TWO SIGMA

Continuously Improving Culture through Design Decisions

Zachary Meath, Two Sigma Investments, LP

11/11/20

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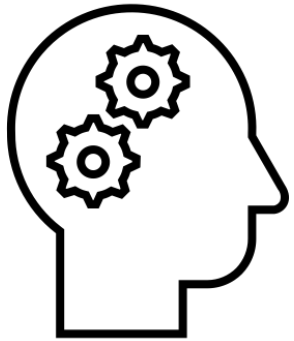
Who Am I?

TWO SIGMA

1. Software Engineer in SDLC
2. DevOps Advocate
3. Tech Culture Enthusiast

Culture Disclaimer

What is the scope of this conversation?



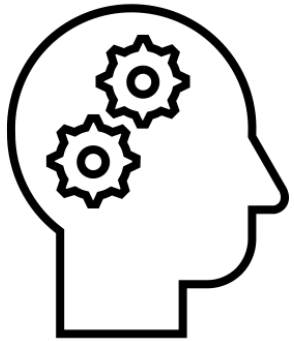
Culture - The arts and other manifestations of human intellectual achievement regarded collectively.[1]

Company/Organizational Culture - Company culture is the shared values, attributes, and characteristics of an organization.[2]

Tech Culture - The shared values, principles, and norms in a given community with respect to the usage of technology.[3]

1. Merriam-Webster
2. The Balance Careers
3. Me

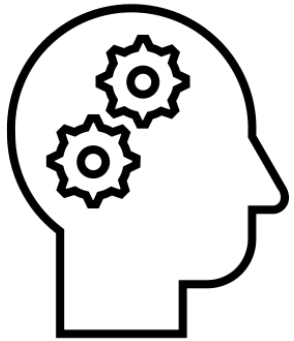
Tech Culture Can Work Against Us



Just because something is declared a best practice, doesn't mean anyone is going to follow it

Sometimes there might be a conflict between norms and what is actually a best practice

Tech Culture Can Work For Us



If the culture's norms are in our corner, it will be easy for people follow best practices

We can benefit from an improved culture as well

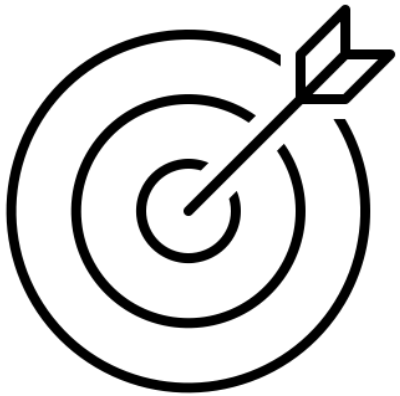
Change the Culture

You can just tell people to think differently, but good luck with that

Look at your product from a culture perspective

Make technical decisions to point people toward the culture that you think is desirable

Benefits of a Healthy Culture



↑ Shared values

↑ Adoption of best practices

↑ Technical cohesion

↓ Principled disagreement

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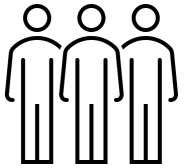
OCAI Types of Culture

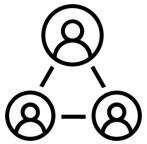
OCAI Types of Culture[1]

Organizational **C**ulture **A**ssessment **I**nstrument

Create



Collaborate



Control

Compete

1. ocai-online.com

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Create[1]

Do new things

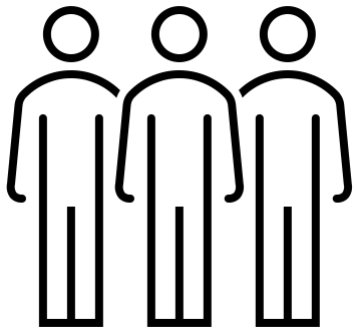
- Innovate
- Freedom of thought and action
- Takes risks
- Learn from mistakes
- Fail fast
- Entrepreneurs + visionaries

OCAI Types of Culture

1. ocai-online.com

Collaborate[1]

Do things together



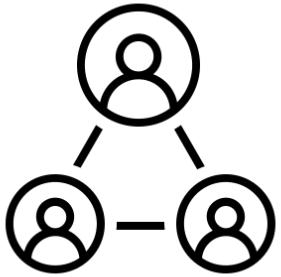
- Build teams
- Human development
- Commitment to long term change
- Collective wisdom
- Improve each other
- Mentor + coach

OCAI Types of Culture

1. ocai-online.com

Control[1]

Do things right



- Eliminate errors
- Attention to detail
- Logical problem solving
- Increase reliability
- Build efficient routines
- Organizers and administrators

OCAI Types of Culture

1. ocai-online.com

Compete[1]

Play to win

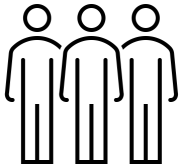
- Competition
- Fast change
- Target/deadline focussed
- Deliver results quickly
- Good goals are important
- Reputation for getting results

OCAI Types of Culture

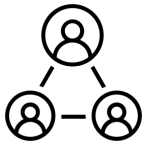
1. ocai-online.com

OCAI Types of Culture[1]

Create



Collaborate



Control

Compete

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Tech Culture

Values of Technology

Shared values within a community that are focussed on how they interact with technology

Shared values lead to shared behavior, or cultural outcomes

Values, along with culture, are always changing

Tech Culture

Hard to Quantify

Culture is hard to define or quantify

To get the best understanding, culture needs to be *experienced*

“You know it when you see it”

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Harder to Change

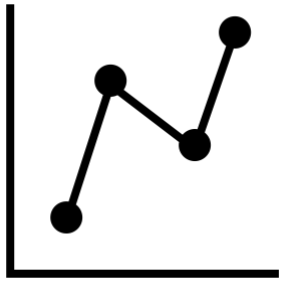
To change someone's mind, they must:

1. **Convince** themselves that a new idea is worth valuing
2. **Combine** it with pre-existing values to generate outcomes
3. **Motivate** themselves to act differently based on those values

Tech Culture

Culture Analysis

Your Product(s) Influence Cultural Outcomes



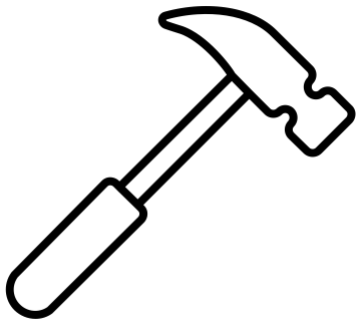
What cultural outcome does your product guide people towards?

Does it motivate anyone to break best practices in the name of convenience?

Does it facilitate additional exploration into the nuances of values?

Culture Analysis

Actions Speak Louder Than Words



People will say that they value something, but not actually put it into practice

Look at what do people *do* (cultural outcomes) to see what they actually value

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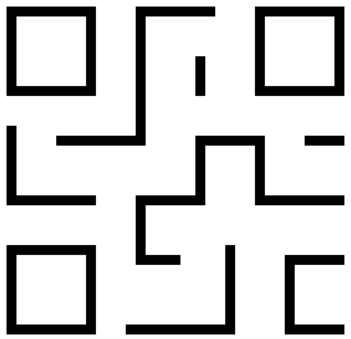
DevOps Values



- Automate all the things
- Fast iteration
- Embrace failure
- Constant feedback
- Collaboration
- Ensure reliability

Culture Analysis

TS DevOps

- Automation
- Cohesion
- Collaboration
- Frequency of deployment (iteration)
- Release confidence

Culture Analysis

COIN

COntinuous **IN**tegration

- Cohesive CI/CD platform that unifies the DevOps experience at Two Sigma
- Give users flexibility while still promoting best practices
- Continuously integrate good ideas!

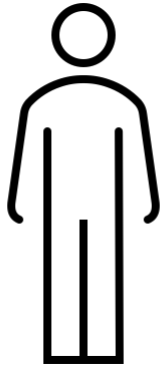
Culture Analysis

Jenkins artwork courtesy of the Jenkins project https://jenkins.io

Strategies For Improvement

“Be the change you want to see in the world”

- Mahatma Gandhi



Lead by example

Live up to your own standards

Prove that your values are worth having

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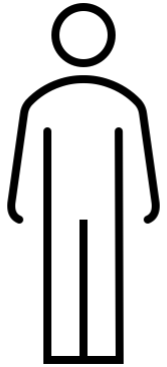
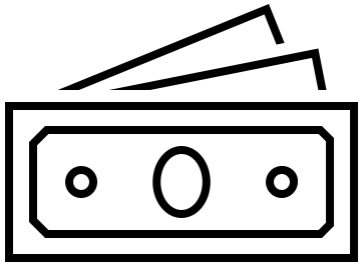
Set the Example



- Dogfood our own product
- Follow other best practices
- Communicate decisions with intent and reasoning

Example

Create Incentives



Make it easy for people to avoid shortcuts

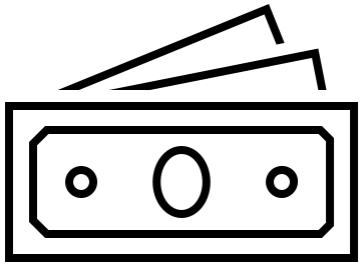
Recognize behavior in line with values

> *Employees who don't feel recognized are twice as likely to quit their job in a year, while the top 20% of companies with a recognition-rich culture have a 31% lower turnover rate.*[1]

Gamification is great for competitive people

1. https://blog.bonus.ly/improve-company-culture/

Incentives

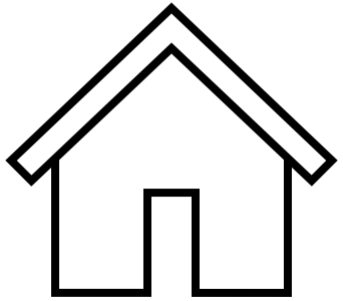


- Demonstrate value
- CD for free!
- Exemplify success stories, learn from mistakes

Example

Create Hard Rules

Strategy For Improvement



Don’t allow users to do the “wrong” thing

Enforce best practices

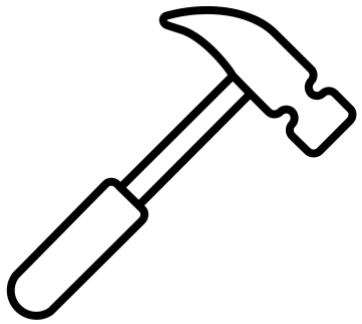
Abstract away some decisions

Hard Rules

- Only administrators have access to Jenkins config
- Mandate source control for pipelines
- Containers must be up-to-date

Example

Facilitate Innovation



Provide the tools and guidance for users to innovate

Leave room for creativity

Adopt good ideas

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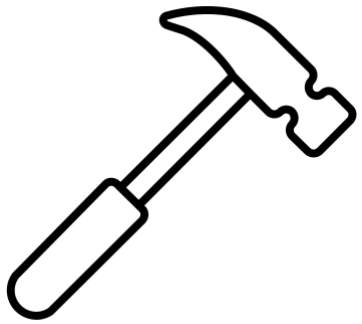
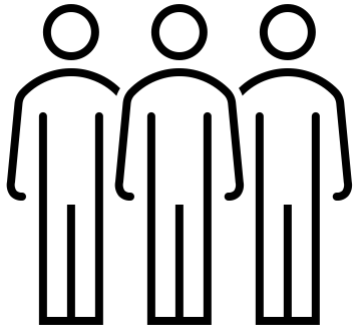
Tools For Innovation

Example



- Integrations with our internal tools
  - Monorepo
  - Build + Test system
  - Deployment service
  - Kubernetes
  - Release notes generator
- Dynamic worker environment with varying levels of customization

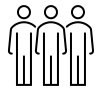
Build a Community



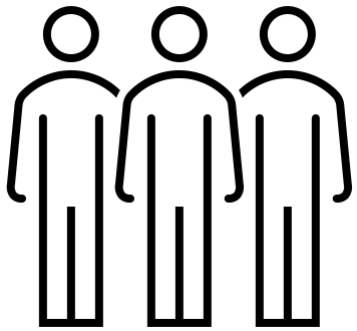
Culture spreads best through communities

Culture develops and changes more quickly

Bolsters many other strategies



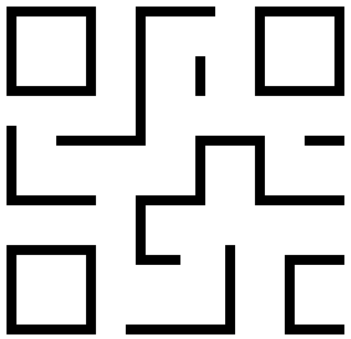
Community Initiatives



- Discussion rooms in Slack
- COIN Class
- User Stories presentations
- Community-developed extensions

Example

Have a Tight Feedback Loop



Make sure things happen quickly, or at least keep communicating

Be actively responsive to questions or feedback

Don’t take requests at face value, understand root cause

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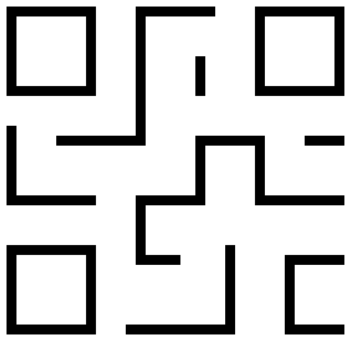
Feedback Loop

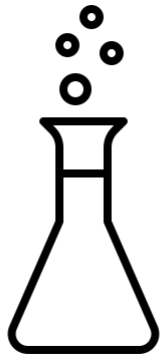


- Communicate early and often about feature requests
- Have CD!
- Collect feedback
  - Release notes
- Measure adoption

Example

Measure Impact

Strategy For Improvement

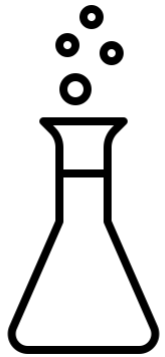


Know if cultural outcomes are improving or not

Prove value to stakeholders

Diagnose additional culture gaps

Measurements of Impact



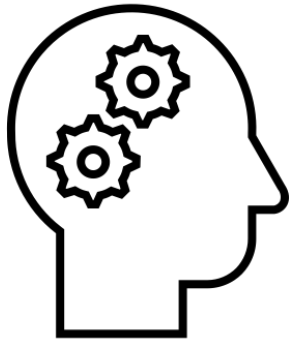
- DevOps Metrics[1]
  - Lead time
  - Deployment Frequency
  - Mean time to restore
  - Change fail percentages
- Dashboard to track releases out-of-the-box

Example

1. Accelerate: The Science of Lean Software and DevOps: Building and Scaling High Performing Technology Organizations by Gene Kim, Jez Humble, and Nicole Forsgren

End Result

Tech Culture Can Work For Us



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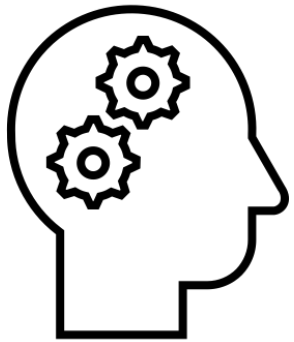

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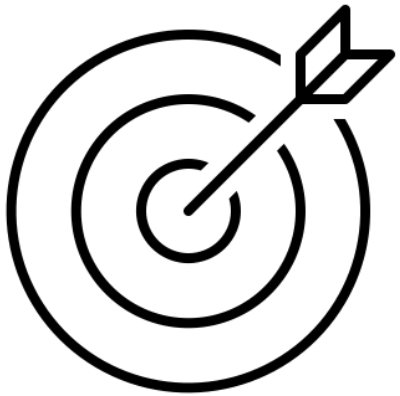

↑ Shared values

↑ Adoption of best practices

↑ Technical cohesion

↓ Principled disagreement

COIN's Success

90+ instances of Jenkins running in Kubernetes

1300+ pipelines

~10x in deployment frequency

~40,000 tests run per day[1]

1. Does not include test farm tests

Thank you!