

AWS

S U M M I T

Principles and Mechanisms for Creating Successful Digital Organizations

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2017-05-18



What we'll discuss

- Why the world is changing
- How digitization affects organizations
- Amazon's approach to innovation
- Architecture and organization
- Culture and mechanisms
- How you can create your own digital organization



15 Years

An aerial photograph of a dense urban landscape, likely Tokyo, featuring numerous skyscrapers and buildings. The Tokyo Tower is prominently visible in the center of the image. The sky is clear and blue.

Average life span of an
S&P 500 company in the year 2015:

15 Years

An aerial photograph of a dense urban landscape, likely Tokyo, with the Tokyo Tower prominently featured in the center. The sky is clear and blue. The text is overlaid on the image.

Average life span of an
S&P 500 company in the year 2015:

15 Years

In the 1920s:

67 Years

The World is Changing

**The World is Changing
Faster**



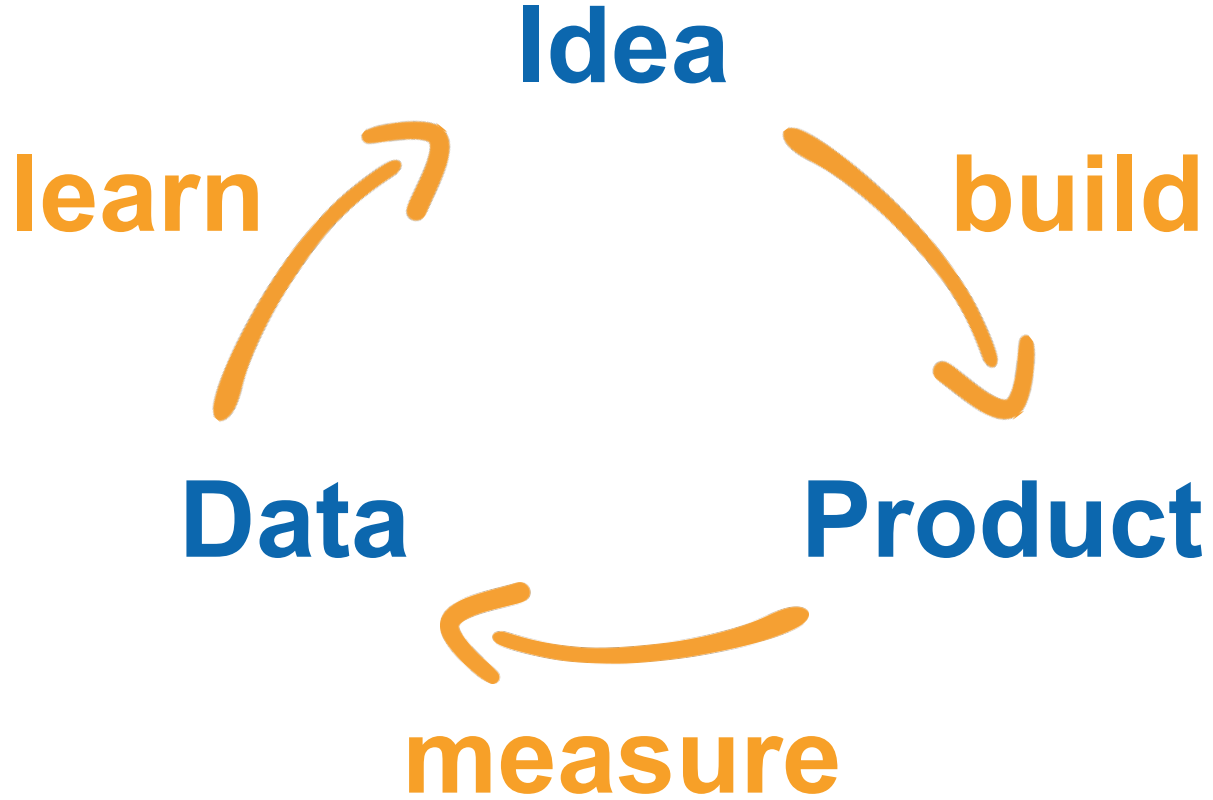
NETFLIX

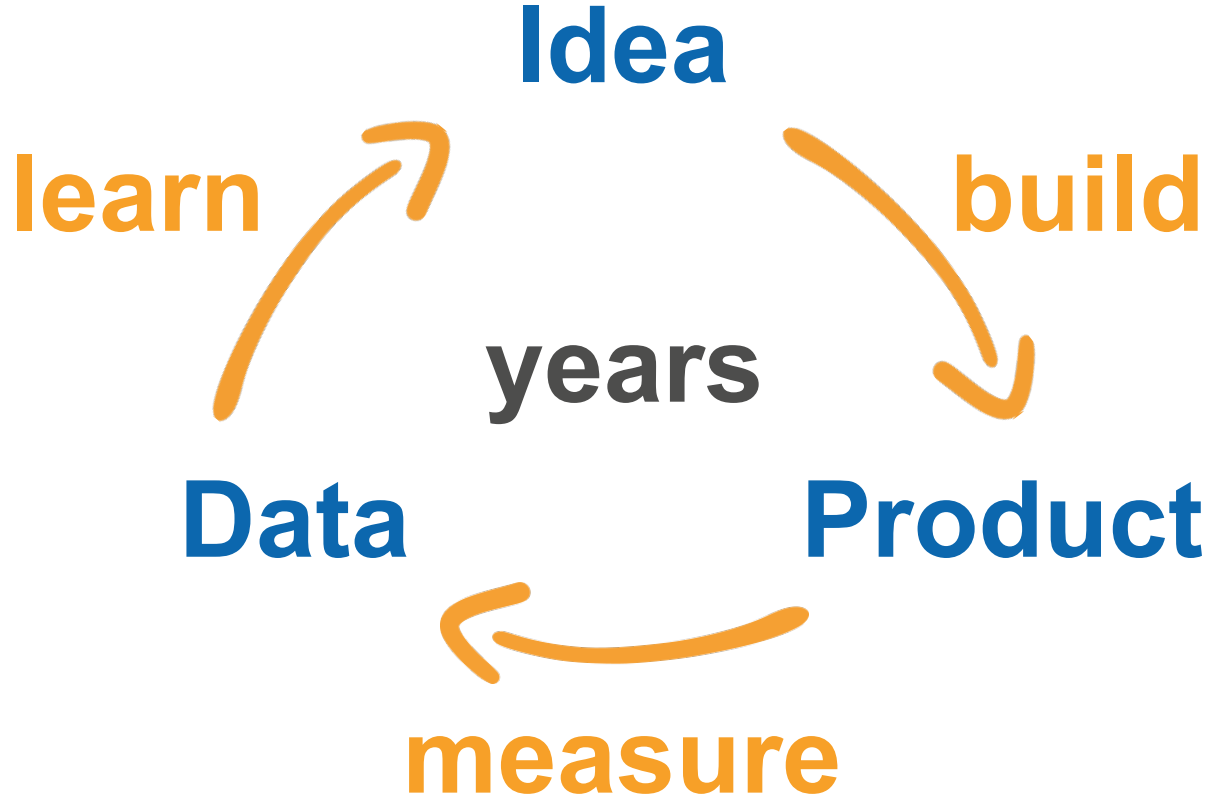


Pinterest



Disruptive Innovation





Digitization

Digitization

=

Speed of Information

Digitization
=
Speed of Light

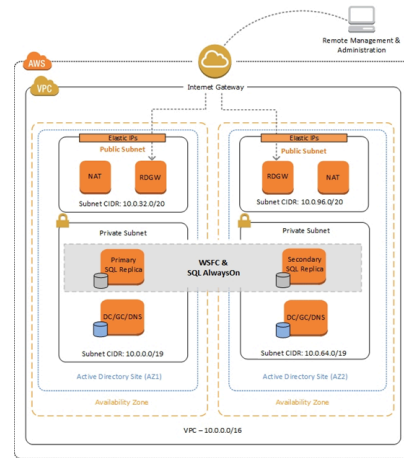
Digitization

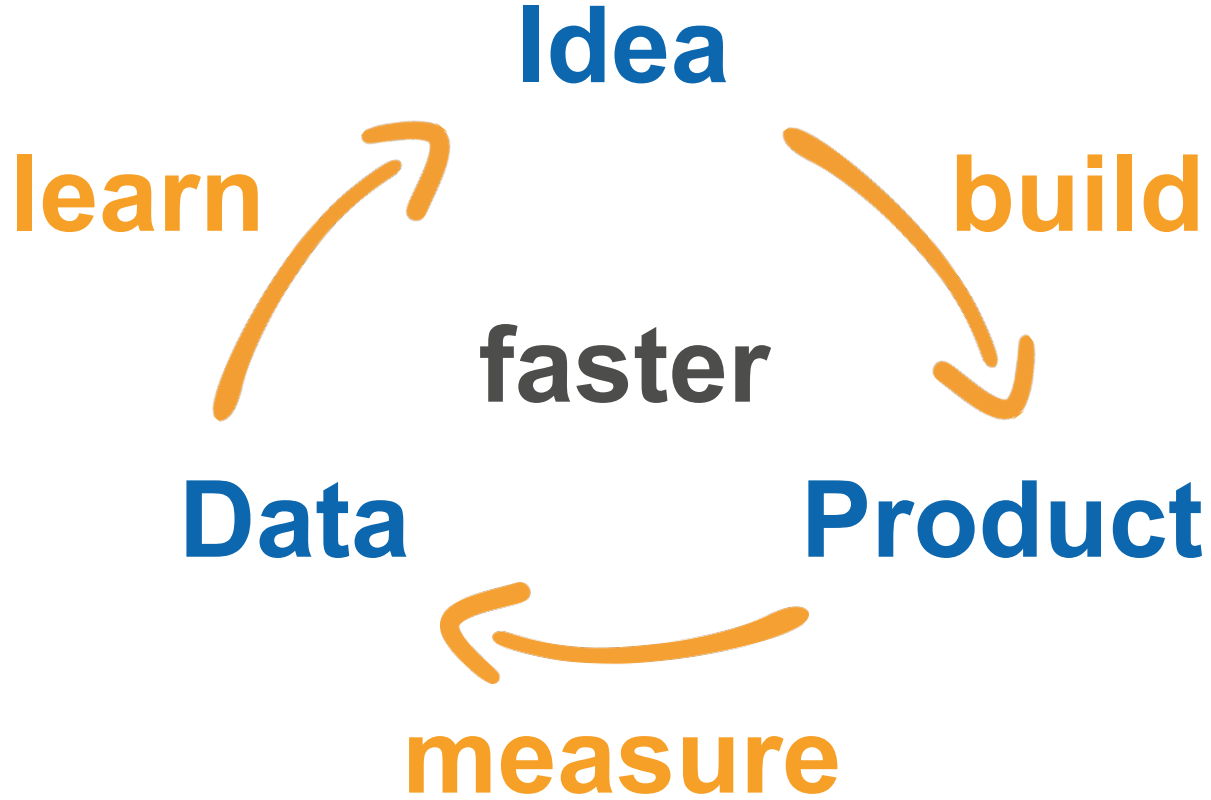
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No Physical Limitations

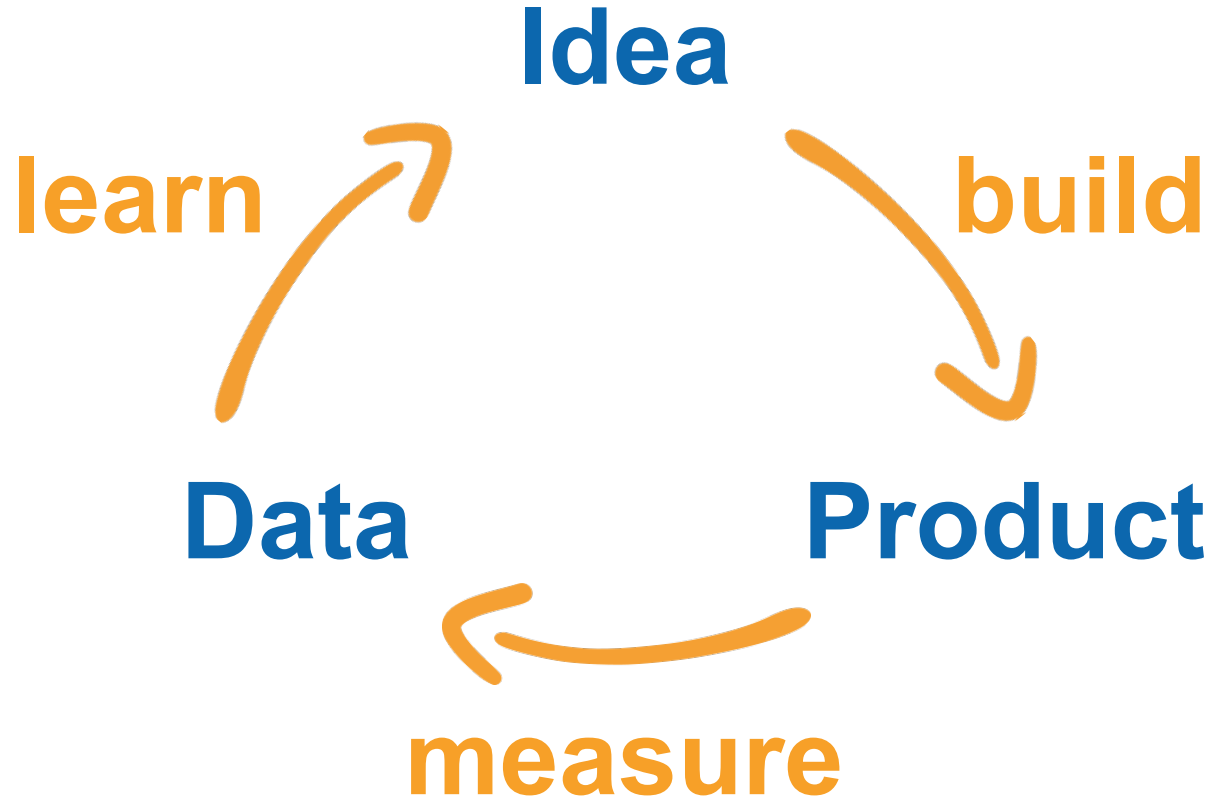
Cloud is “Digitized IT”

- Unlimited resources
- No financial risk
- Software-defined, dynamic architecture
- 100% automated
- Flexible
- Deployed in minutes
- World-wide
- Secure
- Robust





New Organizational KPI: Time to Revenue



What is **your**
time to revenue?

But: People are Still Analog



**But: People are Still Analog
(and this is a good thing!)**

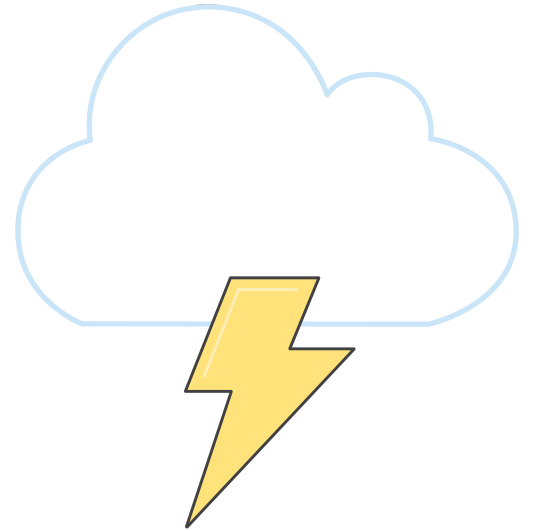


What's Wrong?

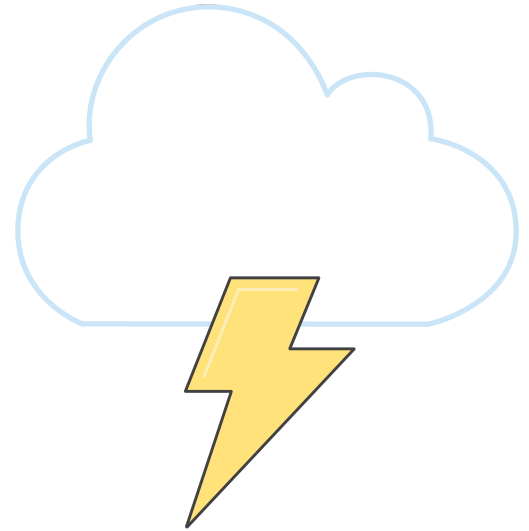
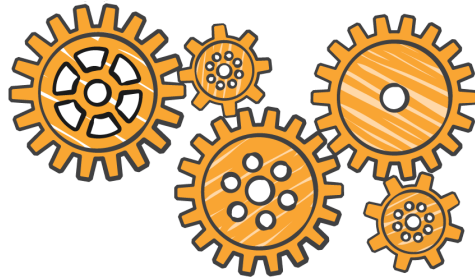
What's Wrong?



What's Wrong?



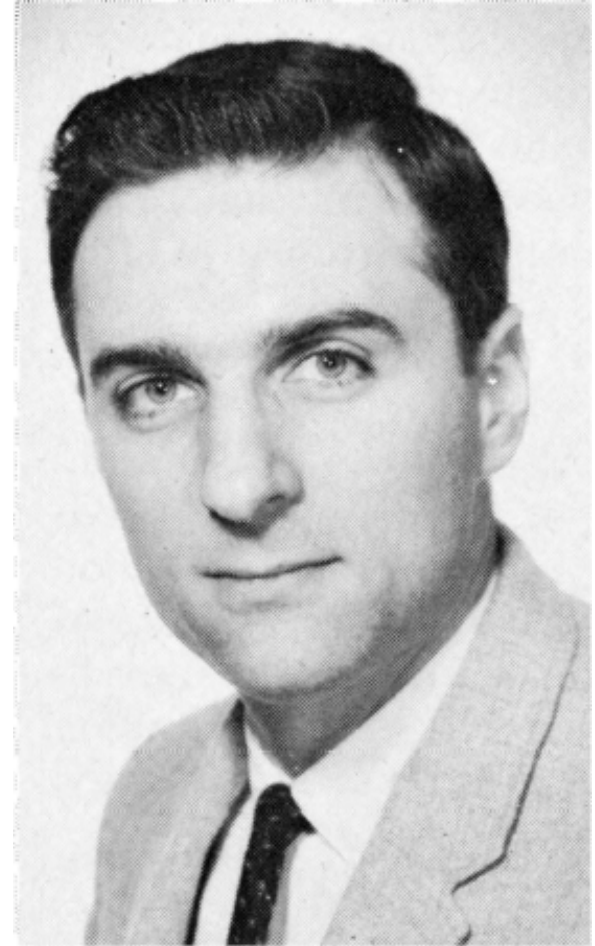
What's Wrong?



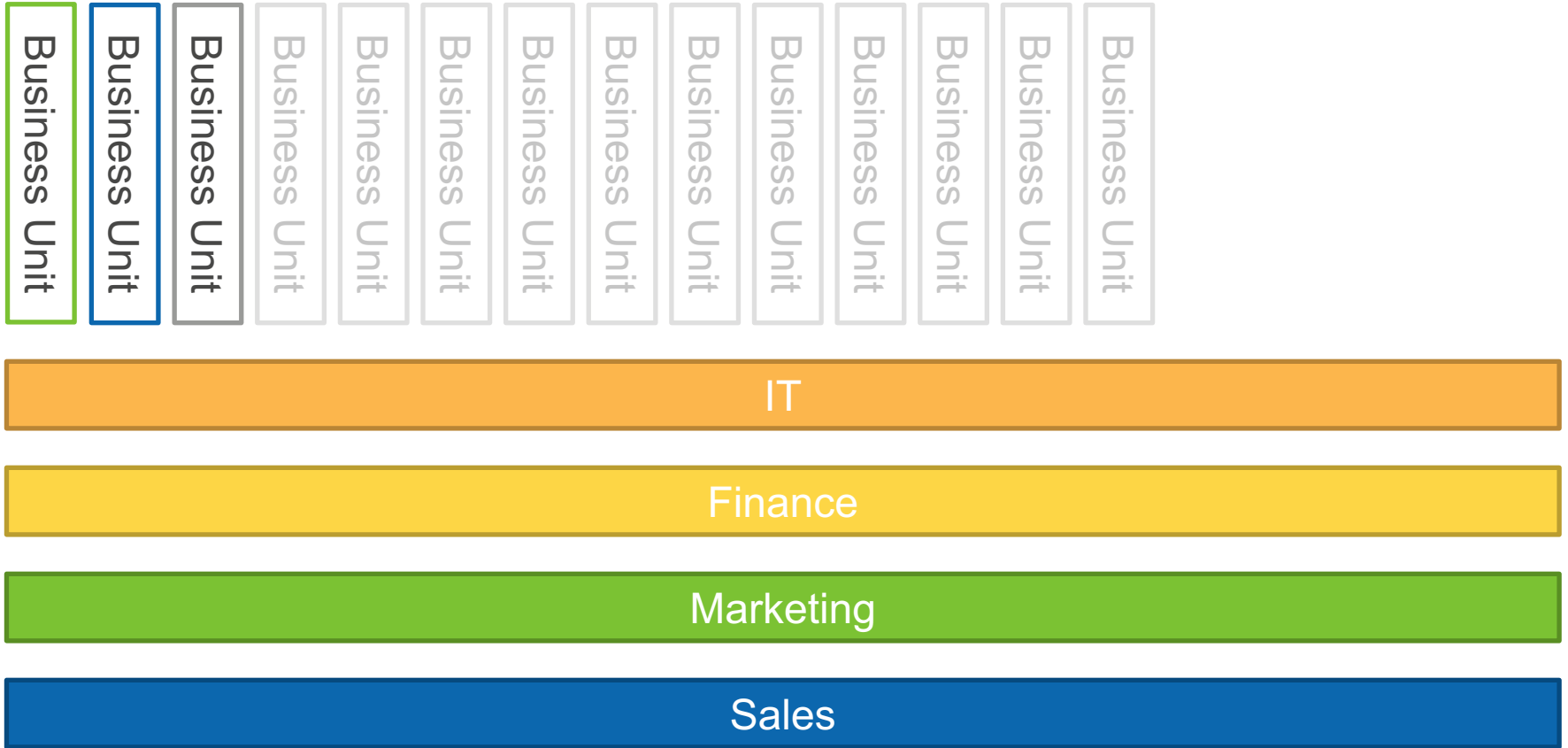
Conway's Law

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

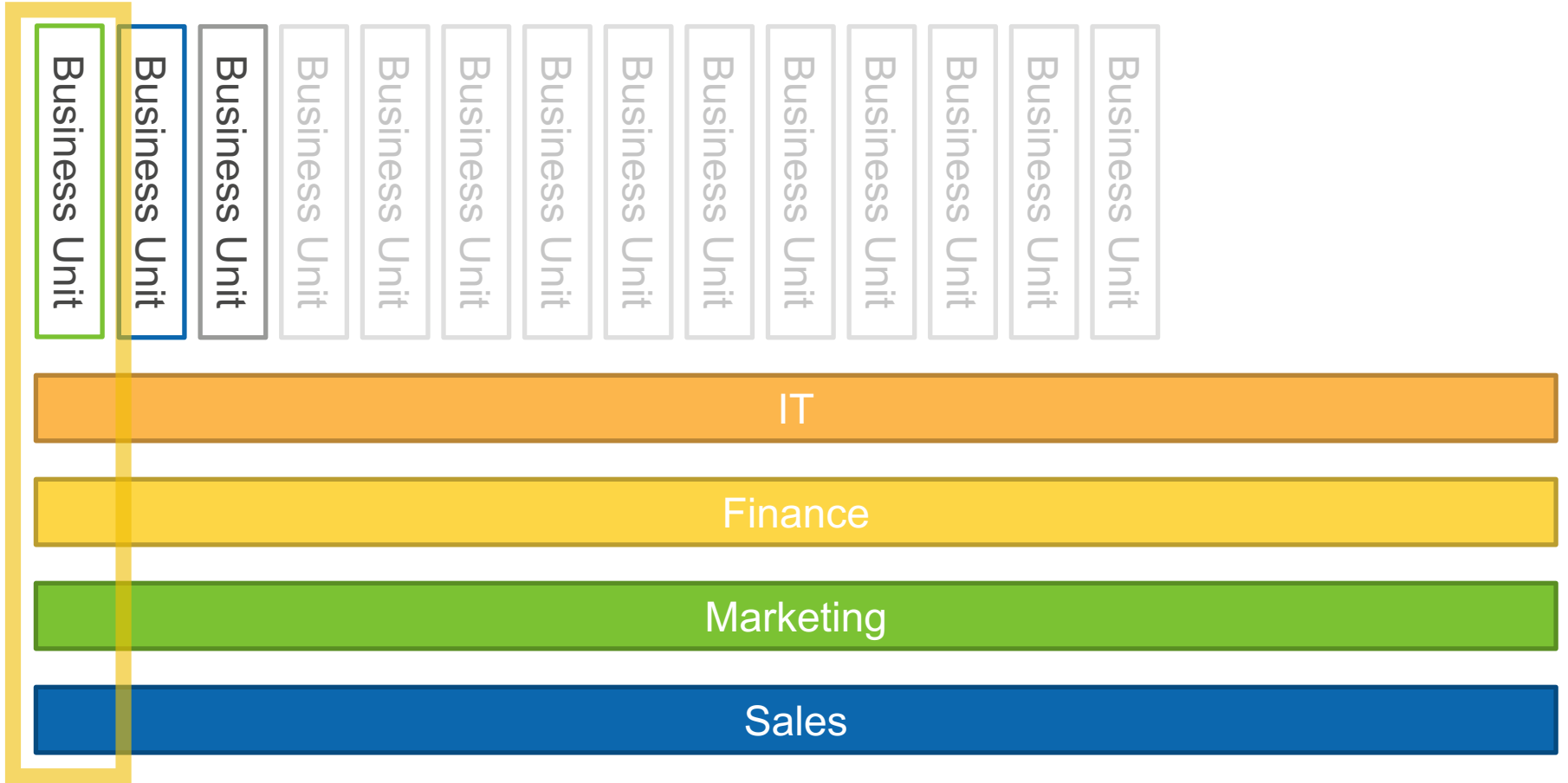
– Melvin Conway, 1967



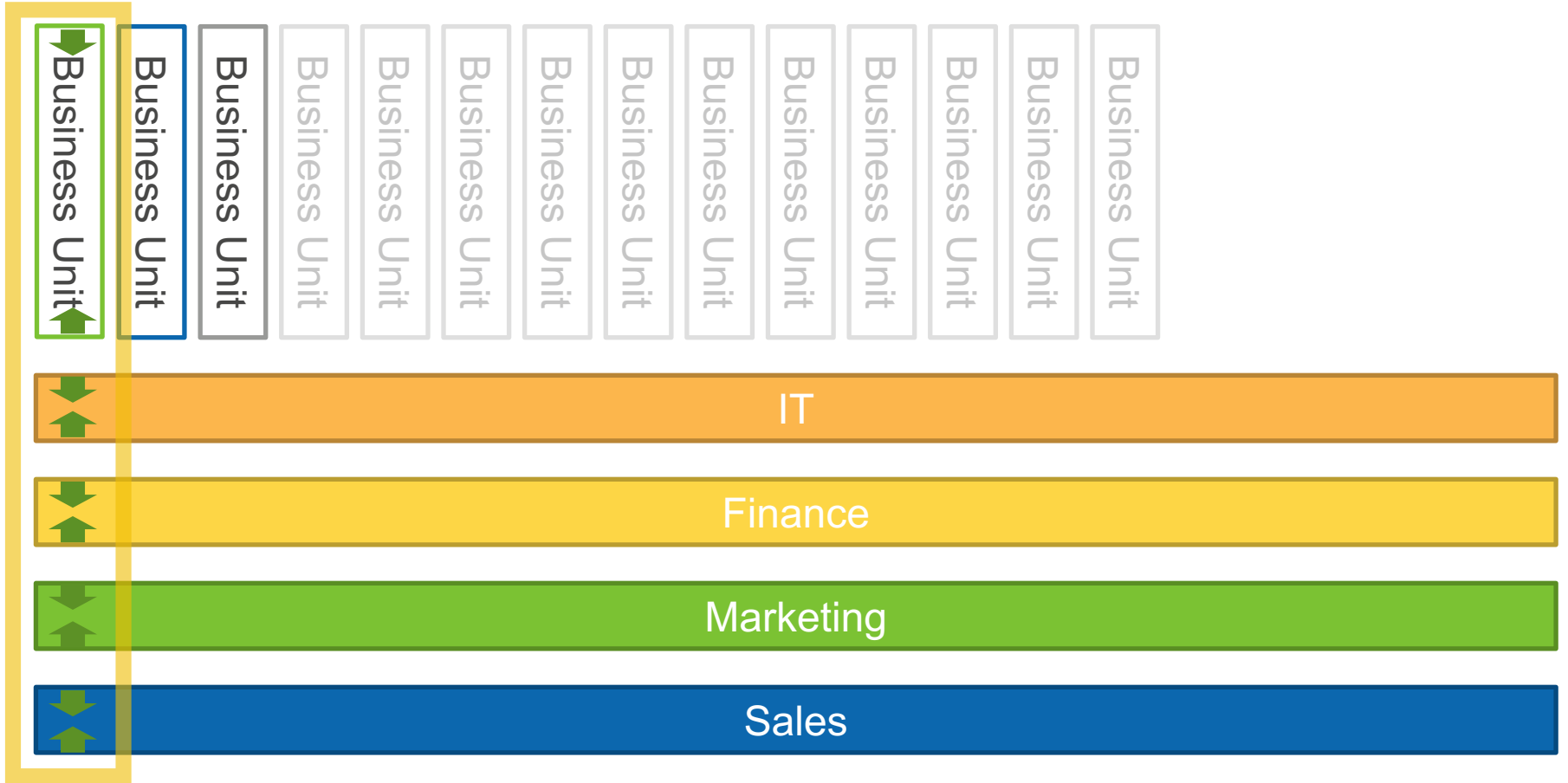
Traditional Organizations



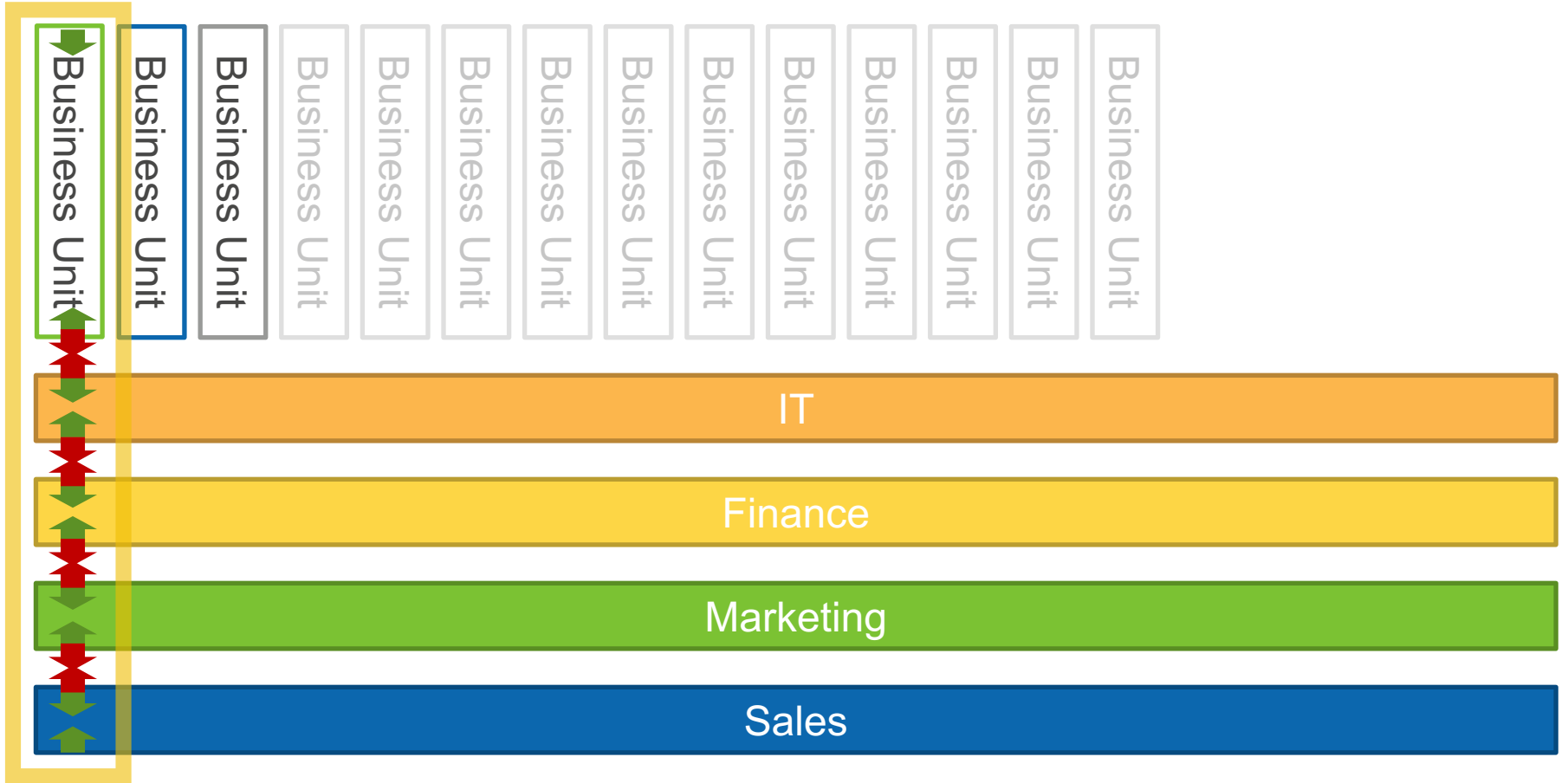
Traditional Organizations



Traditional Organizations



Traditional Organizations

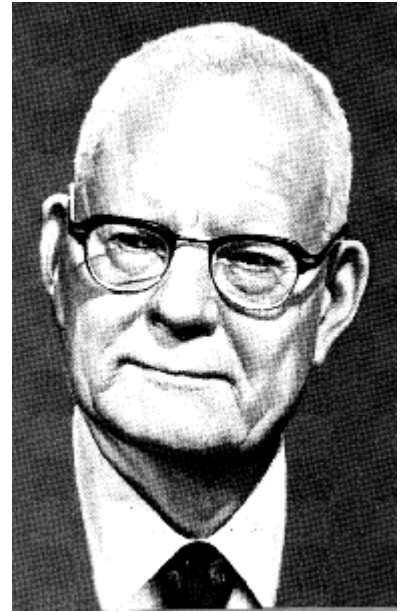


Our managements tell us:

- “We are in a new economic age”
- “Transformation is everyone’s job”
- “Take on leadership for change”
- “Improve constantly and forever”
- “Minimize total cost”
- “Break down barriers between departments”
- “People in research, design, sales,
and production must work as a team”
- “Improve quality and productivity”

This is not new.

- “We are in a new economic age”
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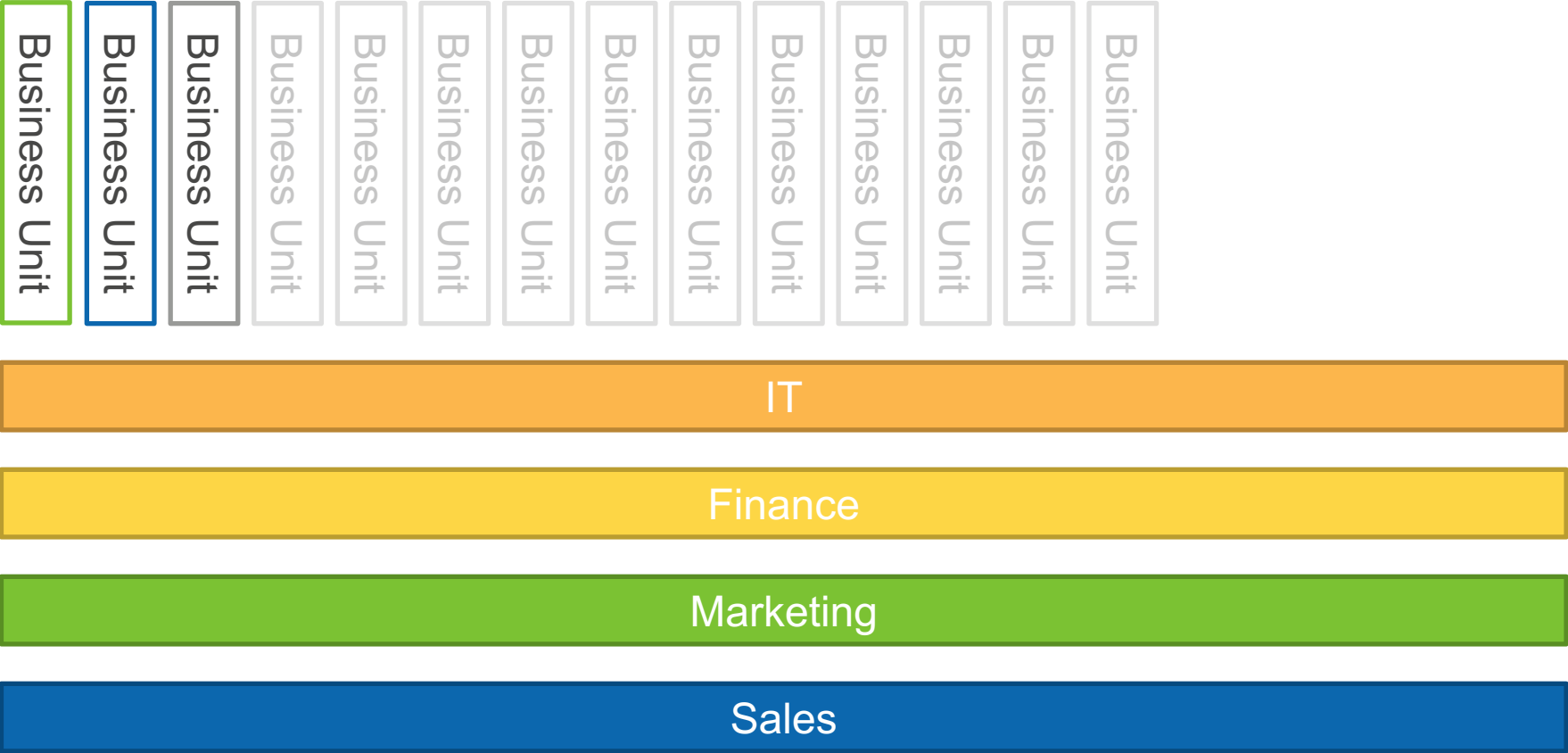
W. Edwards Deming
1900-1993
“Out of the Crisis”
1986

Summary

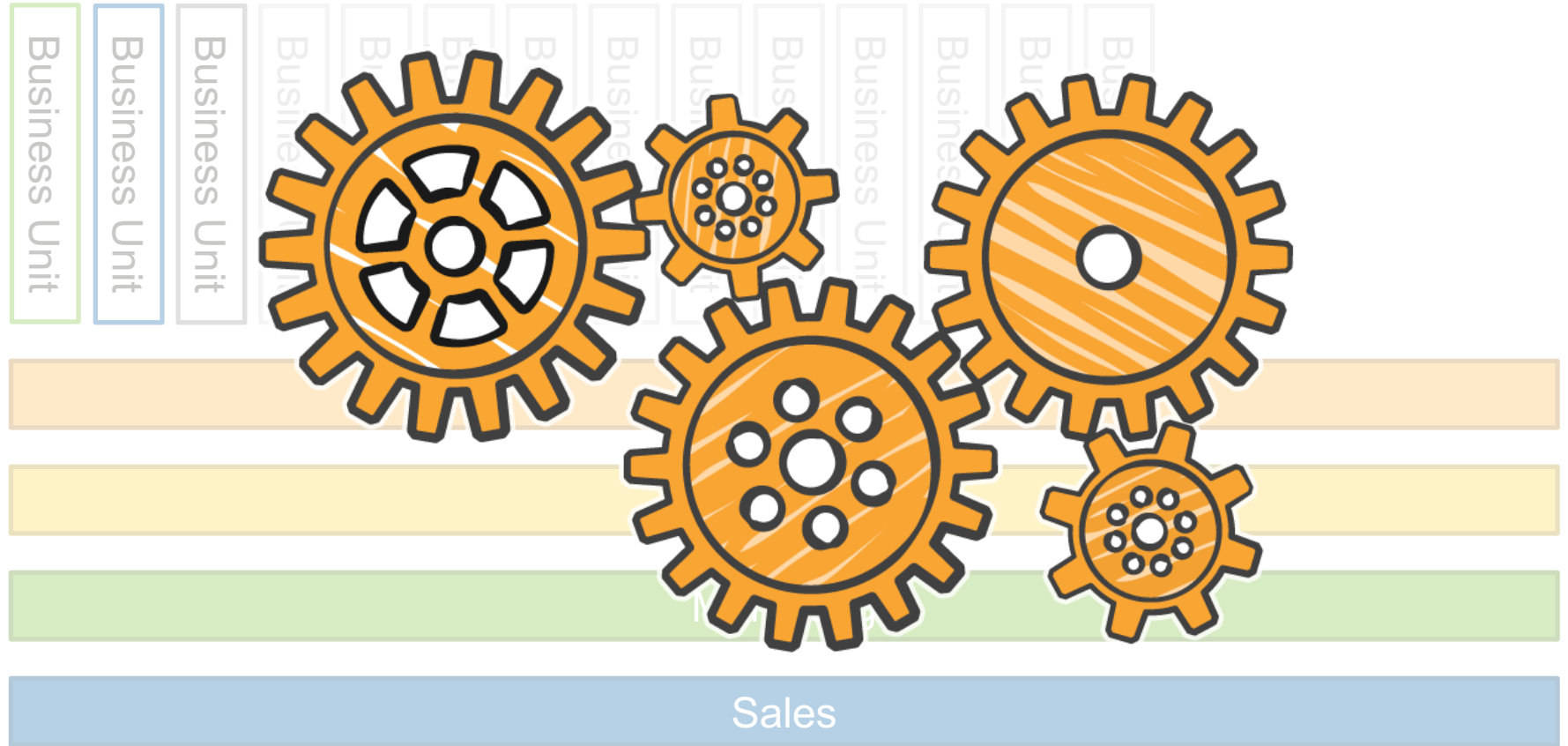
- The World is Changing
 - Digitization
 - Faster
 - New technologies
- Organizations Need to Adapt
 - People are key
 - Processes and organizations need to change
- We Already Know How!
 - Ask W. E. Deming and friends

How?

Organizations



Organizations Are Systems



What is Your Company Operating System?

Business Unit

Business Unit

Business Unit

Business Unit

Business Unit

Business Unit

Business Unit

Business Unit

Business Unit

Business Unit

Business Unit

Business Unit

Business Unit

Business Unit

Sales

Amazon's approach to Innovation

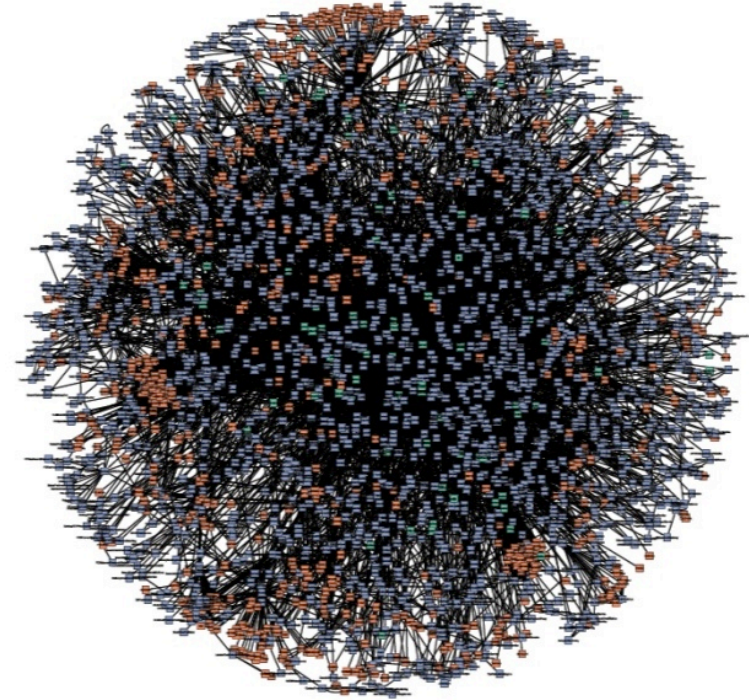
(Culture * Mechanisms)

F(I)=Organization * Architecture

Architecture

Architecture

- Service oriented
- Single-purpose
- Small building blocks
- Highly decoupled
- Connected through APIs
- Iterative development
- Continuous Deployment
- Architecture impacts organization



Organization



Two-pizza teams

Full ownership

Full accountability

Aligned incentives

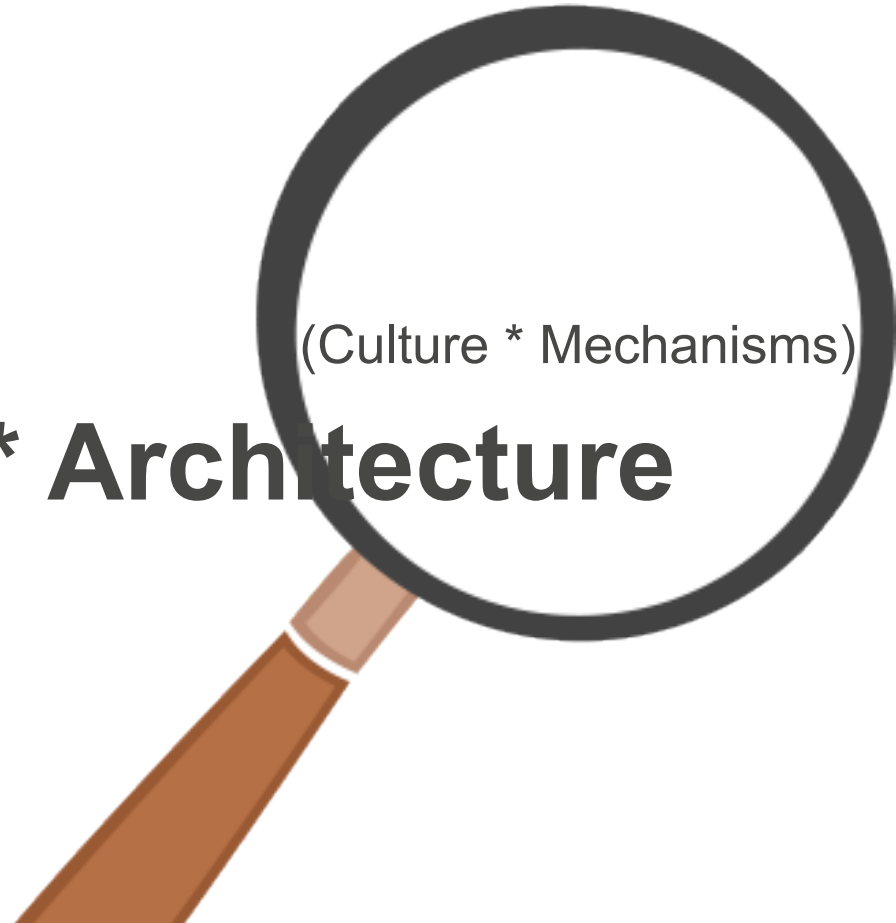
“DevOps”

(Culture * Mechanisms)

F(I)=Organization * Architecture


F(I)=Organization * Architecture

(Culture * Mechanisms)



Culture

Amazon Leadership Principles



Customer Obsession
Ownership
Invent and Simplify
Are Right, A Lot
Hire and Develop the Best
Insist on the Highest Standards
Think Big
Bias for Action
Frugality
Learn and Be Curious
Earn Trust
Dive Deep
Have Backbone; Disagree and Commit
Deliver Results





Day 1

I've been reminding people that it's **Day 1** for a couple of decades.

I work in an Amazon building named Day 1, and when I moved buildings, I took the name with me. I spend time thinking about this topic.

“**Day 2 is stasis.** Followed by irrelevance. Followed by excruciating, painful decline. Followed by death. And *that* is why it is ***always Day 1.***”

—Jeff Bezos, 2016 Letter to Shareholders

<http://www.amazon.com/shareholderletter2016>



Avoiding “Day 2”

- True Customer Obsession

“...experiment patiently, accept failures, plant seeds, protect saplings, and double down when you see customer delight.”

- Resist Proxies

“The process is not the thing. It’s always worth asking, do we own the process or does the process own us?”

- Embrace External Trends

“If you fight them, you’re probably fighting the future. Embrace them and you have a tailwind.”

- High-Velocity Decision Making

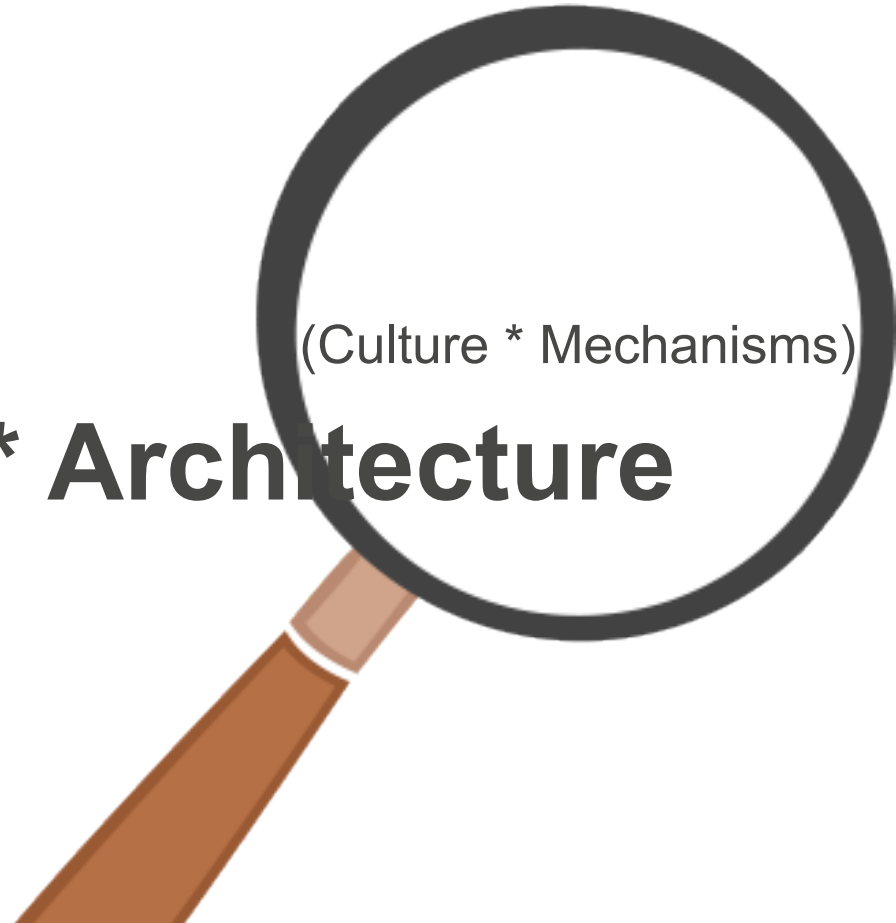
“If you’re good at course correcting, being wrong may be less costly than you think, whereas being slow is going to be expensive for sure.”

What is your company/team culture?

- Find your own culture
- Which principles work for you?
- Write them down
- Which principles don't?
- How can you reinforce your company's principles?
- What stories help bring color to your principles?
- Collect anecdotes, stories, pearls of wisdom

F(I)=Organization * Architecture

(Culture * Mechanisms)



Mechanisms

“Good intentions never work,
you need good mechanisms to make
anything happen.”

— Jeff Bezos

The First Way: Systems Thinking

Business
(Dev)

Customer
(Ops)



Focus on Your Customers

Work backwards from the customer

(1) Press Release

(2) FAQ

(3) User Manual

Amazon Web Services Launches New Capabilities for Mobile Developers

AWS Mobile Services make it simpler and more cost-effective to build and scale mobile apps on the AWS Cloud

SEATTLE--(BUSINESS WIRE)--Mon, XX, 2014-- Amazon Web Services, Inc. (AWS), an Amazon.com company (NASDAQ:AMZN), today announced several new capabilities to make it easier for developers to build, deploy, and scale mobile applications. Amazon **Cognito** is a new service that provides simple user identity and data synchronization that lets developers create apps that authenticate users through popular public login providers, and then keep app data such as user preferences and game state synced between devices. The new Amazon Mobile Analytics service allows developers to easily collect and analyze app usage data, up to billions of events per day from millions of users, and delivers usage reports within an hour of data being sent by the app. AWS is also introducing a new unified Mobile Software Development Kit (SDK) that makes it easy for iOS, Android, and Fire OS developers to access the new Amazon **Cognito** and Amazon Mobile Analytics services as well as popular AWS services like Amazon S3 and Amazon **DynamoDB**. To get started with AWS Mobile Services, visit <http://aws.amazon.com/mobile>.

Today, many app developers around the world use the AWS Cloud as infrastructure building blocks for the back-end services that power their mobile applications. Still, these mobile app developers have had to spend valuable time on undifferentiated heavy lifting like connecting apps to storage and database services and integrating core functionality such as authentication, user management, notifications, and usage data analytics. With Amazon **Cognito**, Amazon Mobile Analytics, and the AWS Mobile SDK, developers are now able to focus more of their energy on what matters, the differentiated functionality of their app that attracts and retains end users.

With AWS Mobile Services, developers can:

- **Securely store, manage, and sync user identities and data (Amazon Cognito)**

As more and more users utilize the same apps across various devices running different mobile platforms, developers often have to manage multiple user logins to securely store and retrieve data for their users, reconcile different versions of the data as devices go on and offline, and keep data in sync between devices. With Amazon **Cognito**, developers can incorporate these capabilities into their apps with just a few lines of code. Amazon **Cognito** lets developers build apps that allow users to start off as unauthenticated guests and then sign in with Amazon, Facebook, or Google. Amazon **Cognito** manages the complexity of keeping app data in sync on all devices associated with a user identity. Developers can also use Amazon **Cognito's** client SDK to create a local data store, which caches user data on the device so that apps can keep working the same way regardless of whether the device is on or offline. Additionally, Amazon **Cognito** makes it simple to implement AWS security best practices (such as not embedding AWS credentials into source code) by providing a set of temporary, limited-privilege AWS credentials that developers can use to access AWS services such as Amazon Mobile Analytics, Amazon SNS, Amazon S3, or Amazon **DynamoDB** from their mobile app. Developers receive 10 GB of storage for synced data and one million sync operations per month for free for up to 12 months with the AWS Free Tier.

- **Quickly access and understand app usage data (Amazon Mobile Analytics)**

Analytics such as how many users an app has, how much revenue it's generating, and what a user is doing with the app are

Continuous Delivery*

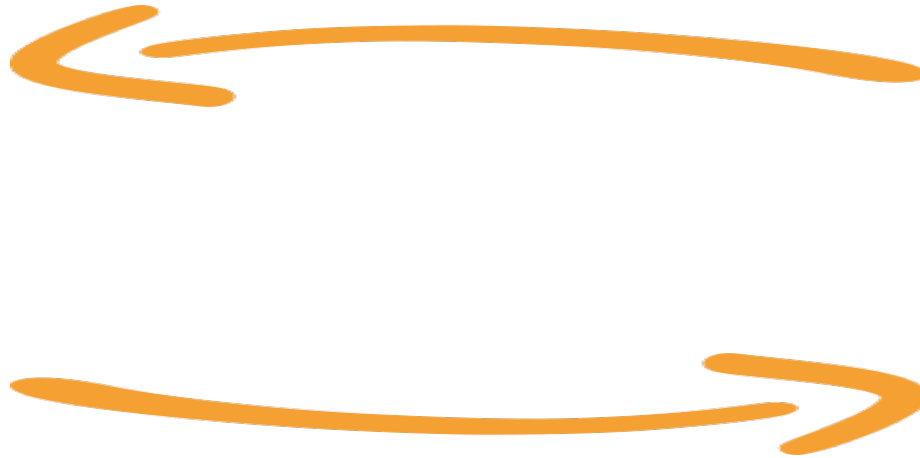
Small, frequent changes, **constantly**
integrating into **production**.

* End-to-end, not just “Integration” or “Deployment”

The Second Way: Amplify Feedback Loops

Business
(Dev)

Customer
(Ops)

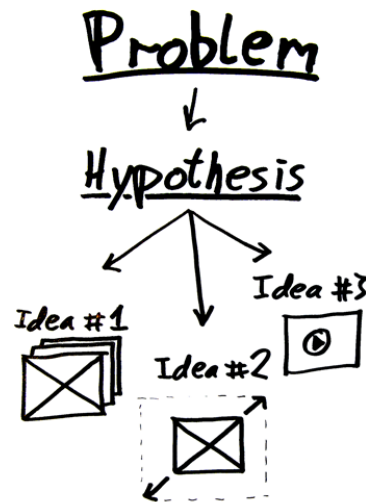


Measure, Improve, and Iterate

“Our theories determine what we measure.”

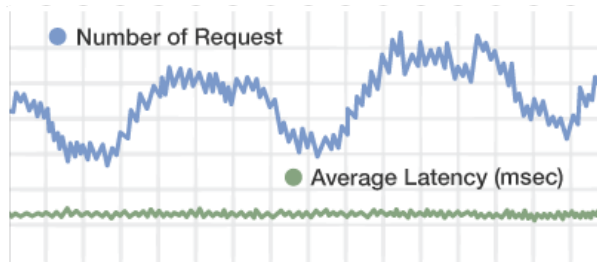
– Albert Einstein

- Identify your assumptions
- Look beyond your frame of references
- Be a “Culture of Metrics”
- A/B test for optimization
- Improve and iterate quickly

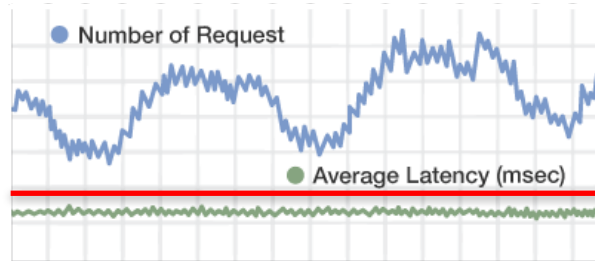


Metrics

A graph for every **metric** that **customers** care about.



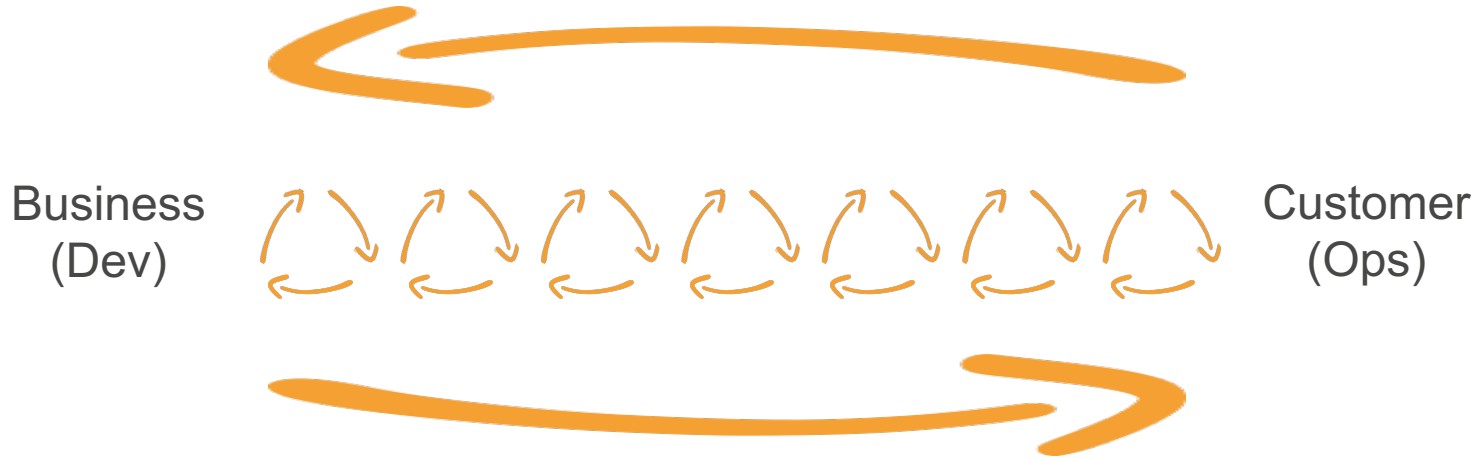
Any metric going beyond the line is considered a **breach** worthy of correction.



Correction of Error (COE) process

Five **Whys**

The Third Way: Culture of Continual Experimentation and Learning



« *Invention requires **two things**: the ability to **try a lot of experiments**, and not having to live with the collateral damage of **failed experiments** »*



Andy Jassy
CEO, Amazon Web Services

Experiment Frequently

“Want to increase innovation? Lower the cost of failure”

– Joi Ito

- AWS Services enable experimentation via primitives
- Companies can build on existing services
- Rapid prototyping and iteration are key
- Embrace failure



Move Fast and Be Nimble

“When a feature or enhancement is ready, we push it out and make it instantly available to all.”

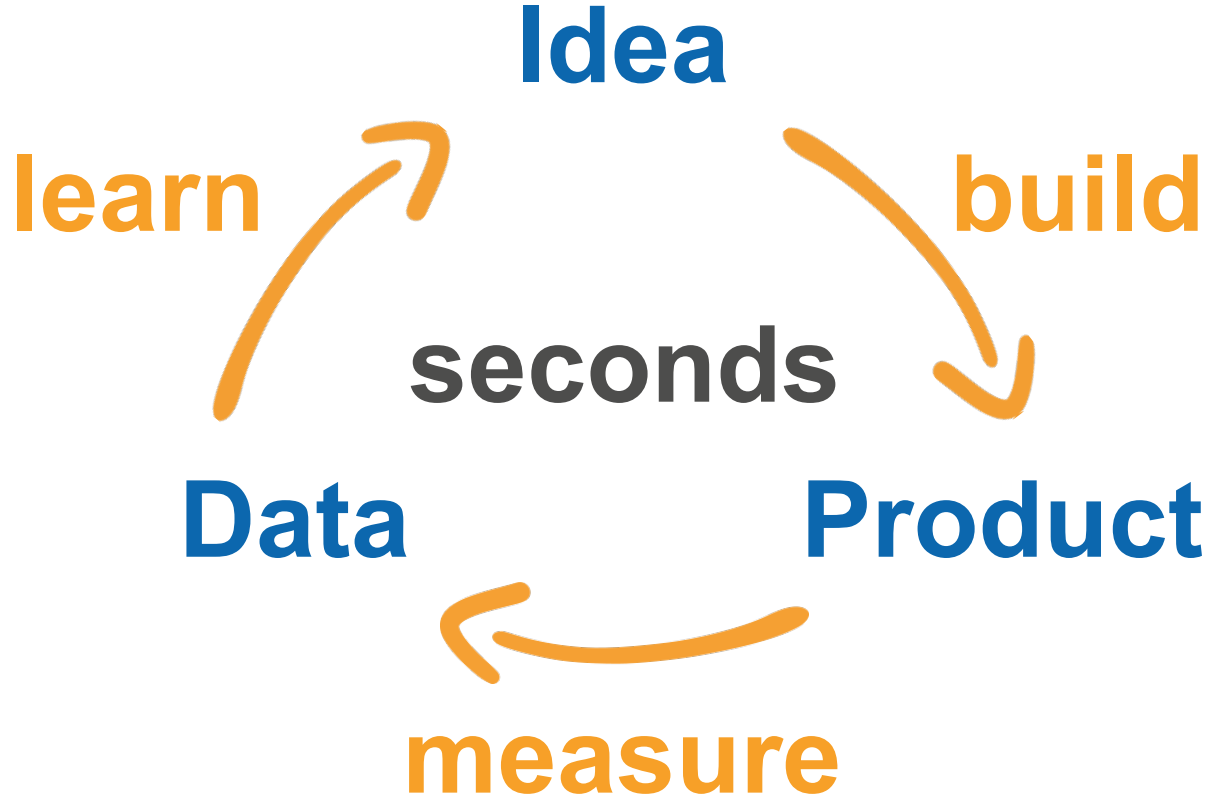
– Jeff Bezos

- Speed of iteration beats quality of iteration
- Encourage single-threaded focus
- Enables self-directed teams
- Fosters ownership & autonomy



Thousands of teams
× Microservice architecture
× Continuous delivery
× Multiple environments

= 64 million deployments a year
(7305 per hour, or every 0,49 second)



(Culture * Mechanisms)

F(I)=Organization * Architecture

Amazon's **Innovation** Approach

Focus on Your Customers
Experiment Frequently
Measure, Improve and Iterate
Move Fast, and Be Nimble
Foster Leadership

Your Turn

Day 1 Workshop

- See your organization as a system
- Identify existing principles
 - Which help?
 - Which don't?
 - Which are missing?
- Discover your data assets and digital business models
- Select 2-3 services you want to build
- Form 2-Pizza-Teams, establish mechanisms
- Go build!

AWS

S U M M I T

Thank you!

