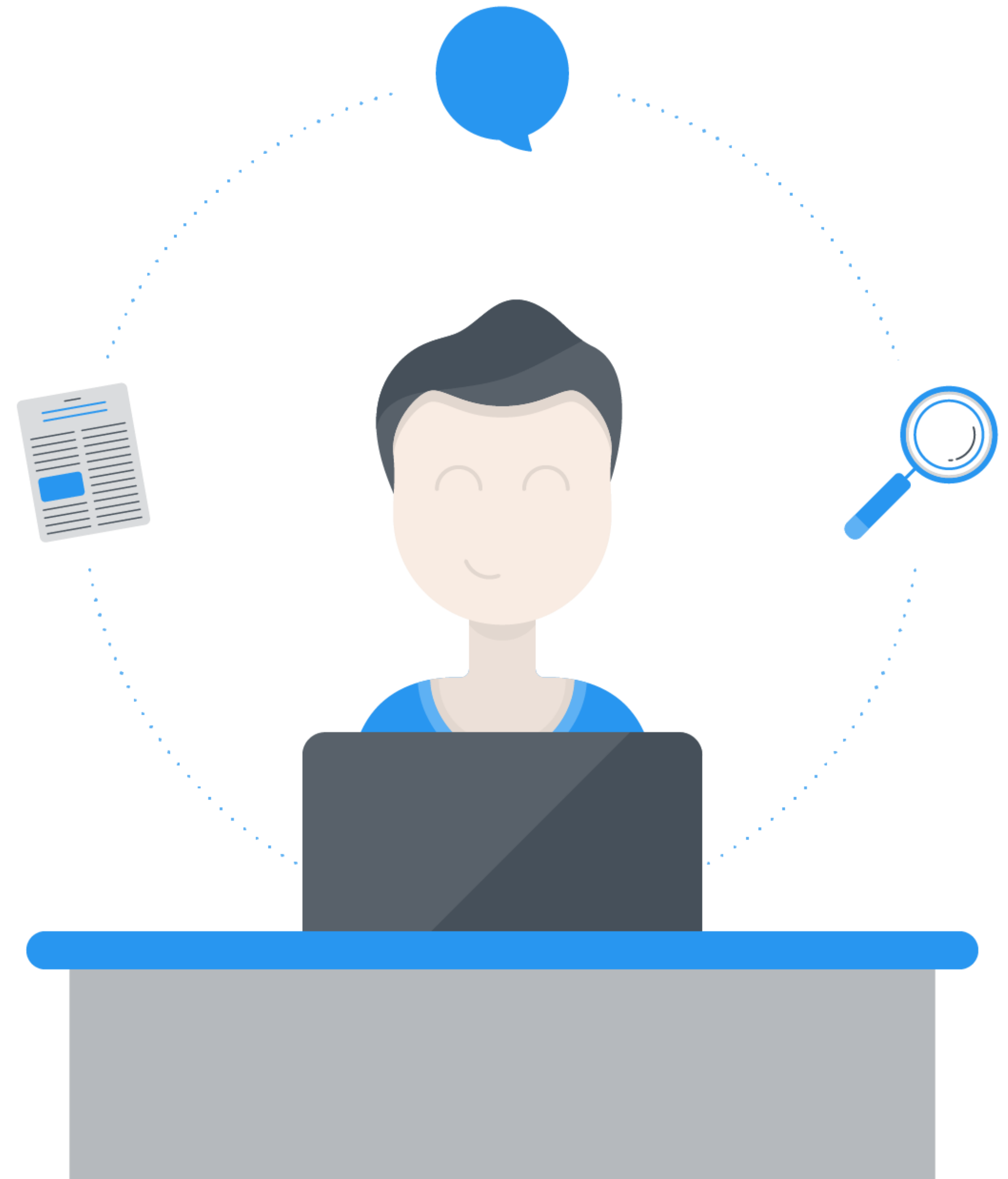


Observability: Unlearn  
Guessing, Reduce  
Stressing and Learn to  
Embrace Reality

Head of Quality Engineering,

Poppulo

@robmeaney





Who's the smug git  
on the right?



@robmeaney



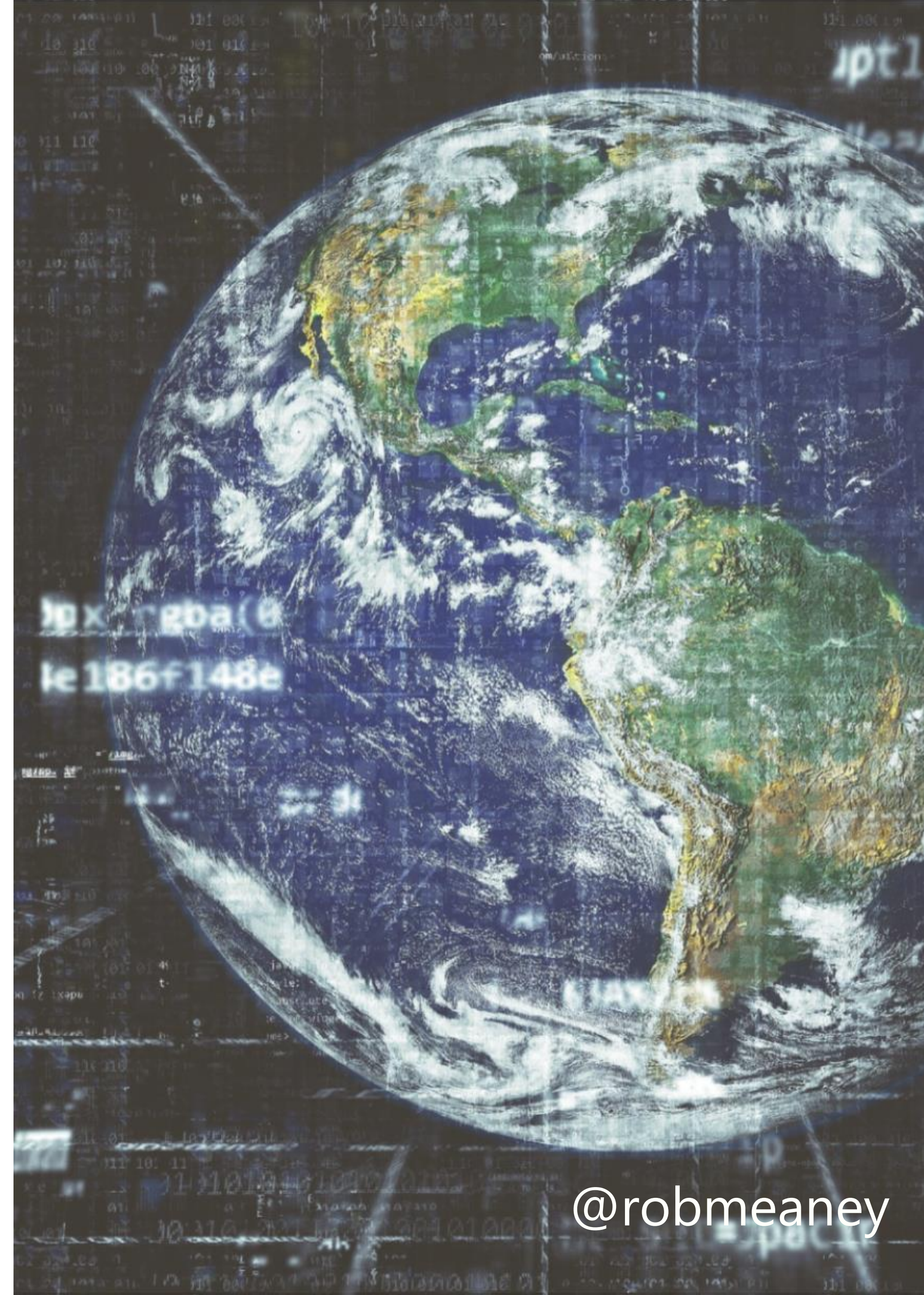
Software has eaten the world!

There are **real costs** to software **failure**,  
**financial** and **human**, for both our **users** and  
the **people creating and running** our software  
systems.

@robmeaney



We're working in an  
increasingly complex world  
where everything is  
connected, change is  
continuous and failure can be  
catastrophic!



@robmeaney



# Unlearn old ideas & embrace reality:

Tests are not reality

Failure is inevitable

Deployment is the beginning not the end

Balance prevention, detection, mitigation and recovery

Design for testability & operability

How can we  
make this  
software easier  
to test?



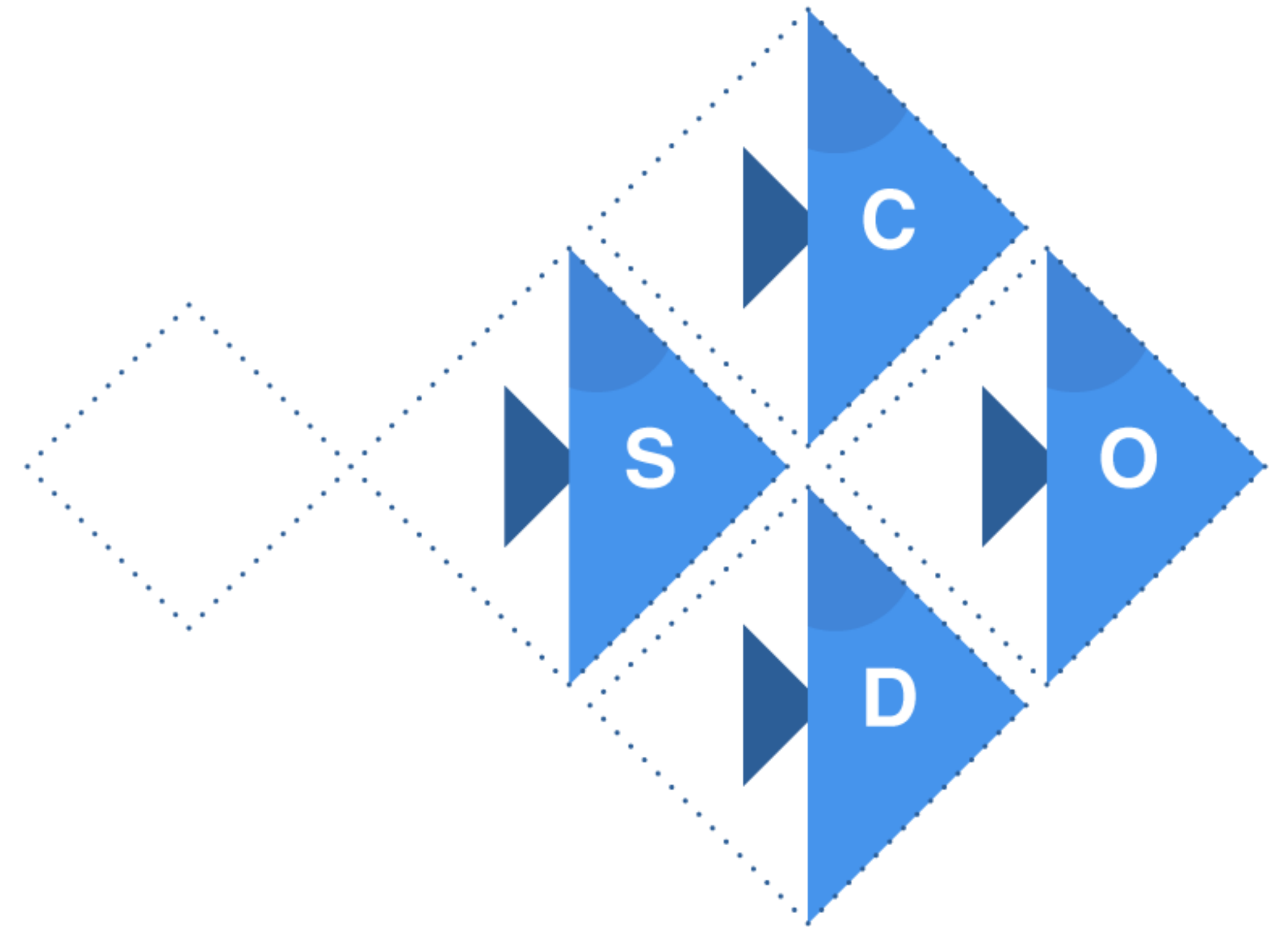
@robmeaney

**C**ontrollability

**O**bservability

**D**ecomposability

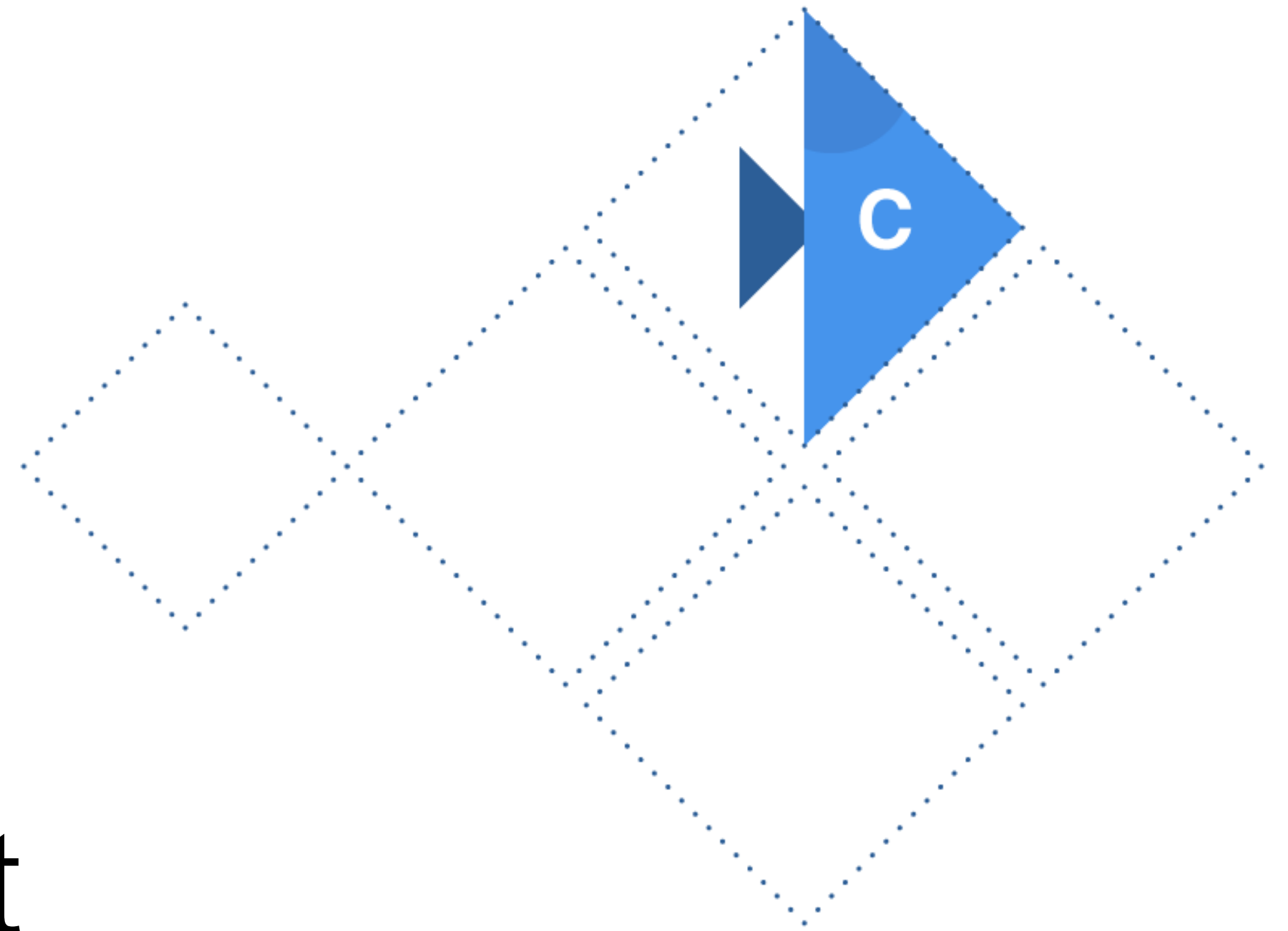
**S**implicity





# Controllability:

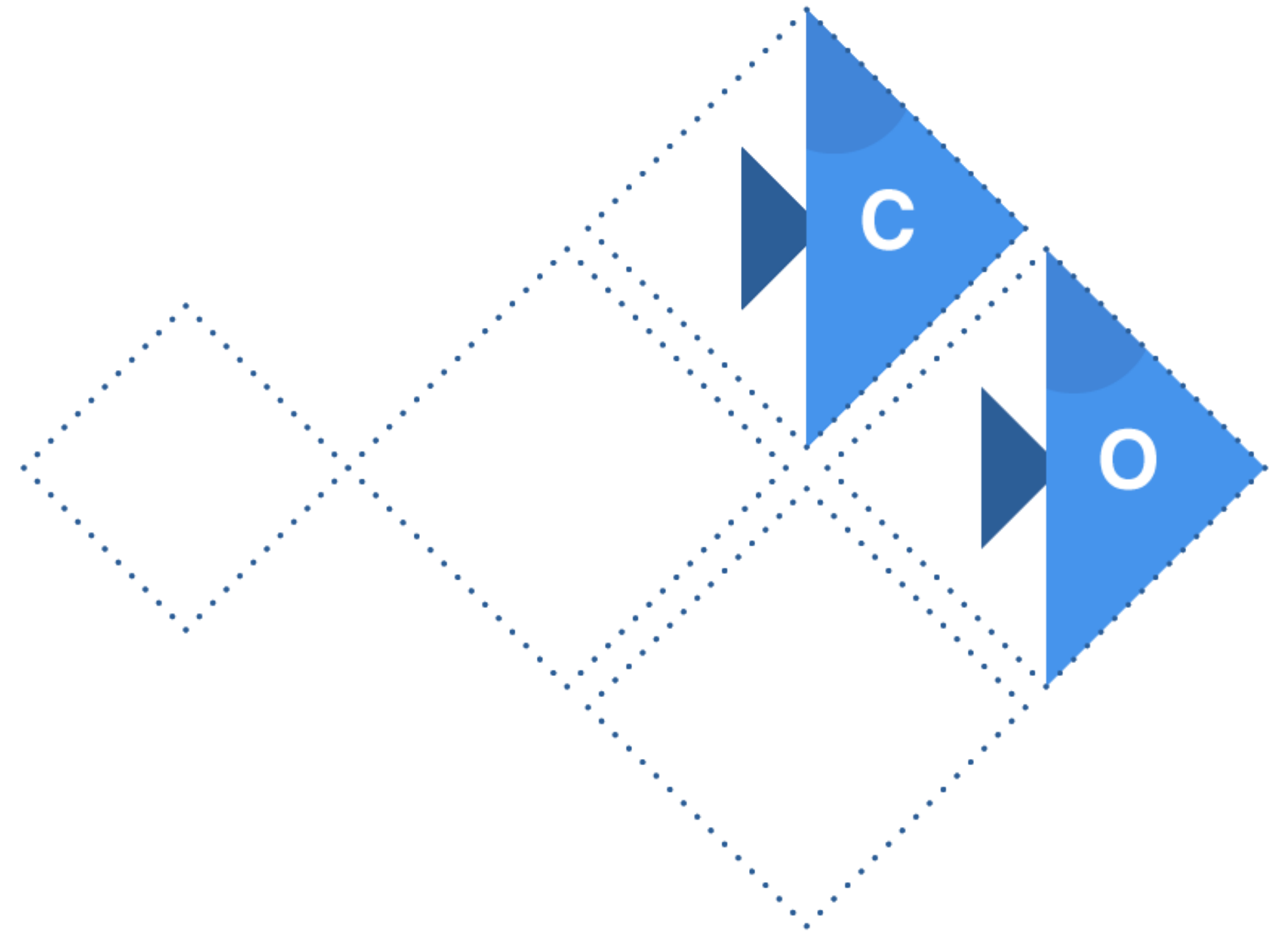
The ability to identify and control the variables that influence system behaviour in order to visit each important state





# Observability:

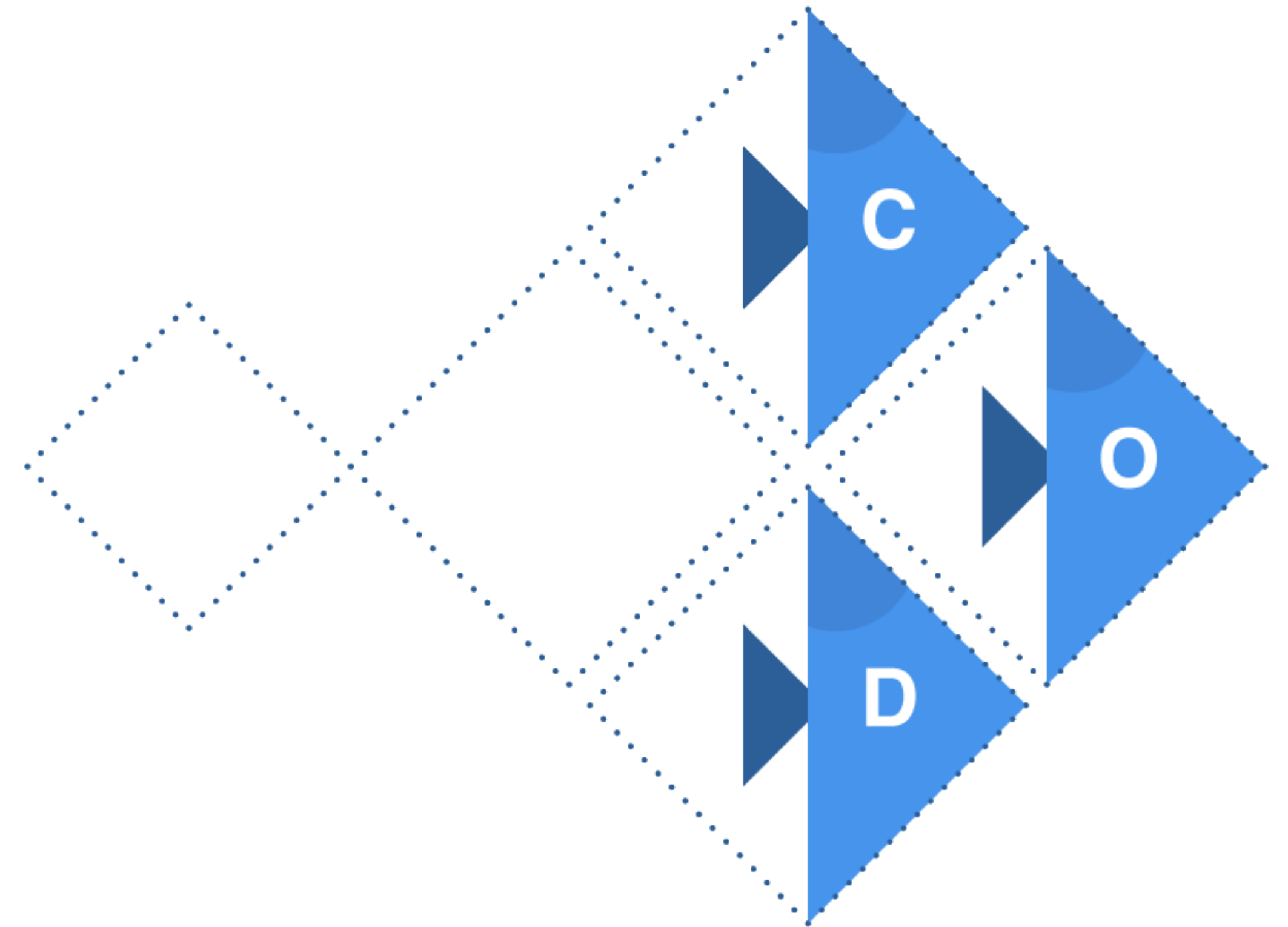
The ability to observe  
and understand  
everything important  
that's happening in the  
system





# Decomposability:

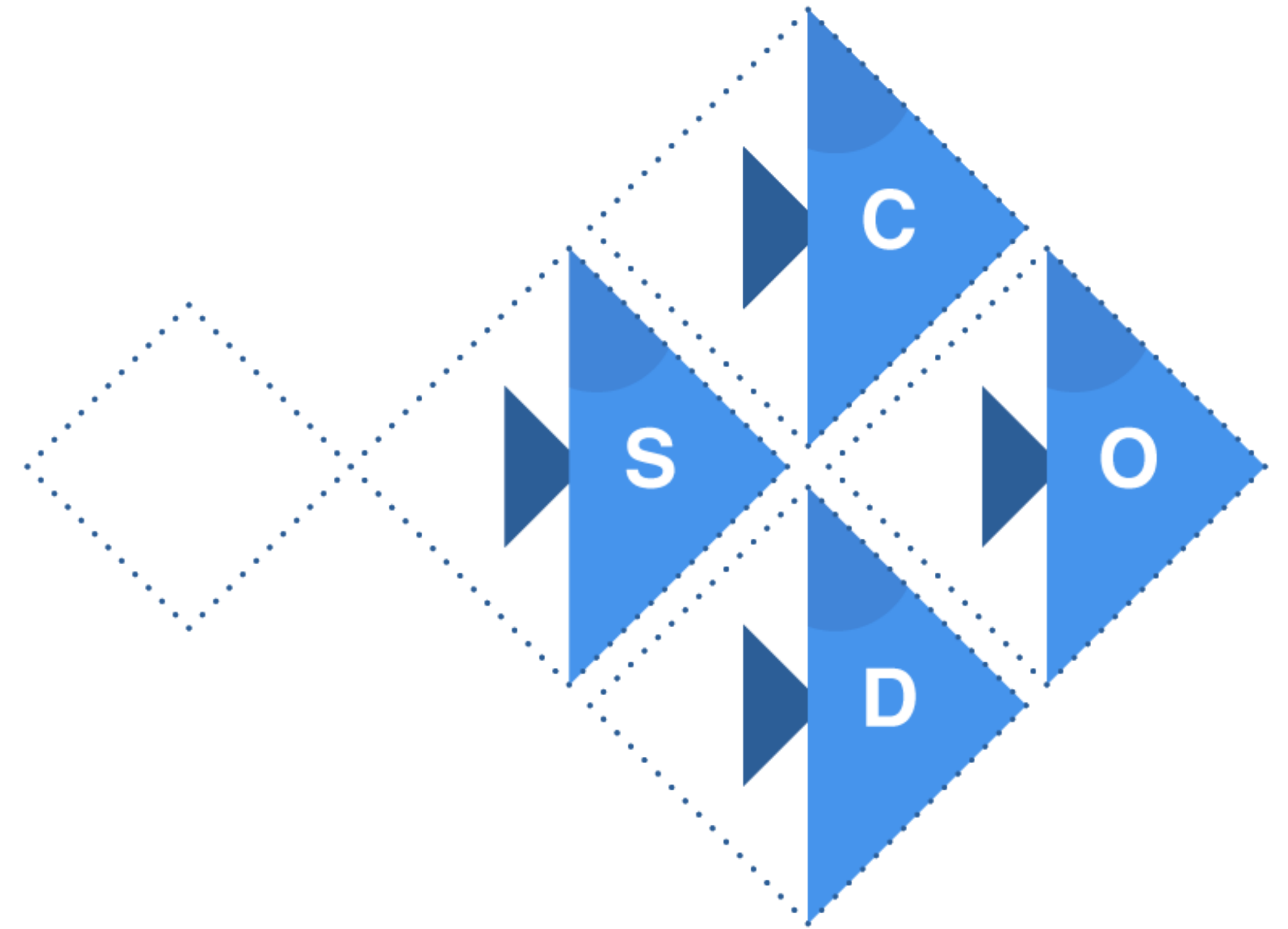
The ability to  
decompose the system  
into independently  
testable components





# **Simplicity:**

The ability to easily  
understand the  
system





We began to  
see the  
magic of  
testability





KNOWNNS

UNKNOWNNS

CHECKED ✓

+

EXPLORED 🔍



TESTED

KNOWNNS

UNKNOWNNS

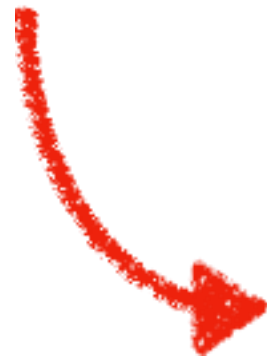
**CHECKED** ✓

+

**EXPLORED** 🔍



**TESTED**



Confirm our beliefs(knowns),  
Does it do what we expected?



**KNOWNNS**

**UNKNOWNNS**

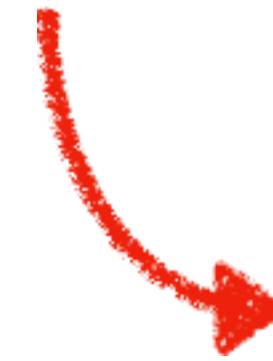
**CHECKED** ✓

+

**EXPLORED** 🔍



**TESTED**



Uncover unexpected risks(unknowns),  
Are there problems we didn't anticipate?

KNOWNNS

UNKNOWNNS

**CHECKED** ✓

+

**EXPLORED** 🔍



**TESTED**

+

**AUTOMATABILITY** 💻

+

**EXPLORABILITY** 👤



**TESTABILITY**



Explorability is the ability to quickly, cheaply and safely learn in an unfamiliar situation by iteratively identifying, testing and challenging our hypotheses.

Understanding of  
unexpected behaviour

**High Explorability**

Uncover unexpected risk

**High Testability**

Detect problems quickly

**Low Testability**

Problems not detected

**High Automatability**

Detect behavioural change

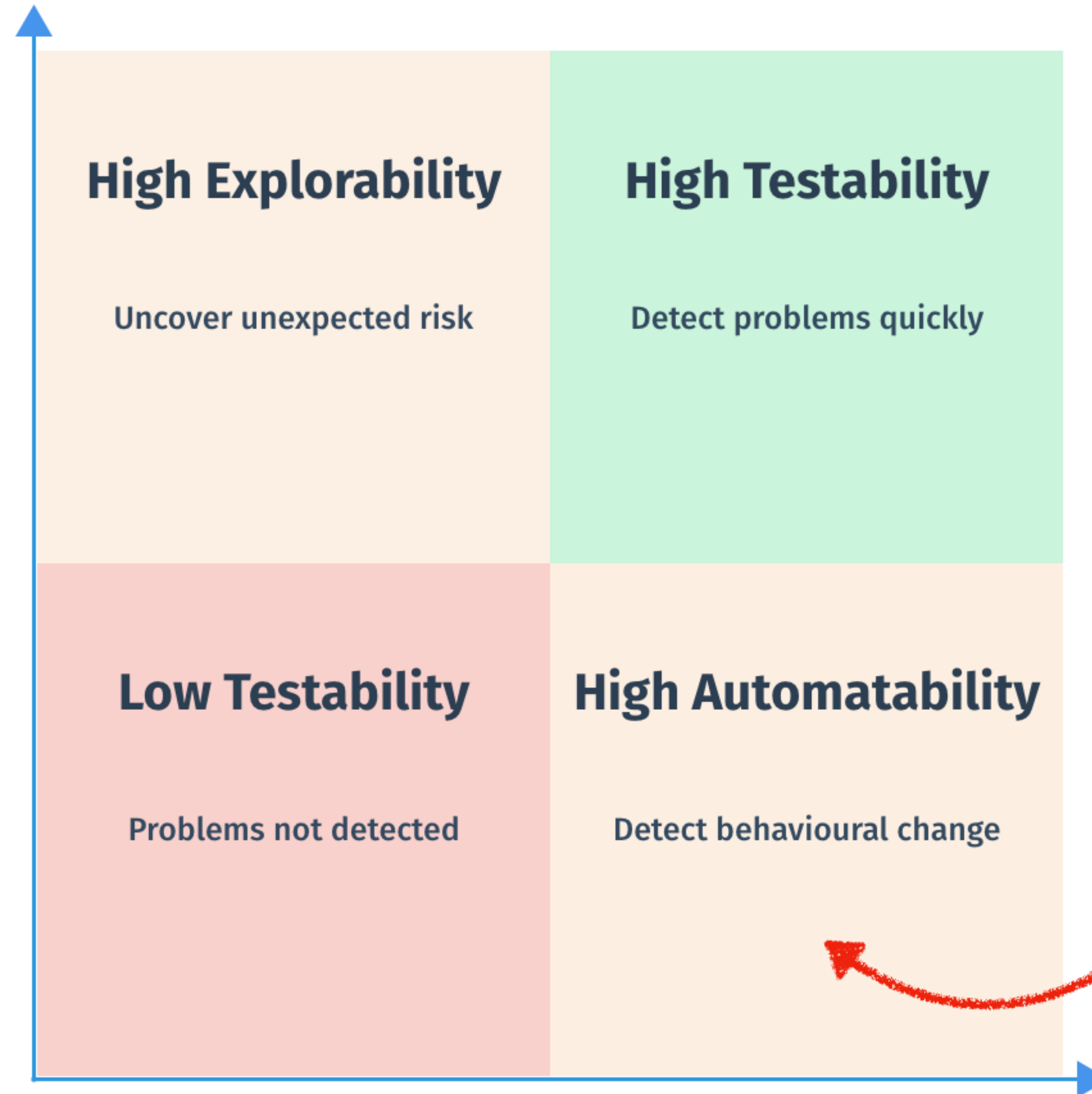
Manual checking,  
Flaky Automation,  
No Exploration

Understanding of  
expected behaviour

@robmeaney



Understanding of  
unexpected behaviour

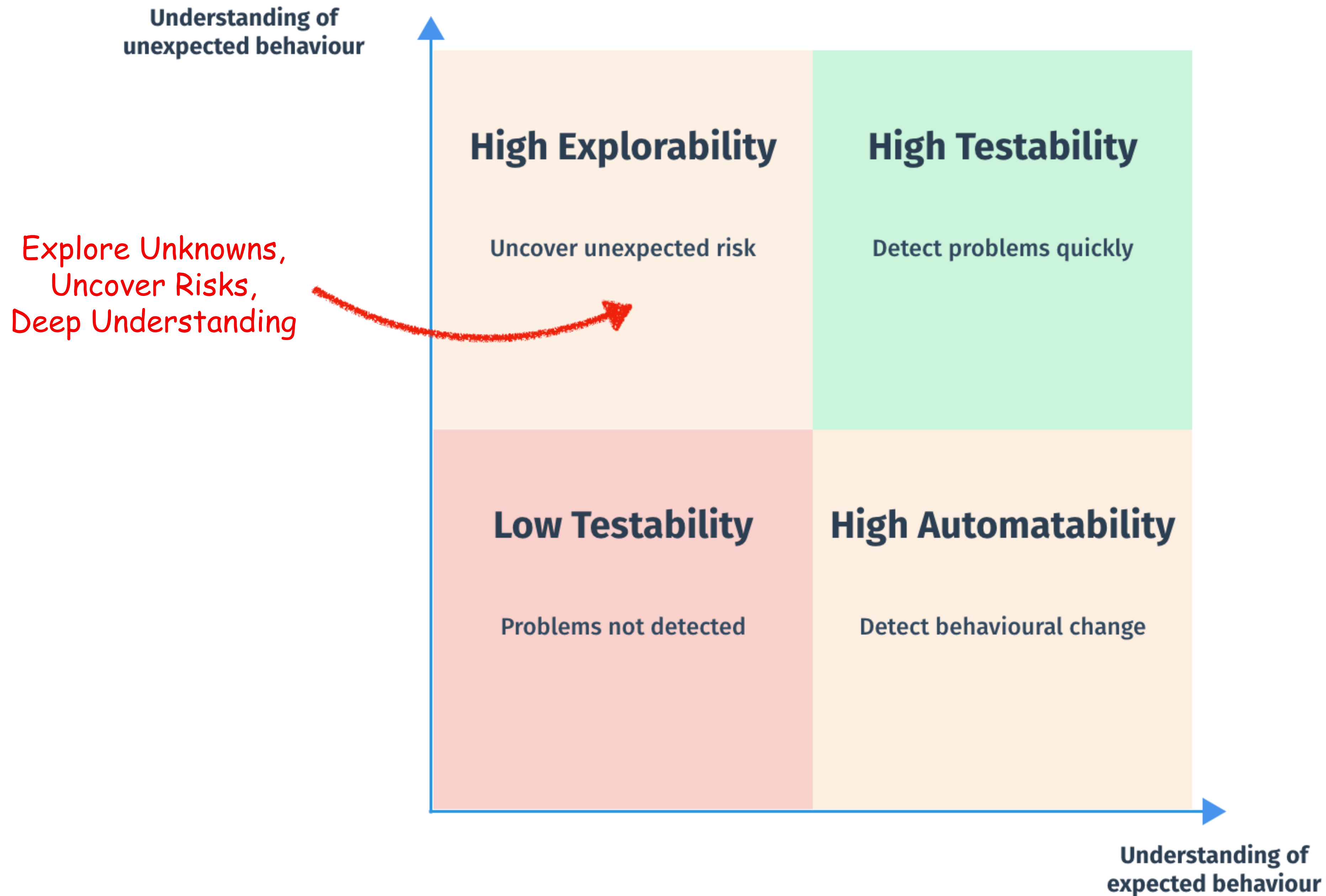


Robust Automation,  
Comprehensive Coverage,  
Fast Feedback

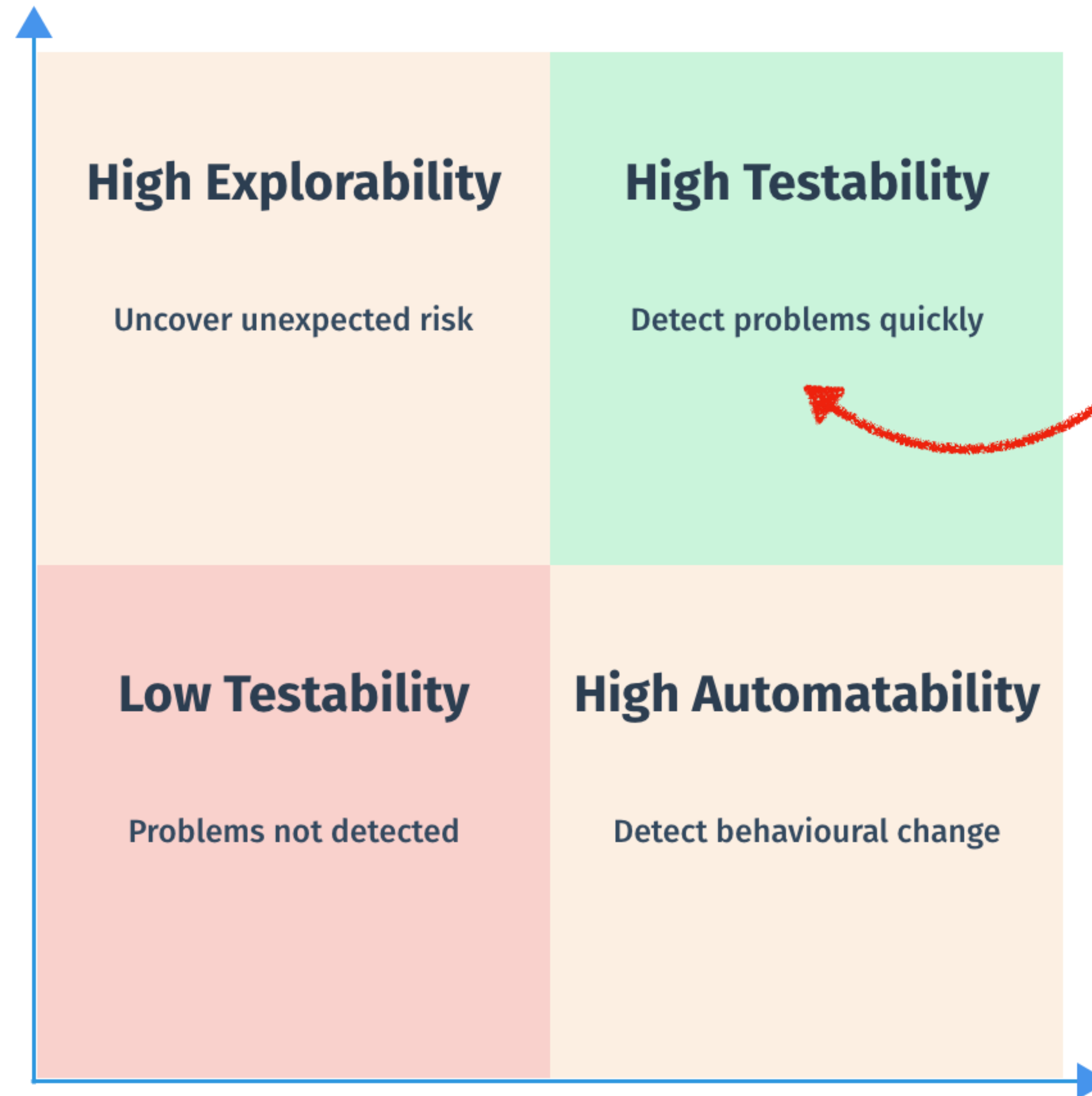
Understanding of  
expected behaviour

@robmeaney





Understanding of  
unexpected behaviour



Detect Different Types  
of Important  
Problems Quickly

Understanding of  
expected behaviour

@robmeaney



KNOWNNS

UNKNOWNNS

**CHECKED** ✓

+

**EXPLORED** 🔍



**TESTED**

+

**AUTOMATABILITY** 💻

+

**EXPLORABILITY** 👤



**TESTABILITY**

DRIVES ACTION



Fast, reliable, comprehensive  
feedback on every  
change

+

DRIVES UNDERSTANDING



Skilled, curious  
deep exploratory  
testing



ACCELERATES FEEDBACK



Minimised waste in  
achieving shippable  
quality

# What did our **focus** on **testability** achieve?

Adopted across the company

Speed of delivery and quality

Stress-free routine releases

Happy productive teams

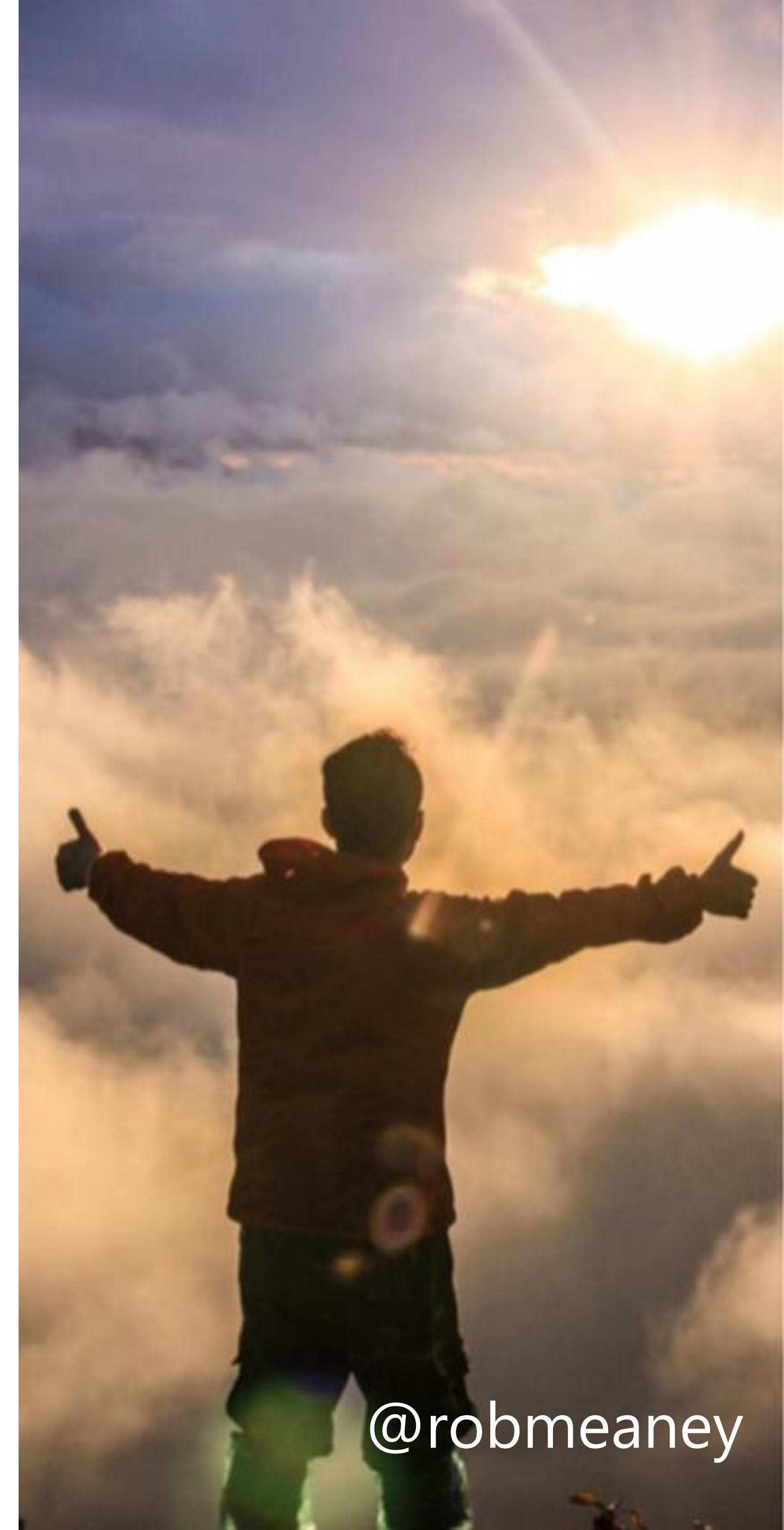


@robmeaney



Significant quality improvements  
weren't driven by testing.

They were driven by building  
relationships & influencing the  
right people at the right time to  
build quality in!



@robmeaney



# My journey continued

Realtime online fraud detection

New context & challenges

Available, responsive & scalable



@robmeaney



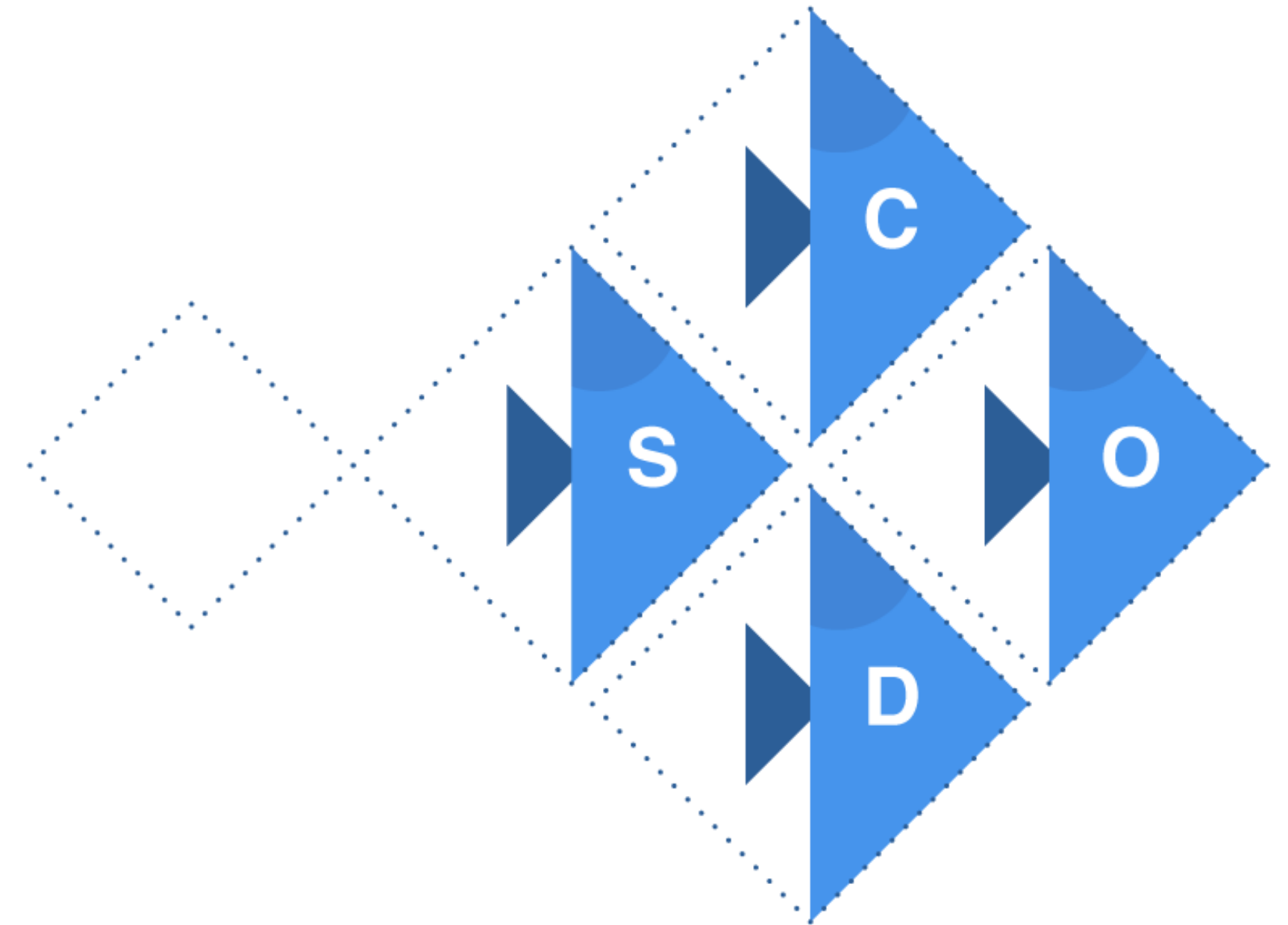
# Our Risk lived in Production

Control risk exposure

Observe system behaviour

Decompose releases

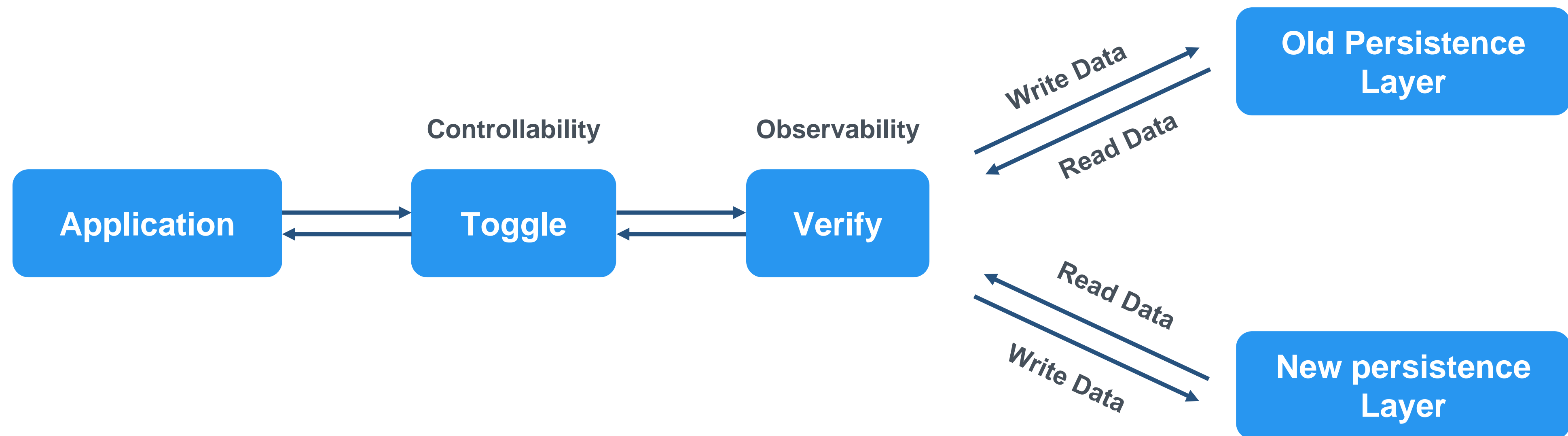
Simplify the release process



If **you're not** testing in production then **your**  
**users are** testing in production!



# Our biggest challenge **Surviving** Black Friday



## Controllability



**CONTROL RISK  
EXPOSURE**

- Blue-green deploys
- Feature toggles
- Canary releases
  - A/B testing

## Observability



**OBSERVE SYSTEM  
BEHAVIOUR**

- Instrumentation
  - Logging
  - Monitoring
  - Alerting
  - Dashboards
- Synthetic tests
- Data analytics
  - Tracing
- Release flags

## Decomposability



**DECOMPOSE  
DEPLOYS**

- Single changeset per deploy

## Simplicity



**SIMPLIFY  
DEPLOYS**

- Single click of a button to deploy or rollback
- Automatic rollback on error rate spikes

# Test for Operability

Test the infrastructure that supports  
operability

Ensure your tooling works when you  
need it most



Docker



TeamCity



Elastic + Kibana



Opentracing



Sentry



Kubernetes

@robmeaney



# Quality Coaching at Poppulo

- Quality > Testing
- Observability drives  
understanding



**Poppulo**

# Observability starts with simple questions:

How would you know if your system was unhealthy?

How would you know if your users were having a bad experience?

In the event there was a problem how would you isolate the cause?

KNOWNNS

UNKNOWNNS

CHECKED ✓

+

EXPLORED 🔍



OBSERVED



KNOWNNS

UNKNOWNNS

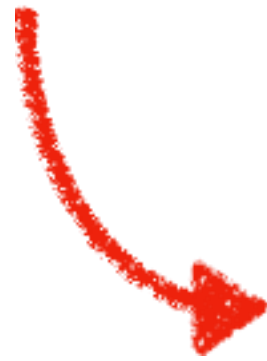
**CHECKED** ✓

+

**EXPLORED** 🔍



**OBSERVED**



Check known failure modes,  
symptoms of customer pain

KNOWNNS

UNKNOWNNS

CHECKED ✓

+

EXPLORED 🔍



OBSERVED



Explore for unexpected behaviour  
& unusual patterns

KNOWNNS

UNKNOWNNS

**CHECKED** ✓

+

**EXPLORED** 🔍



**OBSERVED**

+

**MONITORABILITY** 📊

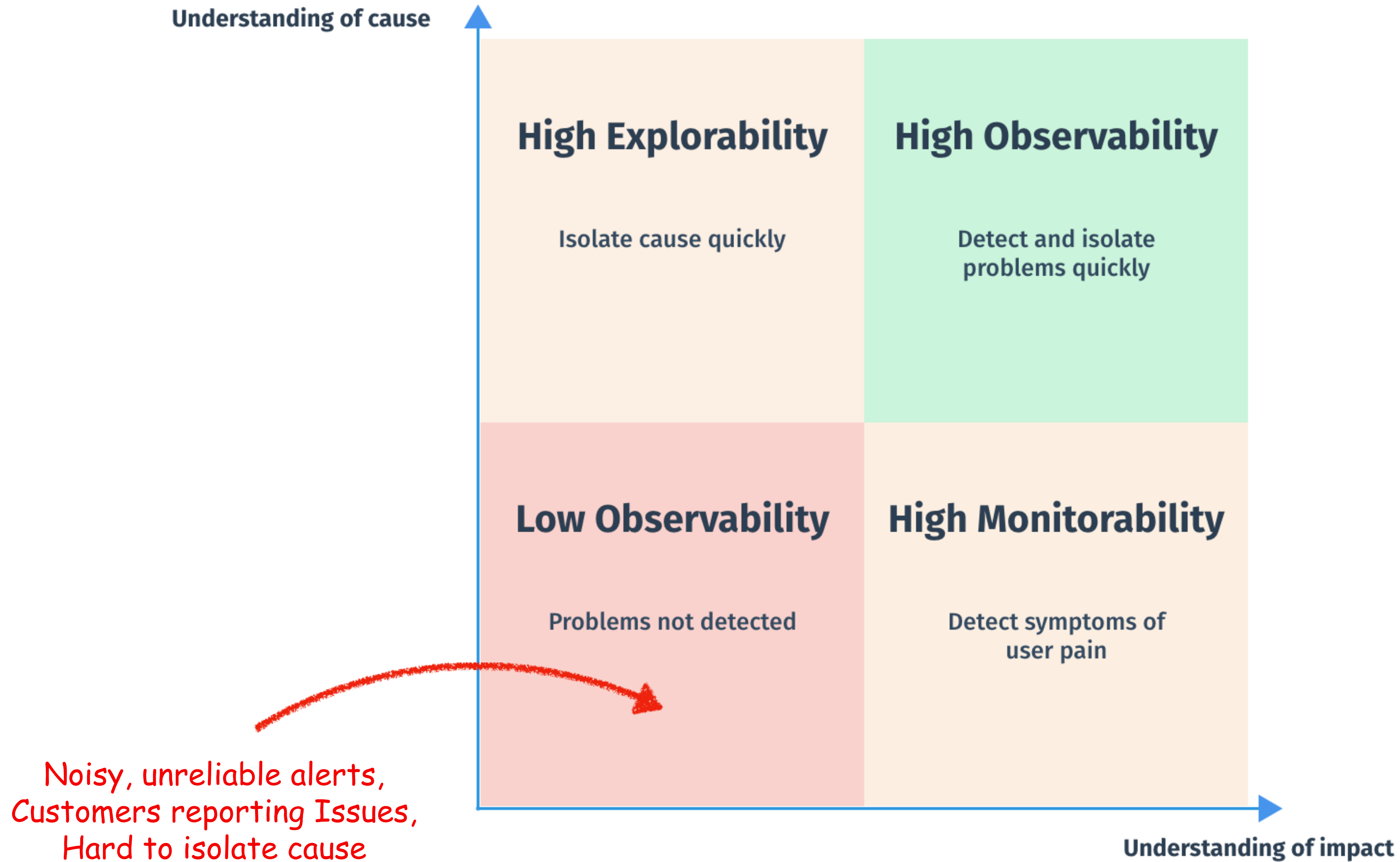
+

**EXPLORABILITY** 👤

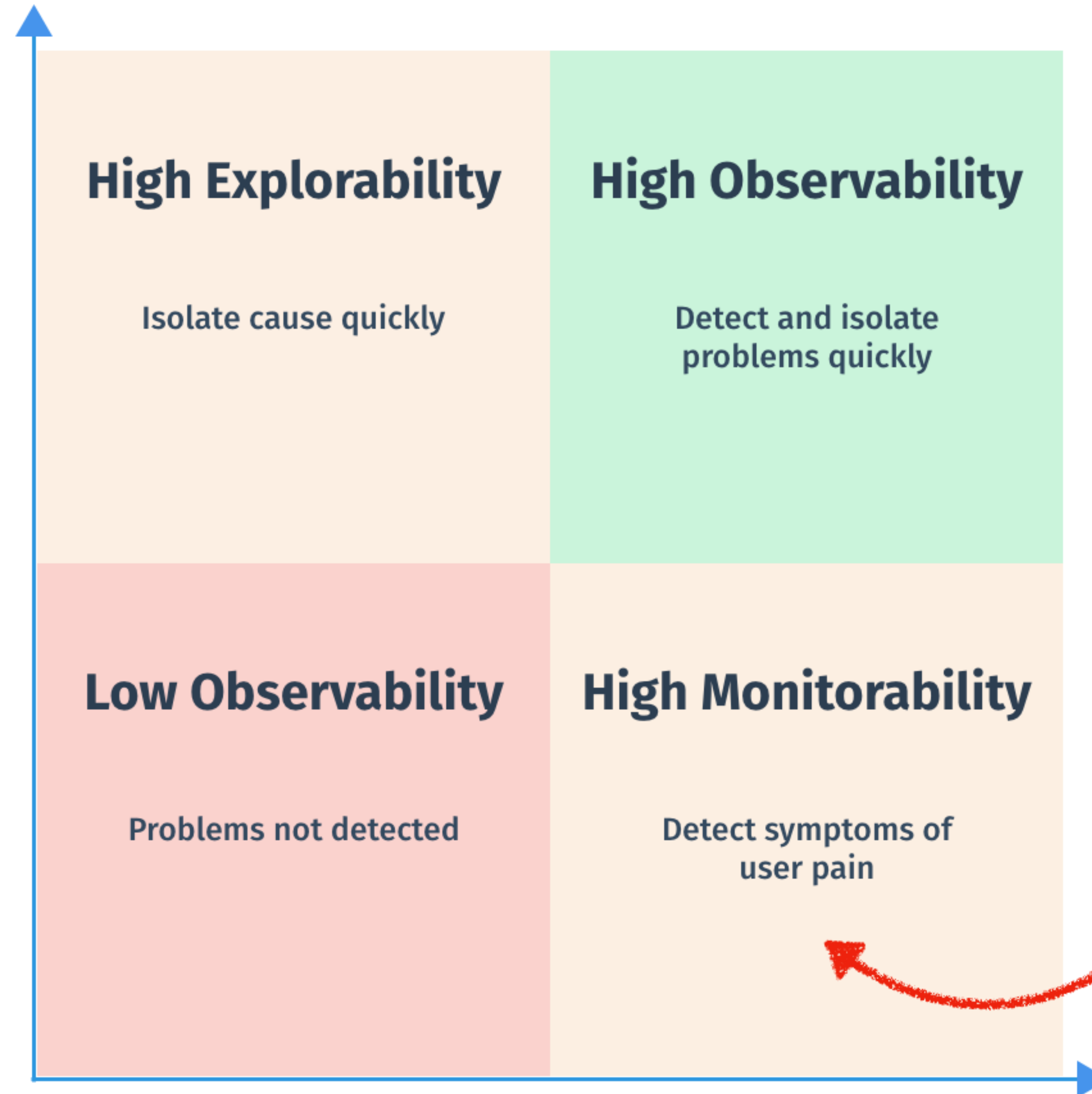


**OBESERVABILITY**





Understanding of cause

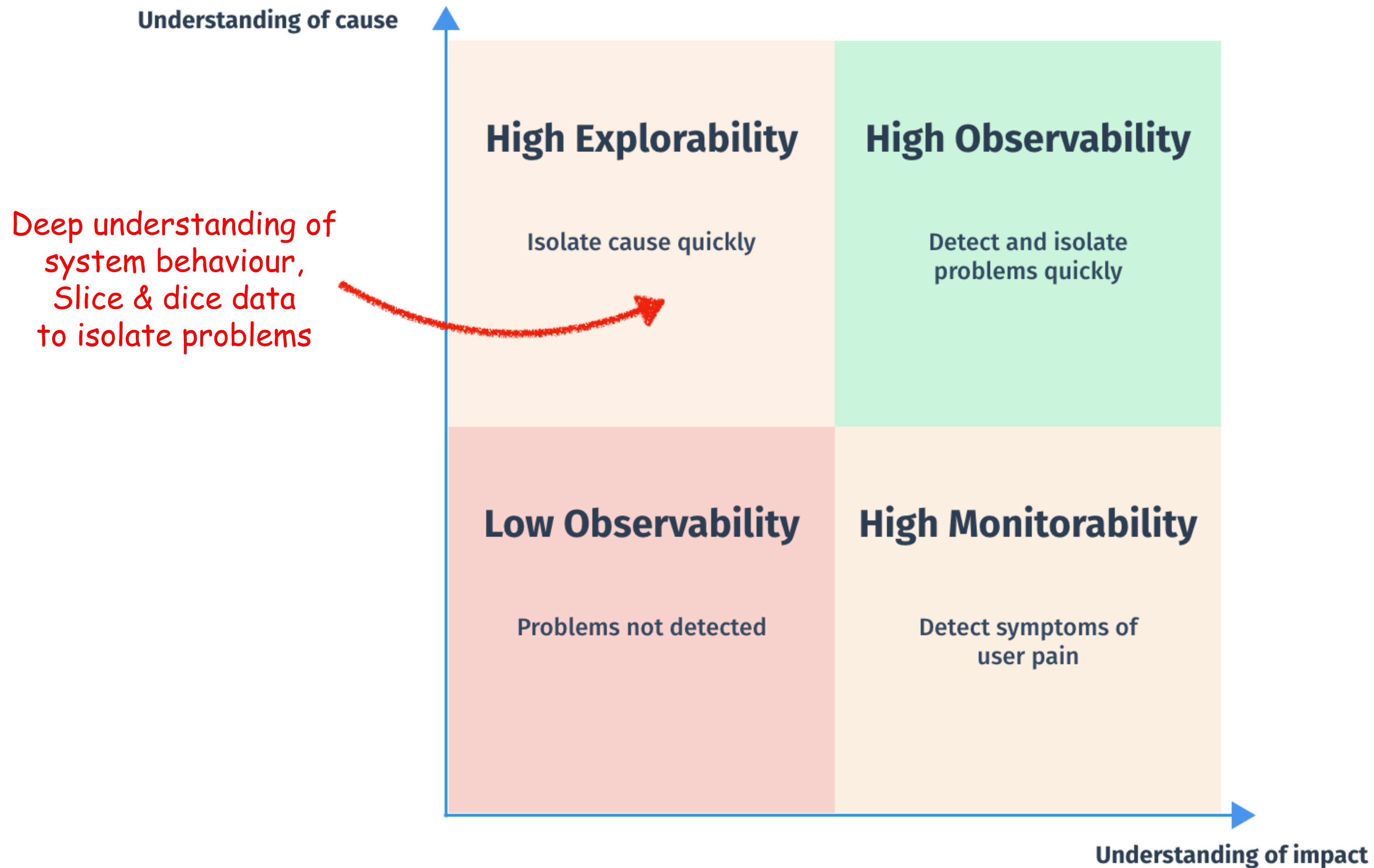


Understanding of impact

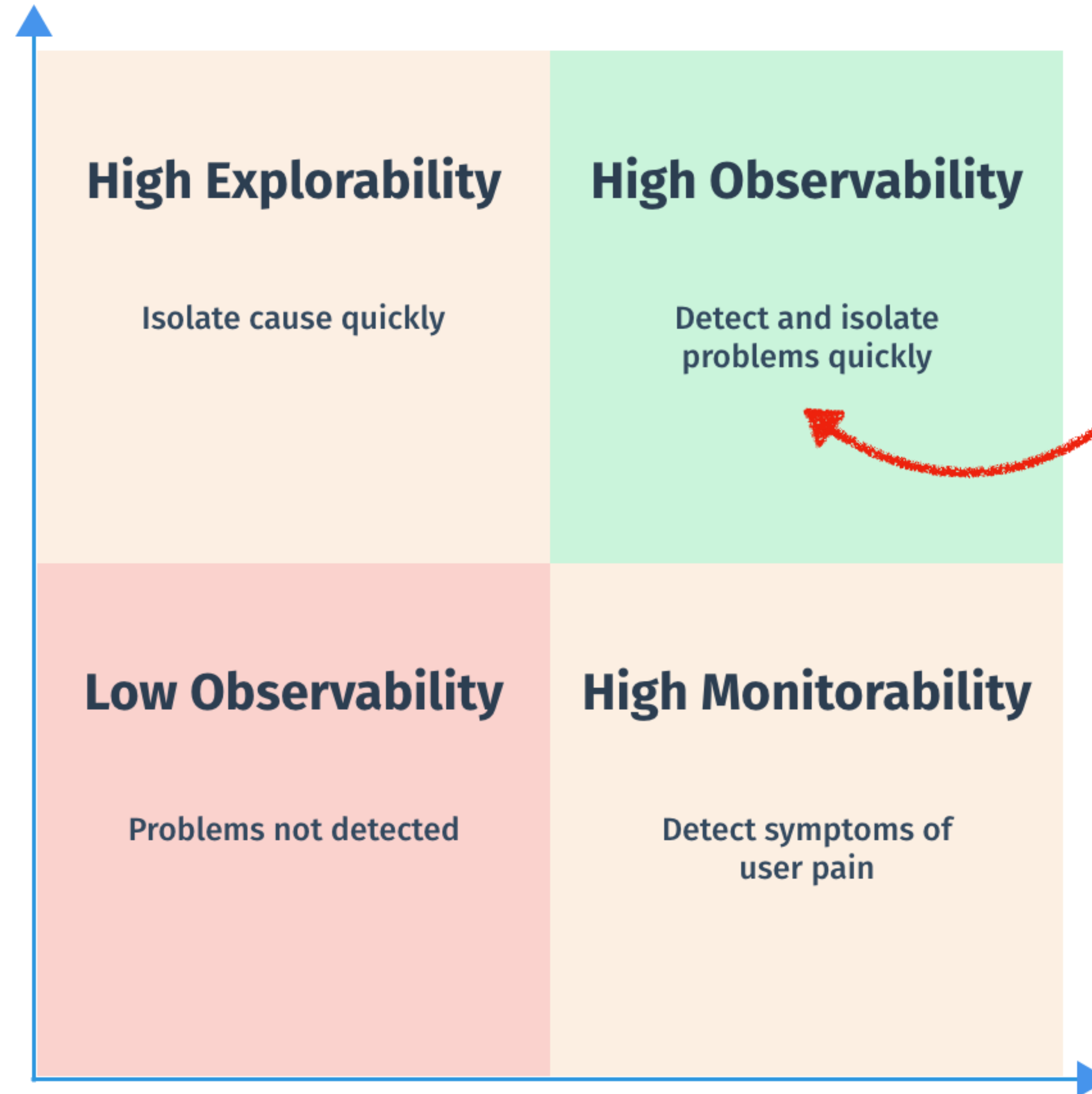
Small set of reliable alerts,  
symptom based,  
actionable

@robmeaney





Understanding of cause



Detect & correct problems  
before the customer notices

Understanding of impact

@robmeaney

KNOWNNS

UNKNOWNNS

**CHECKED** ✓

+

**EXPLORED** 🔍



**OBSERVED**

+

**MONITORABILITY** 📊

+

**EXPLORABILITY** 👤



**OBESERVABILITY**

DRIVES ACTION



Fast, reliable  
detection of  
system outages

DRIVES UNDERSTANDING



Skilled, curious  
technical  
debugging

+



ACCELERATES RECOVERY



Minimised time and  
effort in detecting  
and debugging issues

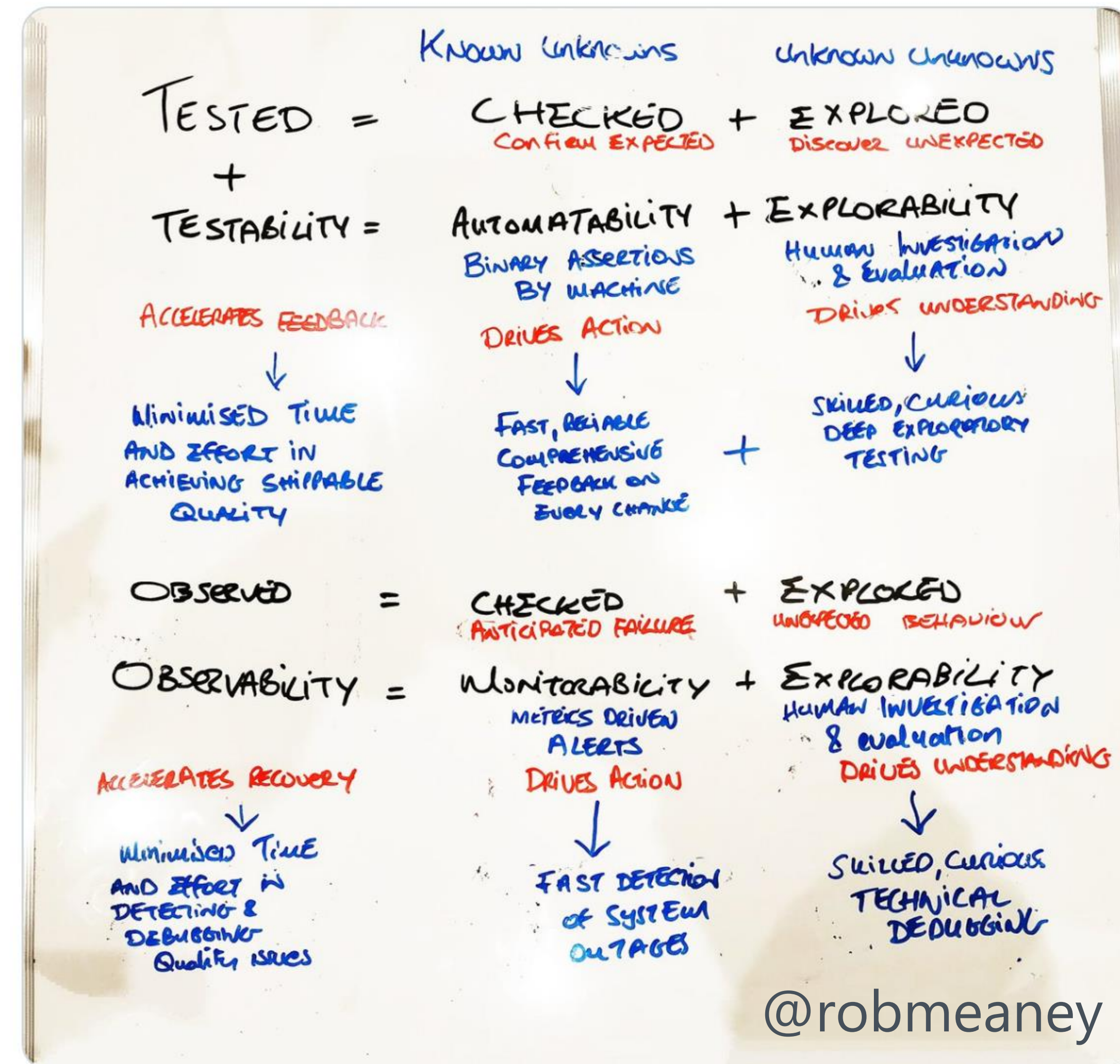




Sponge Bob Test Pants  
@RobMeaney

Exploring the parallels between observability and testability #testability #observability #o11y #testing

There are clear parallels  
between testability &  
observability







Reduced likelihood  
of failure



Reduced impact  
from failure

Allows us deal with reality,  
minimise impact of  
failure

@robmeaney



Reduced likelihood  
of failure



Move quickly with justified  
confidence

Reduced impact  
from failure

@robmeaney

IMAGINATION

REALITY

**TESTABILITY** 

+

**OPERABILITY** 



**OPTIMISED FLOW**

DRIVES THROUGHPUT

DRIVES STABILITY

ACCELERATES DELIVERY

Minimise time and  
effort to shippable  
quality

+

Minimise time and  
effort to maintain  
quality



Minimise total  
cost of quality

reduced lead time,  
increased deployment frequency

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IMAGINATION

REALITY

**TESTABILITY** 

+

**OPERABILITY** 



**OPTIMISED FLOW**

DRIVES THROUGHPUT



Minimise time and  
effort to shippable  
quality

DRIVES STABILITY



Minimise time and  
effort to maintain  
quality

ACCELERATES DELIVERY



Minimise total  
cost of quality

+



reduced change failure rate,  
mean time to recover



How did we create a culture with a focus  
on designing for testability and  
operability?

We began to build observability into our  
systems of work as well as our software  
systems

We visualised, socialised and optimised  
for the engineering experience



# exercise

	☹️	😐	😊	TREND	INSIGHTS
<b>People</b> The team is the most important asset of any organization. It is the people who create the culture, drive the innovation, and deliver the results. They are the heart of the business.		X X X	X X	—	
<b>Philosophy</b> The team's philosophy is the set of beliefs and values that guide their actions. It is the foundation of the culture and the driver of the innovation.	X	X X X X		—	
<b>Product</b> The team's product is the solution they are creating to solve a problem. It is the result of their innovation and the value they are delivering to the customer.	X X X X	X		↙	
<b>Process</b> The team's process is the way they are working together to create the product. It is the framework for their collaboration and the engine of their innovation.		X X	X X X	↗	
<b>Problem</b> The team's problem is the challenge they are facing. It is the reason they are working together and the source of their innovation.	X X	X X X		—	
<b>Project</b> The team's project is the specific task they are working on. It is the result of their innovation and the value they are delivering to the customer.		X X X X X		—	
<b>Pipeline</b> The team's pipeline is the flow of work from idea to completion. It is the framework for their collaboration and the engine of their innovation.		X X X X X		—	
<b>Productivity</b> The team's productivity is the rate at which they are creating value. It is the result of their innovation and the value they are delivering to the customer.		X X X X X		—	
<b>Production Issues</b> The team's production issues are the challenges they are facing in creating the product. They are the result of their innovation and the value they are delivering to the customer.		X X X X X		—	
<b>Proactivity</b> The team's proactivity is the ability to anticipate and act on opportunities. It is the result of their innovation and the value they are delivering to the customer.		X X	X X X	↗	

**3 savings, breakdown**

- team worked but not really
- still trying to do it
- still trying to do it
- still trying to do it

**Not enough about the team**

- feedback from client
- only speaking with
- only speaking with
- only speaking with

**Use today's work**

- use today's work
- use today's work
- use today's work
- use today's work

**Time to address problems for**

- business purpose, performance
- business purpose, performance
- business purpose, performance
- business purpose, performance

**Time to implement & get**

- feedback from client
- feedback from client
- feedback from client
- feedback from client

**Not under huge pressure, can**

- implement & use new tools
- implement & use new tools
- implement & use new tools
- implement & use new tools

**Have only started testing**

- testing about which
- testing about which
- testing about which
- testing about which

**be just too focused**

- on the test
- on the test
- on the test
- on the test

**Quick detection they have**

- failed
- failed
- failed
- failed

**Worried about data loss**

- need to be fully aware of the
- need to be fully aware of the
- need to be fully aware of the
- need to be fully aware of the

**Team to more practice the**

- practice
- practice
- practice
- practice

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# A Holistic Testability Model - 10 P's of Testability



\*Inspired by models from Anne-Marie Charrett, James Bach & Maria Kedemo

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# Team quality indicator board



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# Operability

## learning review

### exercise





# Story mapping customer incidents



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1. Visualise & Socialise your problems.

2. Optimise your Engineering Experience.