



NIH PROJECT MANAGEMENT COMMUNITY

THE DEVOPS EFFECT

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Welcome!



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- Full service provider of IT Service Management (ITSM) education and advice
- Accredited and sustainable education and training
 - IT Infrastructure Library[®] (ITIL[®])
 - Process Design (CPDE)
 - DevOps
 - Agile Service Management[®]
 - ISO/IEC 20000

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- Certified Scrum Master
- Certified Agile Process Owner
- Certified Agile Service Manager
- Certified ISO/IEC 2000 Consultant/Manager
- Certified in Knowledge-Centered Support (KCS) Principles

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WHY DEVOPS? THE GOVERNMENT PERSPECTIVE

Our Cadence is Off

Historically...

Government Agencies



Mission

Dev



Waterfall Projects

Ops



Rigorous Processes



Impacts to Government Agencies

- Slow responsiveness
- Citizen dissatisfaction
- Poor user experience
- Pain and negative impact to mission and reputation when things go wrong
- Wasted time and tax dollars
- Lost productivity
- High costs and risks



Better, But Not Quite There

Agile and lean development practices speed things up, but....

Government Agencies



Increased citizen expectations



Dev



Agile/Lean Dev



Ops



Rigorous Processes



DevOps Improves Our Cadence

...agile and lean service management practices are also needed.

Government Agencies



**Success through
Innovation**

DevOps



Continuous Delivery



WHY DEVOPS? THE IT PERSPECTIVE

The Wall of Confusion (1)

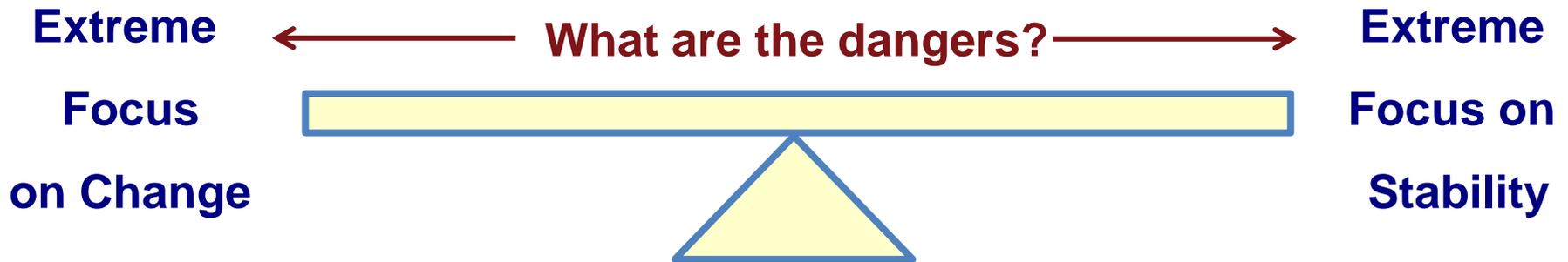
Dev
wants
change



Ops
wants
stability



The Wall of Confusion (2)



***Isn't this the way
it should be?
c. All of the above***

“DevOps really is key with the pace of today’s development environment. By integrating teams and quality early in the process, providing better communications, purpose and direction, continually refining processes, it greatly improves outcomes and stops the blame game.”

**Keith Thurston
General Services Administration**

WHAT IS DEVOPS?

What is DevOps?

DevOps is a cultural and professional movement that stresses communication, collaboration and integration between software developers and IT operations professionals.

- Acknowledges
 - Stakeholder interdependence
 - Need to rapidly produce quality software
 - Need to increase rate of production releases
- Supports the use of agile and lean development practices



DevOps Stakeholders

DevOps extends beyond software developers and IT operations.

- Dev includes all the people involved in developing software products and services including
 - Architects, business representatives, customers, product managers, project managers, quality assurance (QA) testers and analysts, suppliers, etc.
- Ops includes all the people involved in delivering and managing software products and services including
 - Information security professionals, systems engineers, system administrators, IT operations engineers, release engineers, database administrators (DBAs), network engineers, support professionals, suppliers, etc.

Who is Adopting DevOps Practices?

Public (Federal Government)

- 18F – General Services Administration
 - @18F
 - chat.18f.gov
- cloud.gov
- Defense Information Systems Agency
- Department of Veterans Affairs
- U.S. Citizenship and Immigration Services
- U. S. Patent and Trademark Office

Private

- Academia
- Entertainment
- Financial
- Insurance
- Manufacturing
- Publishing
- Retail

DevOps practices will continue to evolve through communities of practice.

Seek out opportunities to collaborate with others.

DevOps Value

DevOps practices improve IT performance.



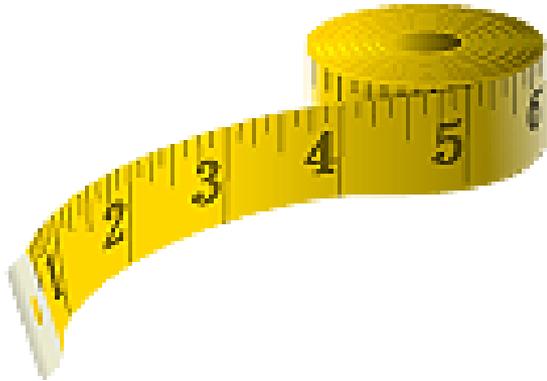
- Organizations are more agile
 - Code is deployed 30 times more frequently
 - Deployments are completed 200 times faster
- Services are more reliable
 - Changes are 60% more successful
 - Service is restored 168 times faster



Organizations that have implemented DevOps practices are up to five times more likely to be high performing.

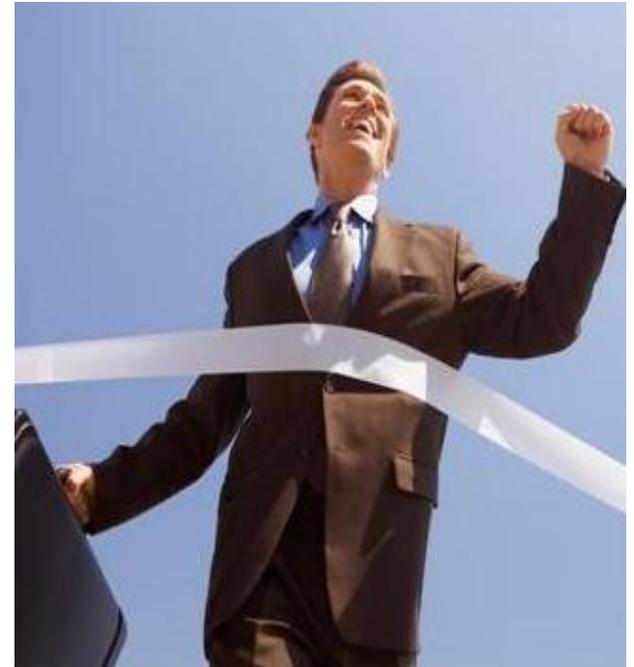
Measuring Success

- Deployment frequency
- Change lead time
- Cycle time
- Change failure rate
- Mean time to detect incidents (MTTD)
- Mean time to recover (MTTR)
- Mean time to restore service (MTRS)



ULTIMATELY...

DevOps enables organizations to deliver better software, faster.



DEVOPS VALUES

DevOps Values - CALMS

Automation

Lean

Measurement

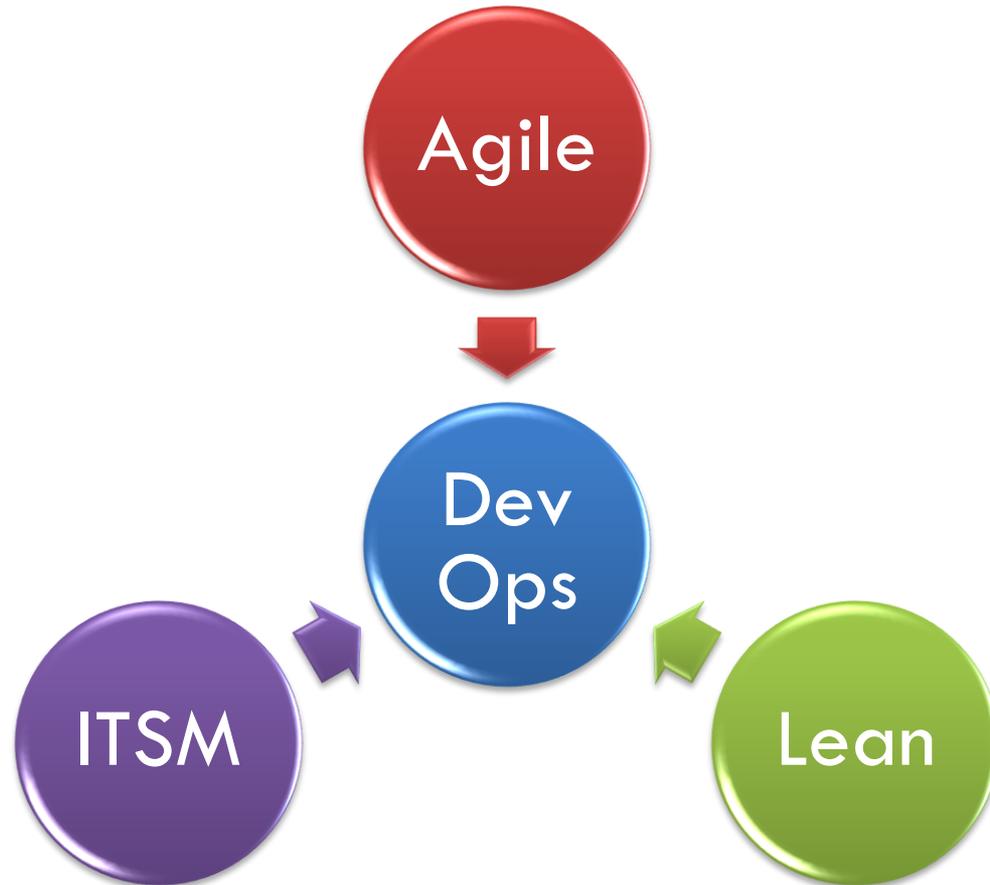
Sharing

CULTURE

More than anything else, DevOps is a cultural movement based on human and technical interactions to improve relationships and results.

DEVOPS AND OTHER FRAMEWORKS

DevOps Cannot Stand Alone



Successful DevOps relies on the adoption and integration of multiple frameworks and methodologies.

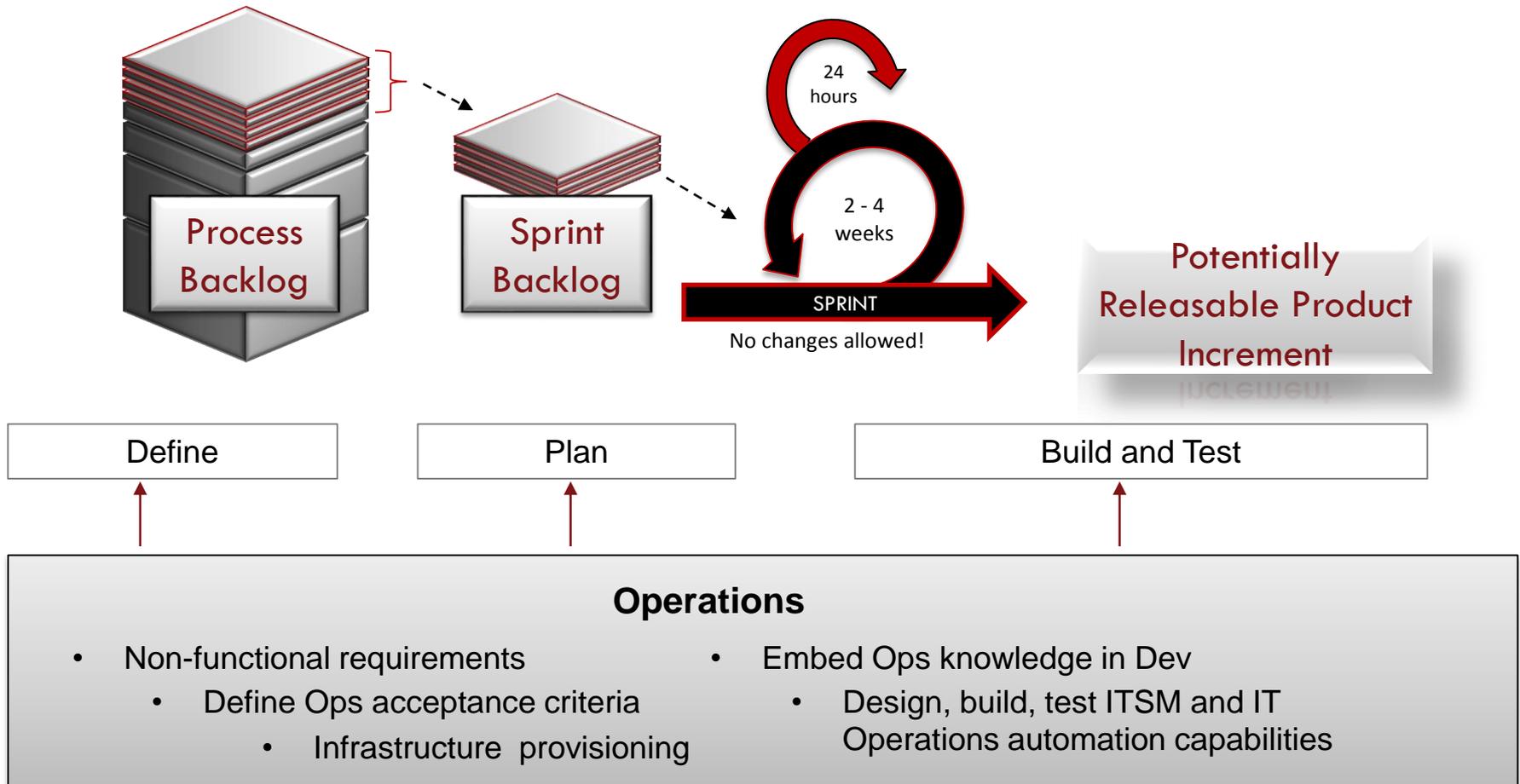
“Without a doubt, the next surge of productivity will coming from improvements in the IT value stream, the likes of which we have not seen since the manufacturing movement during the 1980s.”

Julia Allen

DEVOPS AND AGILE

DevOps and Agile

DevOps and agile complement each other to deploy working functionality into production faster.



Automation Enablers

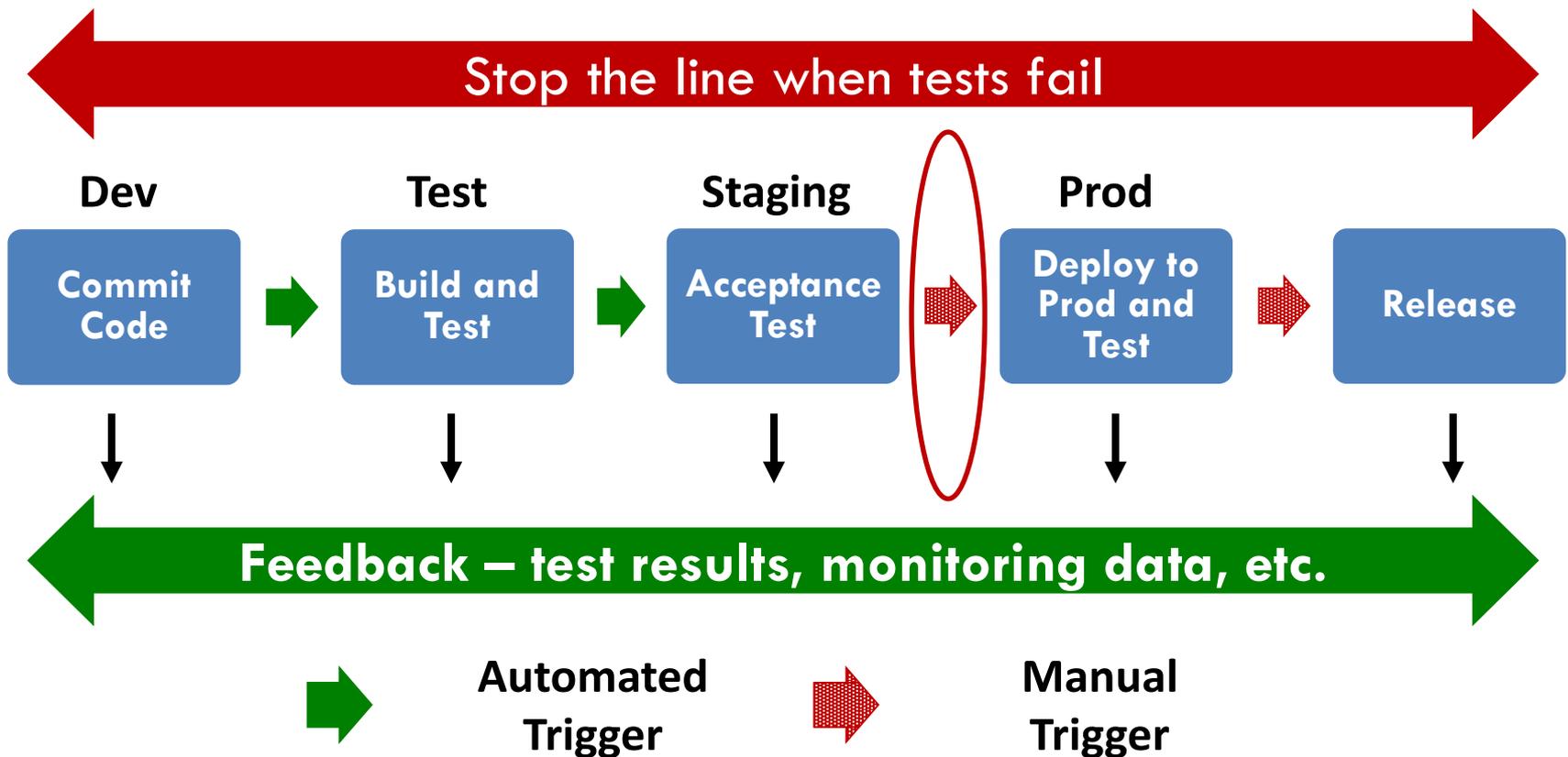
DevOps is not just about automation but there are common enabling practices.

- Treating infrastructure as code
- Cloud-based service models (e.g., IaaS, PaaS)
- Repeatable and reliable deployment processes
 - Continuous integration, continuous delivery and continuous deployment
- Development and testing (preferably automated testing) performed against production-like systems
- On-demand creation of development, test, staging and production environments
- Proactive monitoring of infrastructure components, environments, systems and services

Shared access to automated testing, deployment, monitoring and ITSM tools streamlines software delivery.

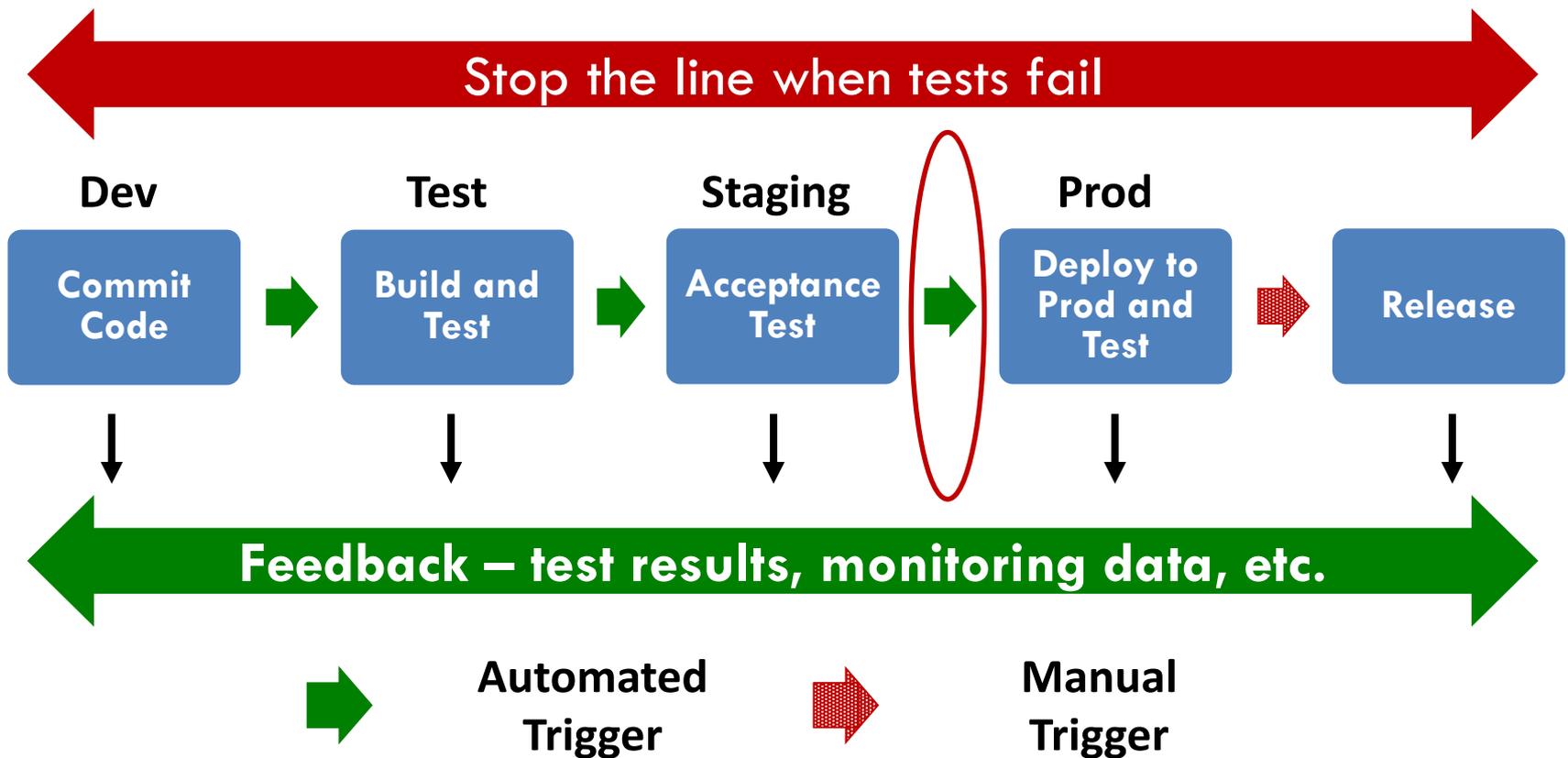
Continuous Delivery

Automated tests in production-like environments assure the code and environment operate as designed and are always in a releasable state.



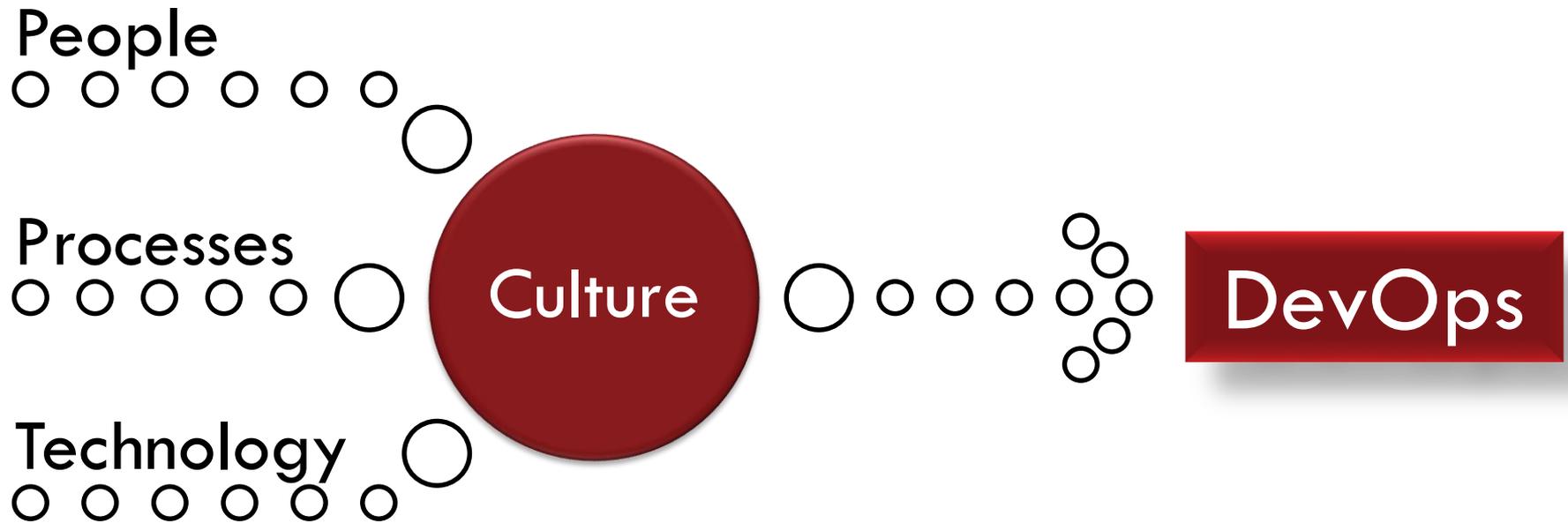
Continuous Deployment

Code deployed into production may be invisible to customers, but features can be run and tested by internal staff.



ADOPTING A DEVOPS CULTURE

DevOps Requires a Holistic Approach



In that order!

Start Where You Are

- Get clear on the opportunity – the ‘Why?’
- Create a cross-functional team
- Identify and prioritize improvement opportunities
 - Align with agency mission and goals
- Set quantifiable goals
- Experiment, learn, iteratively and incrementally improve
- Share what you learn and accomplish
- Show progress along the way

Get good at continually improving!



Additional Sources of Information (1)

- *2015 State of DevOps Report*. Puppet Labs, IT Revolution Press
- *Continuous Delivery*. J. Humble, et al. Addison-Wesley Professional, 2010
- *Leading the Transformation: Applying Agile and DevOps Principles at Scale*. G. Gruver and T. Mouser, IT Revolution Press, 2015
- *Lean Enterprise: Adopting Continuous Delivery, DevOps, and Lean Startup at Scale*. J. Humble, et al, O'Reilly Media, 2014
- *Lean IT: Enabling and Sustaining Your Lean Transformation*. S. Bell and M Orzen. Productivity Press, 2010
- *The Phoenix Project*. G. Kim, et al, IT Revolution Press, 2013

Additional Sources of Information (2)

DevOps and the Federal Government

- Mark Schwartz - U.S. Citizenship and Immigration Services
- <https://www.youtube.com/watch?v=QwHVlJtqhal>
- Bret Mogilefsky – cloud.gov
- <https://www.youtube.com/watch?v=nCycNkxs-rE>
- Mike Bland – Practice Director – 18F
- <https://www.youtube.com/watch?v=ahtihwxgriA>
- Alan Kraft – U. S. Patent and Trademark Office
- <http://devopsenterprise.io/sessions/learning-teaching-devops-in-the-enterprise/>

Questions?



Want to Learn More?



Class	Next Class Date
DevOps Foundation	Virtual: January 12-15 2016 (10am-2pm ET)
Certified Agile Process Owner	Virtual: January 19 - 22 2016 (9am - 1pm ET)
Certified Agile Service Manager	Virtual: February 1 - 4 2016 (10am - 2pm ET)
Certified Process Design Engineer	Virtual: January 25 - 29 2016 (9am - 2pm ET)

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