Making DevOps Valuable

Sasha Rosenbaum
@DivineOps

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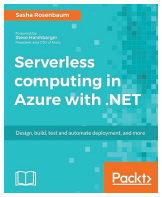
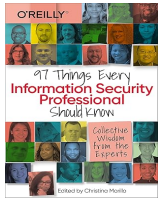




Sasha Czarkowski (Rosenbaum) @DivineOps

Dev
Ops
Product
Sales
Management

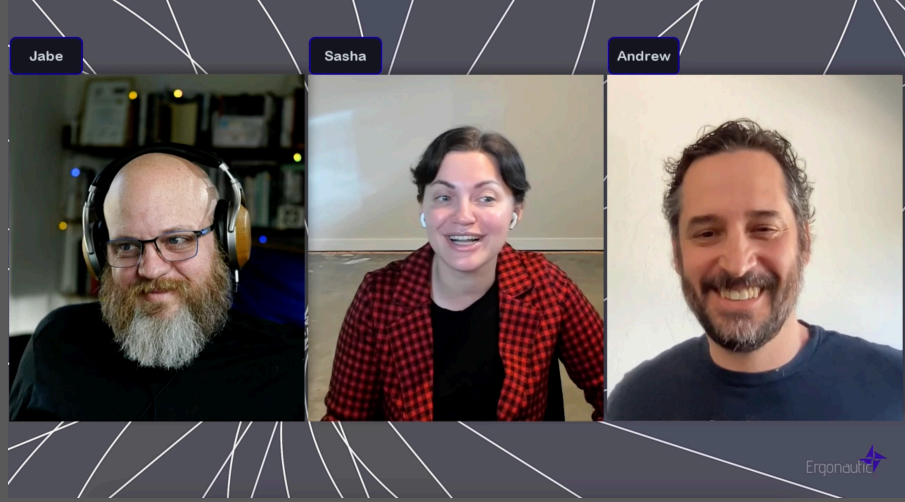
Ergonautic

TECHNION
Israel Institute of Technology

JACK WELCH
MANAGEMENT INSTITUTE

Elbit Systems

Ergonautic



Stop Chasing Buzzwords
Start Working Better

@ergonauticly

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www.ergonautic.ly

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Stop Chasing Buzzwords
Start Working Better

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Once upon a time

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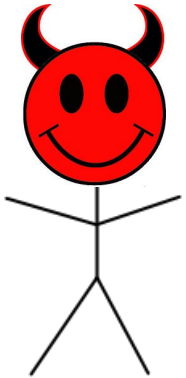
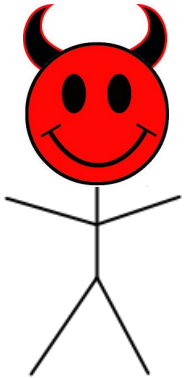
Traditional IT





dev

ops

wall of confusion

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Ergonautic

Dev

Ops

Speed

Reliability

Ergonautic

DevOpsDays Ghent 2009

Sasha Czarkowski

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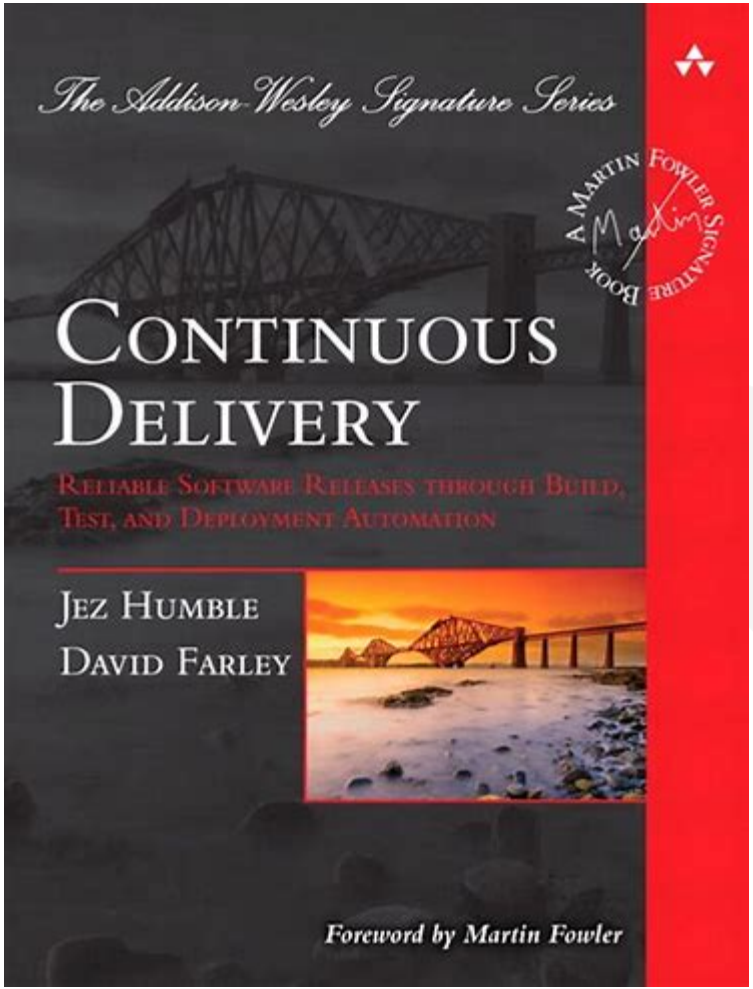

Jez Humble and Dave Farley: 2010

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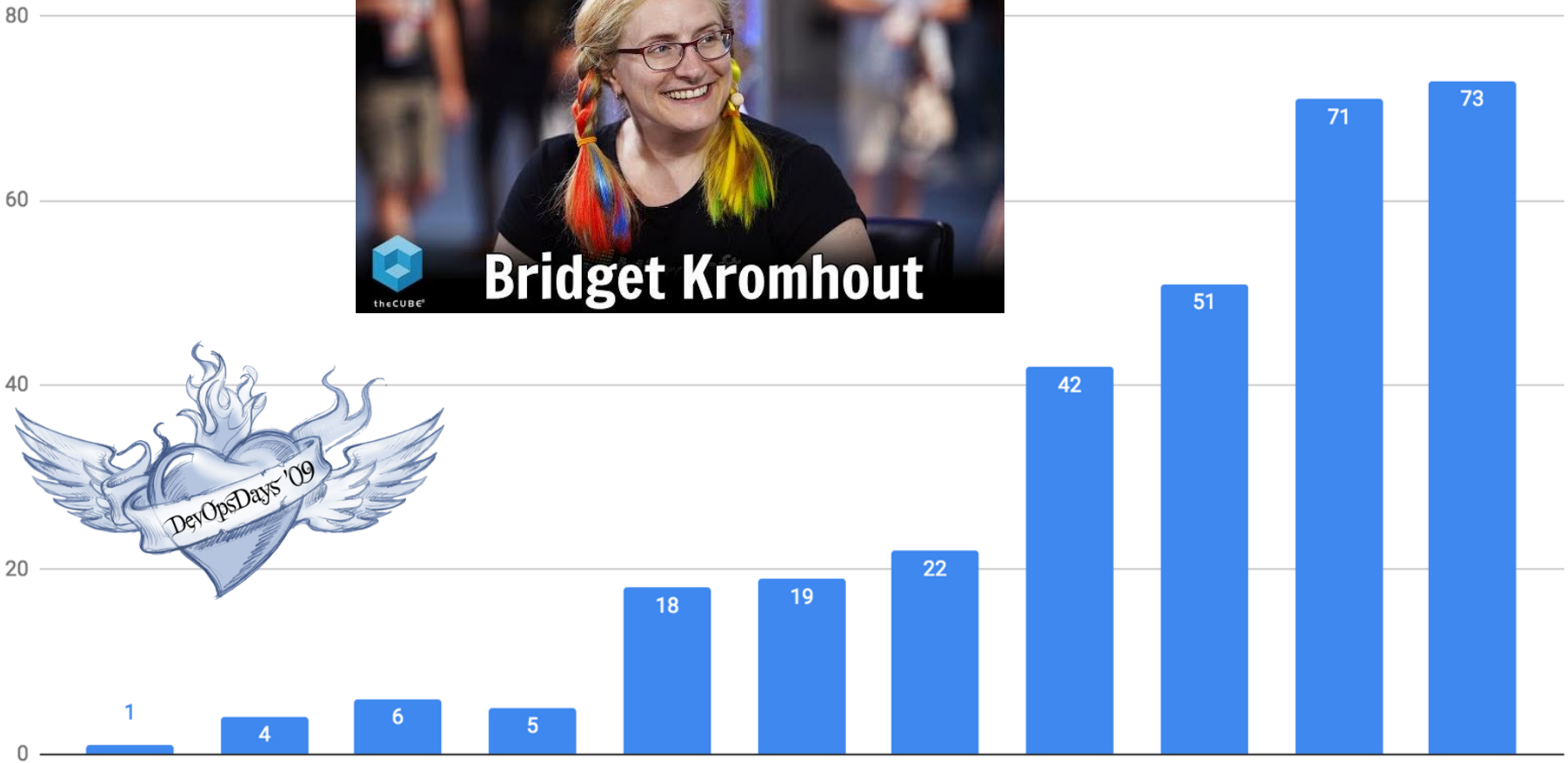
devopsdays events



“DevOps” Google Search Trend 2009-Present

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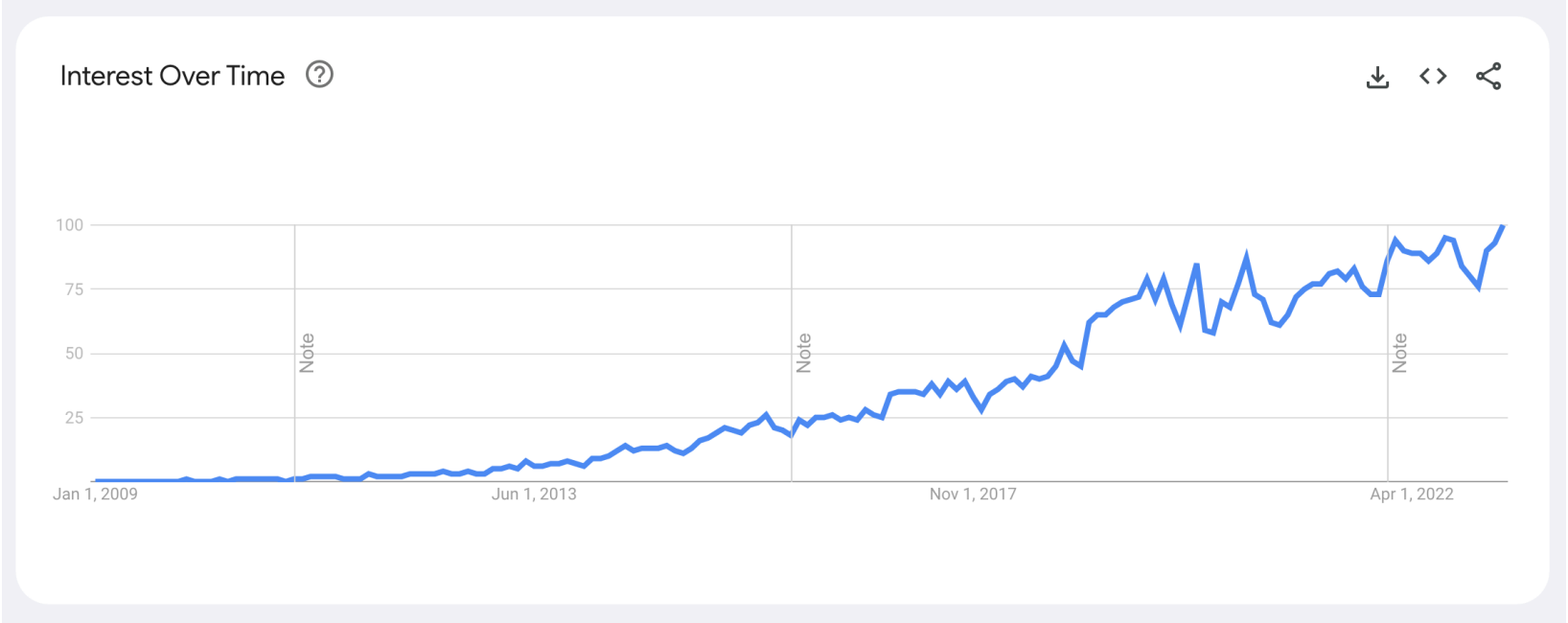

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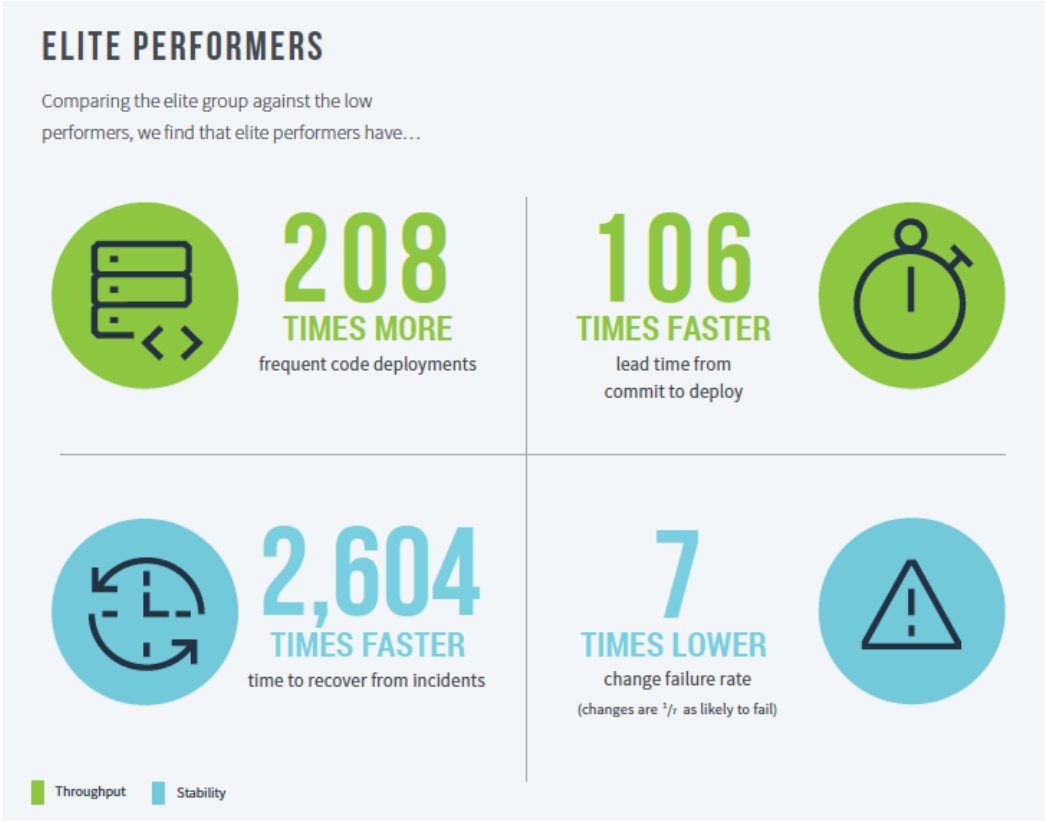
State of DevOps Report 2019



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GIANT.
GARMIN

We have the technology...

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Just move faster!

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You cannot CI/CD

Without Testing

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Did we get DevOps wrong?

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The future is already here.

It's just not evenly distributed

~ William Gibson

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CALMS

Culture
Automation
Lean
Measurement
Sharing

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CALMS

Culture

Automation

Lean

Measurement

Sharing

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Culture

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Popular Perception of Culture Change

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"Anyone wanting to change a culture needs to define the actions and behaviors they desire, then design the work processes that are necessary to reinforce those behaviors."

- John Shook, MIT Sloan

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Culture Change (Schein)

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Motivation Matching:

Help people do what they already want to do.

– BJ Fogg

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Automation

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JohnnyC
@JohnnyCiocca

"Automate all things. Respect all humans."
@DivineOps' bio is my fav of all times.

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Naive automation

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This new tool is going to solve ALL of our problems!

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Senior Oops Engineer @ReinH · Jul 8, 2020

I mean yes automation eliminates human errors in the sense that those errors will now be performed by machines

20 138 559

Niels Albers
@nralbers

Replying to @ReinH

Automation: How to make mistakes consistently, repeatably and really fast.
🤣

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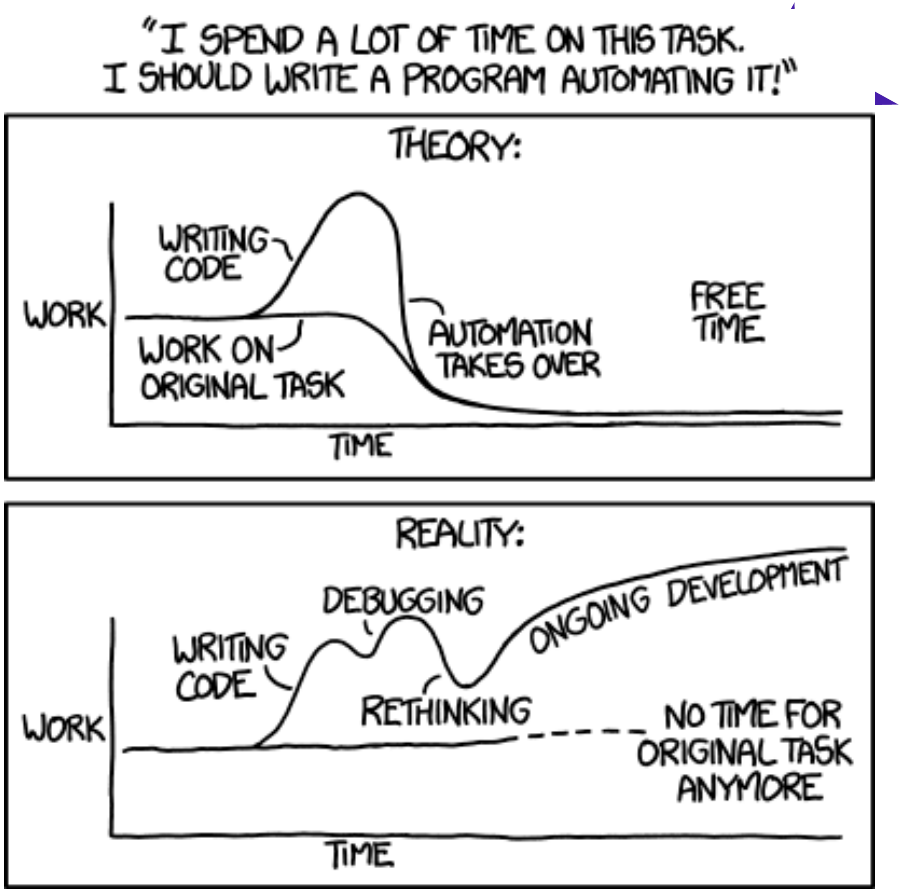
Automation Drift



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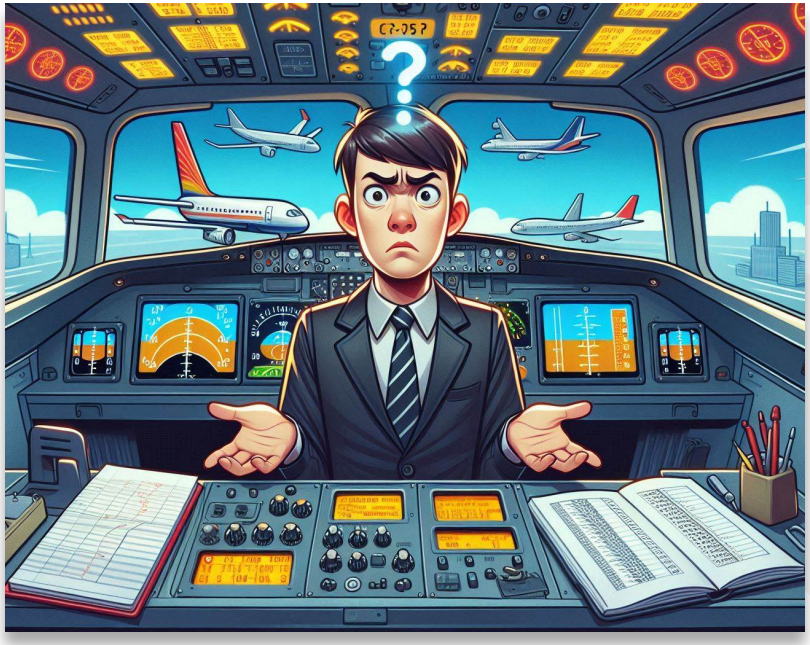

The irony of manual takeover

Source: Ironies of Automation. https://ckrybus.com/static/papers/Bainbridge_1983_Automatica.pdf

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All systems are sociotechnical

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Entropy always wins

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Inevitably, the friction with the machine is getting blamed on human error

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Let's talk about the forgotten pillar

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Measurement

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The aim of the system must be clear to everyone in the system. Without an aim, there is no system. The aim is a value-judgment.

– W. Edwards Deming

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We want to measure Value

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Measuring Value delivery is Hard

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Just measure things!

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Metrics Done Wrong

- Subjective
- Imbalanced
- Only a Proxy

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Velocity

- Subjective
- Imbalanced
- Only a Proxy

- Was there a story-point inflation?
- Did we sacrifice quality?
- Did we deliver more units of value?

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What gets measured, gets gamed

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GOODHART'S LAW

WHEN A MEASURE BECOMES A TARGET,
IT CEASES TO BE A GOOD MEASURE

IF YOU MEASURE PEOPLE ON...	NUMBER OF NAILS MADE	WEIGHT OF NAILS MADE
THEN YOU MIGHT GET	1000'S OF TINY NAILS	A FEW GIANT, HEAVY NAILS

sketchplanations

You want a balanced

system of metrics

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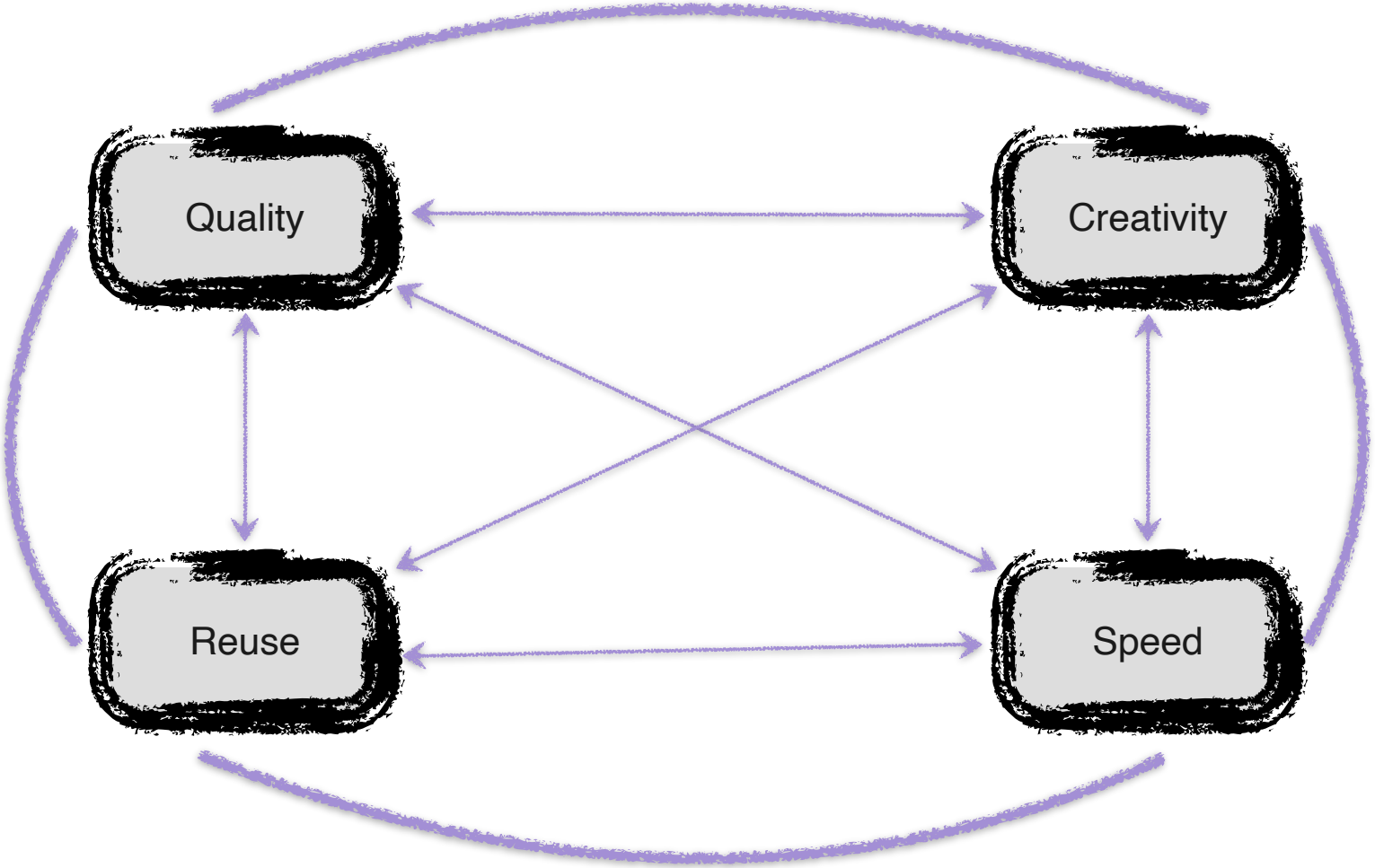
Process



Let's all use the 4 Golden Signals!

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Can you connect them to revenue, costs or customer experience?

Latency	**Traffic**
Errors	**Saturation**

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Google: 500ms of latency dropped traffic by 20%

Amazon: 100ms of latency dropped sales by 1%

https://www.gigaspaces.com/blog/amazon-found-every-100ms-of-latency-cost-them-1-in-sales/

NETFLIX

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milliseconds of latency
do not matter!

The narrative must be meaningful to your business

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The true goal

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Measuring

flow of Value

through the system

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O'REILLY®

Site Reliability Engineering

HOW GOOGLE RUNS PRODUCTION SYSTEMS

Edited by Betsy Beyer, Chris Jones, Jennifer Petoff & Niall Murphy

What is Reliability?

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Reliability vs Availability

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Everything is 200 OK!

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The five nines

99.999%

5.26 mins / year

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Will your users even notice?

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The ISP background error rate is

0.01% - 1%

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100% availability is...

- Unattainable
- Unnecessary
- Extremely expensive

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Will your users care?

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Reliability is a Feature

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Reliability

Is my service doing what the users expect it to do?

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SLA, SLI, SLO

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SLA

=

Financially-backed Availability

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Monthly Uptime Percentage	Service Credit Percentage
Less than 99.95% but equal to or greater than 99.0%	10%
Less than 99.0% but equal to or greater than 95.0%	25%
Less than 95.0%	100%

Monthly downtime > 1.5 days means 100% refund

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SLAs are about

aligning incentives

between Vendor & Customer

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SLA usually includes a single metric

For financial and reputational reasons, companies prefer to underpromise and overdeliver

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SL1

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SLI

=

Actual Reliability

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Monitoring

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Without monitoring, you have no way to tell whether your service even works!

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Good Monitoring

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Without good monitoring, you don't know that the service does what users expect it to do!

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SLO

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SLO

=

target reliability

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SLO

=

Business-approved reliability

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SLOs are about

explicitly aligning incentives

between Business & Engineering

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Error Budgets

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Error Budgets

Acceptable level of unreliability

Error budget = 1 - SLO

EB = 1 — 99.99% = 0.01% ≃ 13 mins /quarter

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Error budgets are about

aligning incentives

between Dev & Ops

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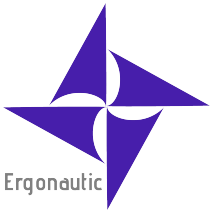

If developers are measured on the same SLO, then when the error budget is drained developers shift focus from delivering new features to improving reliability

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What happens when you blow the Error Budget?

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Nothing

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SLO

=

Targeted Reliability

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Define SLOs to be the best proxies of user value

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Reliability is a Feature

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Start with SLIs

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Without good monitoring, you don't know that the service does what users expect it to do!

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Information -> Insight

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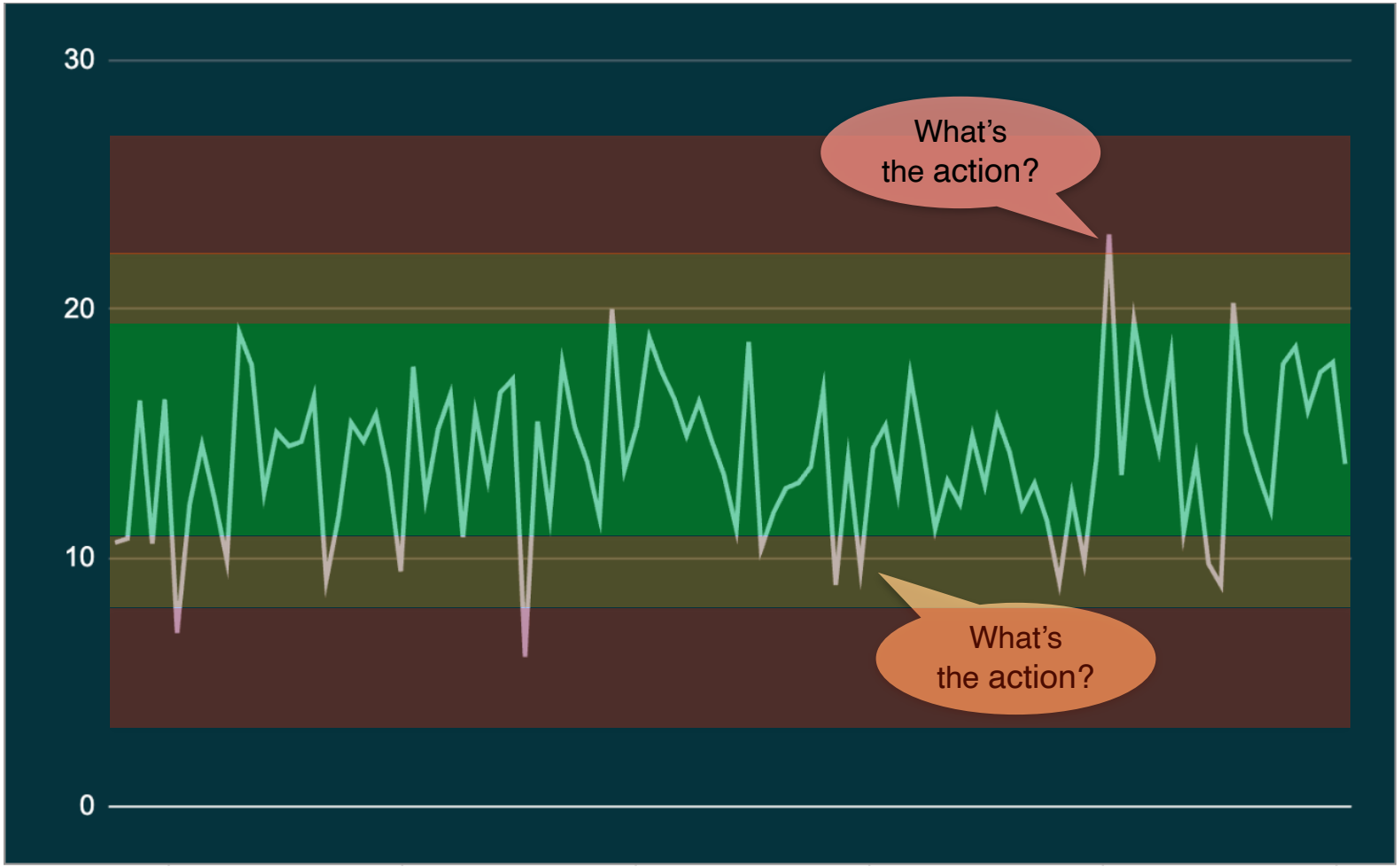
30
20
10
0
What's the action?
What's the action?

ODIM

Objective, Decisions, Insights, Measurements

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Working backwards from intended outcomes

Given [Objective] what decisions do we need to make?

Given the need to [Decision] what insights do we need have to improve it?

Given the need for [Insight] what do we need to [Measure]?

By: Larry Maccherone, https://medium.com/@lmaccherone/odim-12d80823222

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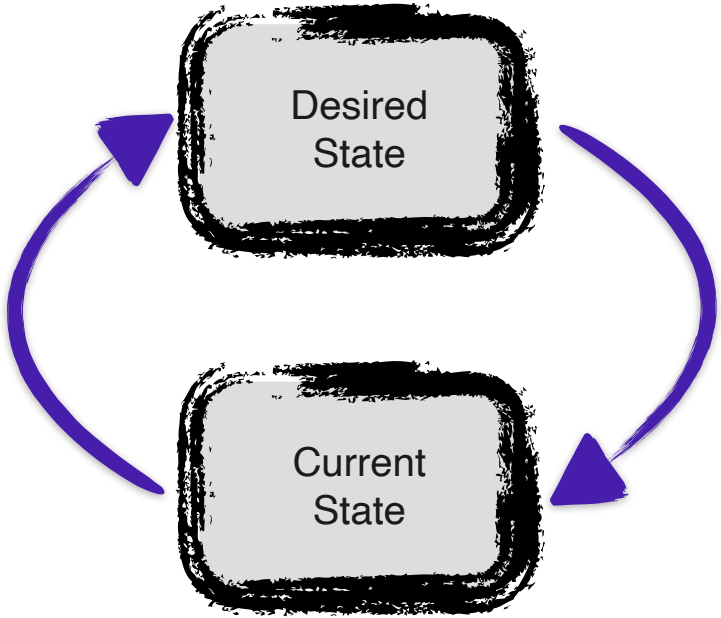

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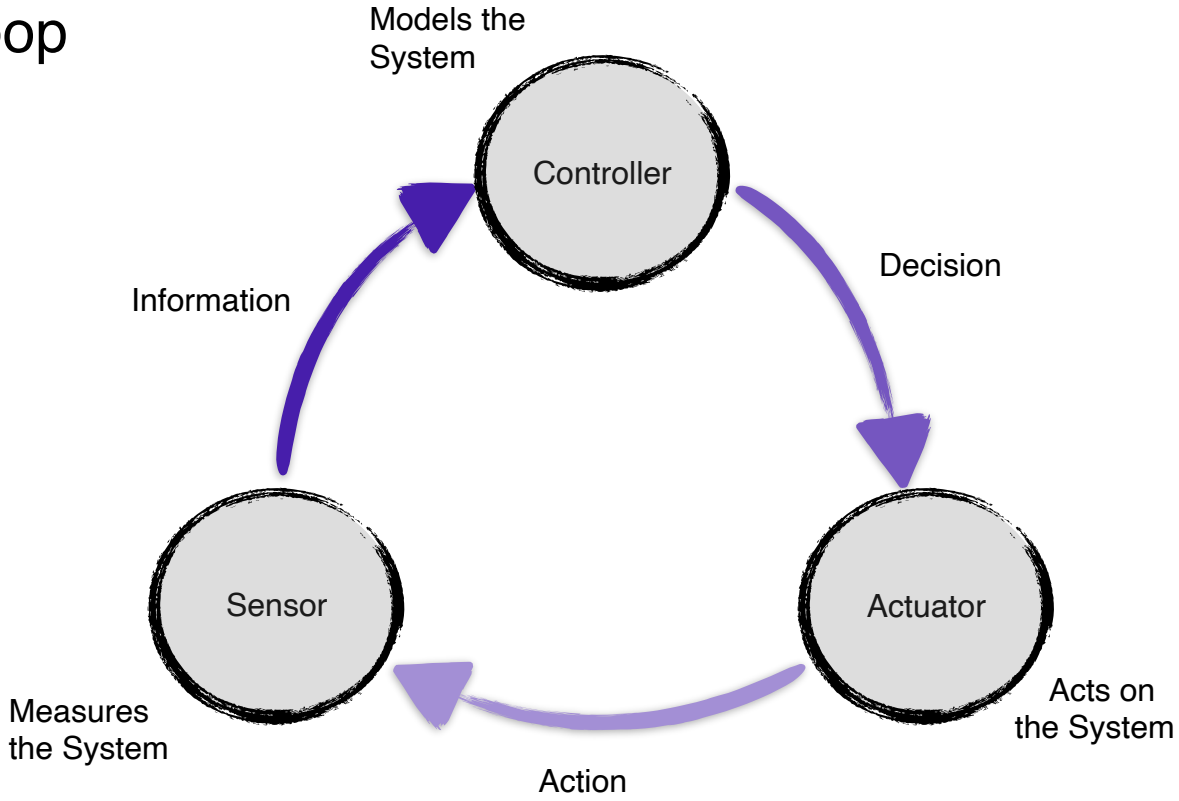
Control Loop



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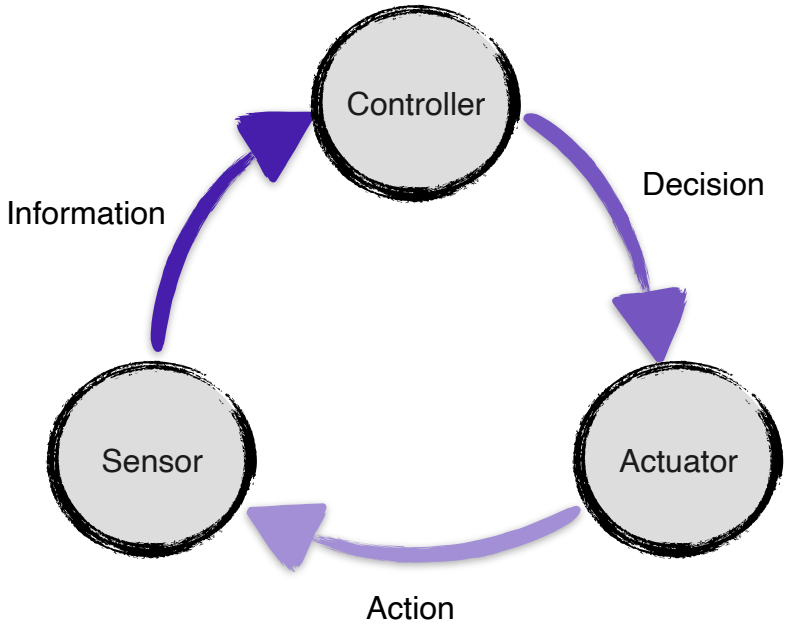
Improving Productivity:

- Better Information
- Better Decisions
- Better Actions



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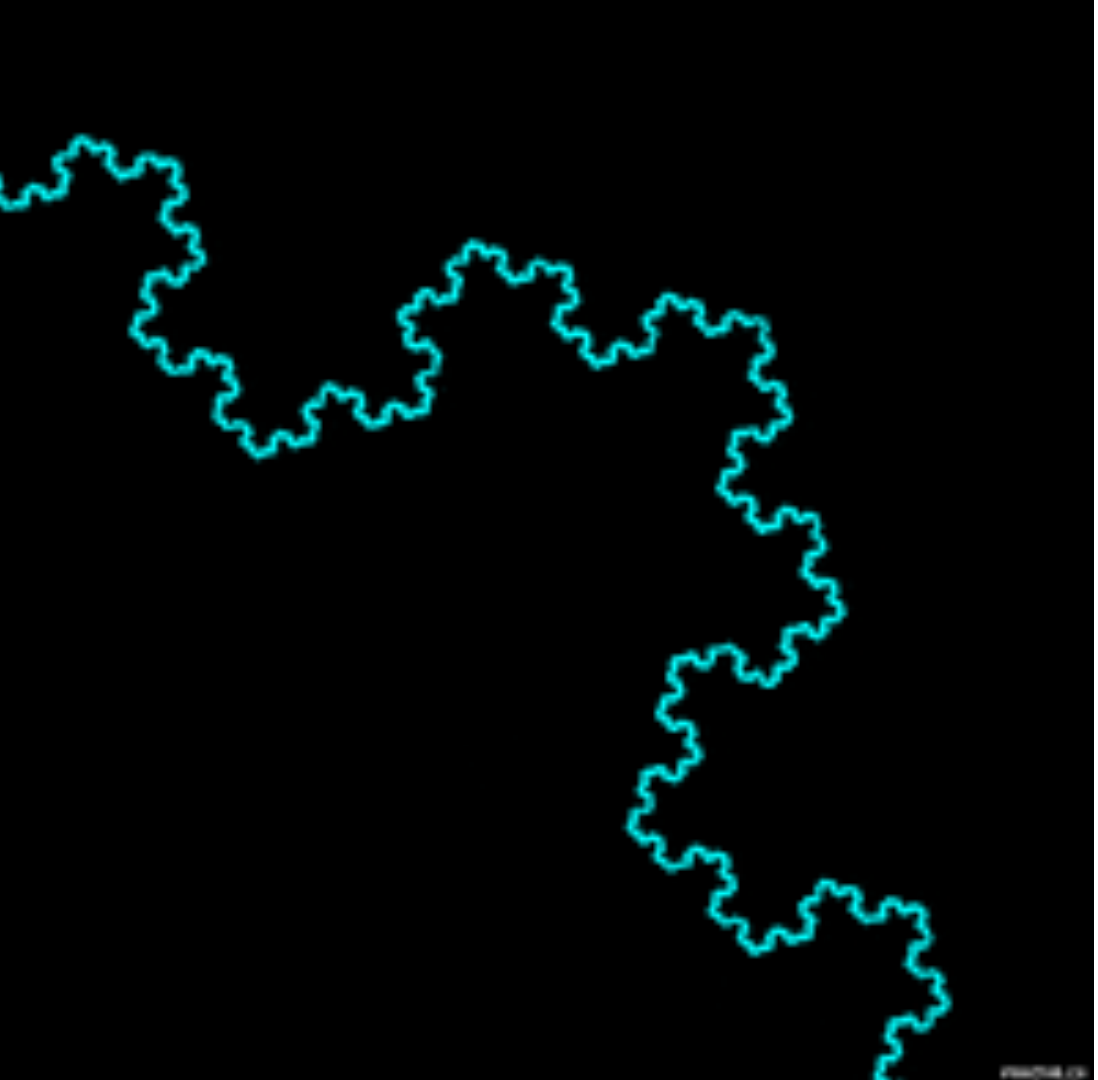

It is
control loops
all the way
down

Making your DevOps valuable

Align Measurements and Incentives to delivering Value to the user

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The journey of a thousand miles begins with a single step

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The future is already here.

It's just not evenly distributed

~ William Gibson

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Thank you!

Sasha Czarkowski (Rosenbaum)

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