Secrets and Surprises of High Performance: What the Data Says

Nicole Forsgren, PhD
“IT doesn’t matter.”

-- Nicholas Carr, 2003
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Technology matters
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 are 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.

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High Performing DevOps teams are more reliable.

Faster mean time to recover from downtime:

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

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 Commercial Goals

- Productivity
- Profitability
- Market Share
- # of customers
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**Commercial Goals**
- Productivity
- Profitability
- Market Share
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**Non-commercial Goals**
- Quantity of products or services
- Operating efficiency
- Customer satisfaction
- Quality of products or services
- Achieving organizational or mission goals

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50% Higher market cap growth over 3 years

2x Higher market cap growth over 3 years

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Software Delivery Performance is comprised of **throughput** and **stability**, and both are possible without tradeoffs.
How do we get there?

https://www.flickr.com/photos/fantasques/4530372648
Maturity Models
Maturity Models don’t work
Maturity models are for CHUMPS
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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.
Maturity models tell us we all follow the same path to success
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
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.

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

Personal recognition
- Commends team for better-than-average work.
- Acknowledges improvement in quality of work.
- Personally compliments individuals' outstanding 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
Smart investments in tech and practices make our work better

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

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Microsoft Engineering

Work/Life Scores
Before CD: 38%
After CD: 75%

https://vimeo.com/165184757
Employees in high performing organizations are 2.2 times more likely to recommend their organization as a great place to work.
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
Intuition is good, but we need to confirm with data & science

bit.ly/DORA-ASODR
TL;DR

• Technology matters
• Maturity models don’t work
• Architecture > technology
• We can make work better
• You can help! bit.ly/DORA-ASODR
Thank you!

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