

Complexity is the Enemy!

How Agile Practices Allow
Us to Operate in a VUCA
World



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WHY...?

VUCA

It's messy out there...

V

U

C

A







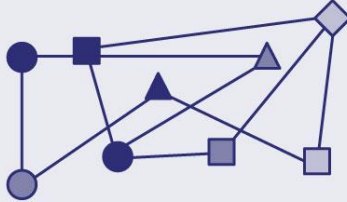

LOW VOLATILITY	LOW UNCERTAINTY	LOW COMPLEXITY	LOW AMBIGUITY
			
HIGH VOLATILITY	HIGH UNCERTAINTY	HIGH COMPLEXITY	HIGH AMBIGUITY
			

Illustration based on Jeroen Kraaijenbrink

Cynefin

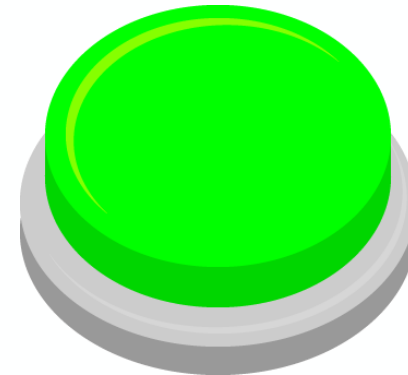
Complex



Complicated



Chaotic



Simple

Complex



Complicated



Unpredictable

Predictable



Chaotic

Simple

Predictability Matters

Planning & Analysis



Predictable

**More =
Better Results**



Unpredictable

**Diminishing
Returns**

Management Focus



Predictable

- Procedures
- Efficiency



Unpredictable

- Outcomes
- Alignment

Expected Outcomes



Predictable

Fail-Safe



Unpredictable

Safe-To-Fail

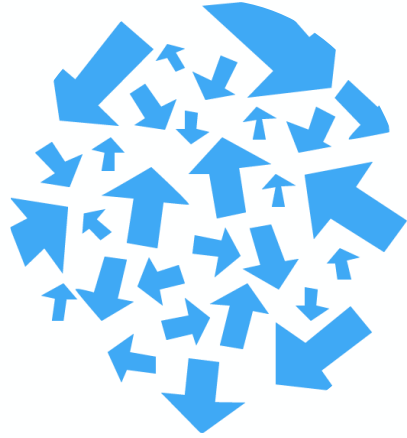
Resilience

Framing / Scoping Drive Context

Case Study: Point-of-Sale System

- ▶ Technology upgrade → Obvious
- ▶ Future-proofing → Complicated
- ▶ Open ended innovation questions → Complex
- ▶ Resistance to protect mission-critical functionality → Chaotic

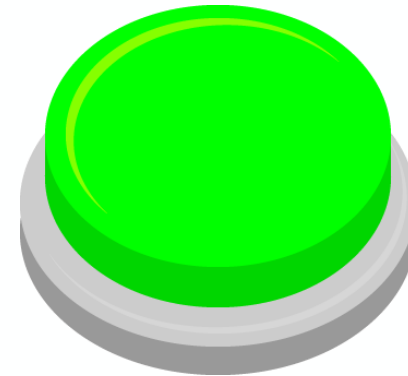
Complex



Complicated



Chaotic



Simple

Falling Over the Cliff: healthcare.gov

- High complexity: policy, organizational, technical
- Plan-driven management with extensive upfront specification
- Lack of unified leadership and visibility
- Plan not updated to reflect reality
- Testing revealed scale of problems too late

Complex

Complicated



Unawareness results in default behavior

Chaotic

Simple

Complexity is the enemy...

... and so is oversimplification!

Complex

Probe
Sense
Respond

Complicated

Sense
Analyze
Respond

Act
Sense
Respond

Chaotic

Sense
Categorize
Respond

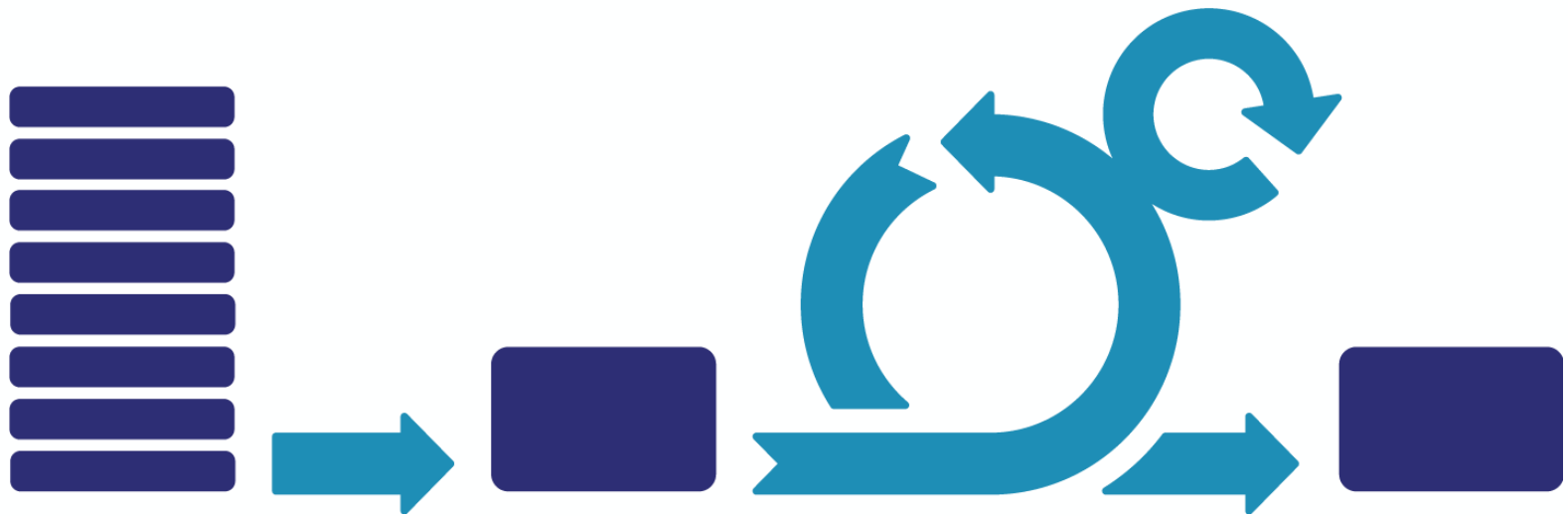
Simple

Probe-Sense-Respond



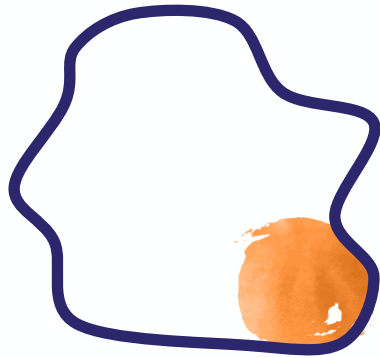
Inspect and Adapt

#1 Feedback Loops



#2 Sprint/Kanban Commitments

Complex



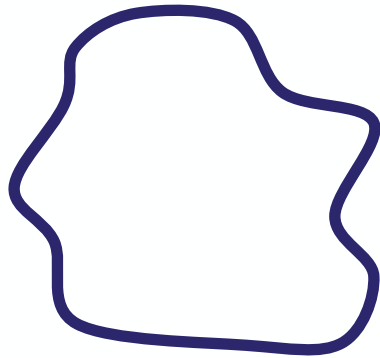
Complicated

Chaotic

Simple

#2 Sprint/Kanban Commitments

Complex



Complicated



Chaotic

Simple

#3

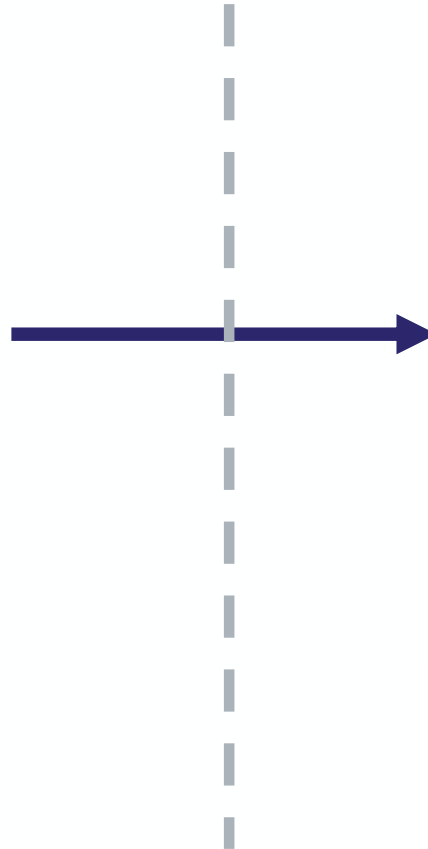
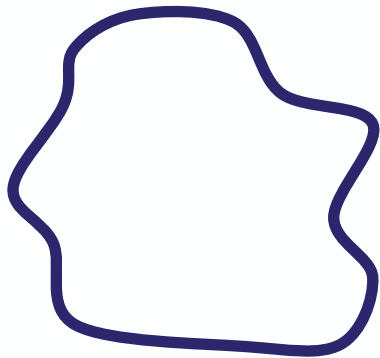


Small Chunks of Work

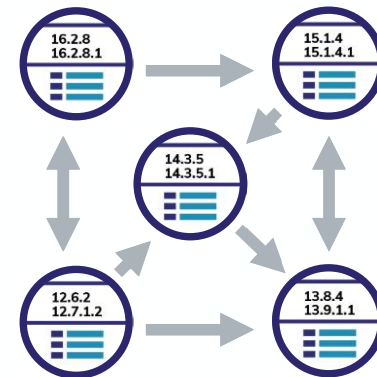
#4 Decomposition

Plan-Driven Decomposition

Problem



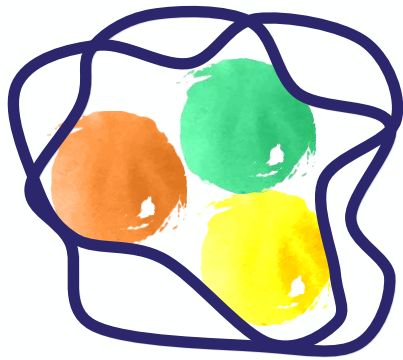
Solution



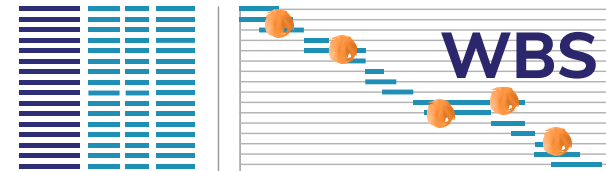
Based on a whiteboard sketch by Bas Vodde

Plan-Driven Decomposition

Problem

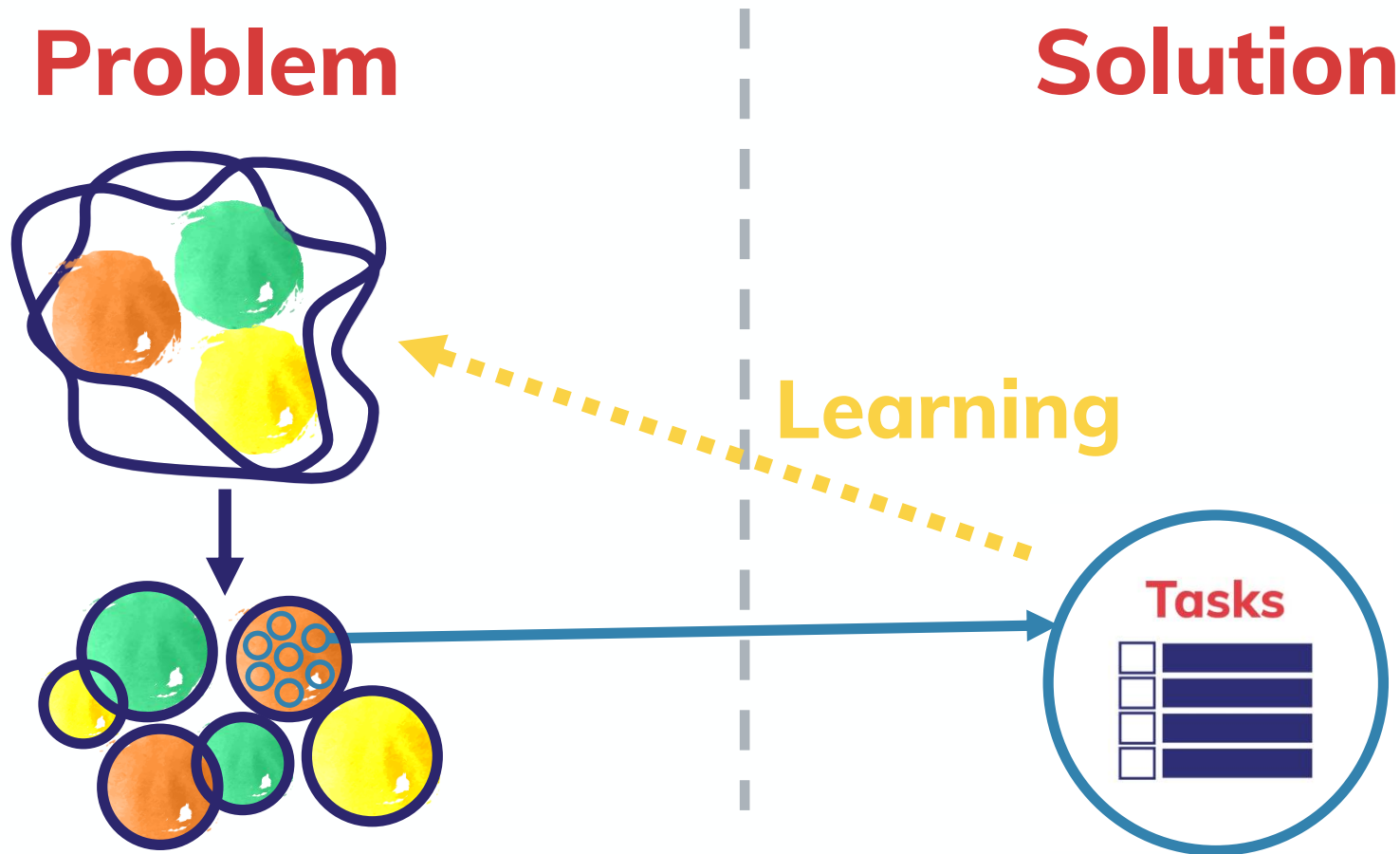


Solution



Based on a whiteboard sketch by Bas Vodde

Agile Decomposition



Based on a whiteboard sketch by Bas Vodde



#5 Planning Poker

#6 Agile Teams



Small :: Cross-functional :: Empowered

Dependencies amplify

- Complexity
- Uncertainty
- Volatility



#7 Evolutionary Architectures & Refactoring

**“First make it easy to change,
then make the easy change”**

Kent Beck

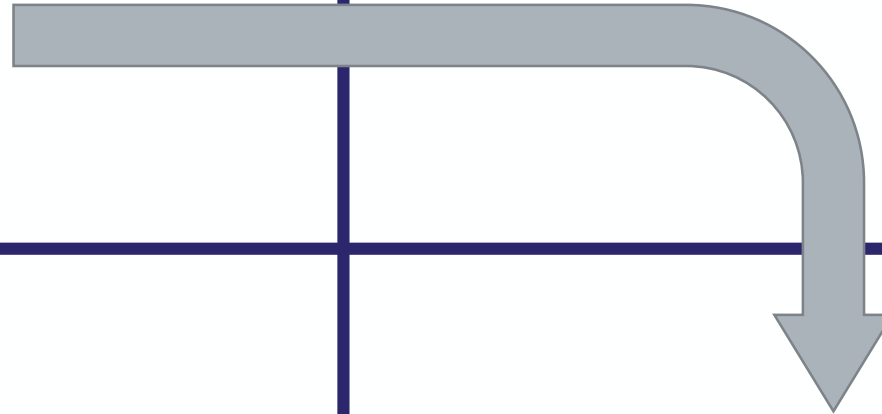
#8 Test Automation



#9 Infrastructure As Code

Complex

Complicated



Chaotic

Simple



AGILE
doesn't have a
BRAIN

Bill Scott

Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others do it.
Through this work we have come to value:

Individuals and interactions over processes and tools

Working software over comprehensive documentation

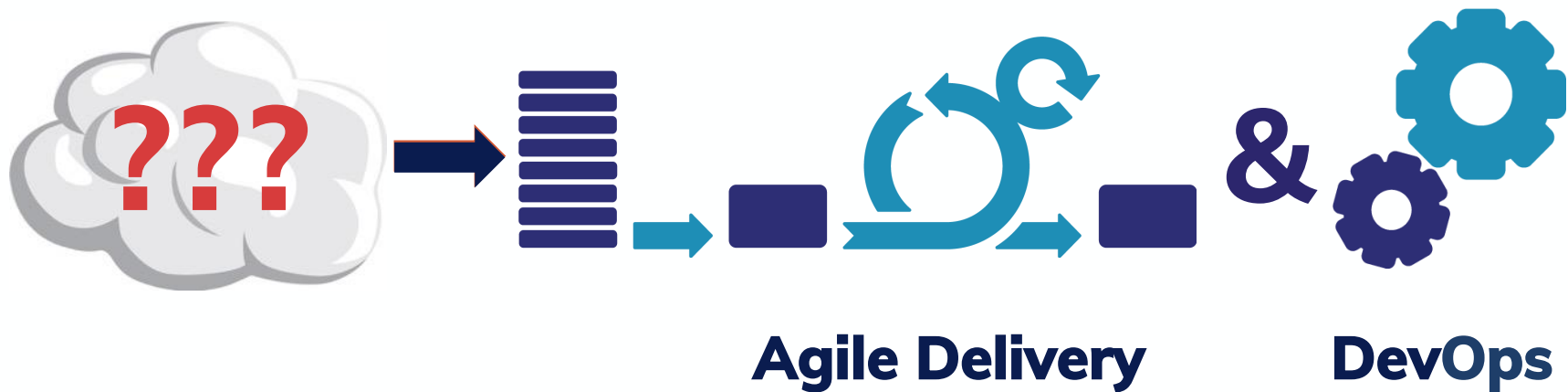
Customer collaboration over contract negotiation

Responding to change over following a plan

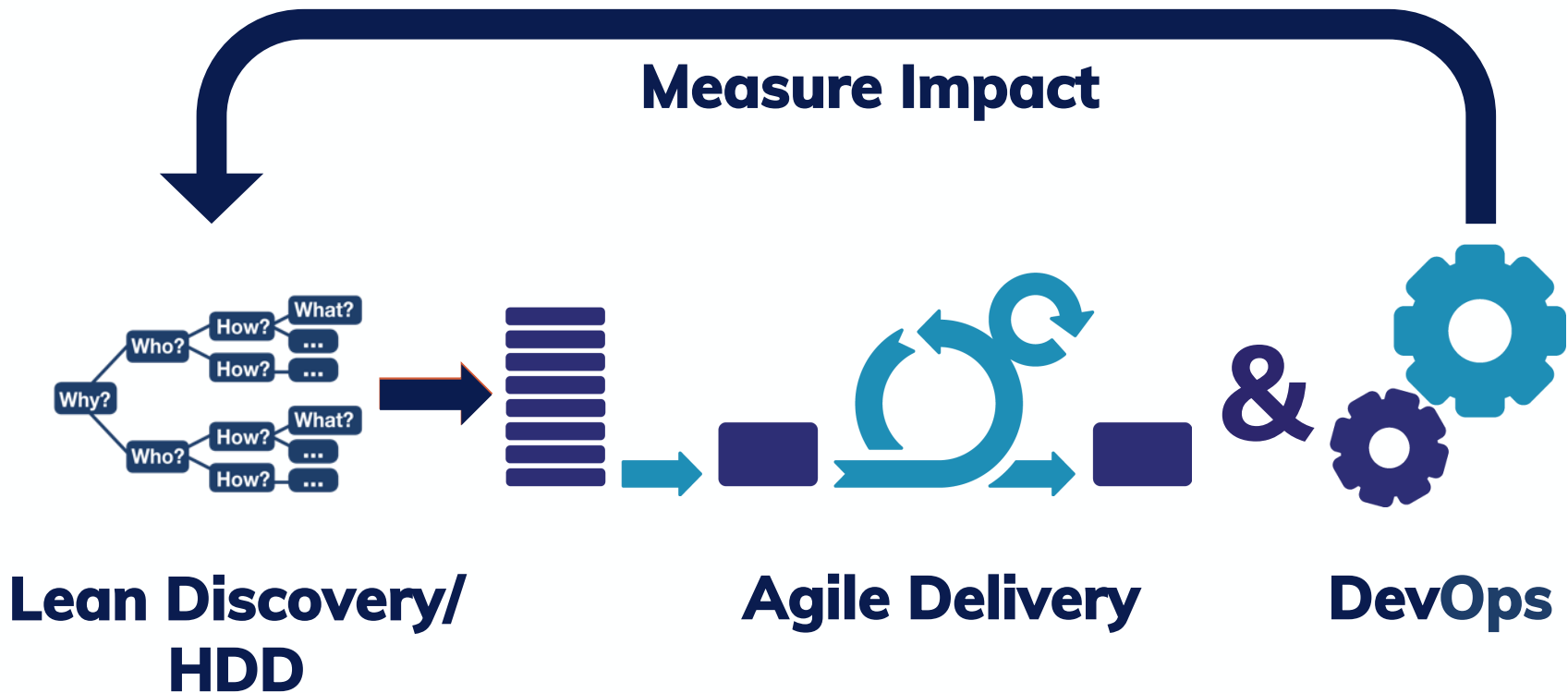
That is, while there is value in the items on the right, we value the items on the left more.

<http://agilemanifesto.org/>

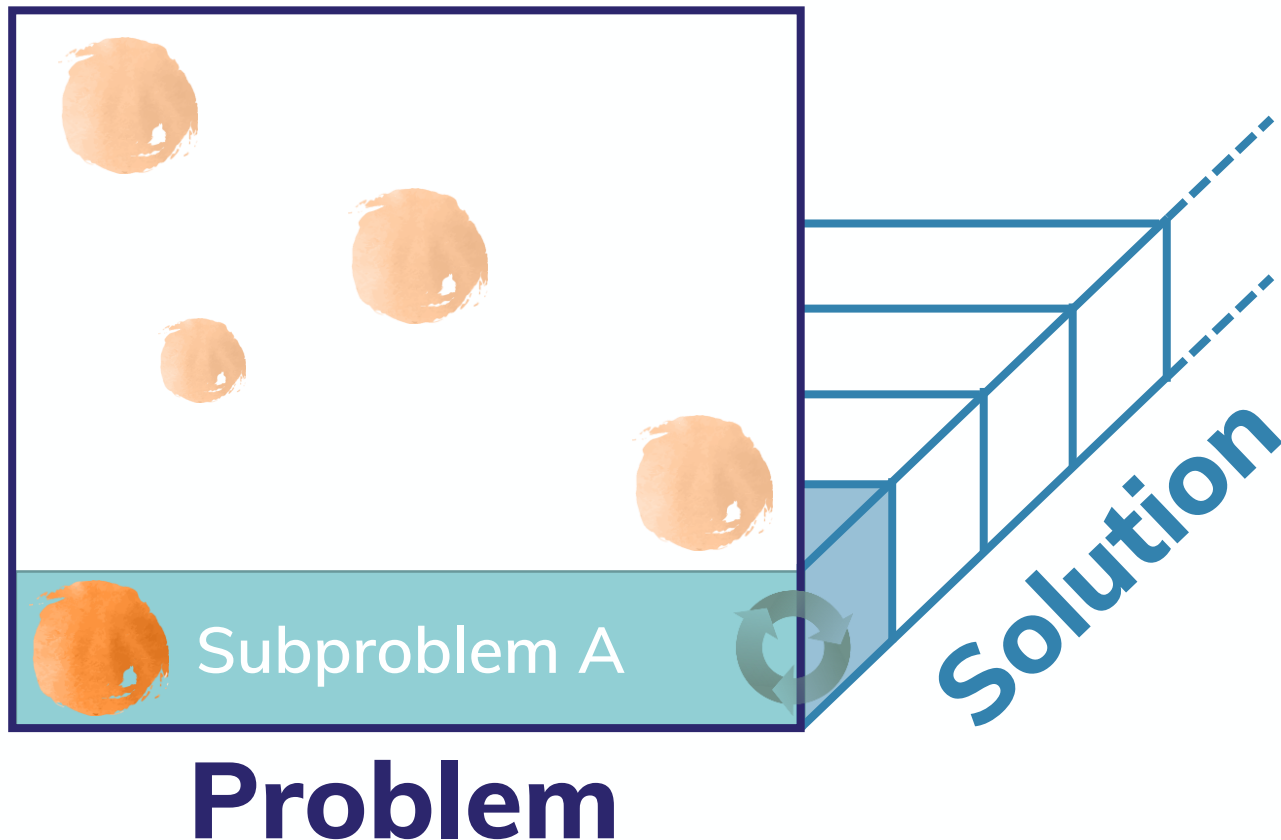
Closing the Value Loop



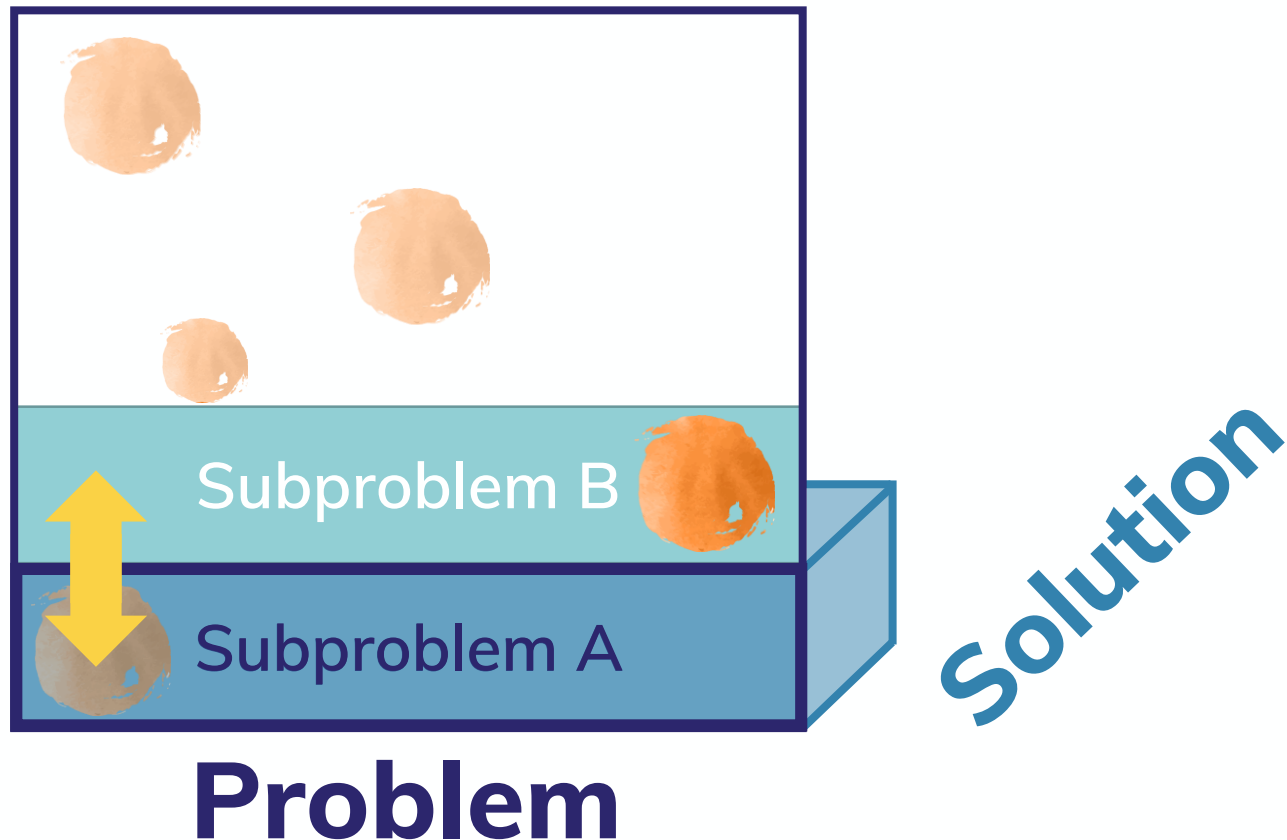
Closing the Value Loop



Isolating Complexity



Isolating Complexity





Key Points

- **VUCA = Unpredictability**
- **Decompose problems into smaller problems**
- **Agile practices manage or contain complexity**
- **Complexity is the enemy... but also the source of innovation!**