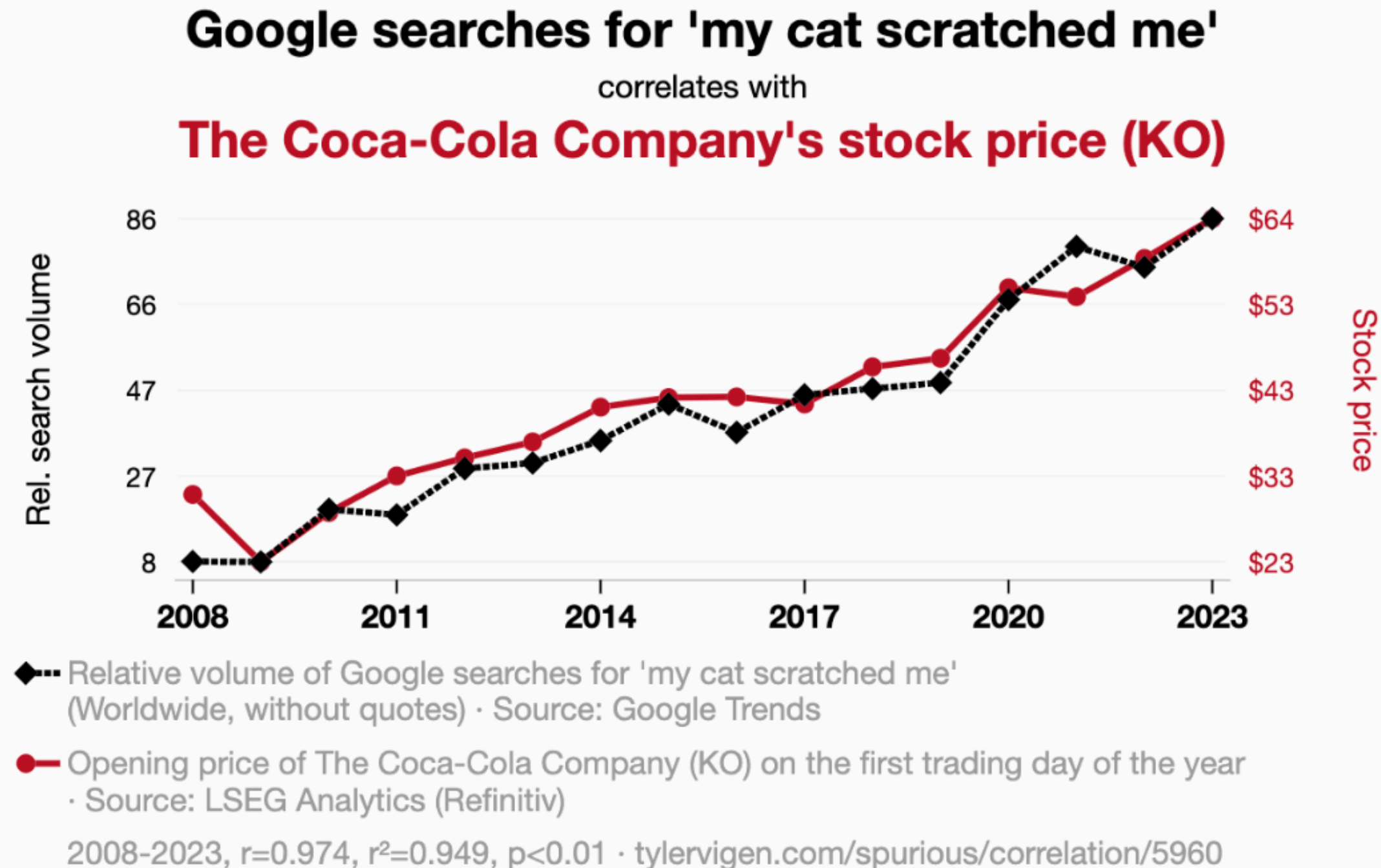
- Can you go any further (i.e. another “why?”)
- Is the root cause within the sphere of influence of the organisation?
- Is it definitely causation?



Double Check - Is it causation?



Beware of confusing causation with correlation



[View details about correlation #5,960](#)

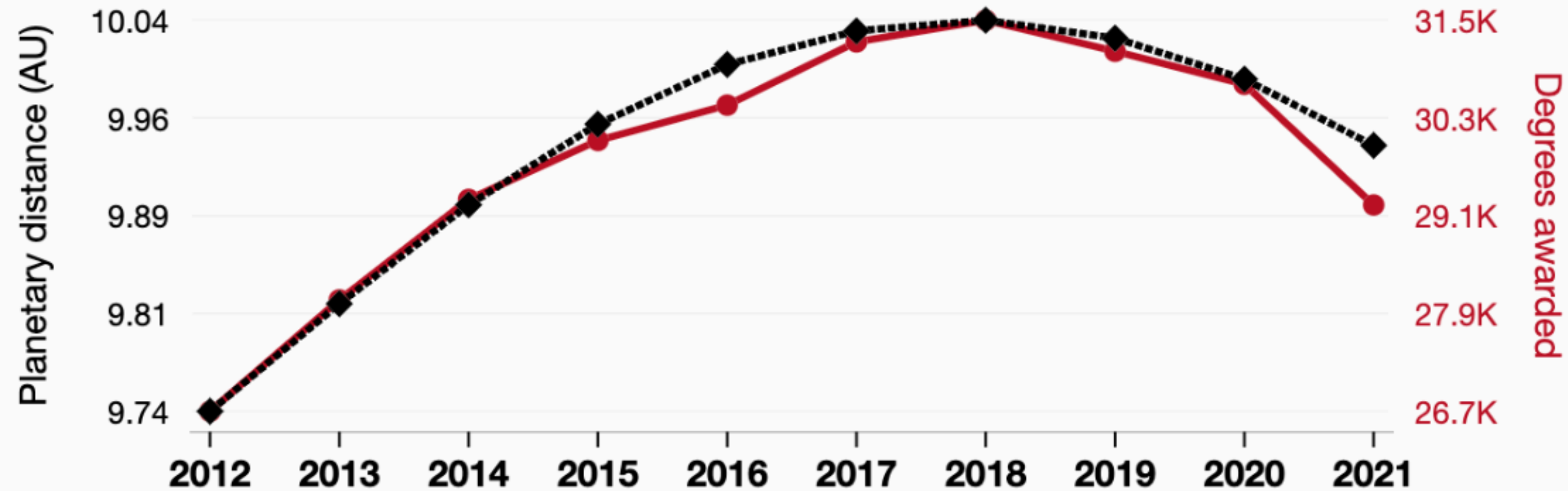
Analyzing the Purrfect Storm: A Feline Scratches and Coca-Cola Stock Price Correlation

miro

The distance between Saturn and the moon

correlates with

Bachelor's degrees awarded in Physical sciences



◆ The average distance between Saturn and the moon as measured on the first day of each month · Source: Cacculated using Astropy

● Bachelor's degrees conferred by postsecondary institutions, in field of study: Physical sciences and science technologies · Source: National Center for Education Statistics

2012-2021, $r=0.987$, $r^2=0.974$, $p<0.01$ · tylervigen.com/spurious/correlation/2656

miro

STEP 4 - Validate the Tree

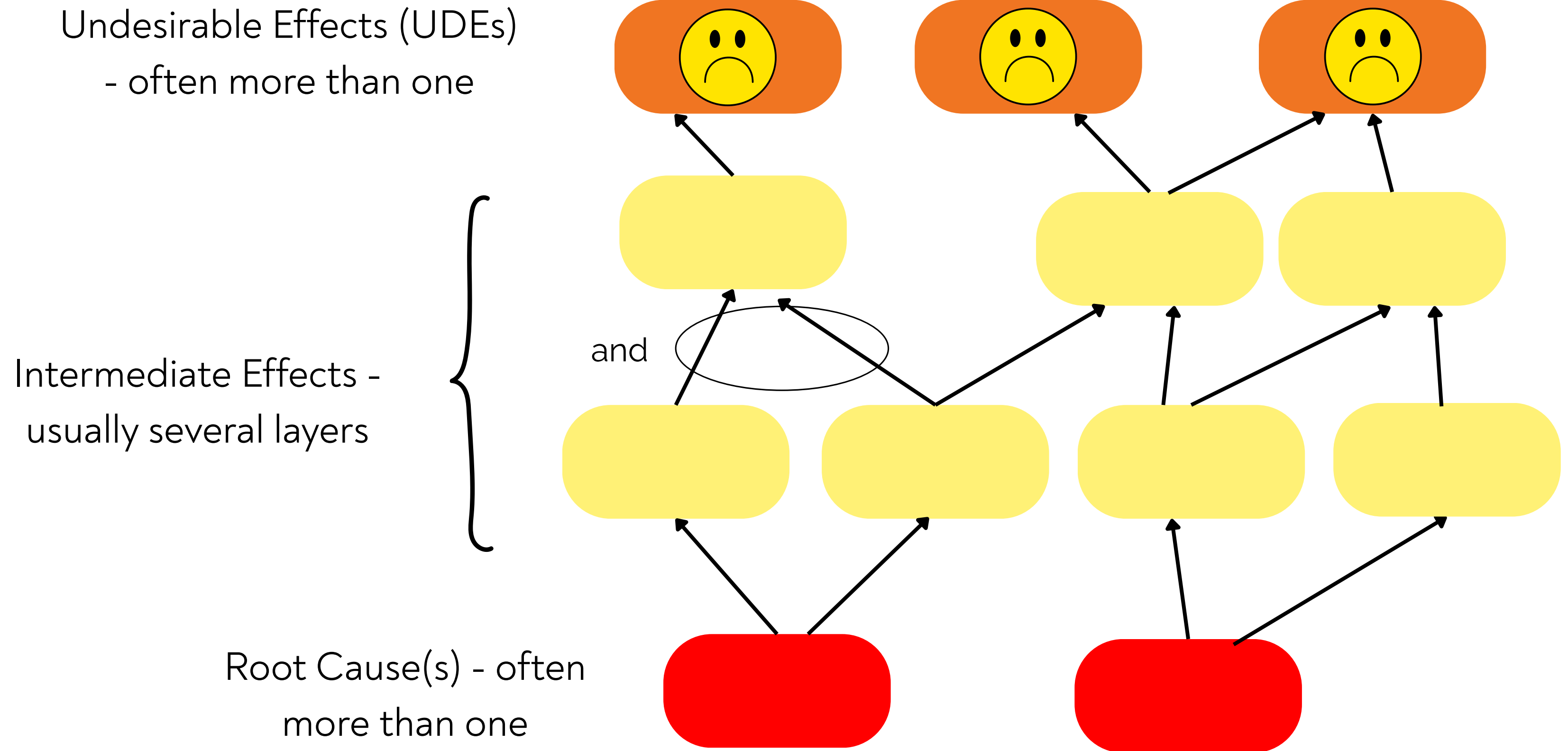


TIPS

Read the tree out loud

- Top to bottom - “the cause of this was....”
- Bottom to top - “the impact of this is...”

Current Reality Tree Anatomy



04

What to change to?





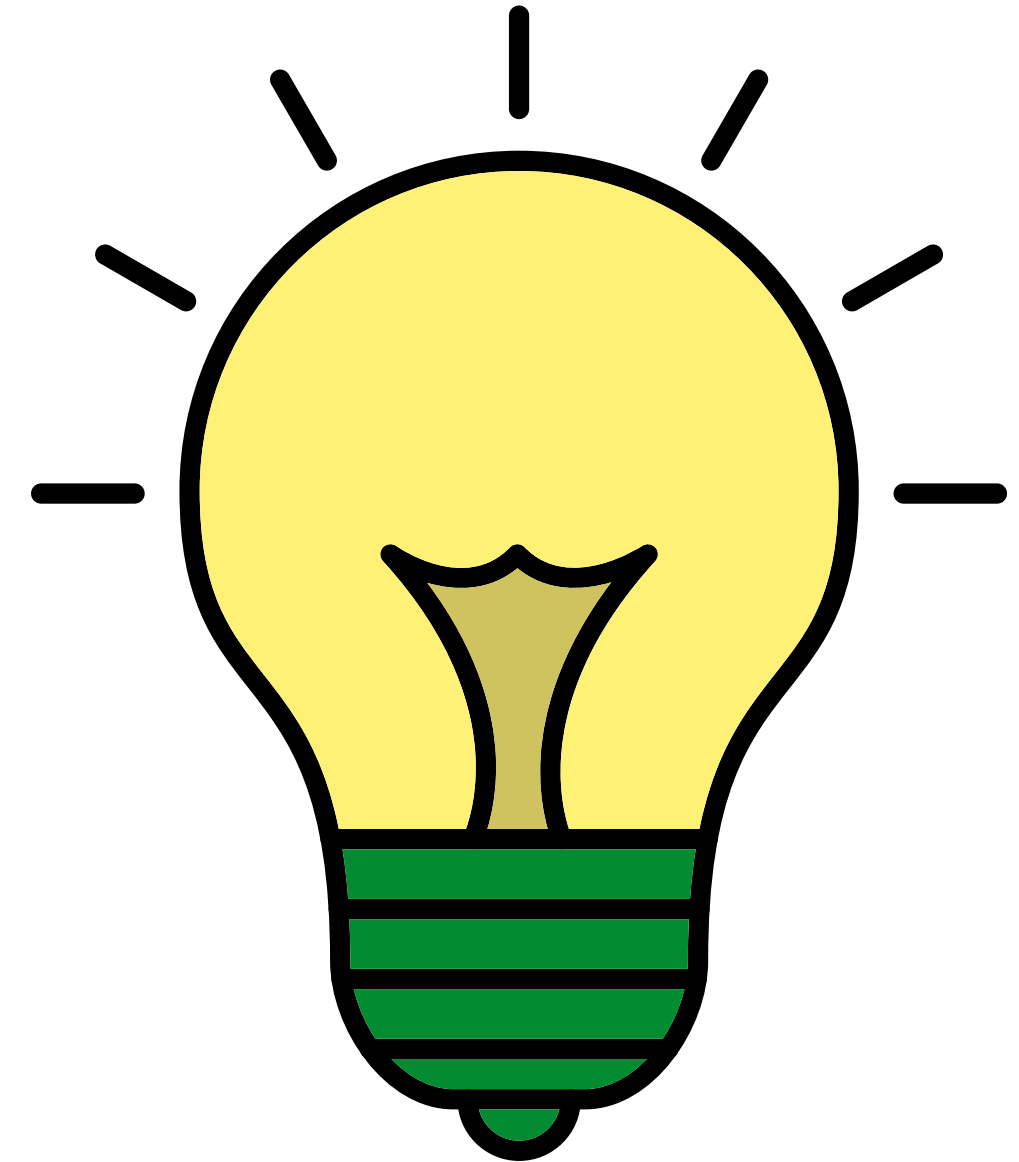
What happened when wolves were introduced into Yellowstone National Park?

What will the outcome of your improvement be?

- Use Future Reality Trees to map out the potential cause and effect of your change
- Ask - what negative things might happen as a result of this change?
- Use an experimentation approach to test and learn
- Get regular feedback and adjust (PDCA)

05

Learnings and Tips



Building the Tree

- Get leadership buy-in
- Start with 1-1s or small groups
- Look for themes - “triangulation”
- Use language without blame
- No need to use a template - sticky notes work well



Validating the Tree

- Validate the tree with the whole group
- Read aloud from top to bottom and bottom to top
- Be aware of causation v correlation
- Don't agonise over unnecessary precision



Sharing the Tree

- Consider using a “summary tree” for leadership
- Use language without blame
- Have a constructive dialogue about the root causes
- Be ready to go into details and examples





Suzanne Morrison



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these slides**

**Plus, access to our monthly
product delivery newsletter**



References / Further Reading

- [Slides Download link](#)
- [Starlings Video](#)
- [Operation Cat Drop Video](#)
- [Wolves Video](#)
- [The Logical Thinking Processes](#) by William Dettmer
- [It's not Luck](#) by Eli Goldratt
- [Thinking in Systems](#) by Donatella Meadows
- [The Bottleneck Rules](#) by Clarke Ching

