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Version everything.

The Journey Towards Continuous Delivery

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Agenda

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- What is Continuous Delivery?
  - Management View vs Reality!
- Key metrics
- Key challenges
  - CM challenges
- Case studies

Continuous Delivery - Background

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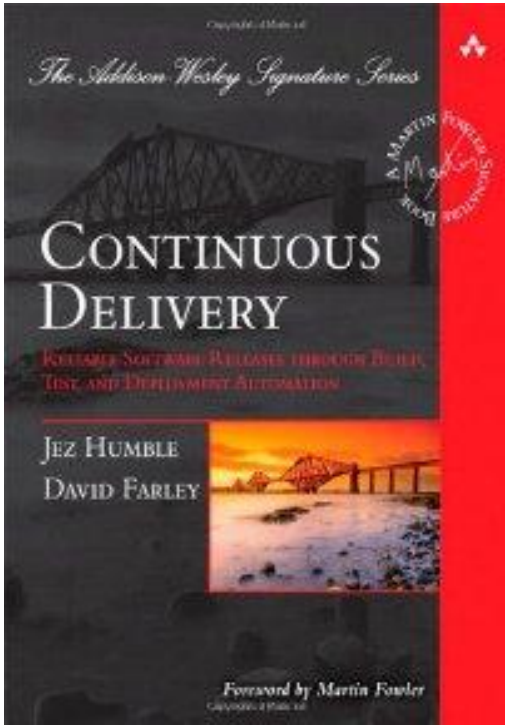
- Continuous Delivery ("The Book") was published in 2011 by Jez Humble and David Farley
  - It builds on pre-existing practices and methods
- Agile manifesto
  - Our highest priority is to satisfy the customer through early and **continuous delivery** of valuable software



- So – how many of your organisations are doing Continuous Delivery?

Industry Perspective

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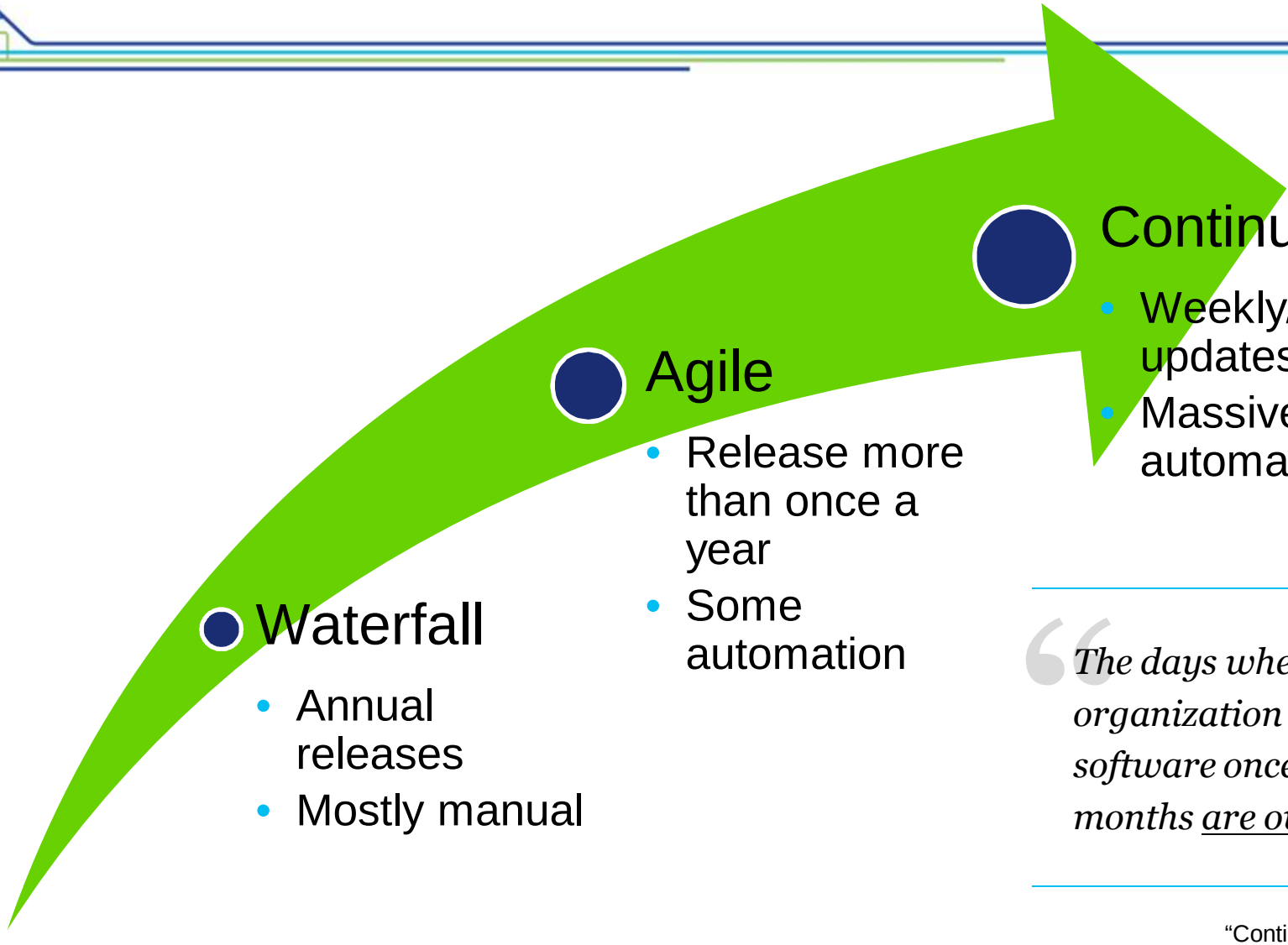

The days when a successful organization could release software once every 12 to 18 months are over.

"Continuous Delivery is Reshaping the Future of ALM,"

Kurt Bittner, Forrester, July 2013

It’s Not Just for SaaS Anymore

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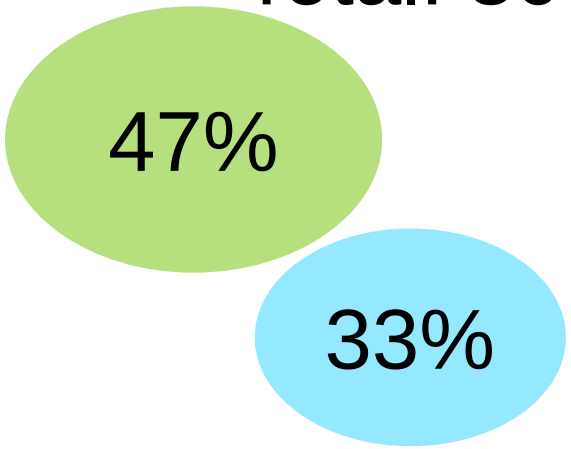
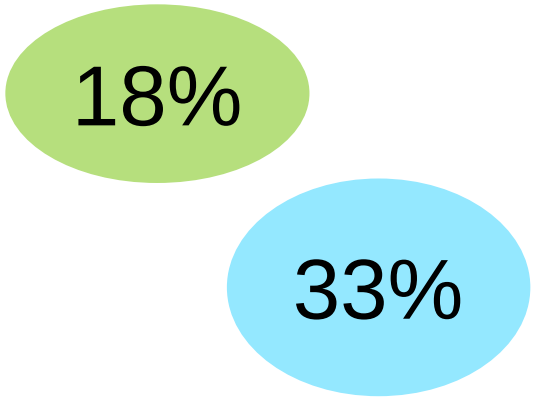
SaaS Companies

Total: 80%



Non-SaaS Companies

Total: 51%



All Projects

At Least Some Projects

Source: Evans Data research 2013

Keeping up with the Joneses

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Reality
(All companies)

28%

All Projects

Vs.

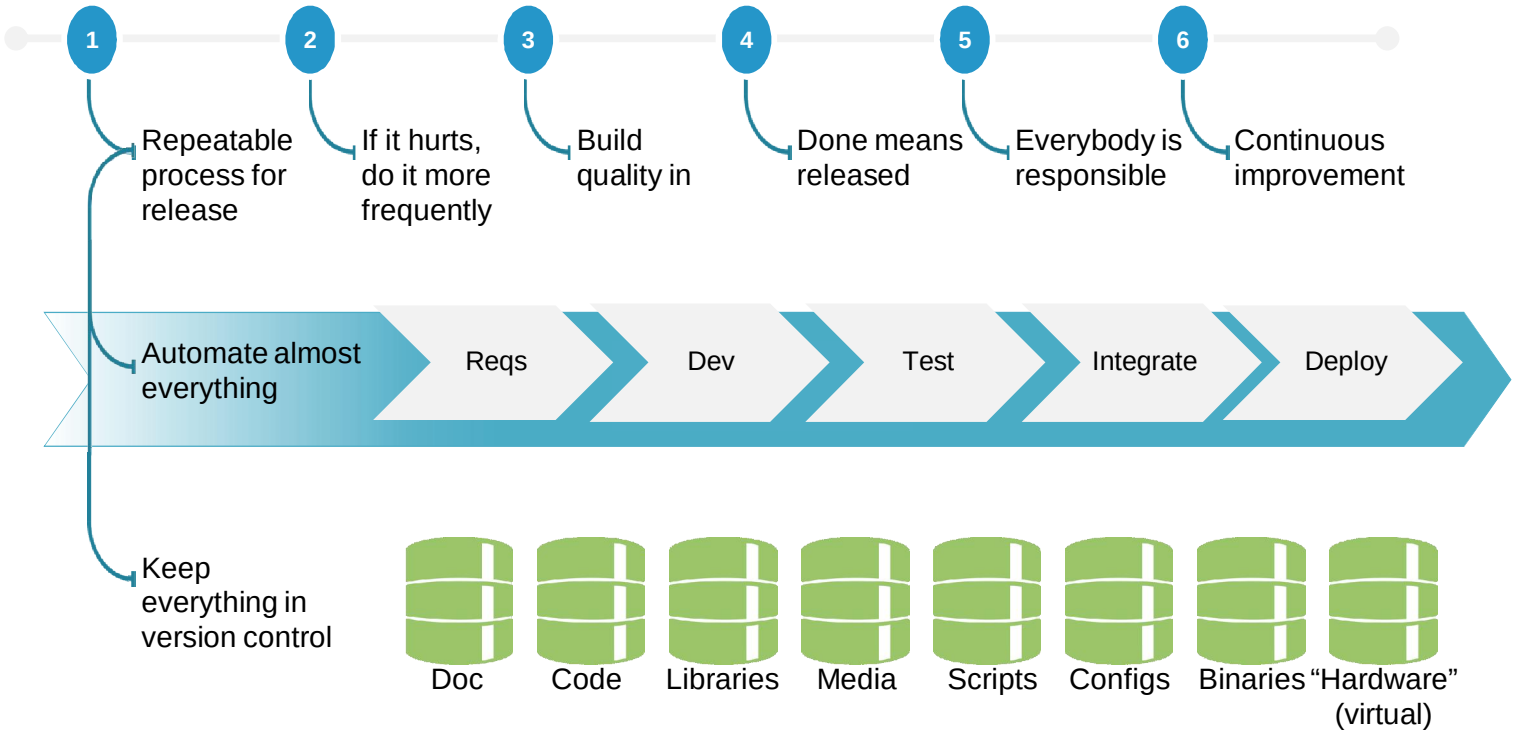
Perception
(Competitors)

46%

think their competitors have fully embraced Continuous Delivery

Source: Evans Data research 2013

Principles of Continuous Delivery



Agile vs Continuous Delivery

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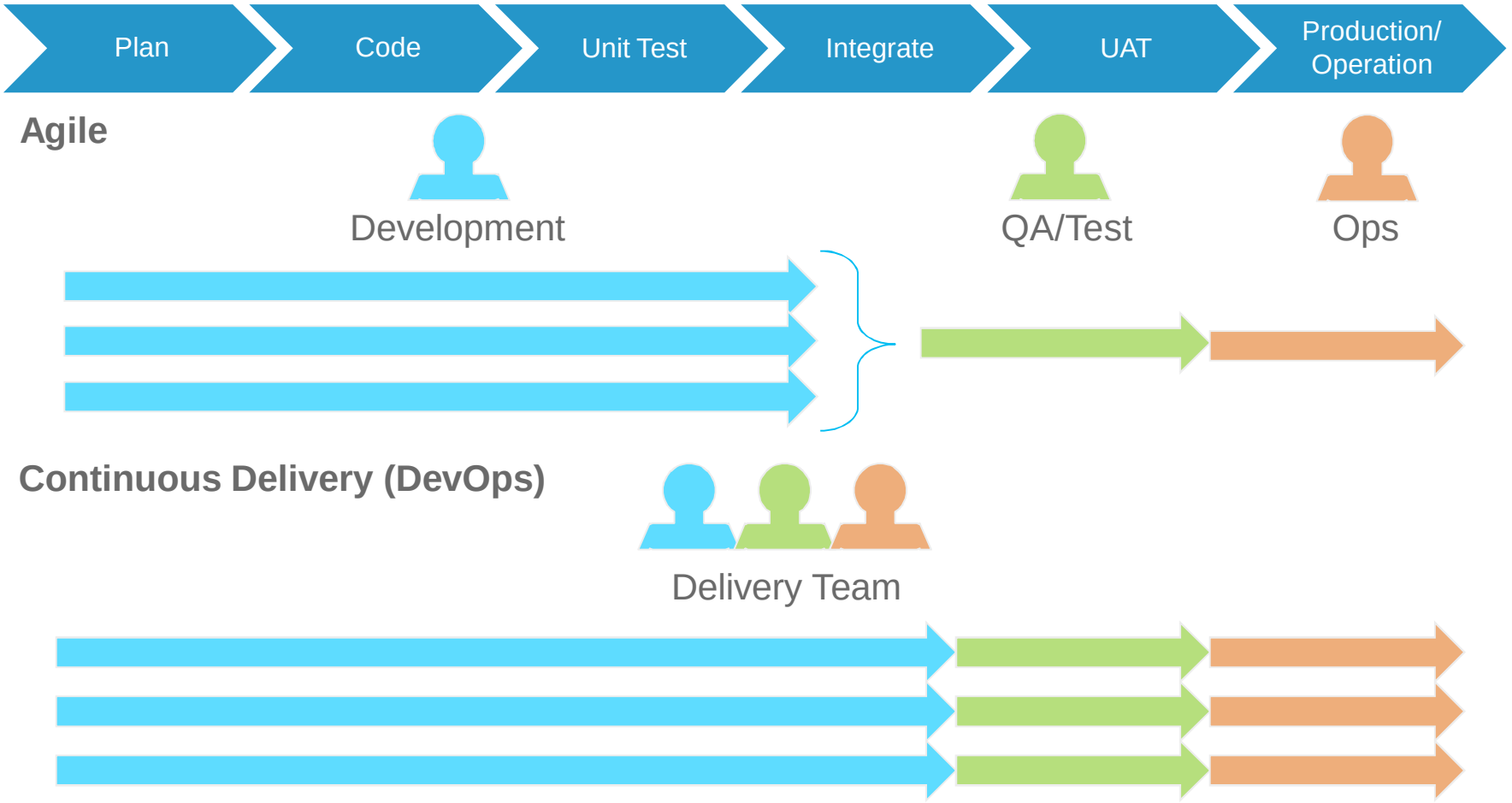

Key metric – cycle time

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- How long would it take your organization to deploy a change that involved a single line of code?
- Do you do this on a repeatable, reliable basis?

Mary and Tom Poppendieck, *Implementing Lean Software Development (2006)*

Cycle Time

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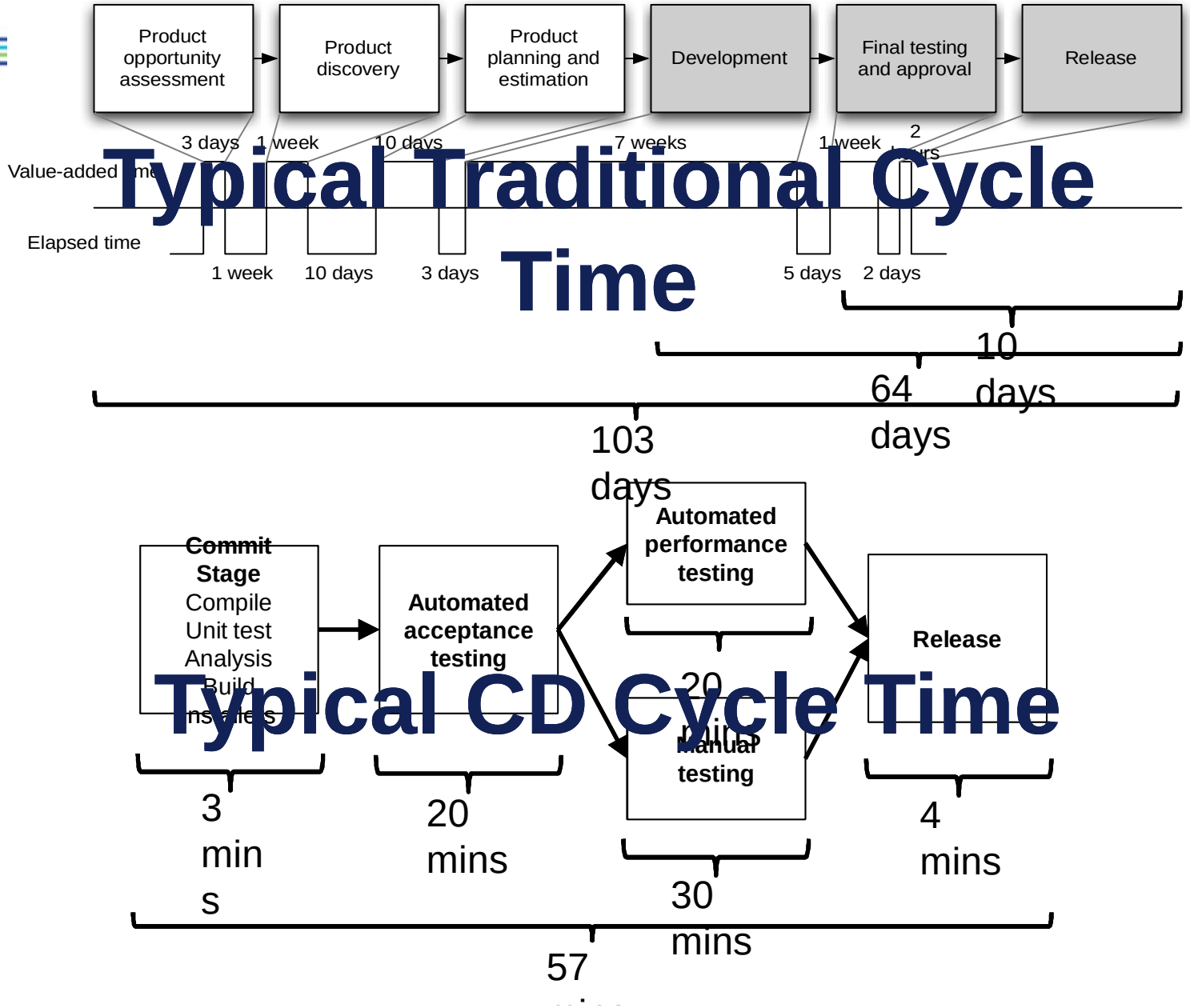

Maximize flow/improve feedback

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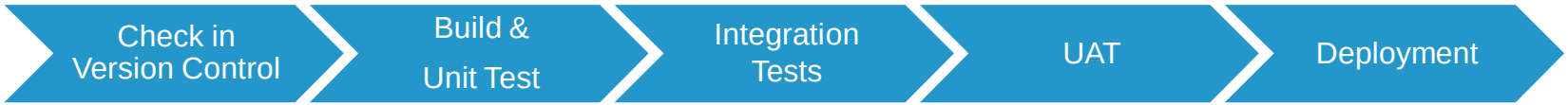

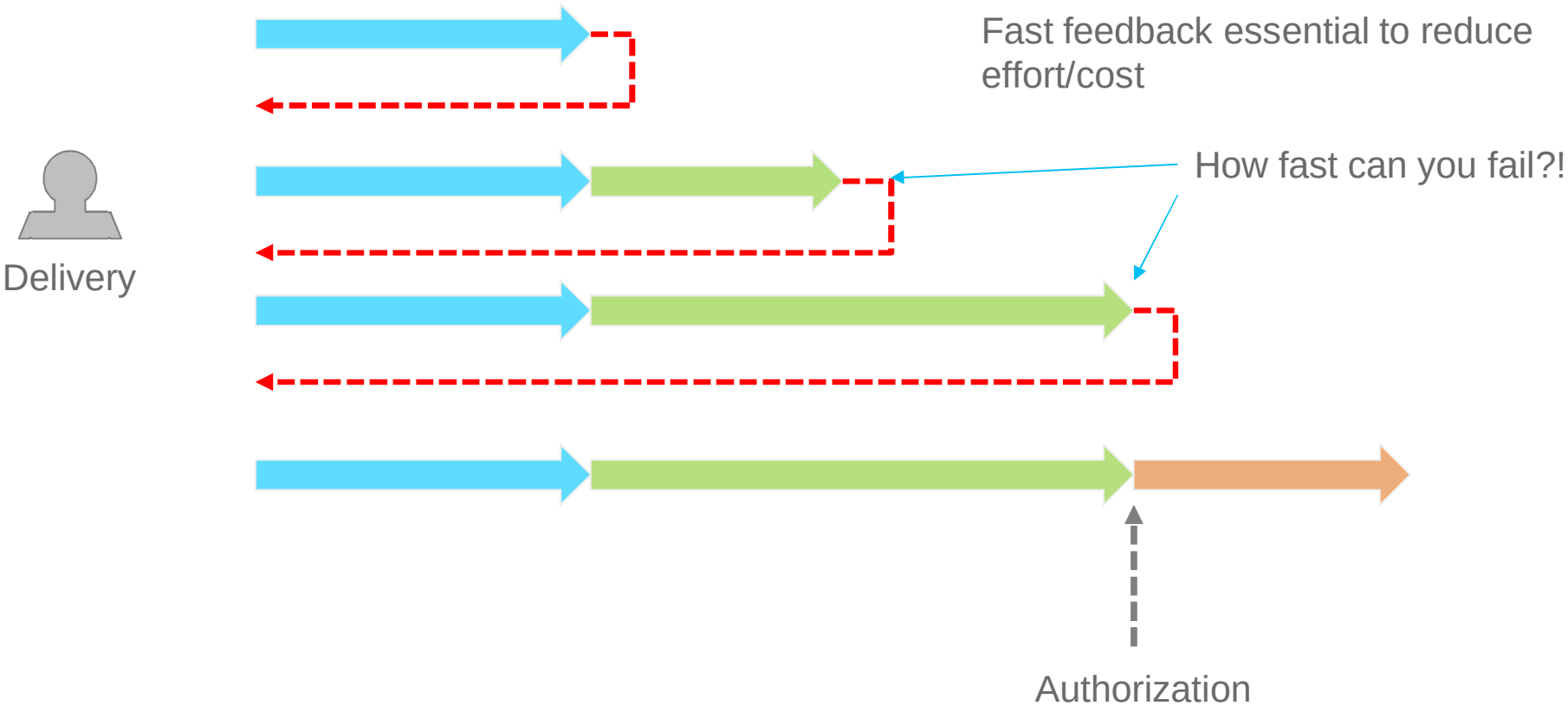

CD Challenges

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- Automation
  - Build & Unit test (isn't everyone doing this already?!)
  - Integration/Acceptance Tests
  - Other tests (performance/capacity)
  - Deployment
- Legacy technologies/code bases
  - Architecture
- Environments
- Anything else?!

What do we control/version?

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- Source code
- Build scripts
- Test scripts
- Environment configuration information
- Deployment tools
- Built executables?
- Other binaries/assets?
- Other configuration data?

How do we control it?

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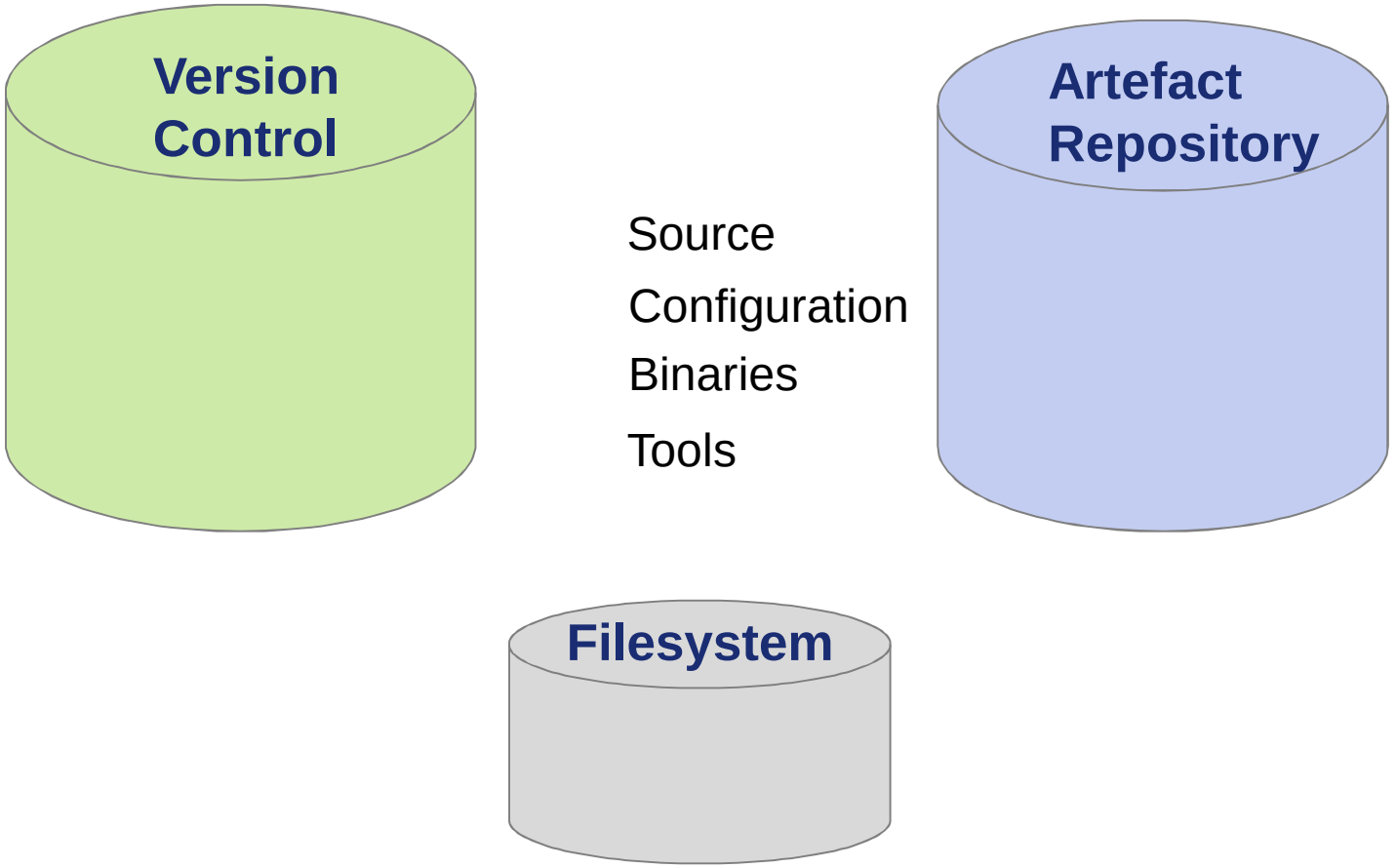

Where do we control it?

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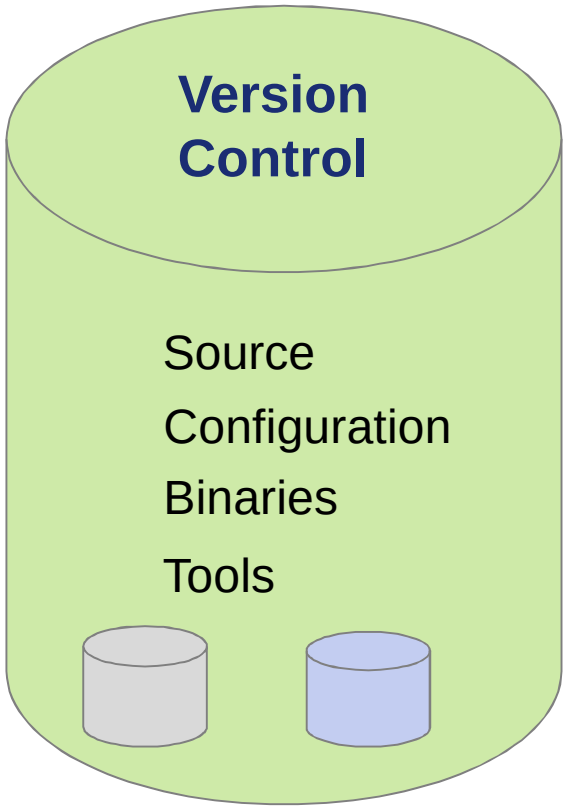
- How to ensure traceability?
- How to provide audit trails?
- How to manage access controls?
- How many admins, processes, tools, …?



CD: the aggregation of marginal gains

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- Sir Dave Brailsford (Team GB Cycling Performance Director):
  - “If you broke down everything you could think of that goes into riding a bike, and then improved it by 1%, you will get a significant increase when you put them all together”
- Big things – training and conditioning
- Little things
  - Sleeping in the right position
  - Having the same pillow when you are away
  - Washing your hands properly

- The French complained: “there must be some cheating or magic secret”
- The answer: “our wheels are round!”

(Marginal) Gains

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- Automation
- Reporting/Communicating Status/progress
  - Information radiators
  - Name and shame…
- Testing
  - Smoke tests
  - Test in parallel
- Deployment environments
  - Infrastructure as Code (DevOps)
  - Virtualisation technologies
- Database versioning

Case study – deployment scripts

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- SDP (Server Deployment Package)
- Supports Multiple platforms:
  - Windows (.bat files)
  - Unix (bash)
    - Linux (CentOS/Redhat, Ubuntu/Debian, etc…), Solaris
  - Some python/perl

- Challenges
  - “It’s just scripts…!”
  - Different functionality on different platforms
  - Manual testing
  - Manual deployment

Case study – solution

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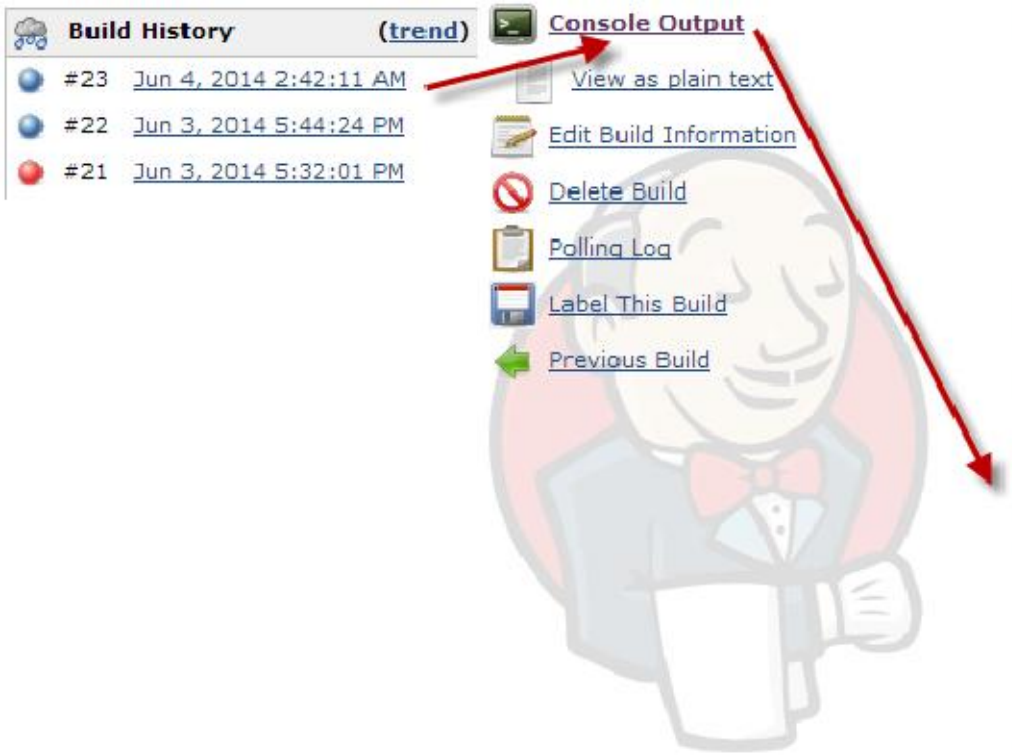
- Phase 1
  - Test harness (Python)
  - Virtual machines (Vagrant) – Windows now supported too!
  - Cross platform installer (Python)




```
Building in workspace /var/lib/jenkir
SCM Task: cleanup workspace: jenkins-
... [list] = revert //...
... rm [list] | ABANDONED
... [list] = reconcile -n -a //...
... rm [list]
... [list] = reconcile -n //...
SCM Task: syncing files at change: 87
... sync //...@872000
[workspace] $ /bin/sh -xe /tmp/hudson
+ bash -ex run_tests.sh
+ echo Running SDP tests
Running SDP tests
+ vagrant up
+ vagrant ssh usdpmaster -c 'sudo -u
+ vagrant ssh usdpmaster -c 'sudo -H
+ vagrant ssh usdpmaster -c 'cp /tmp/
+ cat ./sdp/test.out
Wed Jun  4 01:42:25 UTC 2014
Starting /p4/1/bin/p4d_1: Perforce db
Rotating /p4/1/logs/journal to /p4/1/
.
----------------------------------------
Ran 1 test in 2.973s

OK
Finished: SUCCESS
```

Case Study – Financial Institution

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- 10 year old application (started life as spreadsheets)
- Successful - but now has >100 people involved!
- .Net and SQL Server
- 8 week cycle time minimum
- Automated build

- Issues
  - Few automated tests
  - Lots of manual process steps
  - "**Everything would be better if** *Developers* / *testers* / *CM team* **just followed the process"**

(*delete one!)

Improvement activities

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- People/team education/integration
- Test environments
  - Production vs “lite” database
  - Shared environments
  - Use same process for development/test/production deployment
- Automation
  - Expand test harnesses
  - Trial deployments – make it easy for developers to test
  - Merging

Version Everything – CCP Games

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- Version absolutely *everything*
  - Config data, tools, art assets…
  - Instant workstation configuration
- Make it easy for people to use

{ Versioning is the nerve center of the organization }

System of Record – NYSE

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- 14,000 servers, 6,600 production releases per year, 198+ active projects, only 6 people
- Build artifacts stored in SCM Repository
- SEC Audited
  - “the paradigm for maintaining production distribution and production auditing is so parallel to what you're trying to do in development”

Continuous Delivery in Real Life…

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A physical demonstration!

Best Habits for Success

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1. It's a whole team responsibility
   - CM needs to work with other teams
2. Think beyond the code - Version *everything*
3. Automate, Automate, Automate
4. Track every change
5. Put it all in one place

2014 State of DevOps Report

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- Companies with high IT performance are twice as likely to exceed their profitability, market share and productivity goals
- 3 major factors:
  - IT performance and DevOps Practices
  - Organizational culture and climate for learning
  - Job satisfaction
- Top practices for IT performance
  - Continuous Delivery
  - Version control for all artefacts
  - Automated testing

Questions

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