

# Culture is not Squushy

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Peter Burkholder

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DevOpsDC, February 2019

“Let’s measure our  
Westrum typology!”

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# CA(L)MS (2010)

- Culture
- Automation
- (Lean)
- Metrics
- Sharing

# Puppet state of DevOps reports

- Key Players:
  - Gene Kim
  - Jez Humble
  - James Turnbull
  - John Willis
- 2012 Survey Data
- Presentation at *Velocity*, June 2013

## High Performing DevOps Teams(2012)

- They're more agile
  - 30x more frequent deployments
  - 8,000x shorter lead time (minutes/hours vs. months/quarters)
- They're more reliable
  - 2x the change success rate
  - 12x faster MTTR

## Measuring Culture (2012)

“I’ll tell you EXACTLY what devops means. Devops means giving a shit about your job enough to not pass the buck. Devops means giving a shit about your job enough to want to learn all the parts and not just your little world. Developers need to understand infrastructure. Operations people need to understand code. People need to fucking work with each other and not just occupy space next to each other.”

— John Vincent | @lusion | <http://bit.ly/12DkRhF>

## Measuring Culture (2012)

- Trust (and Verify)
- Continuous Improvement vs Risk Management Theater
- “Human Error”
- Heroes / "high performers"



# How is your organizational culture?

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# Nicole Forsgren



# On my team...

- information is actively sought.
- messengers are not punished when they deliver news failure or other bad news.
- responsibilities are shared.
- cross-functional collaboration is encouraged and rewarded.
- failure causes enquiry.
- new ideas are welcomed.
- failures are treated primarily as opportunities to improve.

**Rank from 1 (strongly disagree) to 7 (strongly agree)**



# A typology of organisational cultures

R Westrum

*Qual Saf Health Care* 2004;13(Suppl II):ii22-ii27. doi: 10.1136/qshc.2003.009522

There is wide belief that organisational culture shapes many aspects of performance, including safety. Yet proof of this relationship in a medical context is hard to find. In contrast to human factors, whose contributions are many and notable, culture's impact remains a commonsense, rather than a scientific, concept. The objectives of this paper are to show that organisational culture bears a predictive relationship with safety and that particular kinds of organisational culture improve safety, and to develop a typology predictive of safety performance. Because information flow is both influential and also indicative of other aspects of culture, it can be used to predict how organisations or parts of them will behave when signs of trouble arise. From case studies and some systematic research it appears that information culture is indeed associated with error reporting and with performance, including safety. Yet this relationship between culture and safety requires more exploration before the connection can be considered definitive.

We might see culture for an organisation as analogous to personality in the individual. The differences in response patterns can be striking. For instance, political scientist Robert Putnam systematically compared the patterns of action of the newly formed regional governments of Italy. Each of these governments reflected the dominant culture of its region. Each of them had systematically different reactions even to simple matters such as responding to a letter from constituents.

"...We were gratified to discover...a surprisingly high consistency among our twelve diverse indicators of institutional performance. Regions that have stable cabinets, adopt their budgets on time, spend their appropriations as planned, and pioneer new legislation are, for the most part, the same regions that provide day care centers and family clinics, develop comprehensive urban planning, make loans to farmers, and answer their mail promptly."<sup>1</sup>

Putnam found that culture involves the pattern of thought, emotion, and action. All of



**Matthias Marschall** @mmarschall · 27 Jun 2013

"What you call 'root cause' is simply the place you stop looking any further" -  
Sidney **Dekker**, Prof. Human Factors & Flight Safety **#devops**



2



19



12



# Organizational Culture

VS.

# Safety Culture

# A sampling of safety culture measures:

- White & Wilson: 113 questions on a 7-point scale
- Competing Values Framework: 65 questions, 1-5 ranking
- Team Climate Inventory: 44 items across 15 subscales
- Ostroff Organizational Climate Survey: 94 Items
- Zohar 2005: Only 16 questions, but:
  - “Considers safety when setting production schedule”
  - “Quickly corrects any safety hazard”
- Gallup Q12 (paid only)
- Dimensions of Learning questionnaire



**Ron Westrum, Eastern Michigan University**

**Pathological organisations** are characterized by large amounts of fear and threat.

**Bureaucratic organisations** protect departments.

**Generative organisations** focus on the mission.



<b>Pathological</b>	<b>Bureaucratic</b>	<b>Generative</b>
<i>Power-oriented</i>	<i>Rule-oriented</i>	<i>Performance-oriented</i>
Low co-operation	Modest co-operation	High co-operation
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

# Information Flow

- *Suppression*: Harming or stopping the person bringing anomaly to light
- *Encapsulation*: Isolating the messenger, so the message is not heard
- *Public relations*: Putting the message "in context" to minimize impact
- *Local fix*: Responding to present case, but ignoring possibility of others
- *Global fix*: An attempt to respond to the problem wherever it exists
- *Inquiry*: Attempting to get at the "root causes" of the problem





# Case studies and anecdotes



# ATR-72

- "There were five pre-Roselawn ATR-42 incidents that occurred in severe icing conditions"
- But no global alert issued, due to heavy pressure from French aviation
- October 31, 1994, American Eagle #4184 killed all 68 aboard

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— Werner von Braun

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The true need is for a scheme  
that captures one or few  
dimensions in an easy to  
understand way

— - Ron Westrum

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# Likert scales

- Do you feel you can provide feedback to management and it will be genuinely taken into consideration?

Vs:

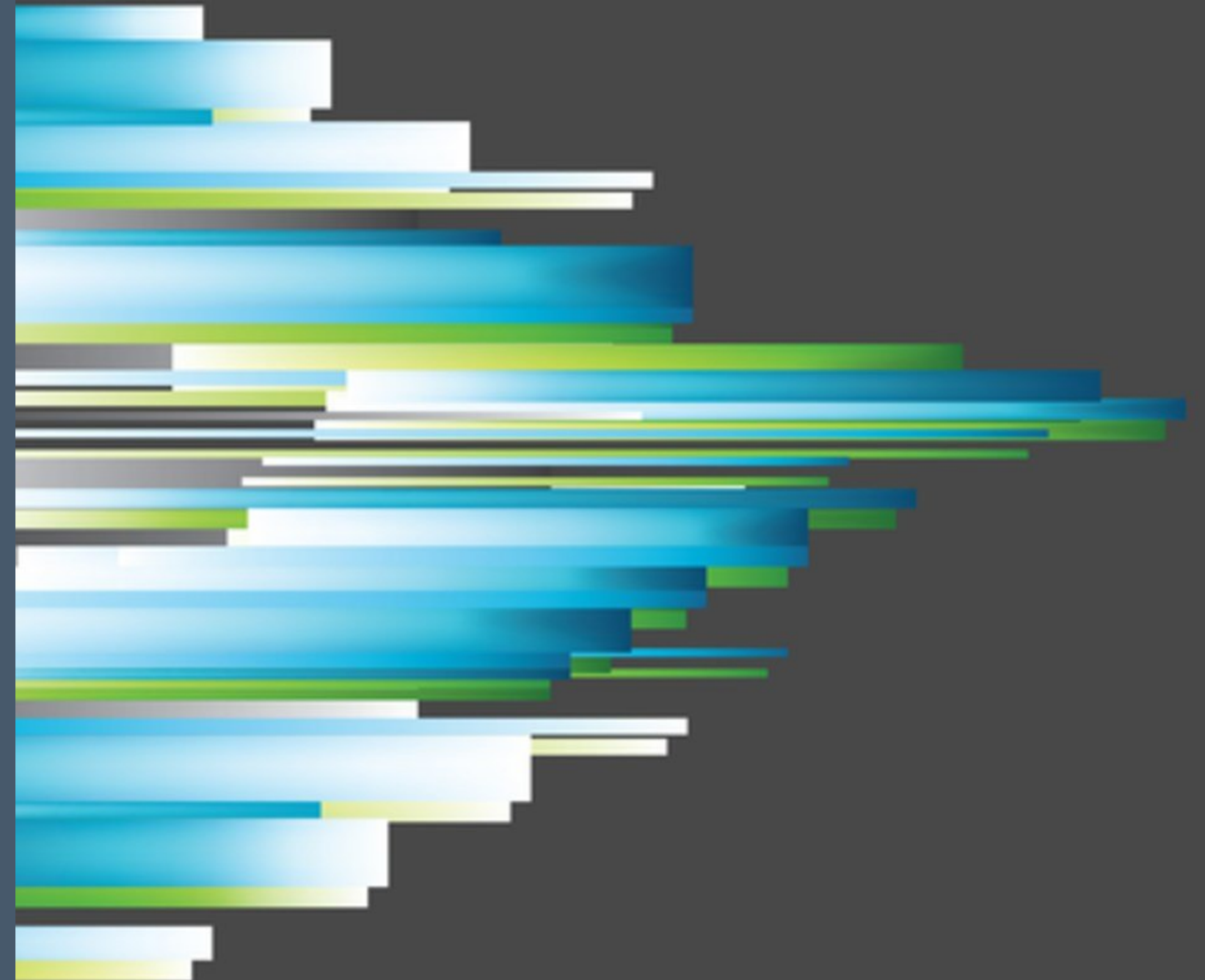
- I can provide feedback to management.
- My feedback will be genuinely taken into consideration.
  - 1 <-- Strongly disagree .... 4 .... Strongly agree --> 7

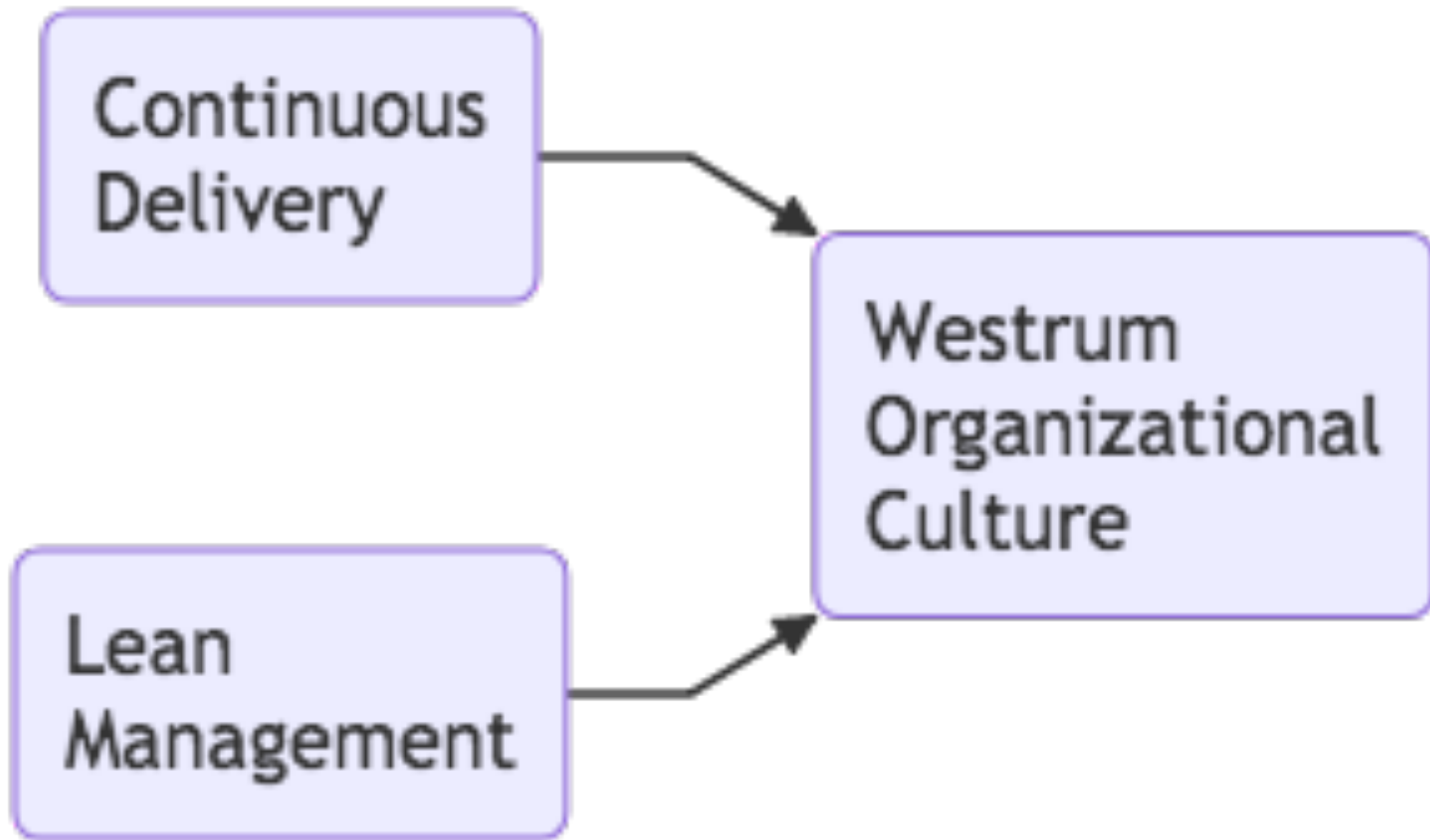


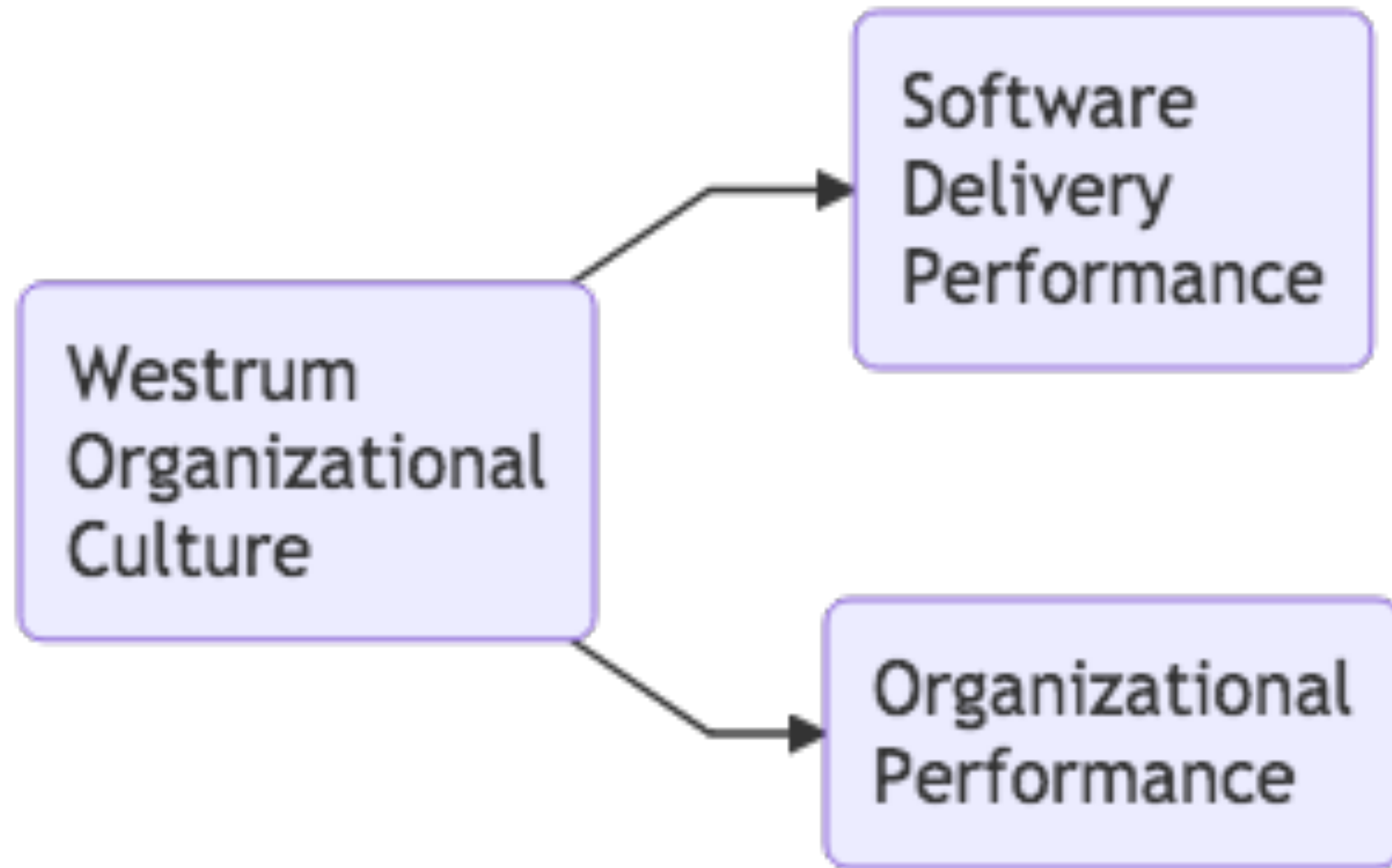
# Results

## ACCELERATE

Building and Scaling High Performing  
Technology Organizations







Westrum organizational culture is highly correlated with *eNPS* and that elite performers are 1.8 times more likely to recommend their team as a great place to work.

In 2016, 31% of respondents were classified as pathological, 48% bureaucratic, and 21% generative.

— Excerpt From: Nicole Forsgren, PhD, Jez Humble and Gene Kim.  
“Accelerate.” iBooks.

# Let's measure this! What could possibly go wrong?

- Scope to a team or unit
- Ask the seven questions, scoped to unit
- Analyse

# Questions to ask going into this

- What if there's bimodal/skew distribution?
- What if there's variance (lack of *convergence*) across questions?
- What to do for *pathological* results?

# Longitudinal considerations

- There's *very* little written on this
- What about leading and lagging indicators?
- How will you separate climate from culture?

## Recommendations (from Humble, et al)

- Run semi-annually or annually
- Make aggregated results available to all
- Ensure execs meet to discuss findings, next steps



# Pitfalls

- Comparing teams against each other
- Basis of pay or promotion
- “Your team doesn’t appreciate our culture”
- Cinderellas
  - > "Does the isolated generative unit become a Cinderella, the target of hostile jibes and political actions?"

# Your stories & questions

# Summary

- DevOps and the CALMS model
- No common criteria for culture, but DORA uses Westrum
- Information flow categorizes you as
  - Pathological | Bureaucratic | Generative
- 7 criteria
- Lean & CD → Generative → SDO & Org outcomes
  - $p < 0.05$  confidence
- Use at your own risk

“Let’s (not) measure our  
Westrum typology?”

The paradox of leadership

# References

Westrum, Ron. "A typology of organisational cultures." *BMJ Quality & Safety* 13.suppl 2 (2004): ii22-ii27.

Westrum, Ron. "The study of information flow: A personal journey." *Safety Science* 67 (2014): 58-63.

Forsgren, Nicole, Jez Humble, and Gene Kim. *Accelerate: The Science of Lean Software and DevOps: Building and Scaling High Performing Technology Organizations*. IT Revolution, 2018.

# References 2

Forsgren, Nicole, Gene Kim, Nigel Kerstnen, Jez Humble. "2014 State of DevOps Report" [https://www.researchgate.net/publication/2631989472014StateofDevOps\\_Report](https://www.researchgate.net/publication/2631989472014StateofDevOps_Report)

Willis, John. <http://itrevolution.com/devops-culture-part-1/> - A Dive into Devops Culture

Kim, Gene, Jez Humble, James Turnbull, John Willis. "DevOps: It's Not Just For WebOps And We Have The Metrics to Prove It." Velocity Conference 2013 (slides). <https://www.slideshare.net/realgenekim/2013-velocity-devops-metrics-its-not-just-for-webops-any-more>

Humble, Jez, Joanne Molesky, Barry O'Reilly. *Lean Enterprise*, 2014, O'Reilly

# References 3

John Willis: <https://blog.chef.io/2010/07/16/what-devops-means-to-me/> - 2010 first blog post on CAMS, following 2010 Mountainview DevOpsDays

Schulte, Mathis & Ostroff, Cheri & Shmulyian, Svetlana & Kinicki, Angelo. (2009). Organizational Climate Configurations: Relationships to Collective Attitudes, Customer Satisfaction, and Financial Performance. *The Journal of applied psychology*. 94. 618-34. 10.1037/a0014365.

Zohar, Dov, and Gil Luria. "A multilevel model of safety climate: cross-level relationships between organization and group-level climates." *Journal of applied psychology* 90.4 (2005): 616.