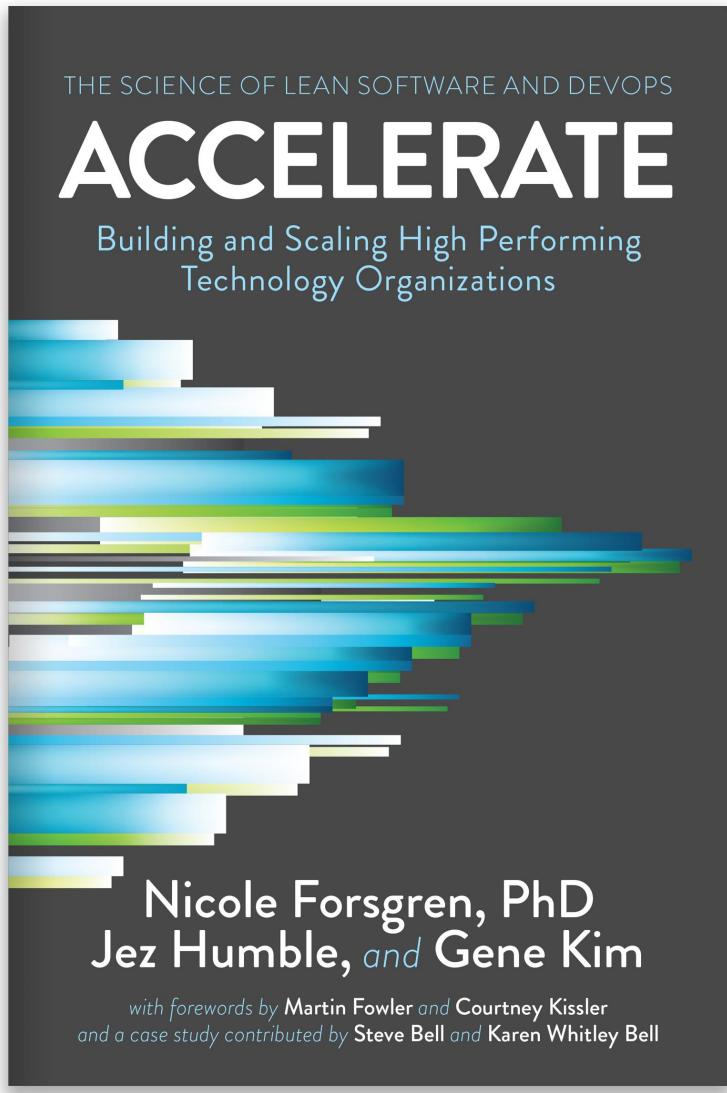


The Data Behind High Performance: What the Data Says

Nicole Forsgren, PhD

CEO and Chief Scientist, DORA
Research Affiliate, Clemson University, Florida Atlantic University





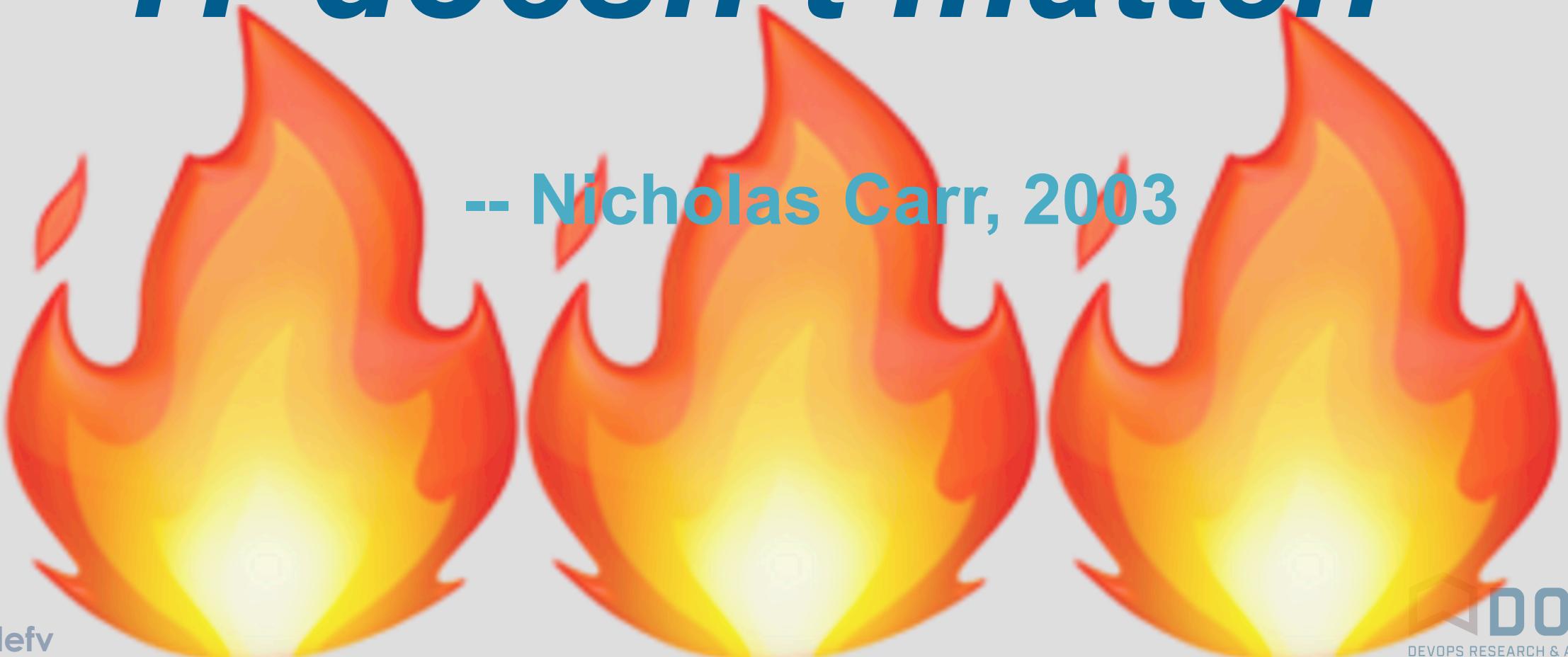
Harvard Business Review

“IT doesn’t matter.”

-- Nicholas Carr, 2003

“IT doesn’t matter.”

-- Nicholas Carr, 2003



Technology matters



@nicolefv

You're doing it wrong.

There is no
“DevOps in a box”

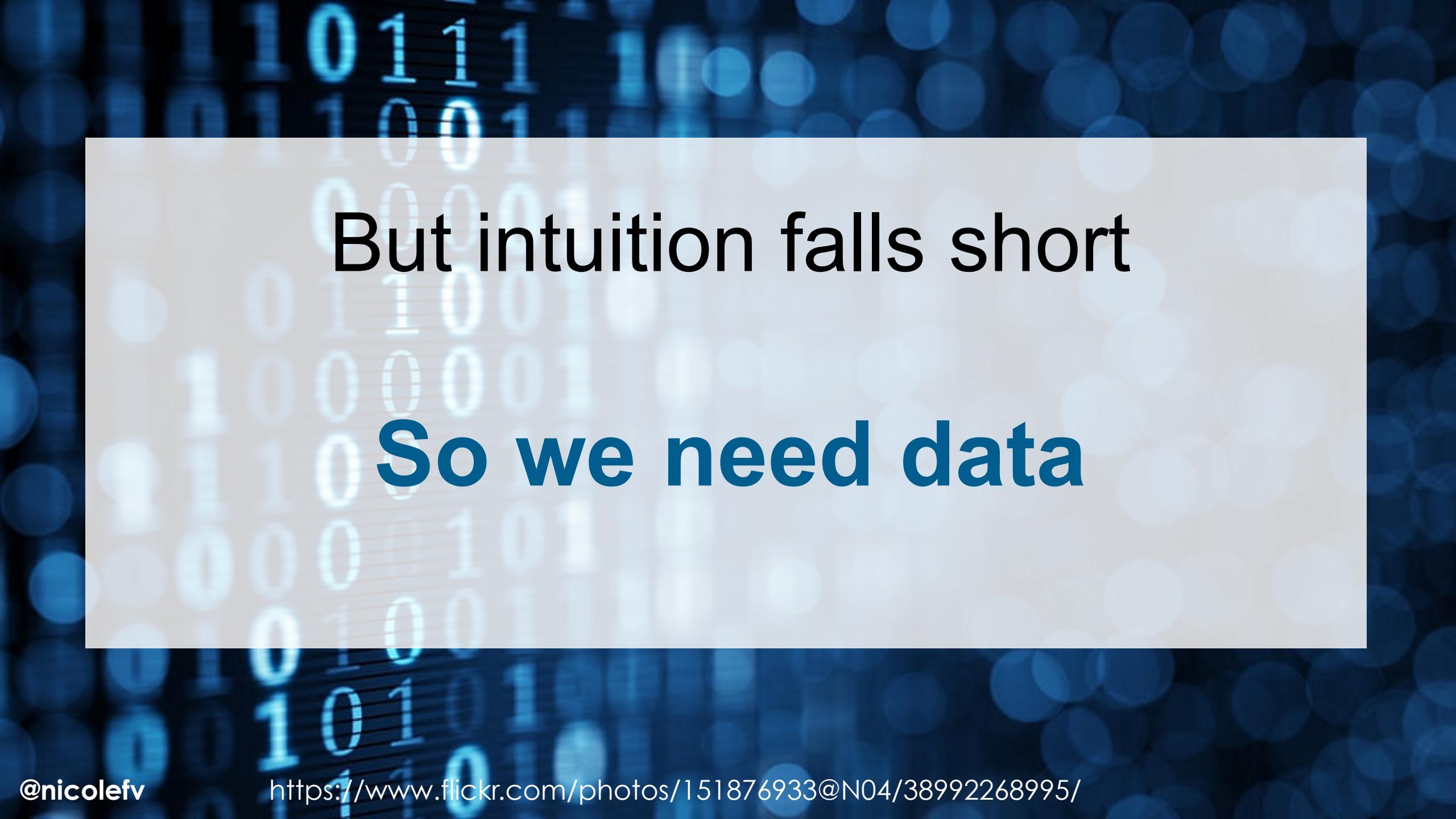
10 Deploys per day Dev & ops cooperation at Flickr

John Allspaw & Paul Hammond
Velocity 2009



DevOps is
Technical Practices
and
Lean Processes
and
Culture

These **drive** performance outcomes



But intuition falls short

So we need data

DevOps is good for Technology

Software delivery performance

- Deploy frequency (when business demands)
- Lead Time for Changes
- Mean Time to Recover (MTTR)
- Change Fail Rate

High Performing DevOps teams

More *agile*

46x

**More frequent
Code deployments**

That's the difference between multiple times per day and once a week or less.

440x

**Faster lead time from
commit to deploy**

That's the difference between less than an hour and more than a week.

High Performing DevOps teams

More *reliable*

96x

**Faster mean time to
recover from downtime**

That means high performers recover in
less than an hour instead of several days

1/5x

**As likely that changes
will fail**

That means high performer's changes fail 0-15%
of the time, compared to 31-45% of the time.



**DevOps is
good for organizations**

High Performing tech organizations are twice as likely to meet or exceed

2X

Commercial Goals

- Productivity
- Profitability
- Market Share
- # of customers

High Performing tech organizations are twice as likely to meet or exceed

2X

Commercial Goals

- Productivity
- Profitability
- Market Share
- # of customers

Non-commercial Goals

- Quantity of products or services
- Operating efficiency
- Customer satisfaction
- Quality of products or services
- Achieving organizational or mission goals

High Performing tech organizations are twice as likely to meet or exceed

2X



50%

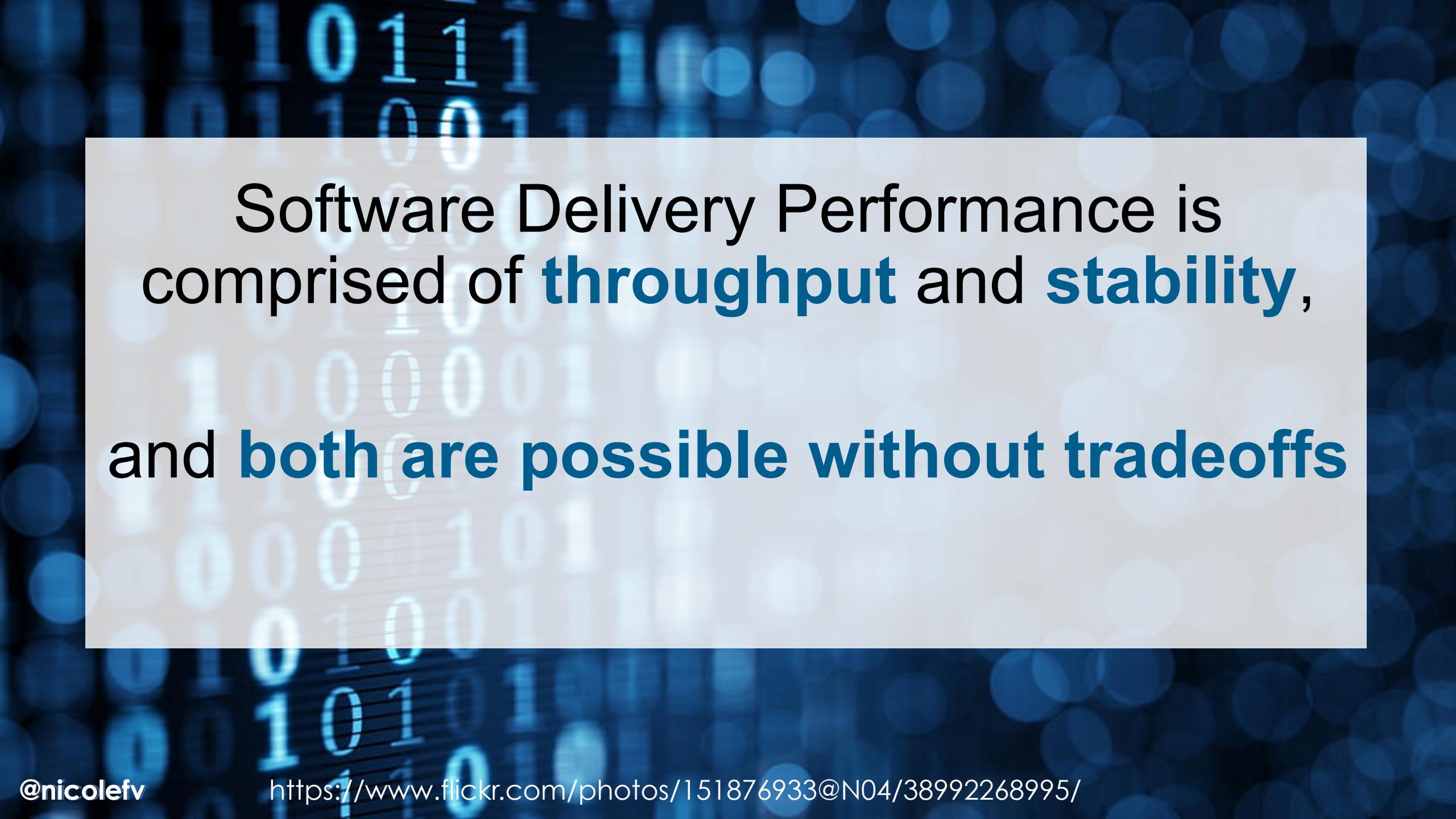
Higher market cap growth over 3 years

Commercial Goals

- Productivity
- Profitability
- Market Share
- # of customers

Non-commercial Goals

- Quantity of products or services
- Operating efficiency
- Customer satisfaction
- Quality of products or services
- Achieving organizational or mission goals



Software Delivery Performance is
comprised of **throughput** and **stability**,
and **both are possible without tradeoffs**



How do we get there?

Maturity Models

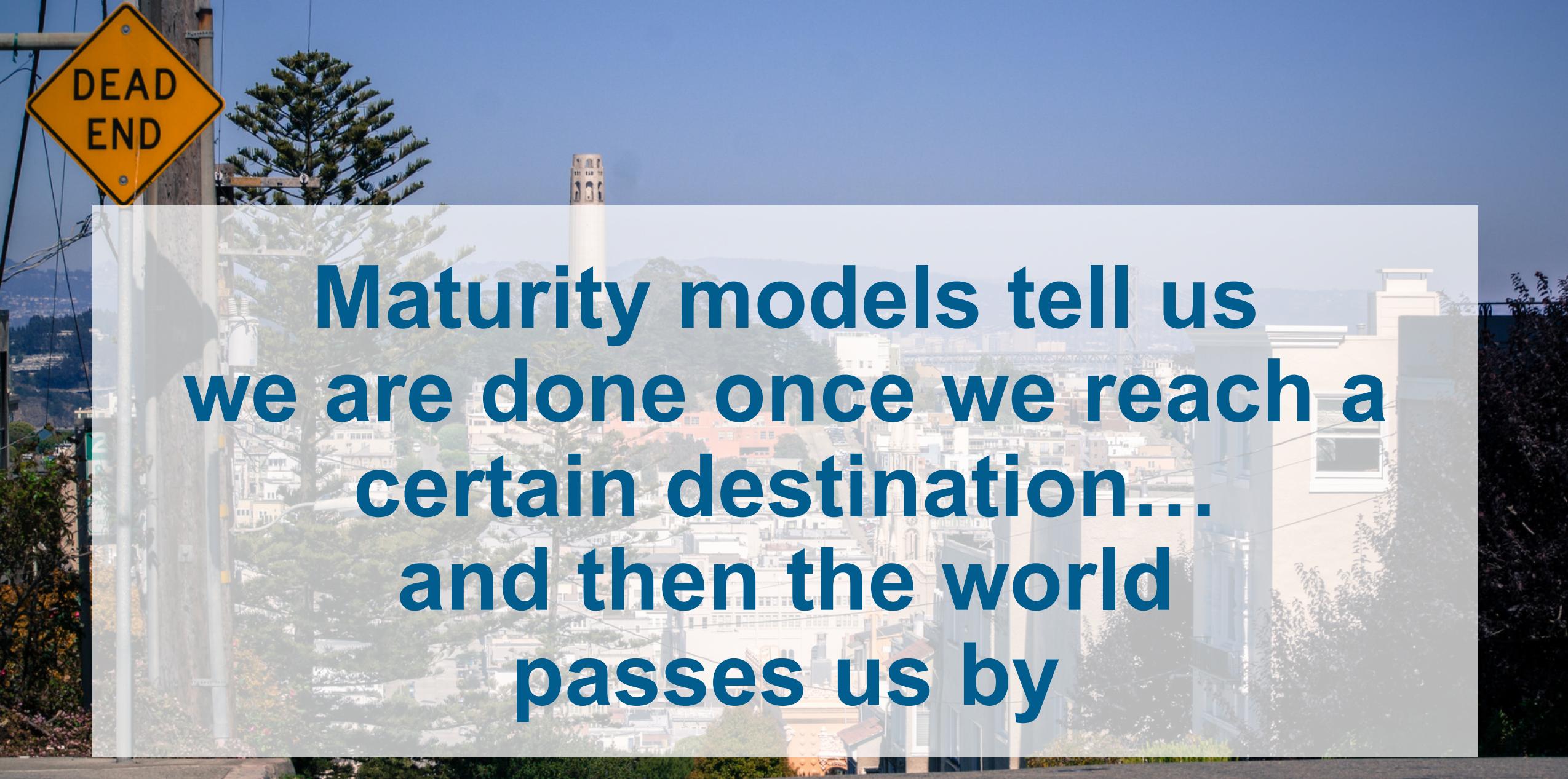
Maturity Models don't work

Maturity models are for CHUMPS

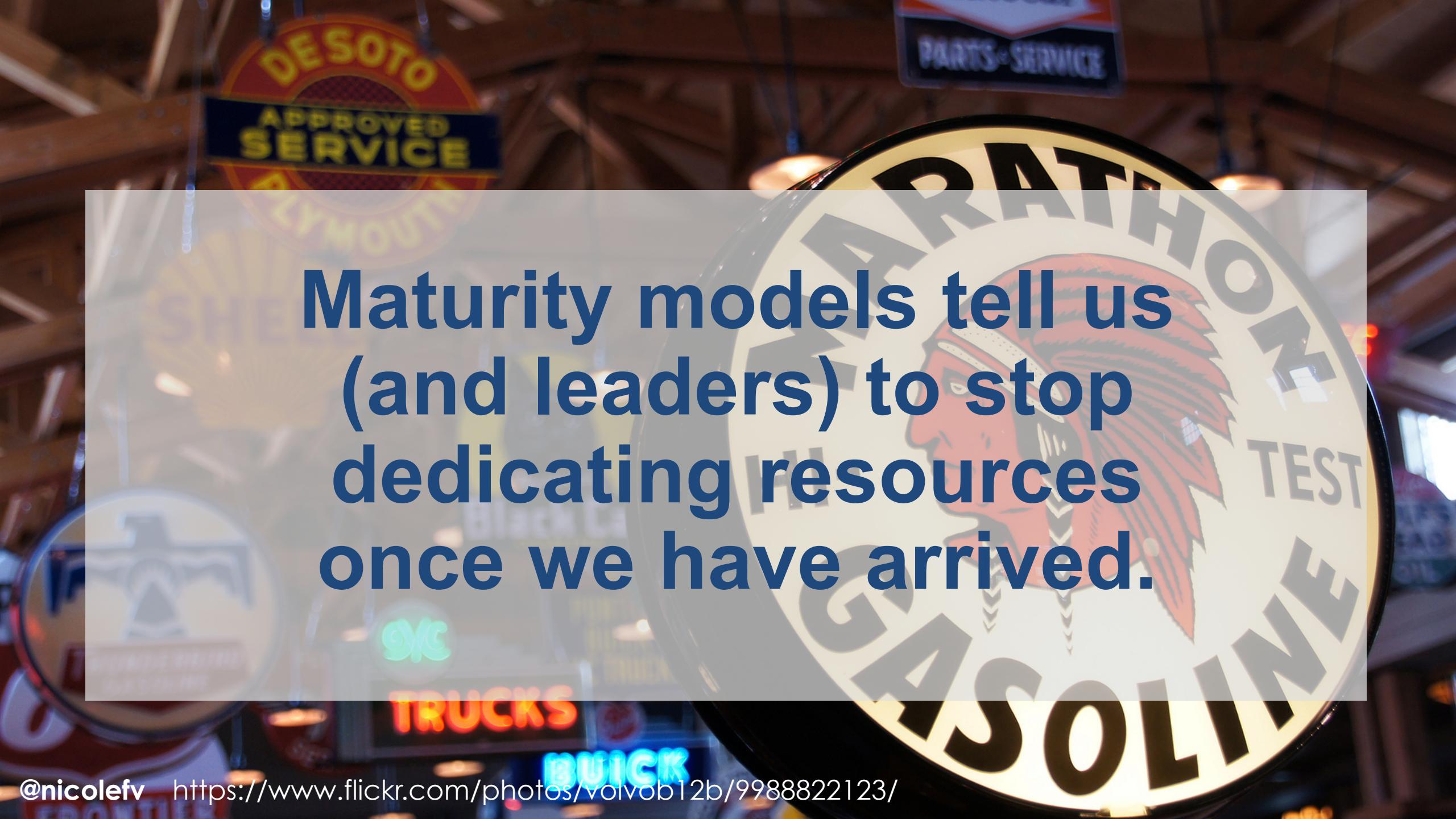
KALIMDOR

EASTERN KINGDOMS

Maturity models are for CHUMPS



**Maturity models tell us
we are done once we reach a
certain destination...
and then the world
passes us by**



Maturity models tell us
(and leaders) to stop
dedicating resources
once we have arrived.

A photograph of a long, straight asphalt road stretching into the distance, framed by a white rectangular overlay containing text. The road is marked with a dashed yellow center line. In the background, a range of mountains with rugged, light-colored peaks rises against a clear blue sky.

**Maturity models tell us
we all follow the same
path to success**

A white sports car is shown from a front-three-quarter angle, driving along a road that curves through a landscape of rolling hills under a sky transitioning from orange to pink. The car's motion is emphasized by a blurred background.

**Maturity models tell us
technology is a checklist to be
completed and not an exciting
journey to continually explore
and improve.**

Architecture matters...
technology doesn't

COMMAND ===>

SCROLL ===> PAGE

Technology stack doesn't matter

- Low performers are more likely to:
 - be working with **outsourced software**
 - be working on a **mainframe** system

BUT

- Working on a **mainframe system** was *not correlated* with performance.
- Working on **greenfield or brownfield** (or any other system) was *not correlated* with performance, either.

Architectural outcomes matter

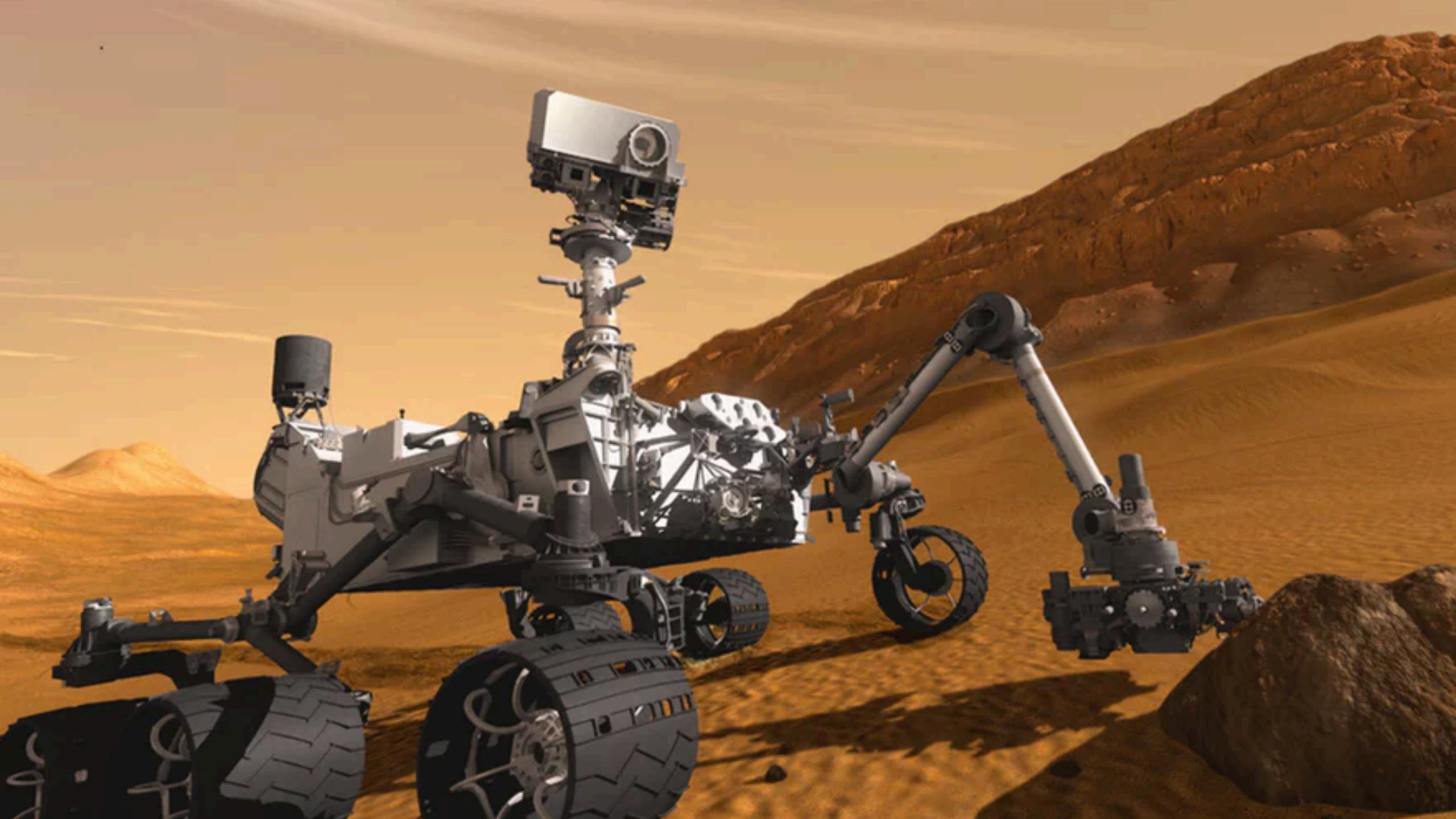
Can my team

- **Change the design** of its system
- **Test** the system
- **Deploy** the system

... without communication and coordination with people outside the team?

Conway's Law

“organizations which design systems ...
are constrained to produce designs which
are copies of the communication
structures of these organizations”



Leadership matters

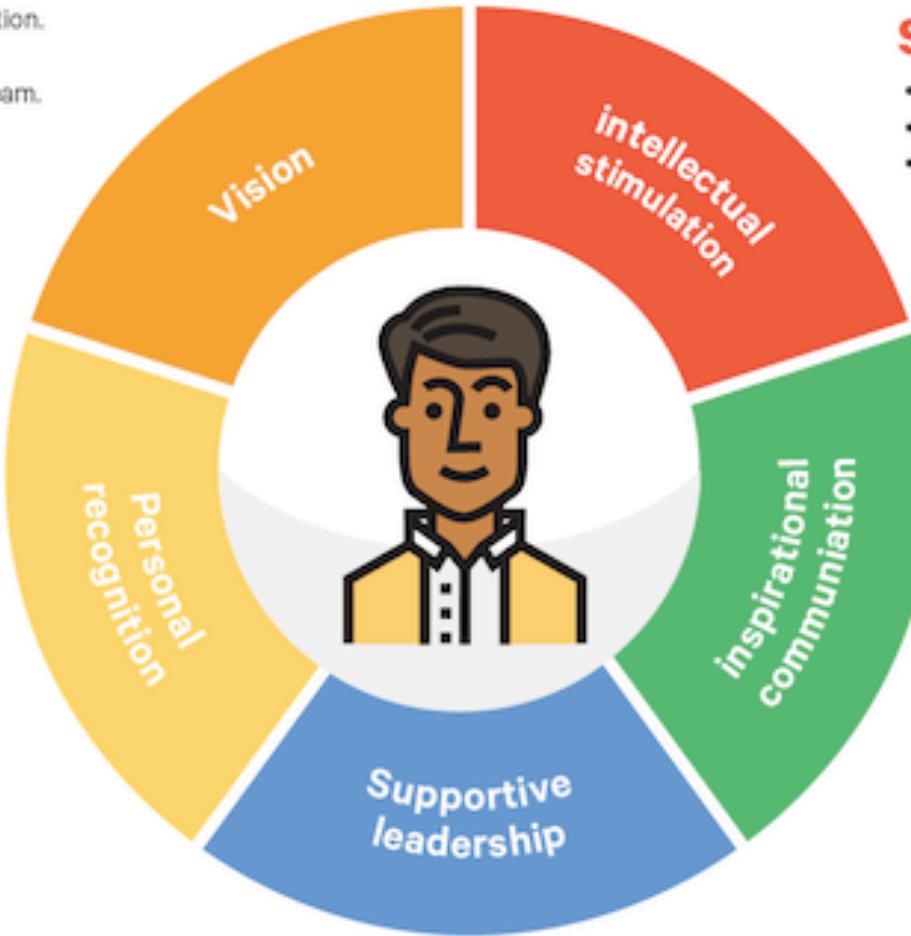
Dimensions of transformational leadership

Vision

- Understands organizational direction.
- Understands team direction.
- Understands 5-year horizon for team.

Personal recognition

- Commends team for better-than-average work.
- Acknowledges improvement in quality of work.
- Personally compliments individuals' outstanding work.



Intellectual stimulation

- Challenges team status quo.
- Challenges team to constantly ask new questions.
- Challenges team on basic assumptions about the work.

Inspirational communication

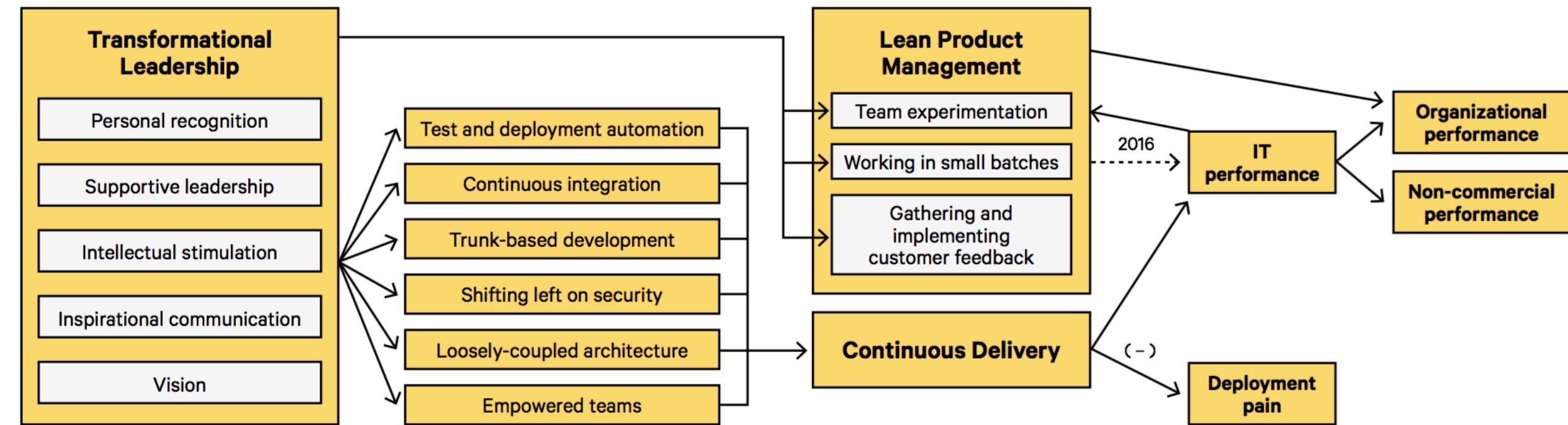
- Inspires pride in being part of the team.
- Says positive things about the team.
- Inspires passion and motivation; encourages people to see that change brings opportunities.

Supportive leadership

- Considers others' personal feelings before acting.
- Is thoughtful of others' personal needs.
- Cares about individuals' interests.

Relationship between transformational leadership and performance

Figure 1. Structured equation model showing relationships between constructs



We can make work better

WORKED FINE IN DEV



OPS PROBLEM NOW

memegenerator.net

@nicolefv

 DORA
DEVOPS RESEARCH & ASSESSMENT

Smart investments in tech and practices make our work better

- The **work**?
 - Less deployment pain
 - Less burnout
 - Higher employee Net Promoter Score

Microsoft Engineering

Thiago Almeida -- DevOps Days London, 2016



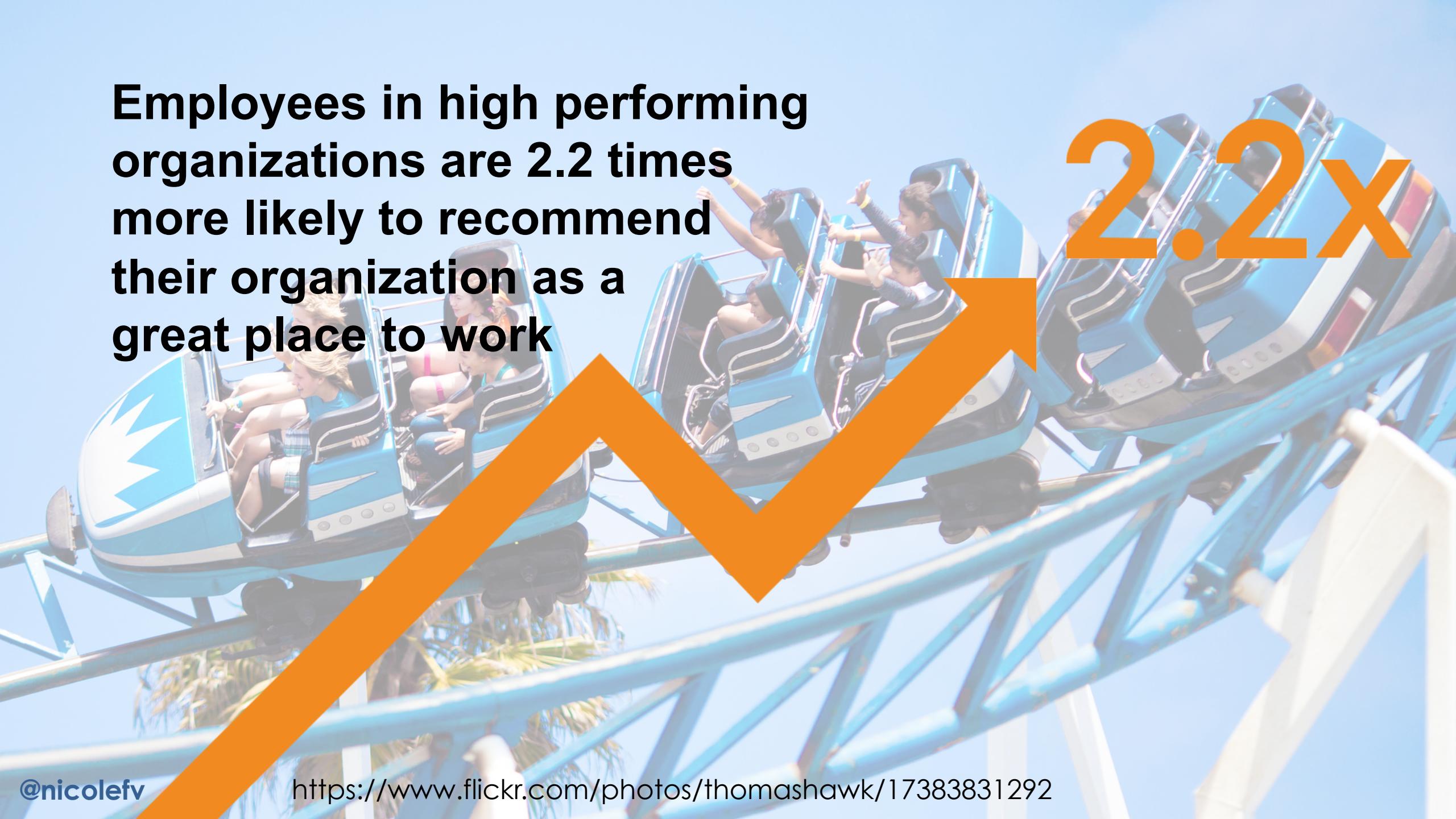
Work/Life Scores

Before CD:
38%

After CD:
75%

Employees in high performing organizations are 2.2 times more likely to recommend their organization as a great place to work

2.2X





**Some of my other
favorite data findings!**

Some of my other favorite data findings!

- Change advisory boards are **useless***
- Integration times and branch lifetimes
lasting hours are better than days

You can help

Your role in this

- Be the transformational leaders. Everyone can do this!
- Measure a few things
 - Focus on outcomes: what is a goal in your team?
 - Drive performance improvements – both with tech and with *not* tech
- Share your stories!

What can *you* do?

- Evangelize this internally
 - Start small: focus on one team that you influence
 - Grow from there: build a seed community
 - Drive organizational change through communities and learning groups
- Support efforts across and external to the organization
 - Meetups: attend and sponsor
 - Hack days: attend and sponsor
- Utilize resources: create and share!
- Share your stories!

Intuition is good, but we need to
confirm with data & science

**2018 Accelerate State of DevOps Report
is coming soon!**



2018 ACCELERATE
State of DevOps Report

Presented by



Sponsored by

Google Cloud

TL;DR

- Technology matters
- Maturity models don't work
- Architecture > technology
- We can make work better
- You can help!

Thank you!

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@nicolefv

