180 years of Coop (1844 - 2024)

CO OP OWNED BY YOU.
RIGHT BY YOU.

Transforming legacy software:
Riding the rollercoaster of emotion and innovation

LeadDev New York
September 2024

Preetha Ramaswamy
Principal Engineer @ Coop, UK

"The cost of software is dominated by the **cost of maintenance**, the cost of maintenance is dominated by the **cost of changes the ripple through the system**, and effective software design minimizes the chance of changes propagating." *- Kent Beck*
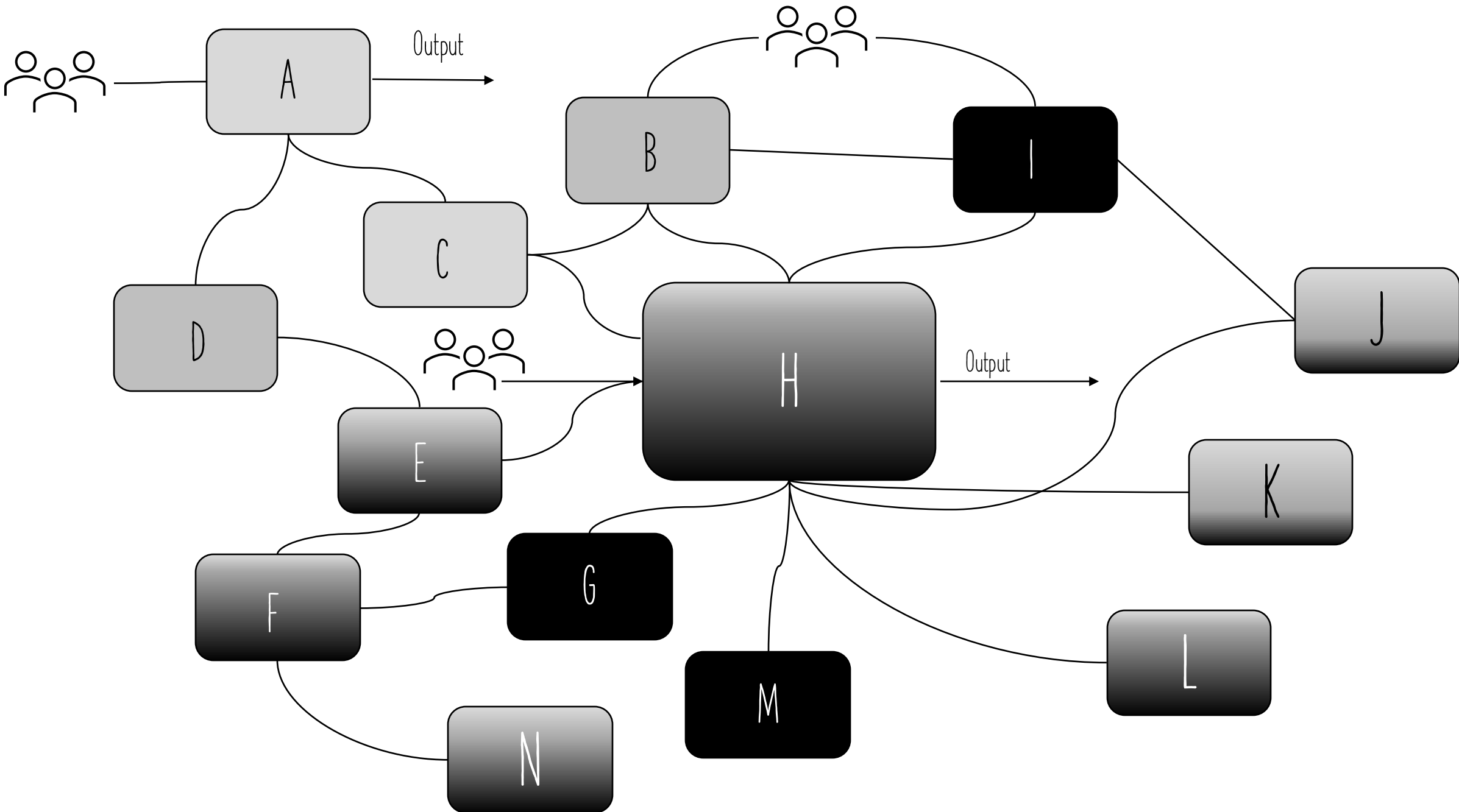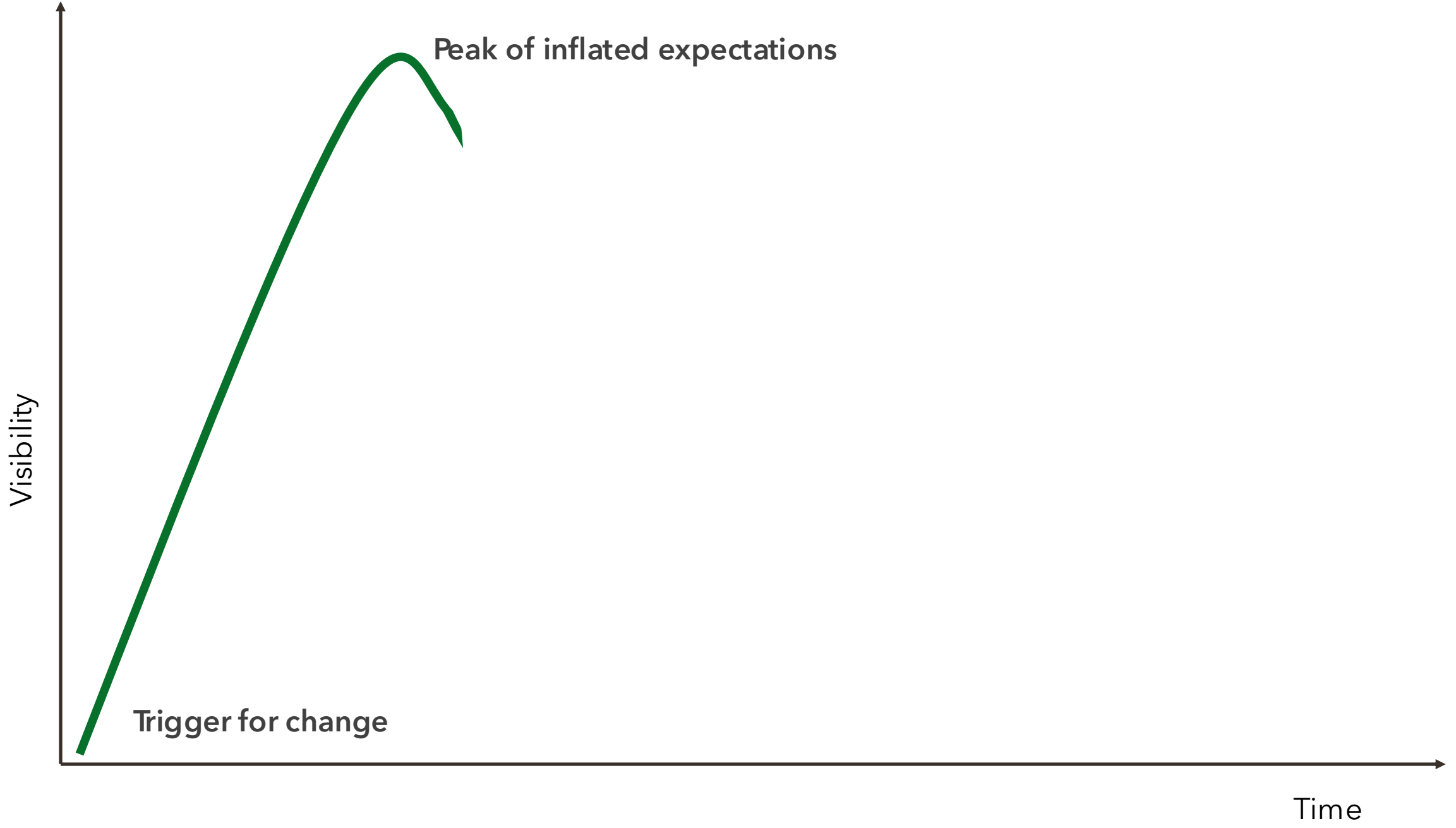
COGNITIVE OVERLOAD

- happens when the brain tries to process too much information or work on too many tasks impacting the outcomes of those tasks
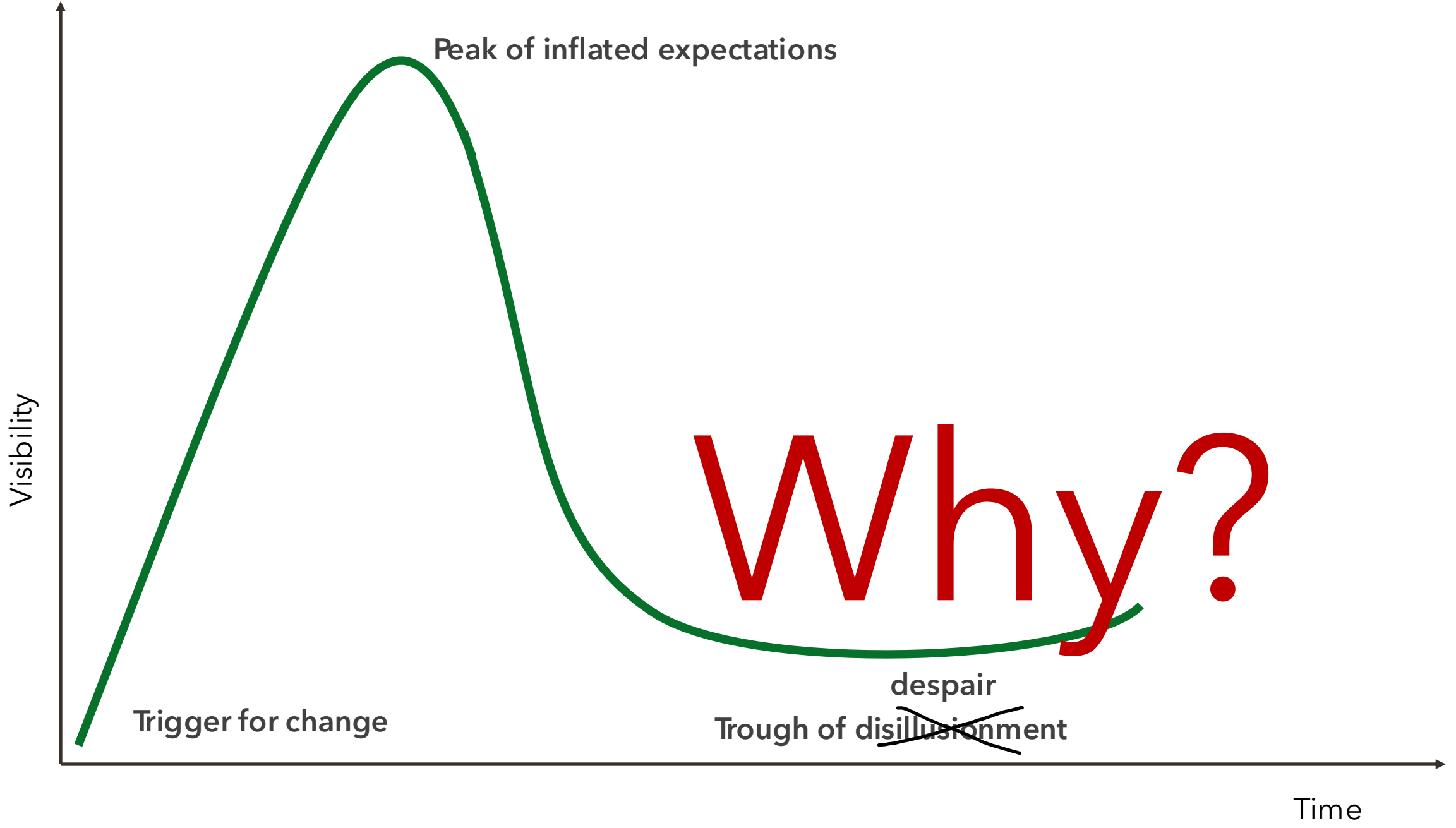
https://en.wikipedia.org/wiki/Cognitive_load

WE EMBARK ON A JOURNEY...

Challenges we thought we faced:

- Software complexity
- Dependencies – Tightly coupled software
- Changing priorities
- Tech debt
- Inflated expectations – Too much to do

Effects:

Cognitive Overload => Cognitive Fatigue

"*Cognitive Fatigue is the deterioration in the ability to think effectively and maintain focus due to increased cognitive activity*"

https://www.mdpi.com/2227-7080/12/3/38
https://www.medicalnewstoday.com/articles/cognitive-fatigue
https://www.mayoclinichealthsystem.org/hometown-health/speaking-of-health/cognitive-overload#/

Effects:

Cognitive Task Paralysis

"*Inability to process information or make progress on what is heard due to Cognitive fatigue*"

Symptoms of something bigger?

Cognitive biases affecting progress

Perfectionism – Eierlegende Wollmilchsau - German for "*egg-laying-wool-milk-pig*"

Deductive Reasoning – Reliance on past/known inferences even when they are not relevant to current context

Cognitive biases affecting progress

Anchoring Bias

"the common human tendency to rely too heavily on the first piece of information offered (the "anchor") when making decisions"

Law of the Instrument

"an over-reliance on a familiar tool or methods, ignoring or under-valuing alternative approaches"

Program of Negotiation, Harvard Law School

Law of the instrument or Marslow's Hammer

Cognitive biases affecting progress

Optimism Bias/Normalcy Bias

"tendency to overestimate the likelihood of experiencing positive events and underestimate the likelihood of experiencing negative events"

Decision Labs

Biases affecting progress

Optimism bias leads to Sunk cost fallacy

"tendency to follow through on something that we've already invested heavily in (time, money, effort, emotional energy, etc.), even when giving up is clearly a better idea"

Behavioral Patterns – Defensive reasoning

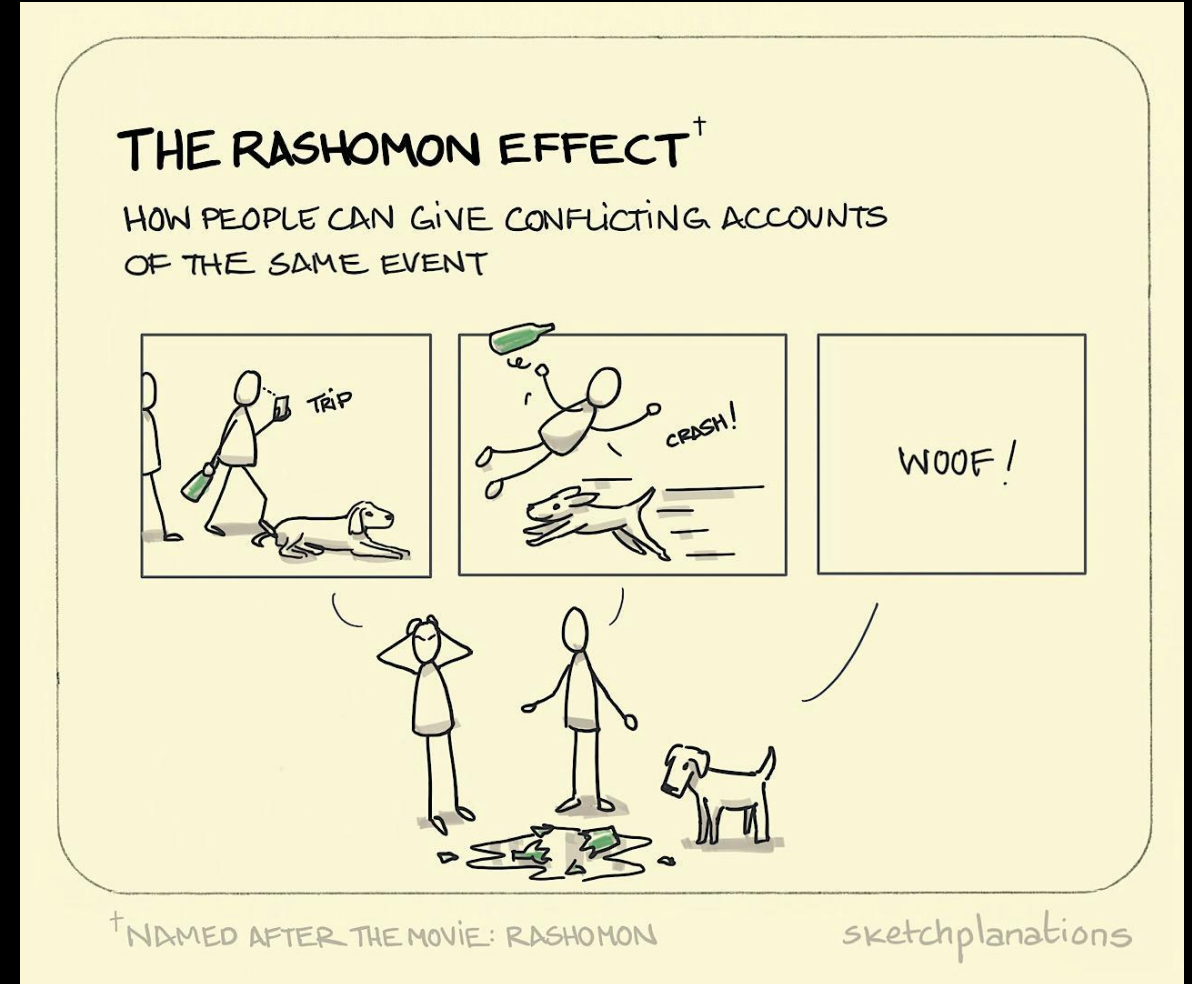|	Defensive Reasoning (Model I)	Productive Reasoning (Model II)
Governing values	Goal oriented Win, failure is not an option Suppress negative feelings	Valid Information Free and informed choice Commitment and accountability
Strategies	Act unilaterally Siloed operation Rooted in beliefs Unilaterally protect self Unilaterally protect others from being hurt	Share control Collaborative working Open working, testing theories Looking out for each other

Chris Argyris - Theory of Action & Double loop learing

Behavioral Patterns – Professional Protectionism

RASHOMON EFFECT

Behavioral Patterns - Ruinous Empathy

CARE PERSONALLY

RUINOUS EMPATHY

RADICAL CANDOR

CHALLENGE DIRECTLY

MANIPULATIVE INSINCERITY

OBNOXIOUS AGGRESSION
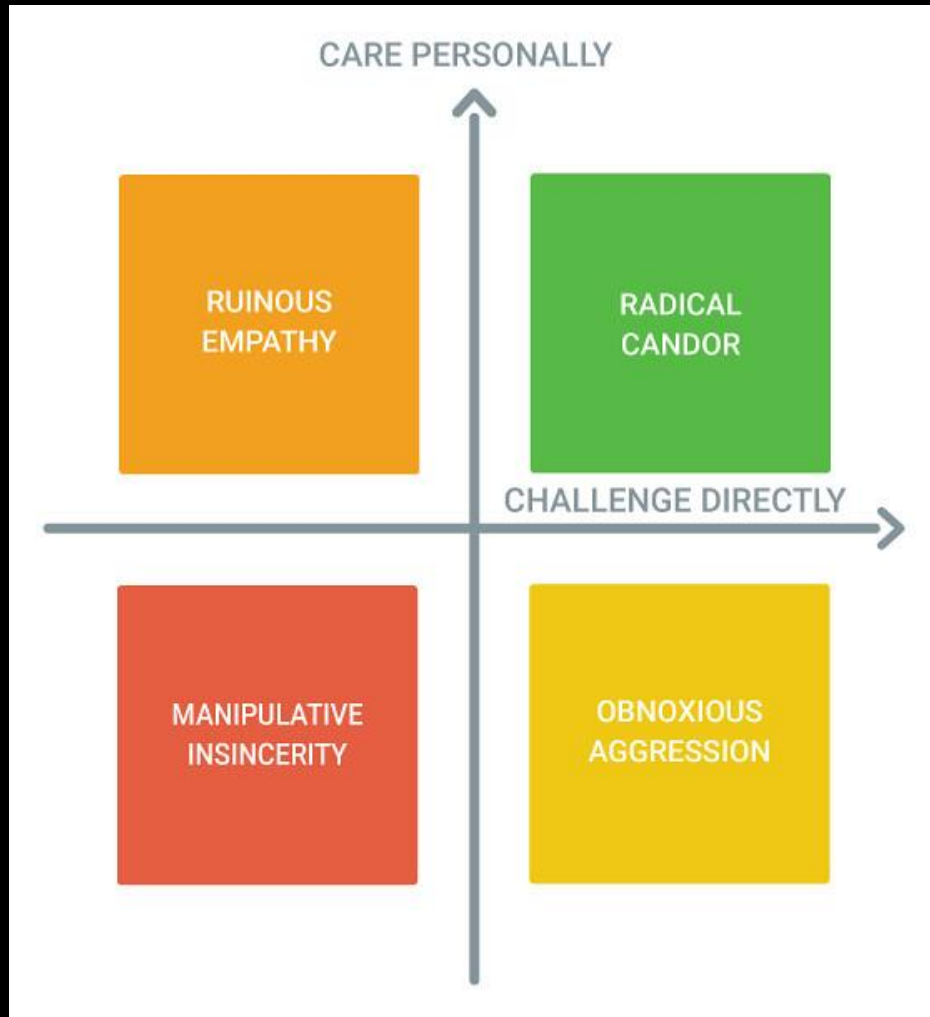
WE WERE BUILDING UP EMOTIONAL DEBT

HANDLE WITH CARE

- Create awareness, identify your allies

- Deliberate on techniques to break the logjam

- Seek feedback on the action plan

- Prepare for emotional resistance

- Acknowledge feelings but detach emotions from work meetings

- Laser focused on outcomes

GOLDEN CIRCLE – BACK TO BASICS
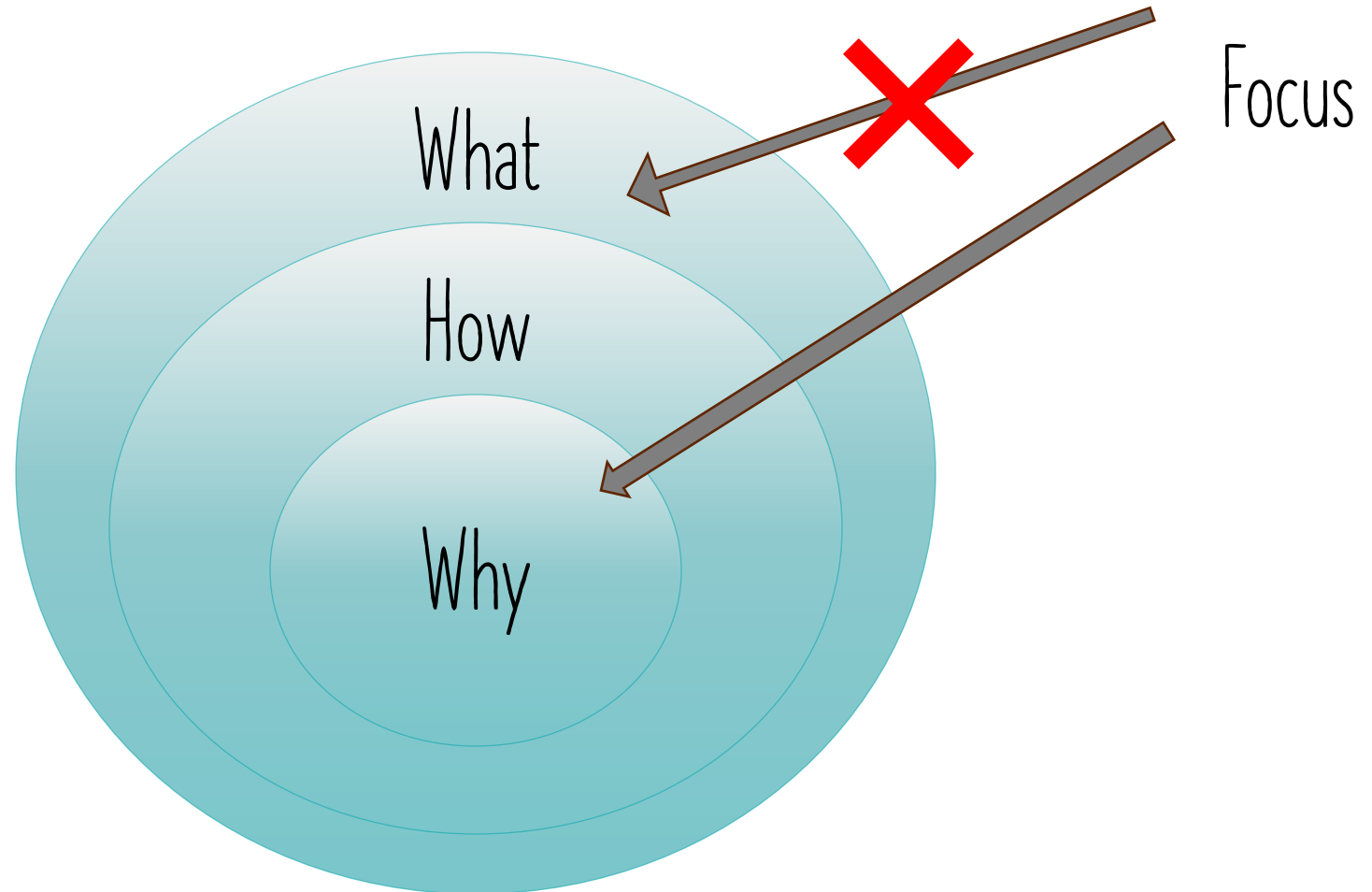
HOW DID WE BREAK THE LOGJAM?

- Offer fresh perspective

- Tackle the root cause - Context setting, Office hours

- Reduce the noise around decision making

- **Thin vertical slices (Elephant Carpaccio)**

- Critical feedback through Technical Design Authority

- Focus on outcomes not existing code

- Showcase working software regularly

https://alistaircockburn.com/Elephant-Carpaccio

DID WE <u>REALLY</u> BREAK THE LOGJAM?

- Proof of Concept done in <u>3 days</u>

- First milestone completed in <u>4 weeks</u>

- Used data from the above to forecast

- Fortnightly demo of working software to stakeholders

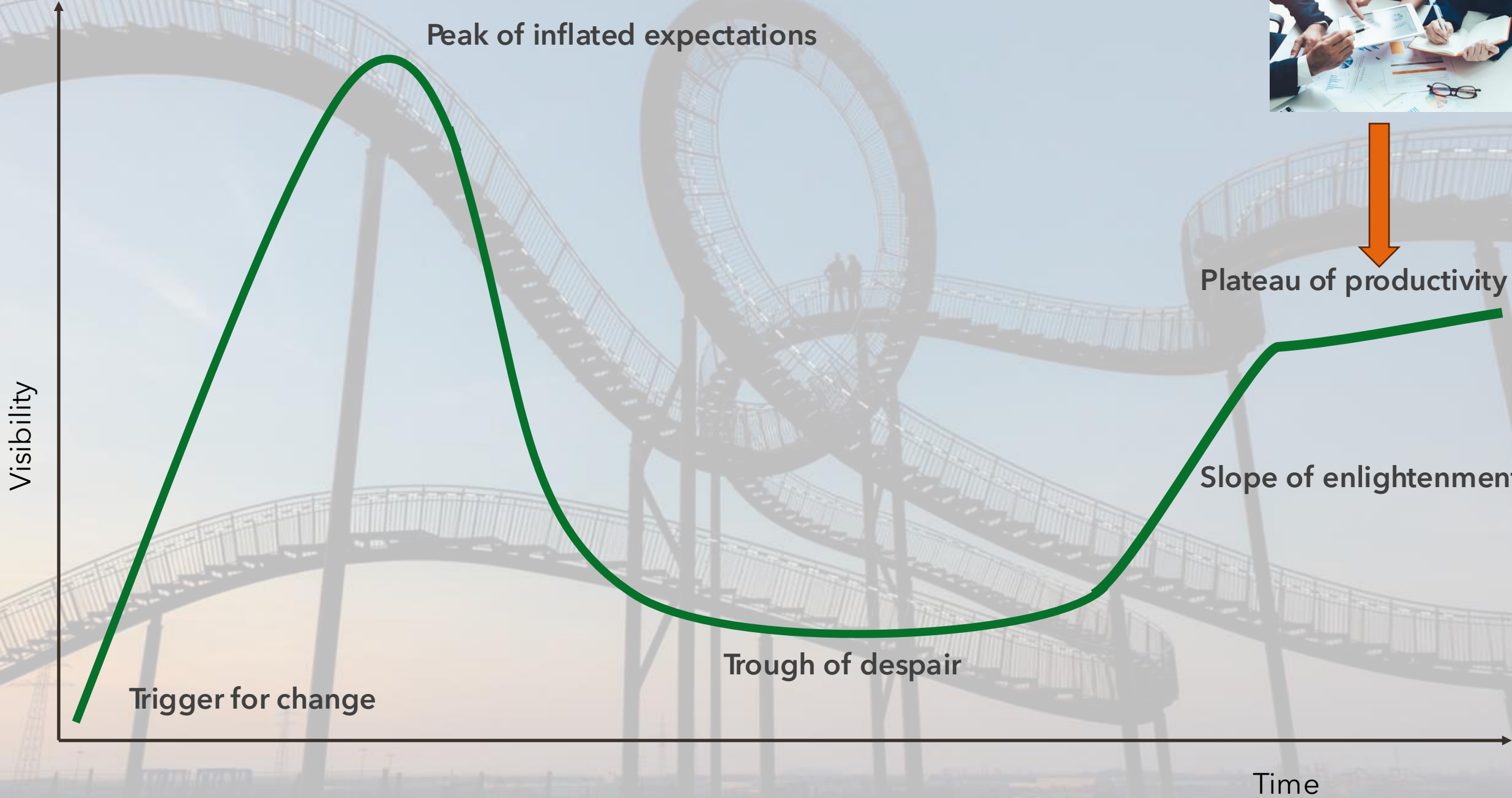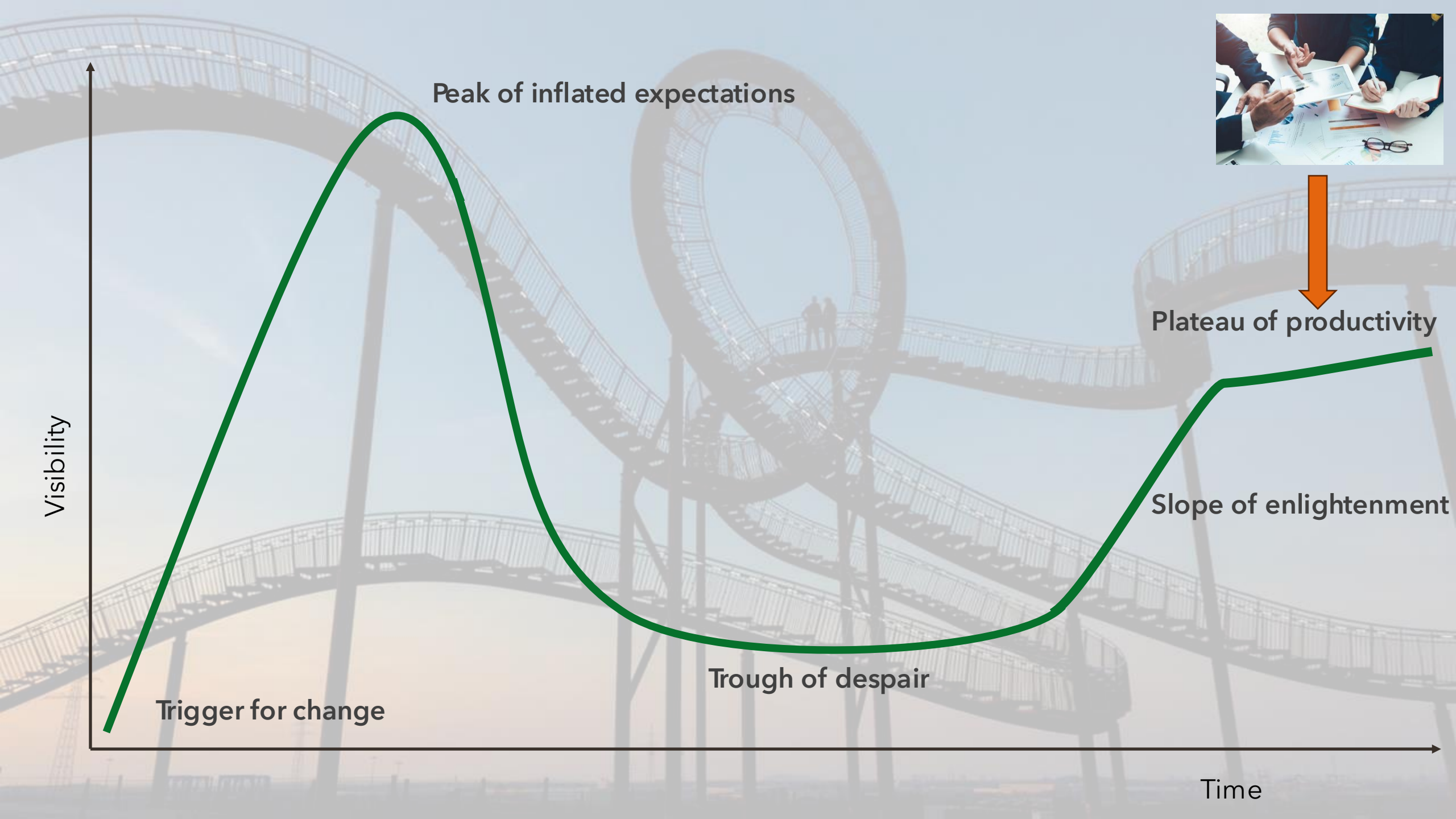- End to end solution delivered in <u>6 months</u>

WE DID IT

AND GOT A FEW MORE GREY HAIRS

Peak of inflated expectations

Plateau of productivity

Slope of enlightenment

Visibility

Trough of despair

Trigger for change

Time

Feedback on developer experience

"*The overall development experience was quite positive. We started with a well-defined roadmap, which provided us with* ==clear guidance and milestones== *to aim for throughout the project.*"

Scope for Improvement

"*our design approach could have benefited from being more iterative, allowing it to evolve alongside new requirements.* ==Presenting too much information== *at the outset can sometimes overwhelm team members, particularly the junior ones.*"

The Pragmatic Programmers

Driving Technical Change

Why People On Your Team Don't Act on Good Ideas,
and How To Convince Them They Should
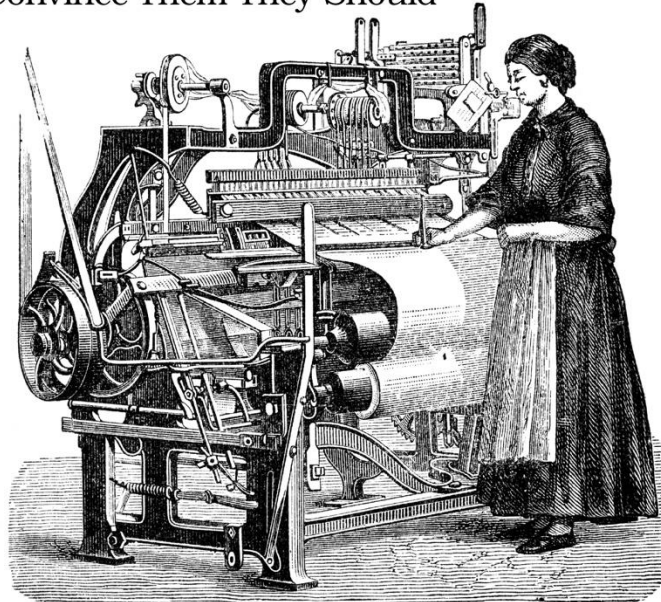
Terrence Ryan

Edited by Jacquelyn Carter

Transform Your Conversations,
Transform Your Culture

"This is an important book. I am glad that Jeffrey and Squirrel have written it, and I look forward to having a stack to "lend" (read: give) out."
— **Alistair Cockburn**,
Co-Author of the *Agile Manifesto* and Creator of the Heart of Agile

Agile Conversations

DOUGLAS SQUIRREL
and JEFFREY FREDRICK
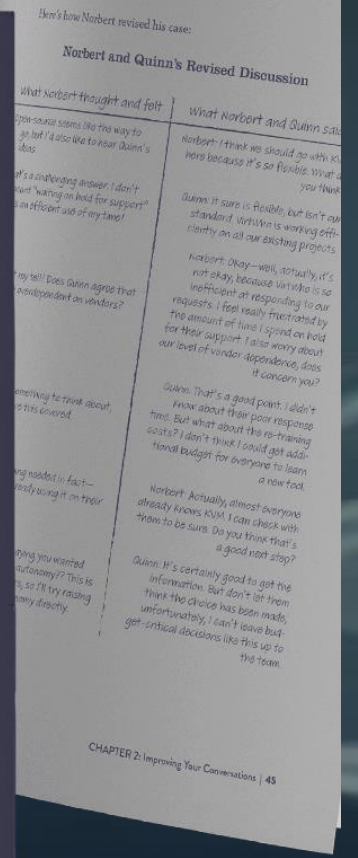
QRC Agile Conversations

based on Agile Conversations. QRC by Henny Portman, Sept'2020

Conversational analysis (4 R's)

1) Record

What Y thought and felt	What X and Y said
…	….. …..
	… ….. ……

2) Reflect ← 3.1) Repeat

- **Curiosity**: genuine questions / total questions
- **Transparency**: find unexpressed ideas
- **Patterns**: find triggers, and twitches
- **Skills**: test for specific skills (TDD for teams, coherence busting, joint design, agreeing on meaning, briefing and back briefing)

3) Revise

4) Role Play ←→ 4.1) Role Reversal

ACCOUNTABILITY conversation
- Use theory Y to create a culture that fosters healthy accountability
- Give briefings and back briefings (directed opportunism. Bungay's 3 gaps: plans – actions – outcomes, alignment gap, effects gap, knowledge gap)
- Radiate intent

5

COMMITMENT conversation
- Agree on the meaning of key elements
- Use a walking skeleton for a series of commitments and show progress
- Compliance isn't commitment
- Define and agree on your commitments (agree on the meaning, agree on the next outcome to commit to, reaffirm the commitment)

4

WHY conversation
- Distinguish interest from positions
- Combine advocacy and inquiry
- Jointly design a solution

3

FEAR Conversation
- Identify unsafe practices and habits ("how we do it here"): normalization of deviance
- Overcome the tendency to jump to conclusions by using Coherence Busting (use a more curious, open attitude into the discussion; uncovering fears)
- Jointly create a fear chart and mitigate these fears
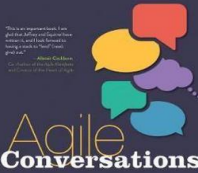
TRUST conversation
- Be vulnerable
- Be predictable
- Use TDD for people (the ladder of Inference) to align your story with that of someone else to build trust

2

Step 1

High-performing teams:
- High **trust**
- Low **fear**
- Clear **why**
- Definite **commitment**
- Solid **accountability**

Transform Your Conversations, Transform Your Culture

Agile Conversations

DOUGLAS SQUIRREL and JEFFREY FREDRICK

MY REFLECTIONS

FOR EVERYONE

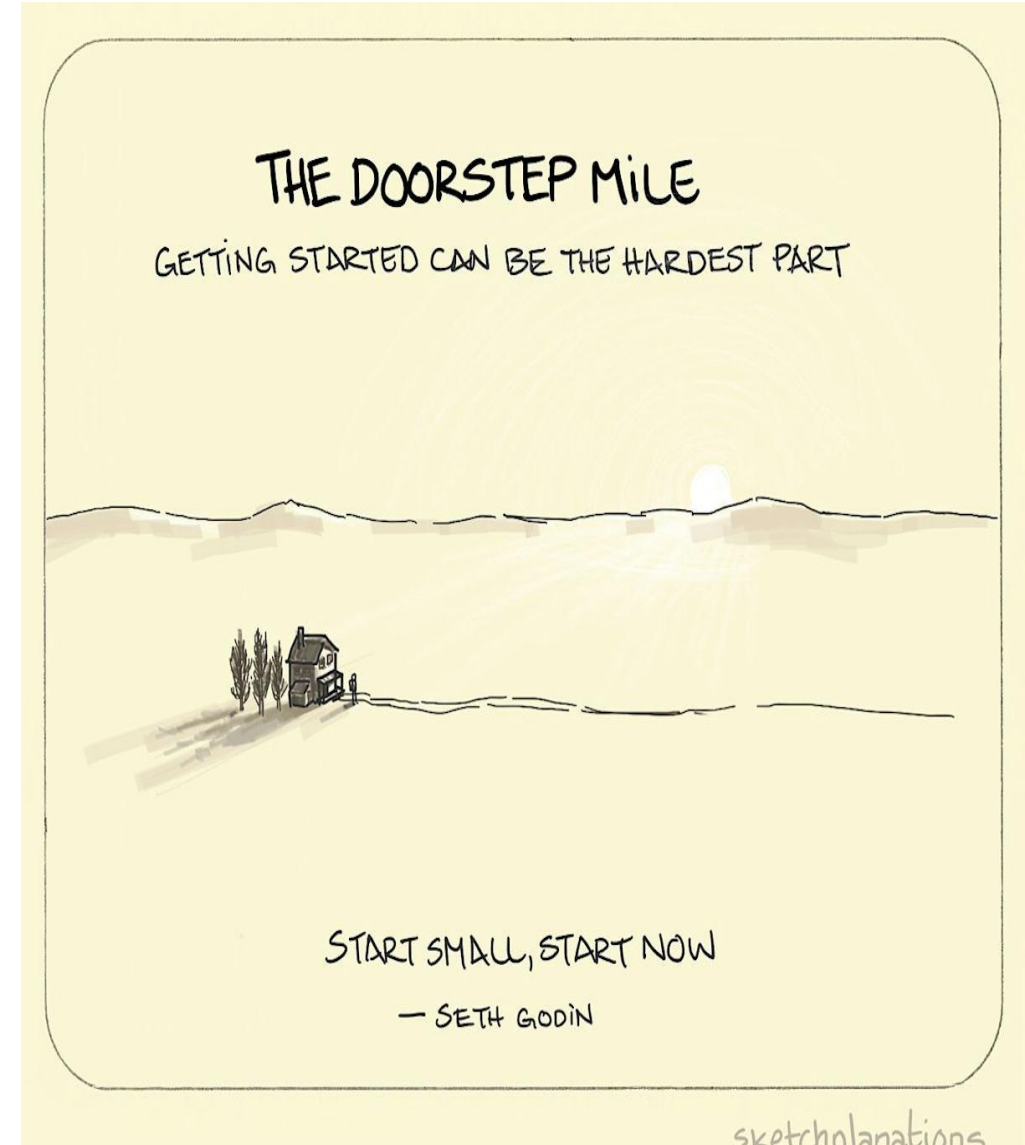Digital transformation is multi-faceted, it's socio-technical.

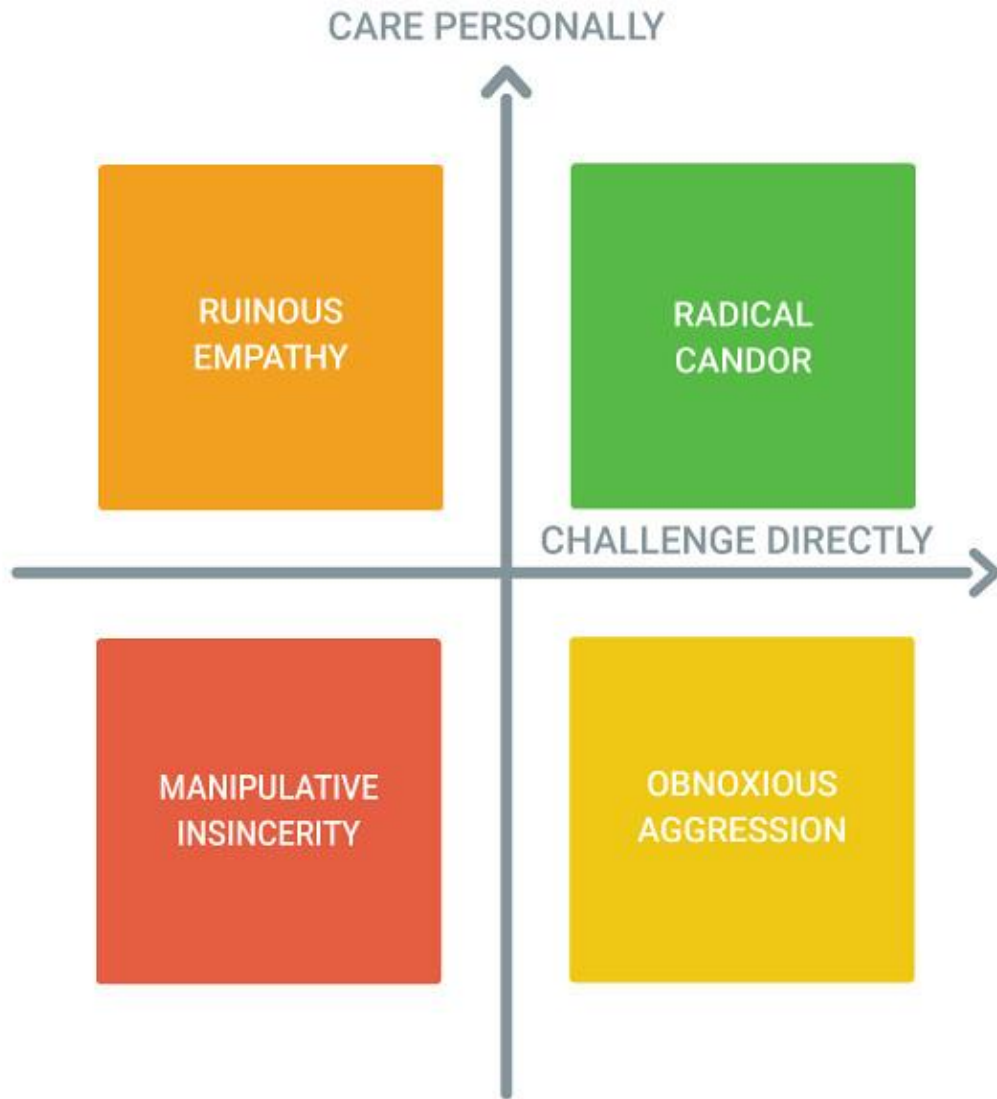Manage cognitive load smartly

Behaviors influence outcome of change

Emotional attachment inhibits innovation

Skepticism is extremely contagious

Autonomy without accountability is meaningless

THE DOORSTEP MILE
GETTING STARTED CAN BE THE HARDEST PART

START SMALL, START NOW
— SETH GODIN

sketchplanations

CARE PERSONALLY

CHALLENGE DIRECTLY

RUINOUS EMPATHY

RADICAL CANDOR

MANIPULATIVE INSINCERITY

OBNOXIOUS AGGRESSION

FOR THE LEADERS

Tackle the fear(s) early

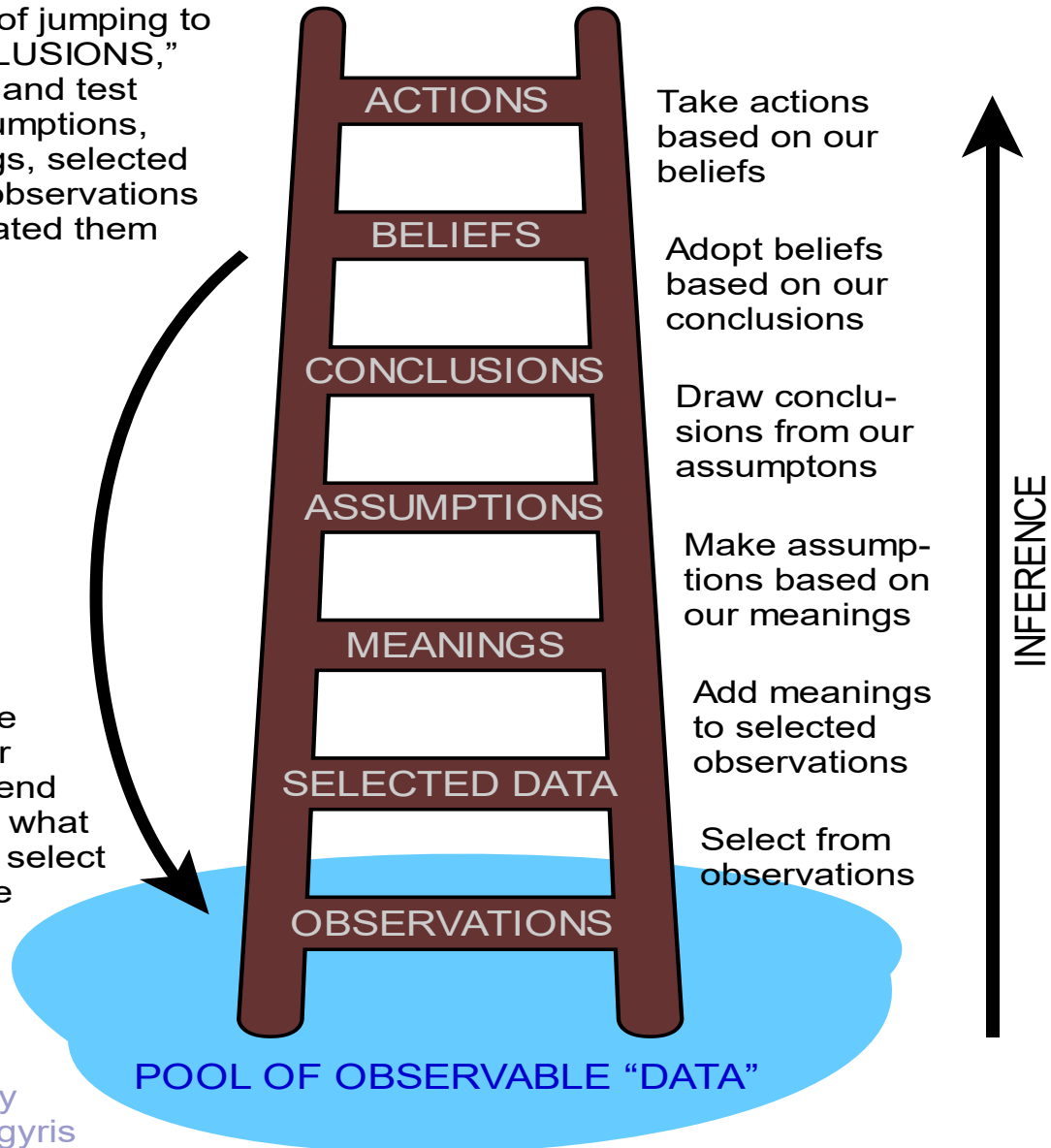Look out for hidden fears

Remove pluralistic ignorance

Avoid normalized deviance

Practice Radical Condor

LADDER OF INFERENCE

Instead of jumping to "CONCLUSIONS," analyze and test the assumptions, meanings, selected data & observations that created them

ACTIONS

Take actions based on our beliefs

BELIEFS

Adopt beliefs based on our conclusions

CONCLUSIONS

Draw conclusions from our assumptons

ASSUMPTIONS

Make assumptions based on our meanings

MEANINGS

Add meanings to selected observations

Reflexive loop: our beliefs tend to affect what data we select next time

SELECTED DATA

Select from observations

OBSERVATIONS

INFERENCE

POOL OF OBSERVABLE "DATA"

Model by Chris Argyris (1923–2013)

Squirrel and Jeffrey's recommendation:

TDD for people to test assumptions before drawing inferences.

NOTE TO SELF

Personal wellbeing is as important as team wellbeing

Simplicity is under-rated

Being a woman in tech leadership is hard.

Build the right toolkit with good peer support.

Learn from the experts and share the learnings

Adversity makes you a better leader.

DON'T GIVE UP WHEN
THE GOING GETS TOUGH

CHANGE IS HARD, SO ...

- **Be conscious**
- **Be bold**
- **Be reflective**
- **Be curious**

"No problem can be solved from the same level of consciousness that created it"

Albert Einstein

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Preetha Ramaswamy
in preetha-ramaswamy