DevOps Test Engineering:

Putting the Continuous in Testing

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Continuous Testing … Central to DevOps

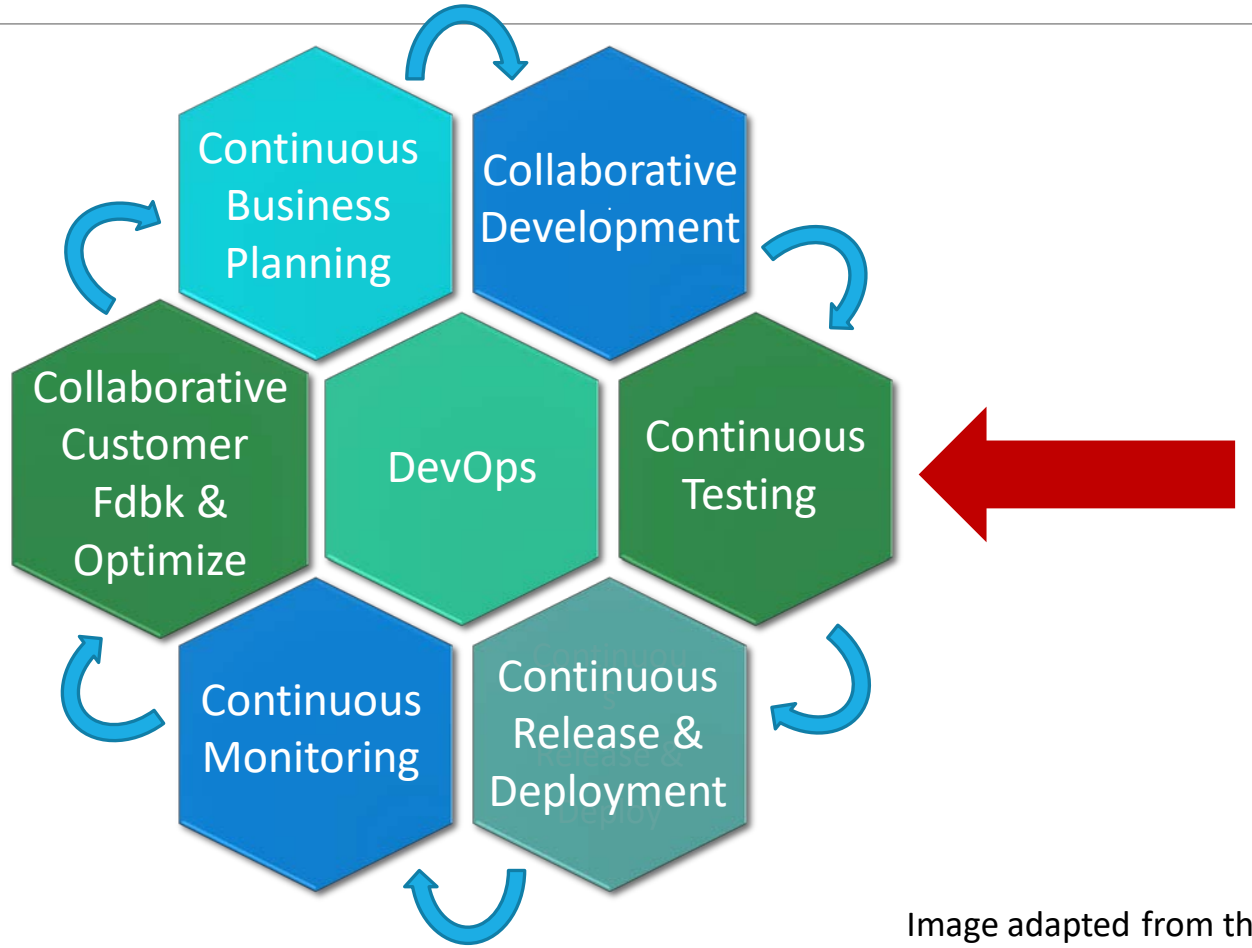

Image adapted from the state of devops Web site
https://devops.com/state-devops-adoption-trends-2017/

Key Take Aways

1. Understanding of DevOps Testing aka Continuous Testing
2. Appreciation of DevOps Test Engineer Role
3. Insight to adoption challenges with strategies to overcome
4. Personal call to action to prepare for Continuous Testing

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Definition of Continuous Testing

Source - https://en.wikipedia.org/wiki/Continuous_testing

Continuous testing is the process of executing automated tests as part of the software delivery pipeline to obtain immediate feedback on the business risks associated with a software release candidate.[1][2]

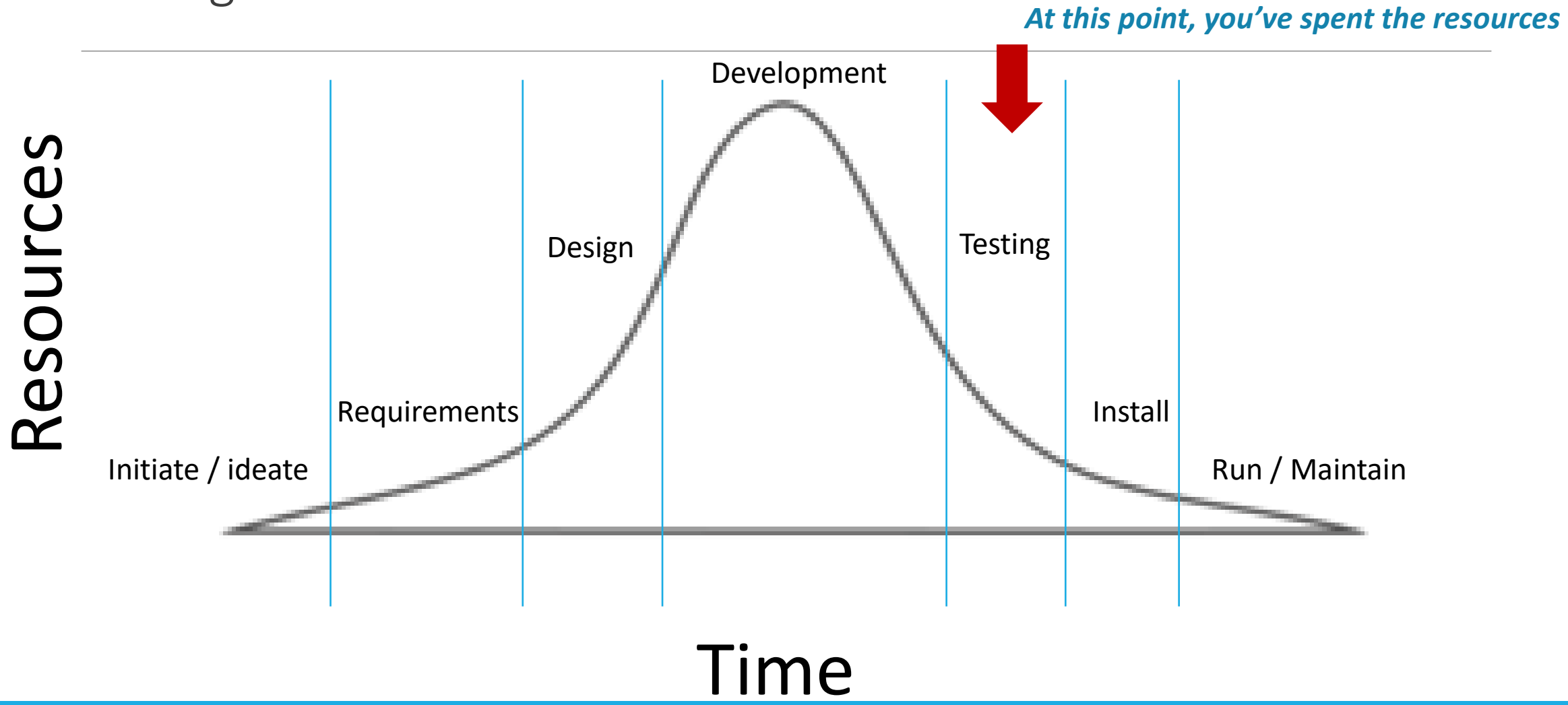
Definition of Continuous Testing

Four key elements … in order of importance

1. At every stage of the pipeline
2. Emphasizing business value
3. Providing feedback
4. Automated

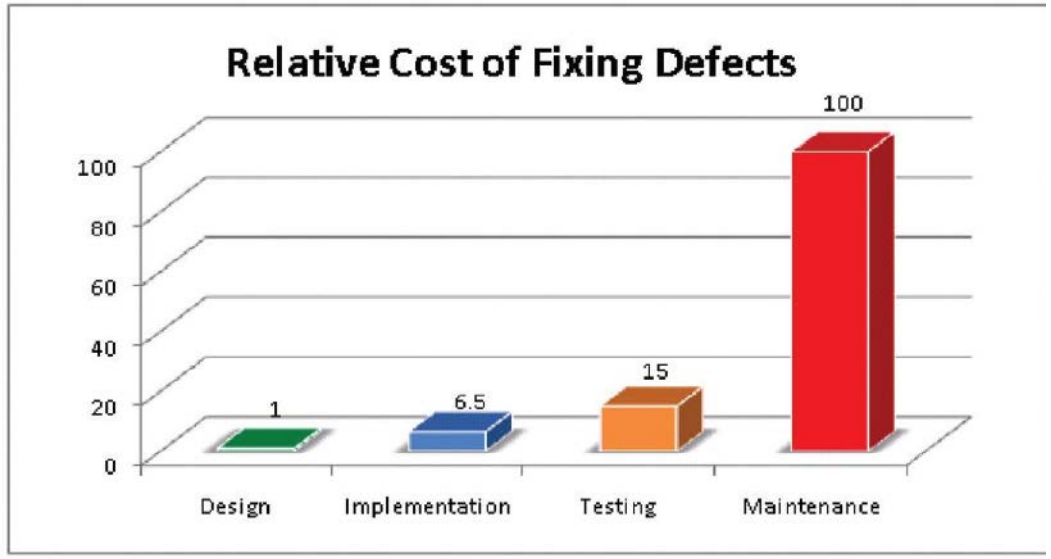
Definition of Continuous Testing

Testing as a Phase … is too late

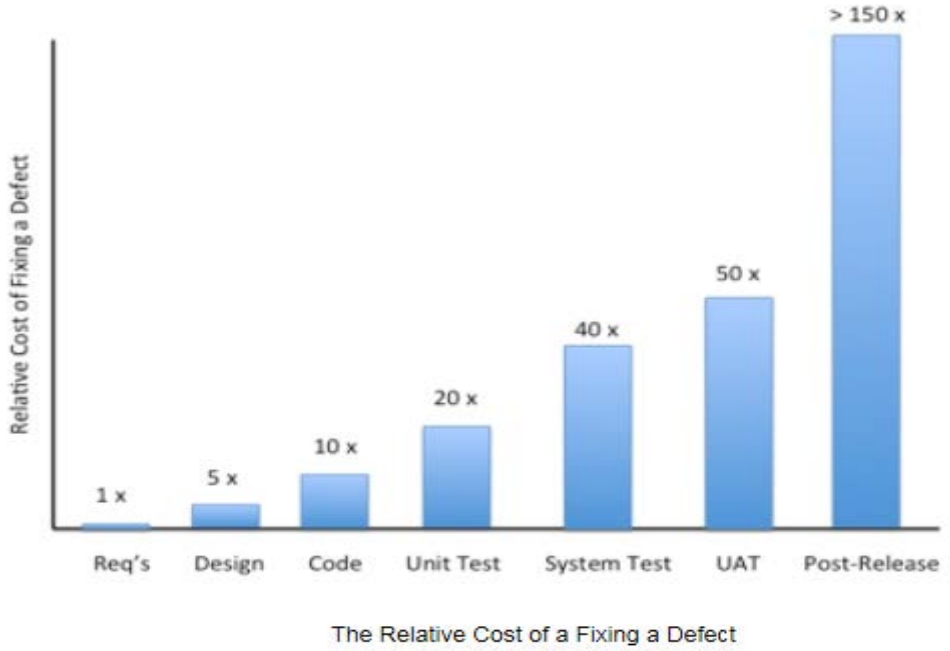


Definition of Continuous Testing

Problems become more expensive to find & fix



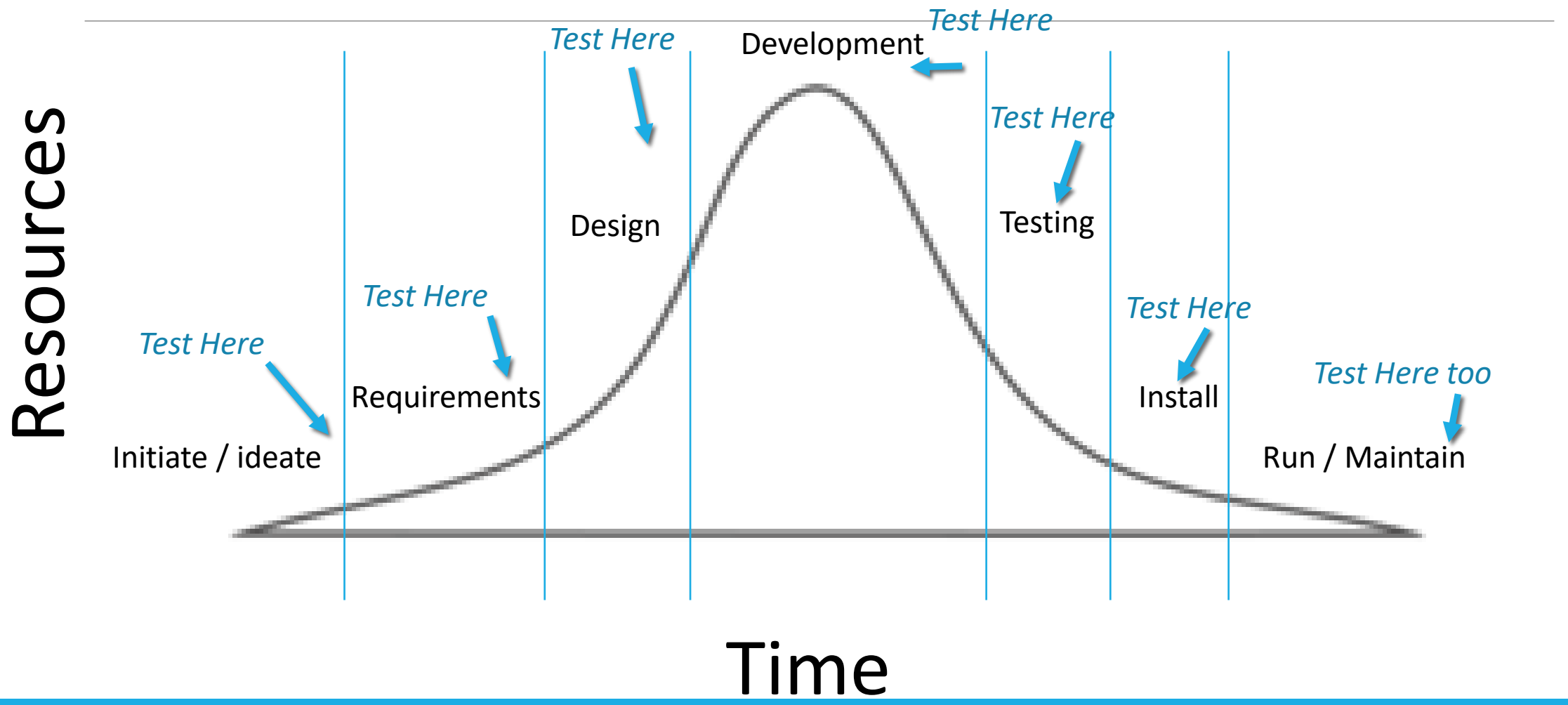
IBM System Science Institute Relative Cost of Fixing Defects



Source: ASTQB (American Software Testing Qualifications Board)

Definition of Continuous Testing

At Every Stage … applies to waterfall



Definition of Continuous Testing

At Every Stage … in the Pipeline supports DevOps

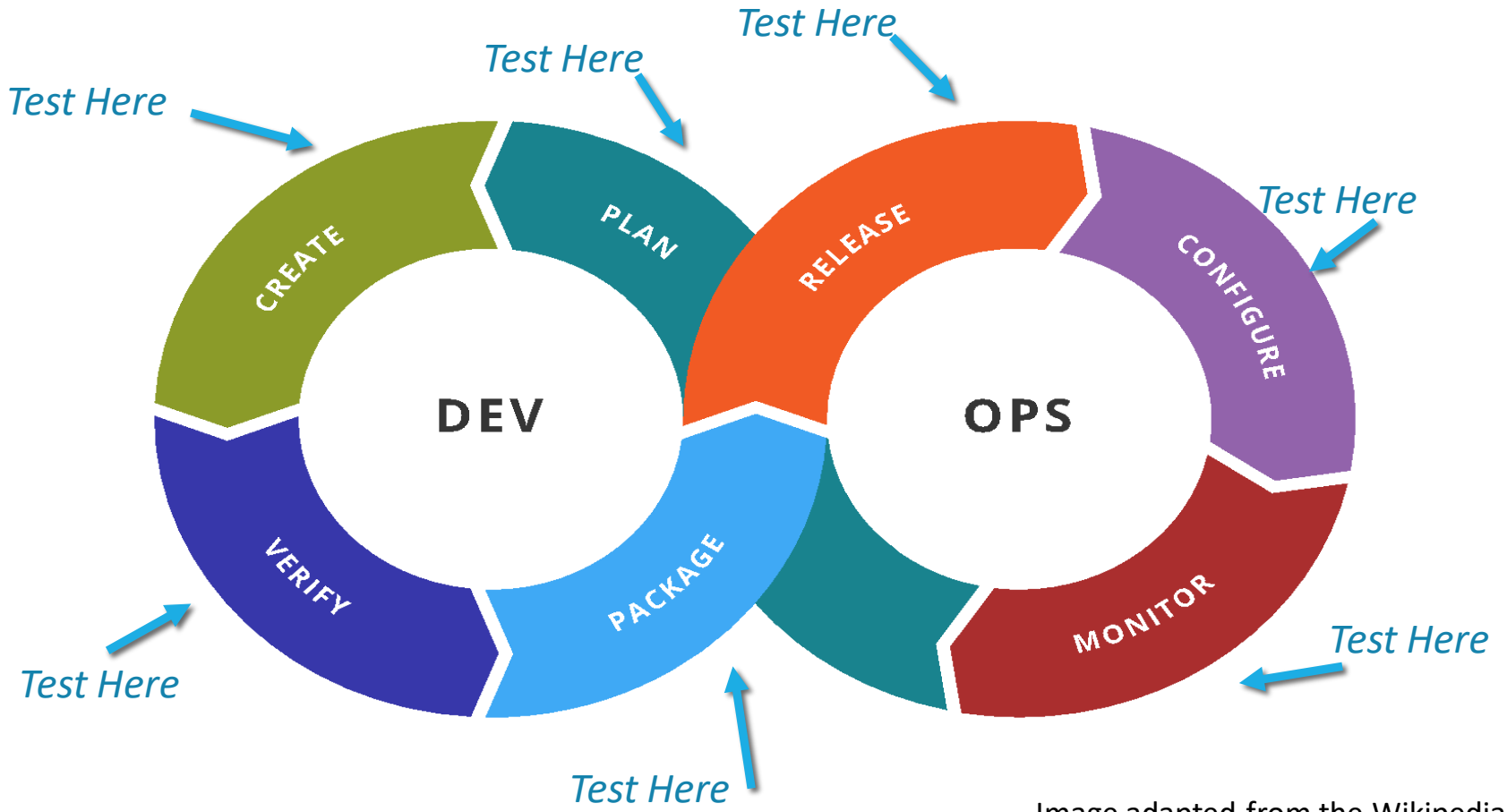


Image adapted from the Wikipedia definition of DevOps

Definition of Continuous Testing
Business Value

- **Relevance**
  - Tests are organized by what matters most
  - Tests are executed in a timely manner – get the hard ones done first

- **Answer the so-what**
  - If this doesn't work, how is the business affected
  - If this doesn't work, how will our customers respond

Definition of Continuous Testing
Feedback

- **Work incrementally**
  - Test components at each stage and in small chunks
  - Don’t test the full workflow until all the parts work

- **Perform “assessments”**
  - At each stage - develop artifacts
  - Perform an evaluation of the artifact – can it move forward to the next stage or not

Definition of Continuous Testing
Automated

Integrated into DevOps Master Framework

- **Includes:**
  - Production Equivalent Test Environment
  - Environment Orchestration and Release
  - Data Provisioning
  - Scenario Generation
  - Automated Execution
  - Automated Analysis & Reporting
- **Leverages:**
  - Containers
  - Microservices
  - Elements of development environment

- *DevOps Test Framework is not separate from the Development environment*
- *The test tools must work with the development tools*
- *Need to get the first three dimension of continuous test right BEFORE automating*
- *Automation is NOT a silver bullet*
- *Automating the wrong stuff, the wrong way at the wrong time creates technical debt*

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Role of a DevOps Test Engineer

DevOps Institute and experts in the field advocate for a cross-functional team that develops automation.

In fact, letting the team self-organize is highly encouraged – utilizing a checklist to ensure relevant tasks are covered.

You may have heard of ‘full stack’ engineers – that means these engineers can use the full stack of tools and techniques used to develop software

Role of a DevOps Test Engineer

Creating a culture that allows for DevOps Testing is critical

- Developers are automation developers / testers
- QA resources are automation developers / testers
- BA's are automation developers / testers

Friction can result is LEADERSHIP does not enable the DevOps Test culture

Skills and knowledge for DevOps Test culture require training and opportunity to practice

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Adoption Challenges / Strategies

Common excuses for not adopting continuous testing

There’s a lack of understanding about what continuous testing is

The org planning processes doesn’t include continuous testing

We don’t have the skills necessary

We don’t know what tools we need

We don’t have time to add continuous testing practices into our work and still hit our commitments

People upstream don’t want to include continuous testing tasks

We are not a DevOps shop

Our vendor partners don’t do it, so we can’t

Adoption Challenges / Strategies

Common excuses for not getting healthy

I don’t know where to start

I don’t have time to plan and cook every meal at home

Produce is expensive

I don’t know what broccoli sprouts are and why I need flaxseed

My family doesn’t want to eat that way

I don’t have time to go to the gym

The gym intimidates me

My friends will make fun of me for being on a health kick

Adoption Challenges / Strategies

Be realistic about what you can do

Stop worrying about what you cannot control

Adoption Challenges / Strategies

Be realistic about what you can do

Stop worrying about what you cannot control

	People	Process	Technology
In Your Control	• We don't have the skills necessary	• There's a lack of understanding about what continuous testing is • Org planning processes don't include continuous testing	• We don't know what tools we need
Not In Your Control	• ~~Our vendor partners don't do it~~	• ~~People upstream don't want to include testing tasks~~ • ~~We don't have time to add CT~~	• ~~We are not a DevOps shop~~

Adoption Challenges / Strategies

Enlist the help of others

Adoption Challenges / Strategies

Enlist the help of others

	People	Process	Technology
In Your Control	• We don't have the skills necessary	• There's a lack of understanding about what continuous testing is • Org planning processes don't include continuous testing	• We don't know what tools we need

HR business partner
L&D organization
Vendor partners

DevOps Coach
Process Consultant

DevOps Coach
Architecture & Dev

Adoption Challenges / Strategies

Know your numbers

Factor	Goal	
Total Cholesterol	Less than 200 mg/dL	
LDL ("Bad") Cholesterol	LDL cholesterol goals vary.	
	Less than 100 mg/dL	Optimal
	100 to 129 mg/dL	Near Optimal/Above Optimal
	130 to 159 mg/dL	Borderline High
	160 to 189 mg/dL	High
	190 mg/dL and above	Very High
HDL ("Good") Cholesterol	**50 mg/dL or higher**	
Triglycerides	**<150 mg/dL**	
Blood Pressure	**<120/80 mmHg**	
Fasting Glucose	**<100 mg/dL**	
Body Mass Index (BMI)	**<25 Kg/m²**	
Waist Circumference	**<35 inches**	
Exercise	**Minimum of 30 minutes** most days, if not all days of the week	

Adoption Challenges / Strategies

Know your numbers

Production	Project
- Are defect backlogs trending the right direction - Are our regression suites as effective and efficient as we'd like - Do our test methods and suites align with our production priorities - Is there a correlation between system test and post-implementation issues	- When do we forecast the release will certify for deployment - How far ahead / behind schedule - Are we finding the right type of defects in System Test - complex defects - What do our test defects say about delivery methods
Test Inventory	**Test Tools**
- Are the test suites current - Do we have coverage for all our applications - Are we keeping track of what we have - Is there redundancy	- Do we have a deliberate set of tools or are we just using legacy tools - Are teams using the same tool differently - Do we have duplicate tools doing the same function - What is our tool utilization

Adoption Challenges / Strategies

Start small and use what you've got

Adoption Challenges / Strategies

Start small and use what you've got

Start small

- Don't try to solve for the entire organization on the first try
- Use Lean methods to build, measure, learn
- Find a willing partner
- Have a baseline
- Compare / contrast before and after
- Add one test process improvement before adding tons
- Streamline what you already have

Use what you've got

- CALMS
- Don't rush to the Automation
- Old, enterprise tools have been updated to support processes, so don't throw them out yet
- Process first, then people, then tools… what you have may be fine

Adoption Challenges / Strategies

Focus on business value / outcomes

Awake
for Drive
Home

Sleeping
Well

Laugh
Daily

Adoption Challenges / Strategies

Focus on business value / outcomes

Grow Business

Enhance Brand

Reduce Risk

Lower Cost

Be in Compliance

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Make it personal

More Polling!

1. Is everyone in your organization on board with DevOps
2. Does your boss support continuous testing
3. Are stakeholders looking for shift left testing or do they just want you to automate testing as a phase?
4. Do you have a cohesive tool set right now?

Make it personal

Join the community and the movement

Educate yourself

Surround yourself with people who are going to change

Make it Personal

Who told you to wait

You’re not going to learn any younger

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