LONDON
INTERNATIONAL
SOFTWARE DEVELOPMENT
CONFERENCE 2015

goto; conference

DevOps: Next

Nicole Forsgren, PhD

goto; conference

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DevOps is good for IT performance

and this IT performance translates

DevOps is good for organizations

That was then…

10 deploys per day
Dev & ops cooperation at Flickr

John Allspaw & Paul Hammond

Velocity 2009

This is now…

Amazon Deployment Stats

(production & host environments only)

1,079

Max deploys
In a single hour

Every ***11.6*** seconds!

10,000

Mean # hosts receiving
Deploys simultaneously

30,000

Max # hosts receiving
Deploys simultaneously

This is now…

Etsy Code Deployment

What once required **6-14 hours** and an “Army”

…Now takes **15 minutes and 1 person**

30+

Deploys
per day
2013

50

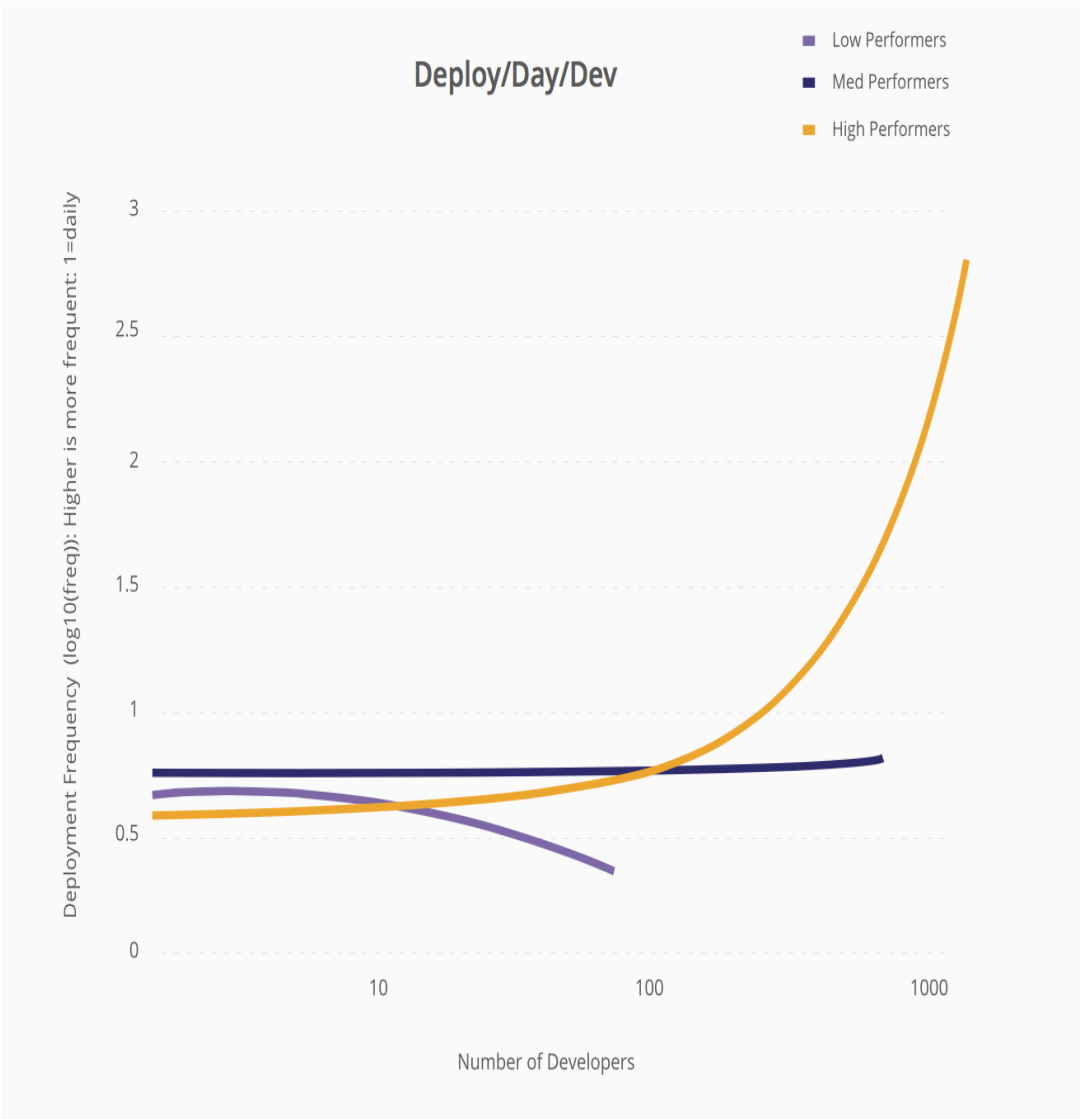
Deploys per day
March 2014
QCon London

80-90

Deploys per day
April 2014
Chef Conf

2013 Mike Brittain, Continuous Deployment: The Dirty Details
3/2014 Daniel Schauenberg , Qcon London
4/2014 tweet @philkates

New research suggests the transformation is worth it



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Devops is good for IT

Measuring DevOps and ***IT Performance***

- Deploy frequency (Note: NOT delivery)
- Mean Time to Recover (MTTR)
- Lead Time for Changes

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High Performing DevOps teams

More ***throughput***

30x

More frequent Deployments (2015 and 2014)

200x

Faster lead times than peers (2015 and 2014)

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High Performing DevOps teams

More *stability*

60x (2015)

3x (2014)

Change
Success
Rate

168x (2015)

48x (2014)

Faster
Mean time to recovery
(MTTR)

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DevOps promises – and delivers

More ***throughput***

More ***stability***

In tandem. Without the tradeoffs that ITIL calls for.

Let's talk about what this means for us

High Performing DevOps teams

More ***throughput*** What does this mean for:

30x

More frequent deployments

200x

Faster lead times

New content delivery
Value/savings around A/B testing
Value around speed to market
Compliance / regulatory
Security

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Evaluating well-designed and executed experiments that were designed to improve a key metric, only about 1/3 were successful at improving the key metric!

Online Experimentation at Microsoft, Kohavi et al http://stanford.io/130uW6X

High Performing DevOps teams

More ***stability***

60x

Fewer deploy failures

168x

Faster MTTR

What does this mean for:

Value/savings around reliability
Value/savings around uptime
Compliance
Security
Reputation around compliance & security

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NETFLIX

Key Factors that Correlate with Each Component:

MTTR

Version control for *all* production artifacts
Monitoring

Lead time for changes

Version control for *all* production artifacts
Automated testing

Deployment Frequency

Version control for *all* production artifacts
Continuous Delivery

Also Super Important:

Culture
Job satisfaction
Climate for learning

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DevOps is good for organizations

High Performing IT organizations

2x

More likely to exceed Profitability, Market share, and Productivity goals

50%

Higher market cap growth over 3 years*

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Three main contributors to organizational performance

1. IT performance and strong ***DevOps practices***
2. Organizational ***culture*** and climate for learning
3. Job satisfaction – #1 predictor

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Organizational Culture

Pathological *Power-oriented*	**Bureaucratic** *Rule-oriented*	**Generative** *Performance-oriented*
Low cooperation	Modest cooperation	High cooperation
Messengers shot	Messengers neglected	Messengers trained
Responsibilities shirked	Narrow responsibilities	Risks are shared
Bridging discouraged	Bridging tolerated	Bridging encouraged
Failure leads to scapegoating	Failure leads to justice	Failure leads to inquiry
Novelty crushed	Novelty leads to problems	Novelty implemented
15%	**52%**	**33%**

Top Predictors of Organizational Culture

- Job satisfaction
- Climate for learning
- Win-win relationship between dev and ops
- Version control
- Automated testing

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Intuit

“By installing a rampant innovation culture, we performed ***165 experiments*** in the peak three months of tax season.

Our business result? Conversion rate of the website is up ***50%***. Employee result? Everyone loves it, because their new ideas can make it to market. ”

- Scott Cook, Intuit founder

Amazon

"I think ***building this culture is the key to innovation***. Creativity must flow from everywhere. Whether you are a summer intern or the CTO, any good idea must be able to seek an objective test, preferably a test that exposes the idea to real customers. Everyone must be able to ***experiment***, ***learn***, and ***iterate***."

- Greg Linden

Job Satisfaction

Top Correlates of Job Satisfaction

- ★ High-trust organizational culture
- ★ Climate of learning
- ★ Win-win relationships between ops, dev and infosec teams
- ★ Proactive monitoring and autoscaling
- ★ Use of version control for all production artifacts
- ★ Automated testing

Job satisfaction is the **# 1** predictor of organizational performance!

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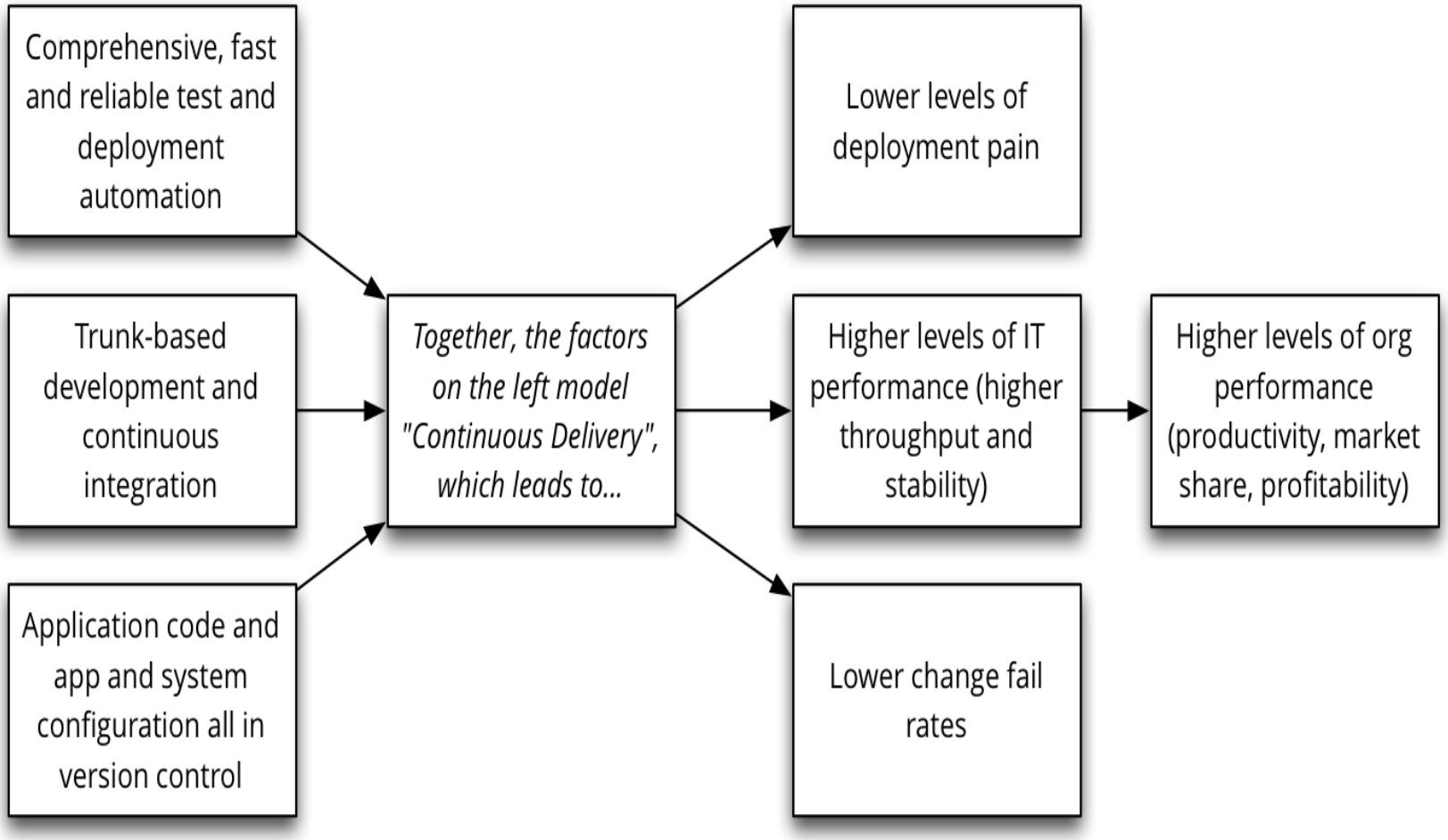
We also know that CD is good for IT and Org performance



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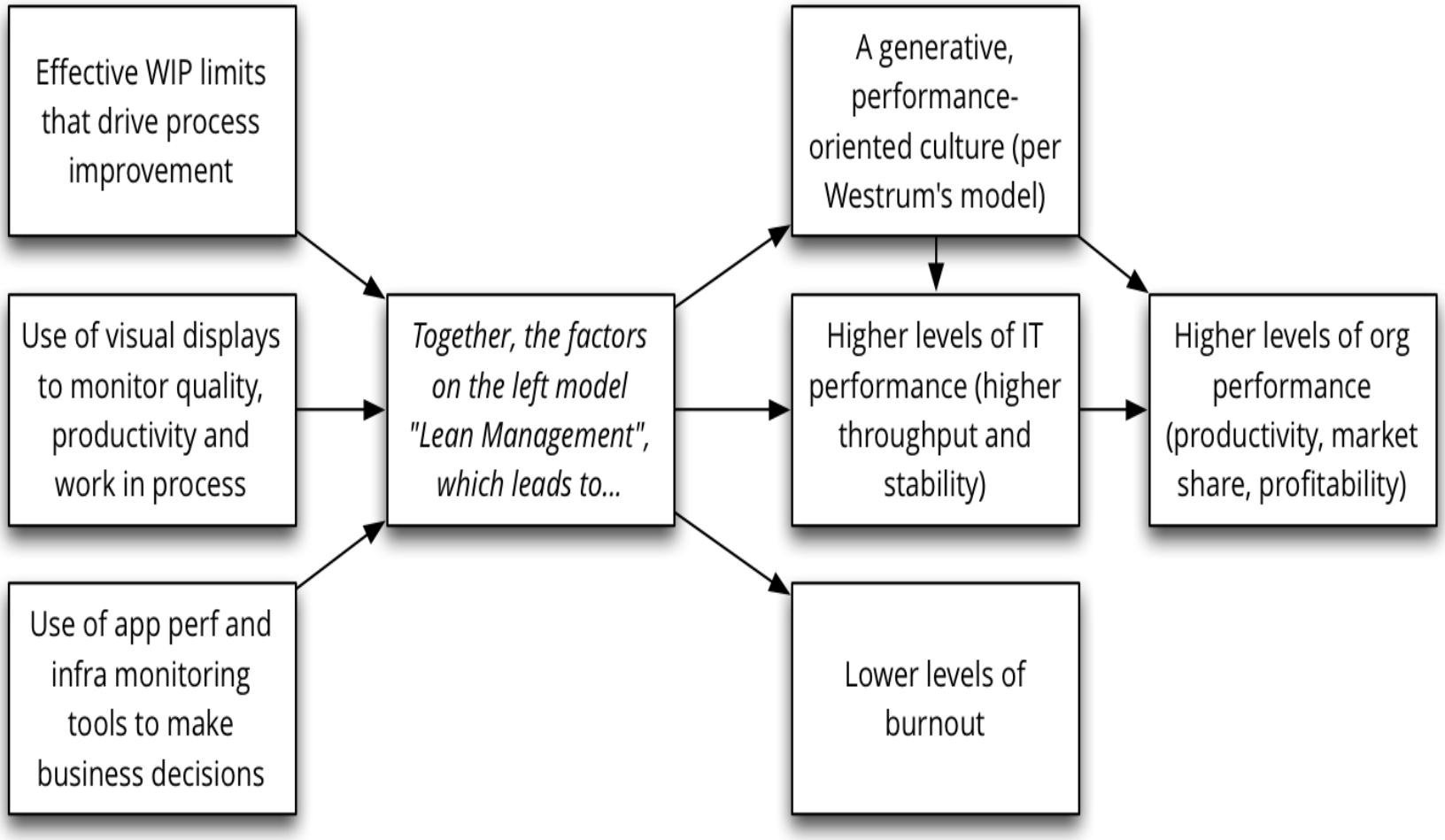
… as well as lean management practices.



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DevOps isn't just IT. It's the *practice* of IT.

This practice gives us greater efficiency
And contributes to the bottom line.

This is Lean for the software and technology transformation revolution.

Thank you

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