Continuous Delivery Deployment Pipelines

How to Build Better Software Faster

Dave Farley

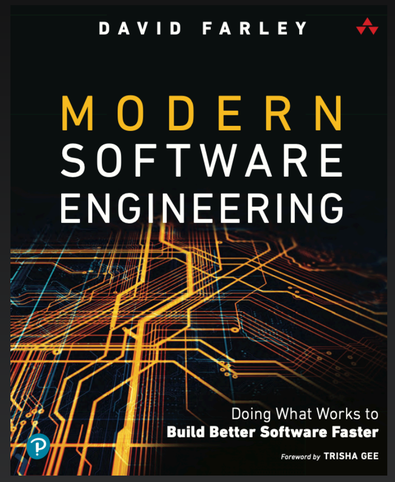
https://www.davefarley.net

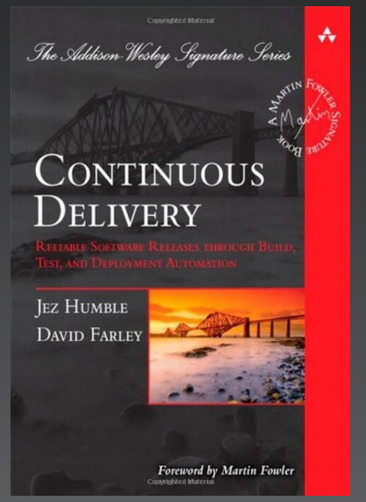
@davefarley77

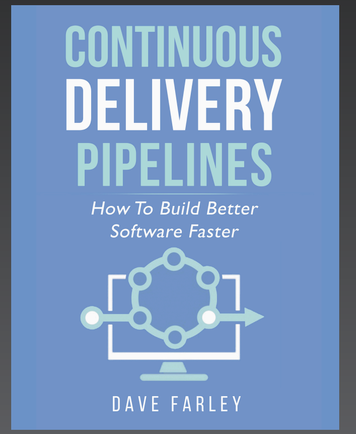
https://bit.ly/CDonYT

Continuous Delivery ltd

http://www.continuous-delivery.co.uk







What do you think of when you hear the phrase

What do you think of when you hear the phrase

"Continuous Delivery"?

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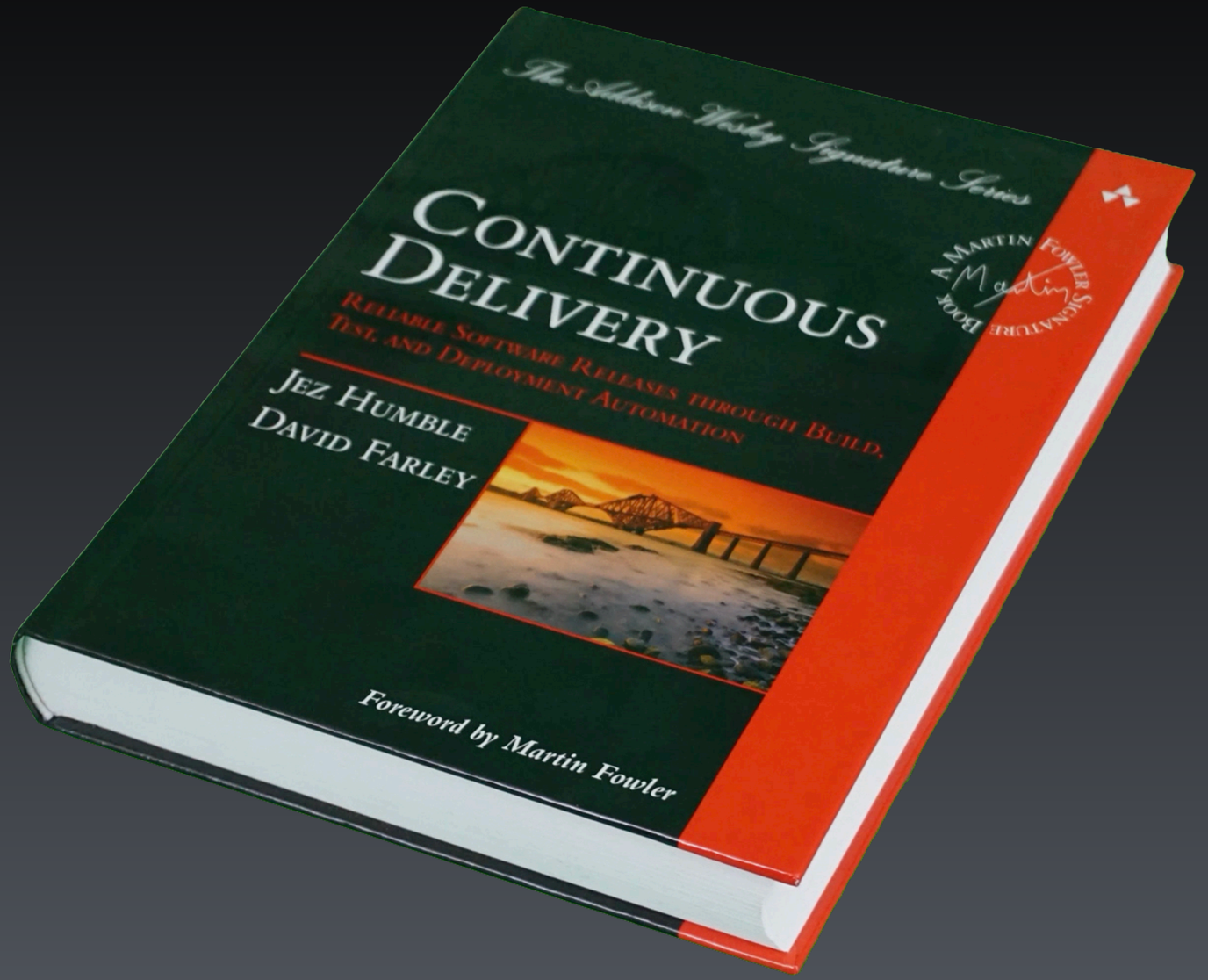

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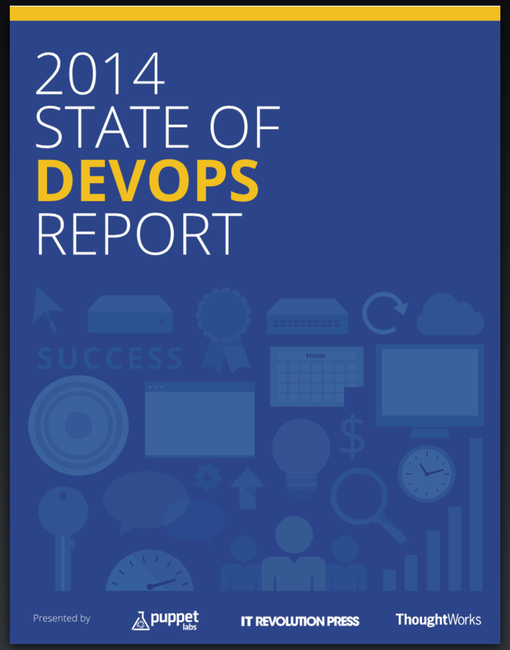
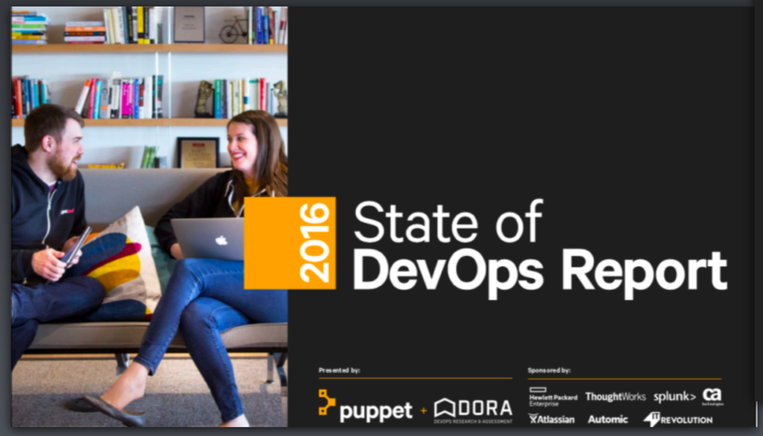
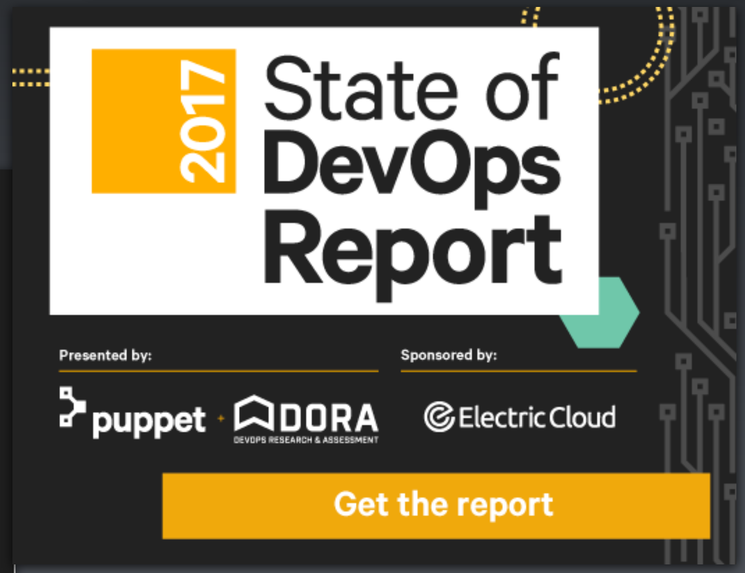
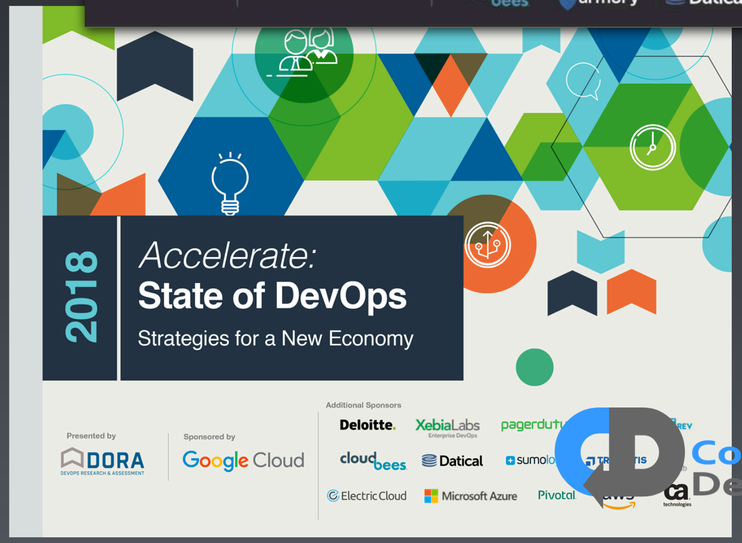
The State of DevOps Reports

The State of DevOps Reports









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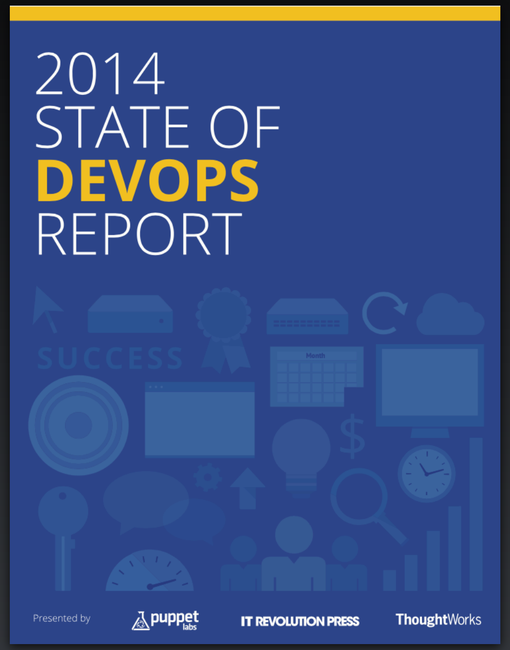

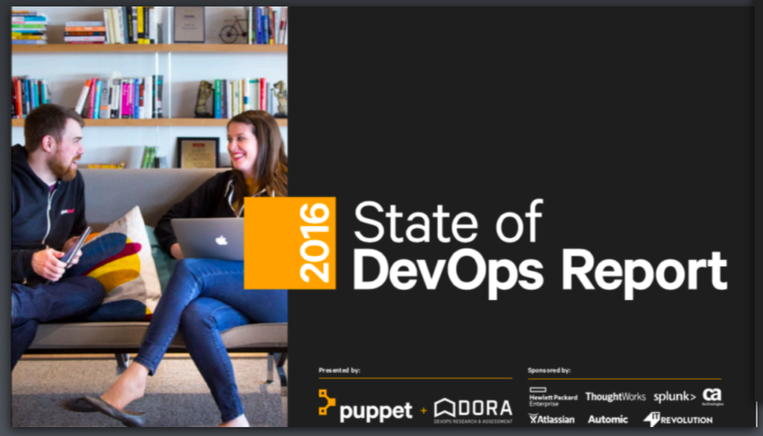

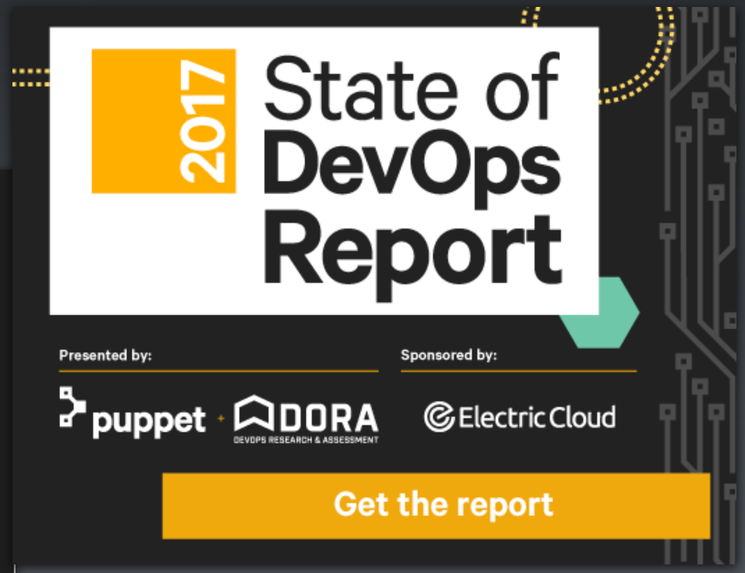

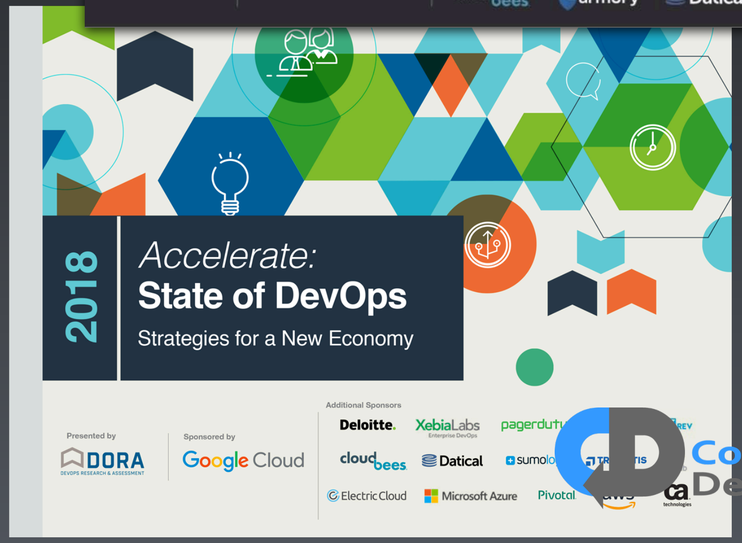

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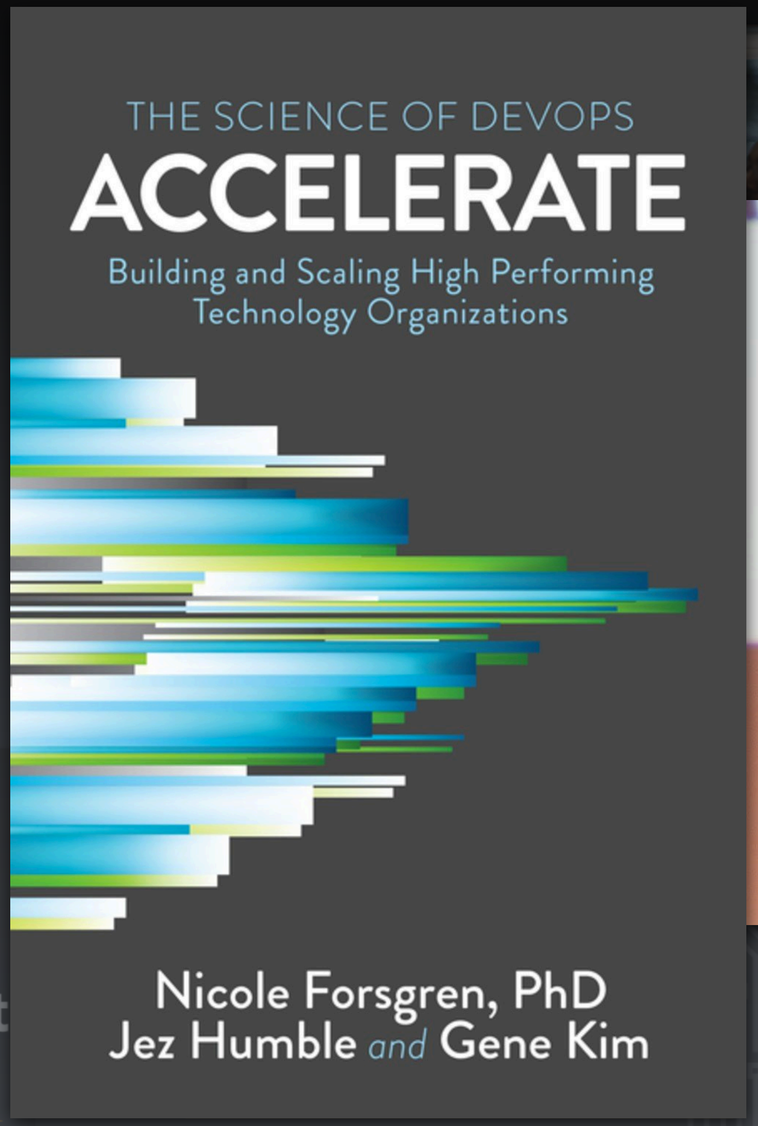

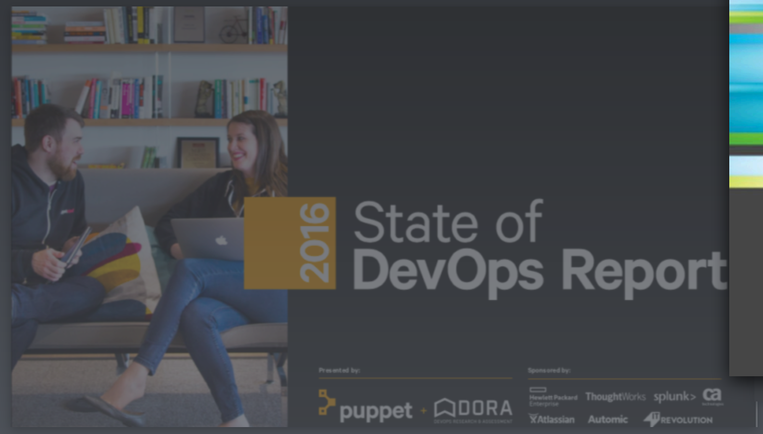

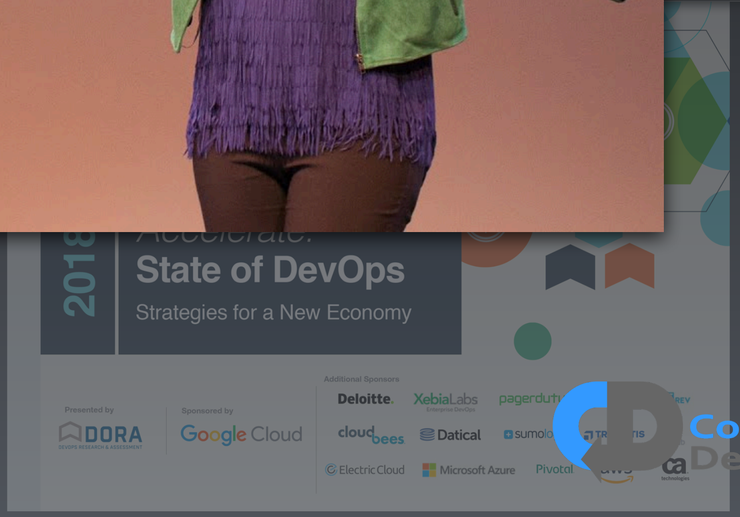

Throughput = Lead Time & Frequency

Efficiency

Throughput = Lead Time & Frequency

Speed

Throughput = Lead Time & Frequency

Speed

Throughput = Lead Time & Frequency

Stability = Change Failure Rate & Recovery Failure Time

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Speed

Throughput = Lead Time & Frequency

Quality

Stability = Change Failure Rate & Recovery Failure Time

Speed

Throughput = Lead Time & Frequency

Quality

Stability = Change Failure Rate & Recovery Failure Time

Source: "State of DevOps Report" by Nichole Fosgren, Jez Humble and Gene Kim 2019

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Spee

Thr

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Qual

Sta

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Time

ELITE PERFORMERS

Comparing the elite group against the low performers, we find that elite performers have…

208

TIMES MORE

frequent code deployments

106

TIMES FASTER

lead time from commit to deploy

2,604

TIMES FASTER

time to recover from incidents

7

TIMES LOWER

change failure rate

(changes are $^{1}/_{7}$ as likely to fail)

Throughput Stability

Source: "State of DevOps Report" by Nichole Fosgren, Jez Humble and Gene Kim 2019

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Speed & Quality

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There is No Trade-Off Between Speed & Quality!!!

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The Nature of the Problem

Source: “The Art of Action” by Stephen Bungay

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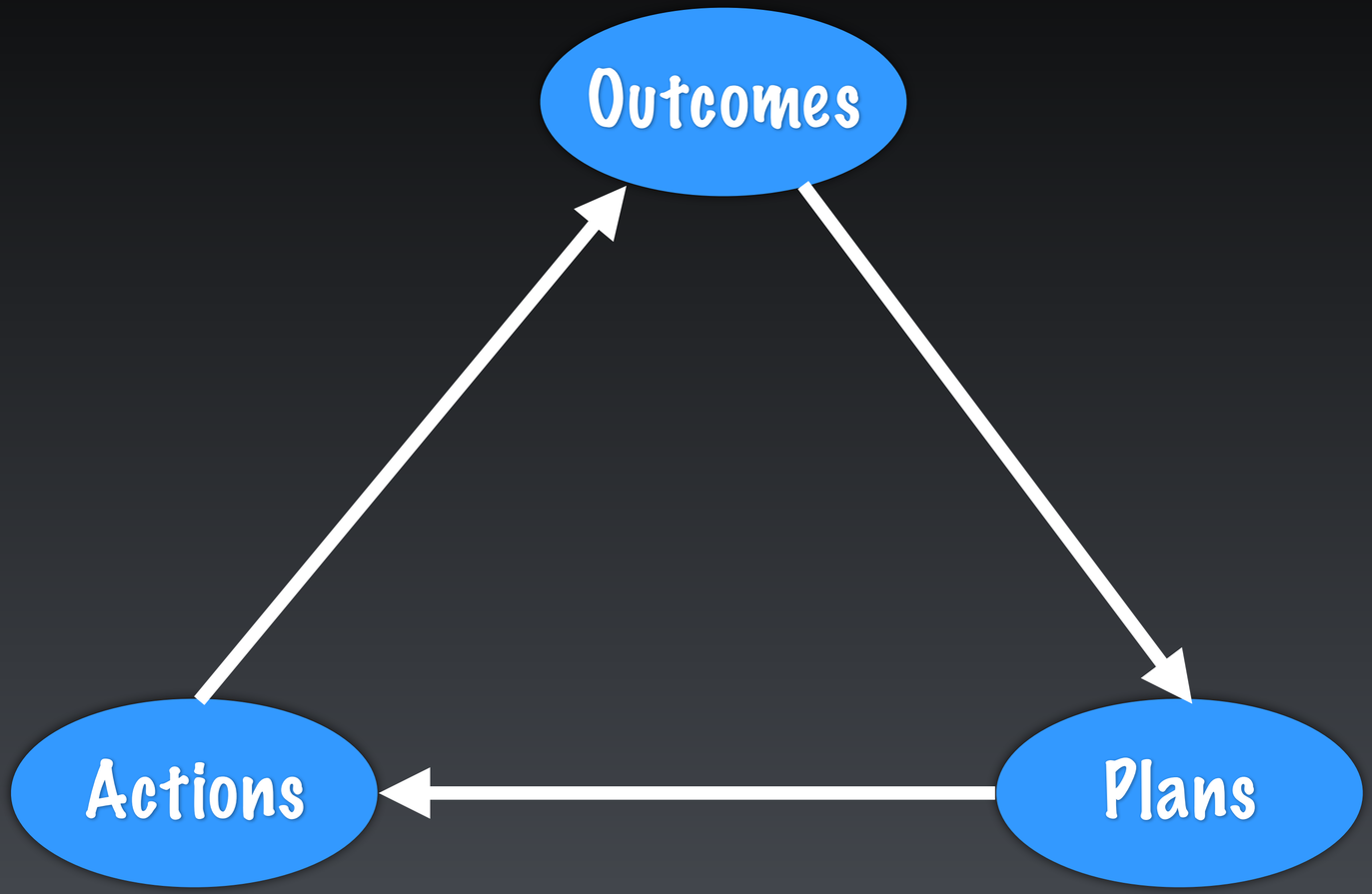
The Nature of the Problem



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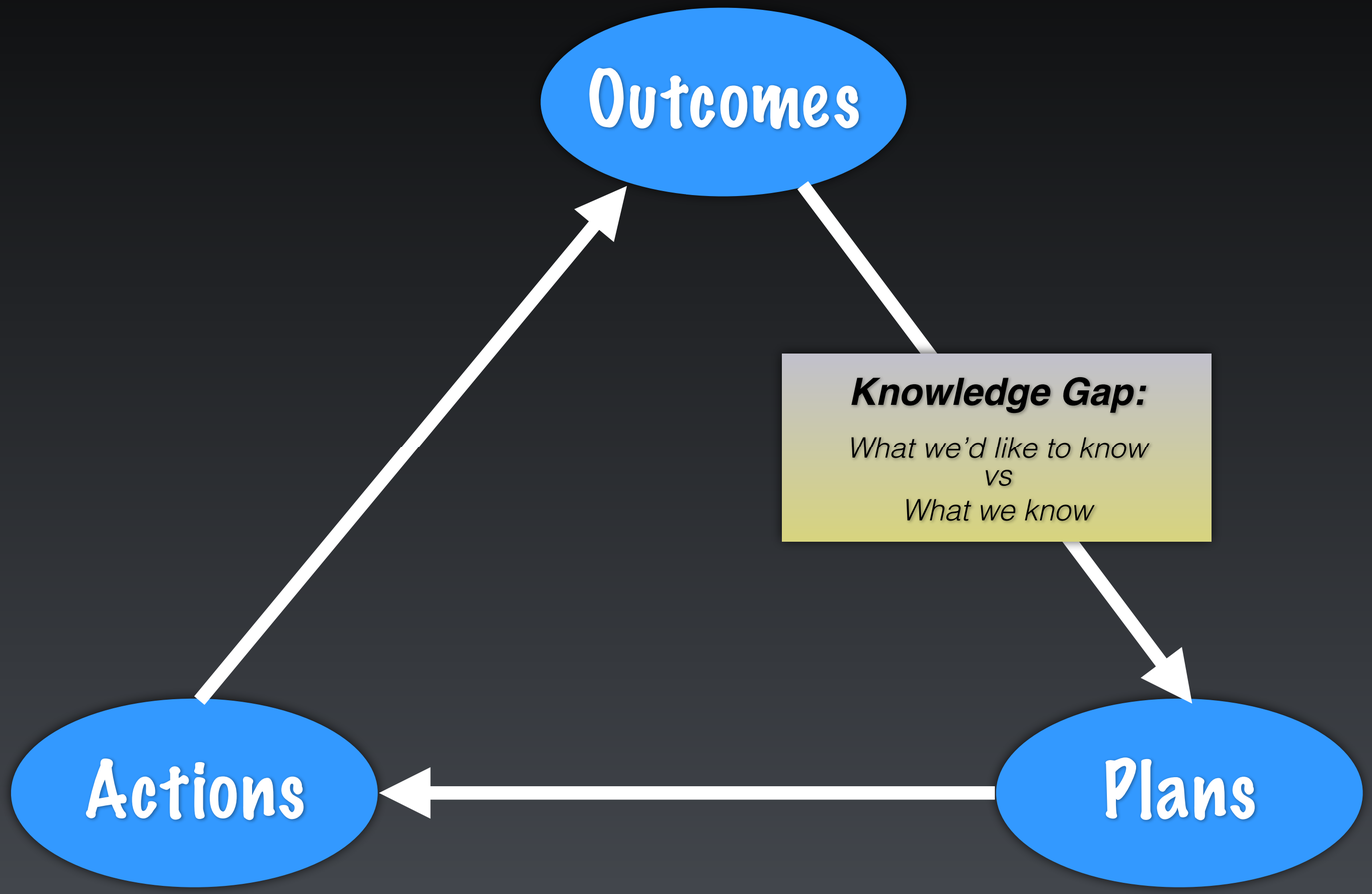

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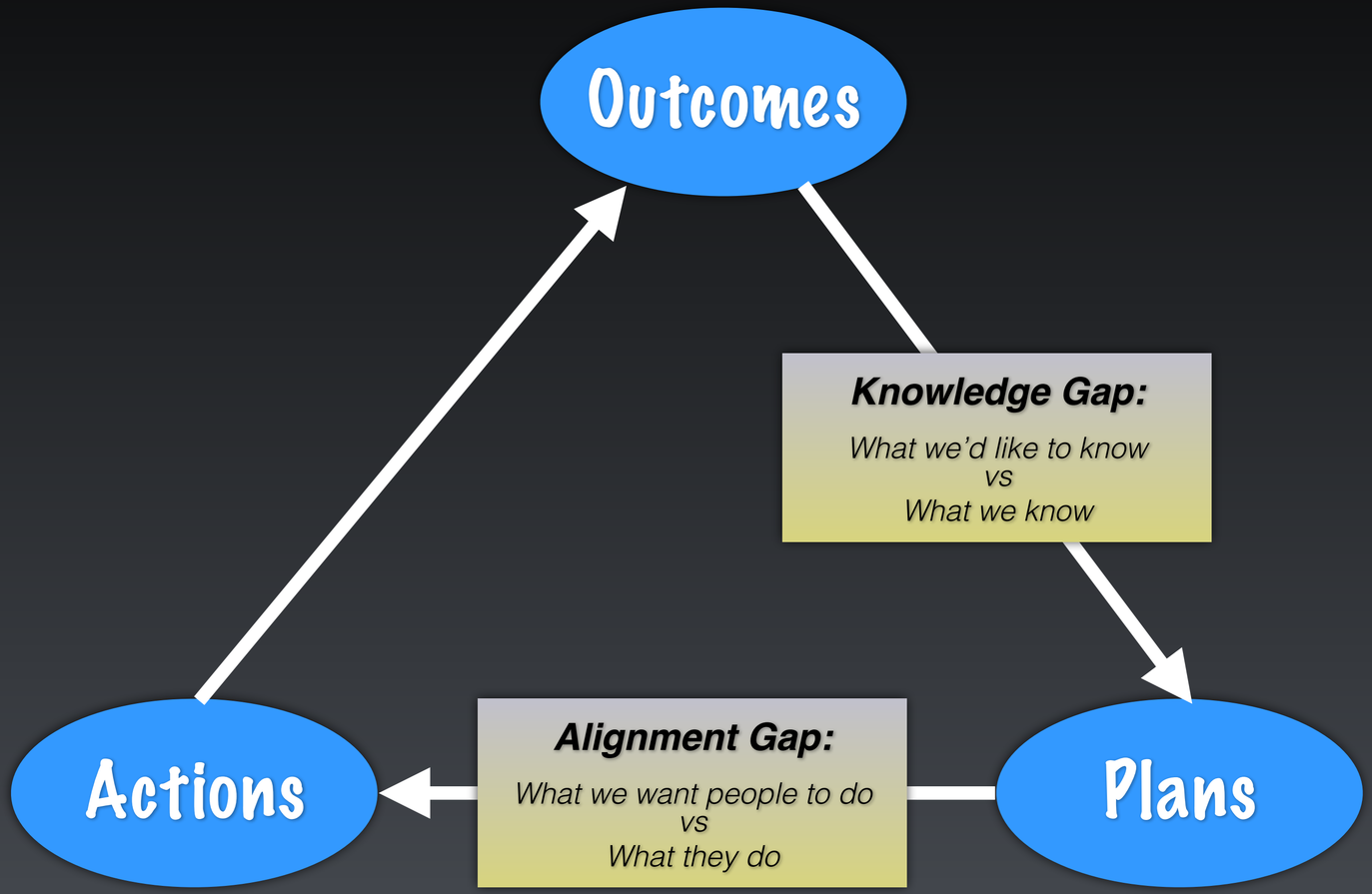

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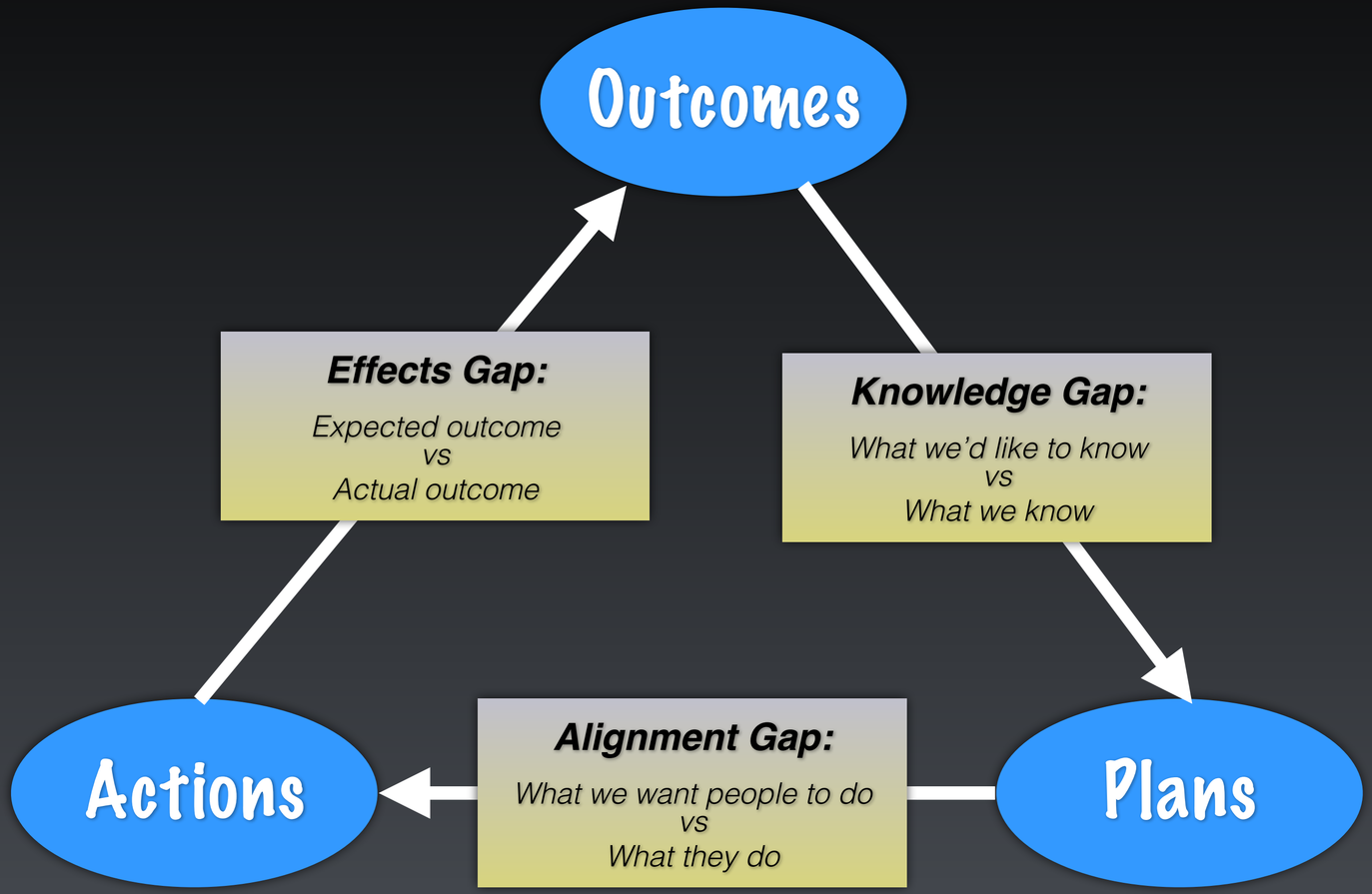

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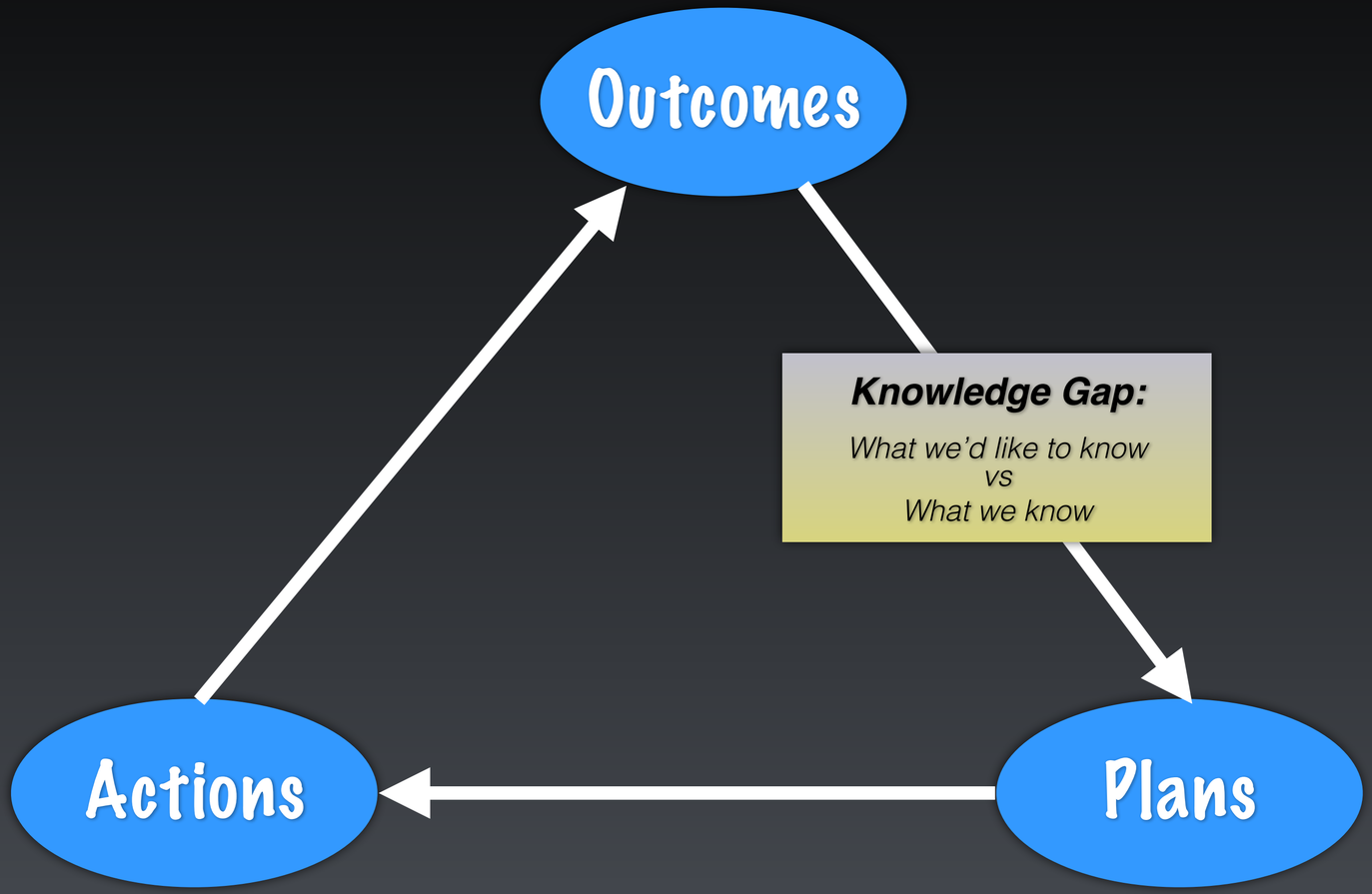
Classic Responses



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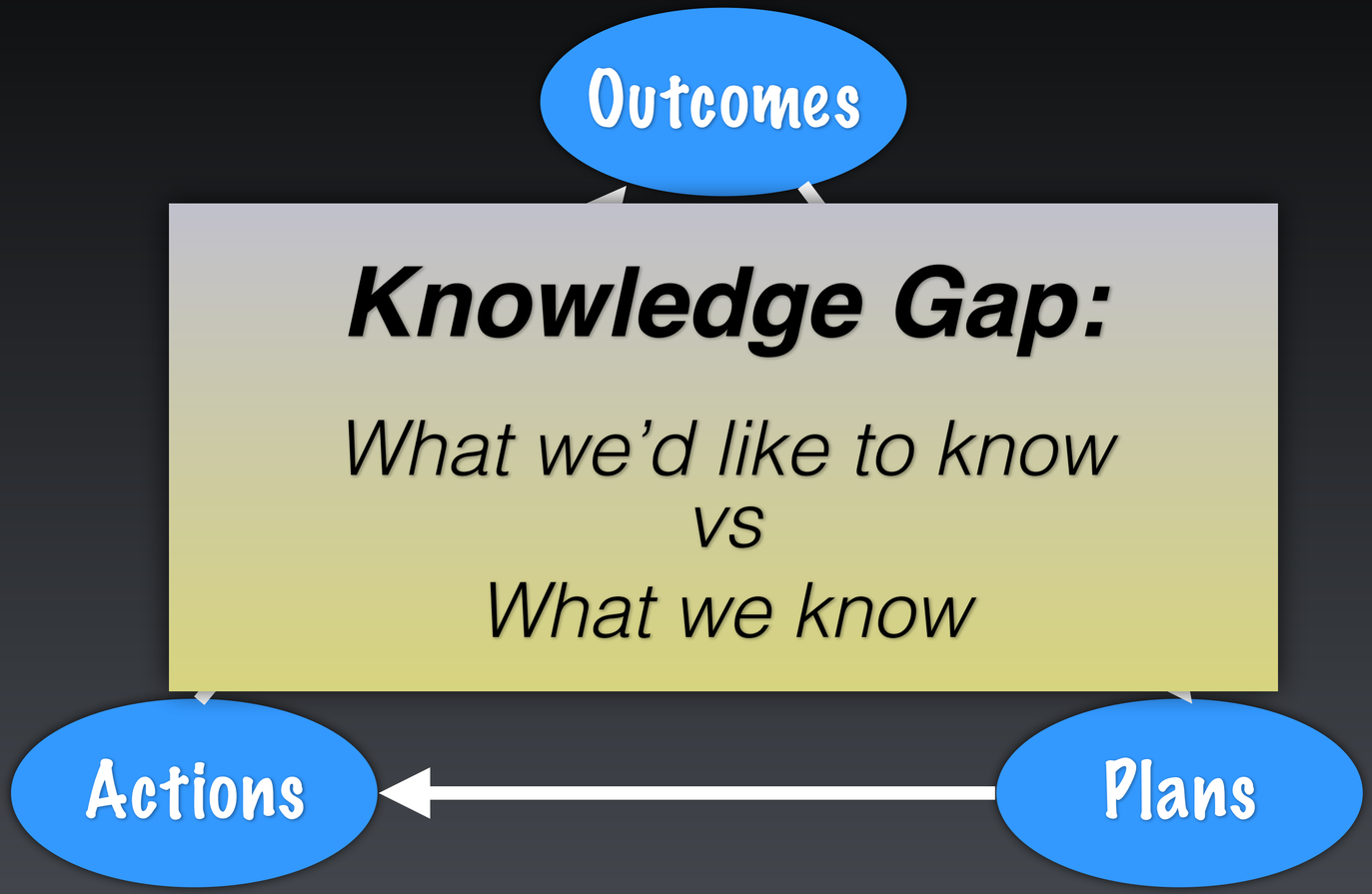

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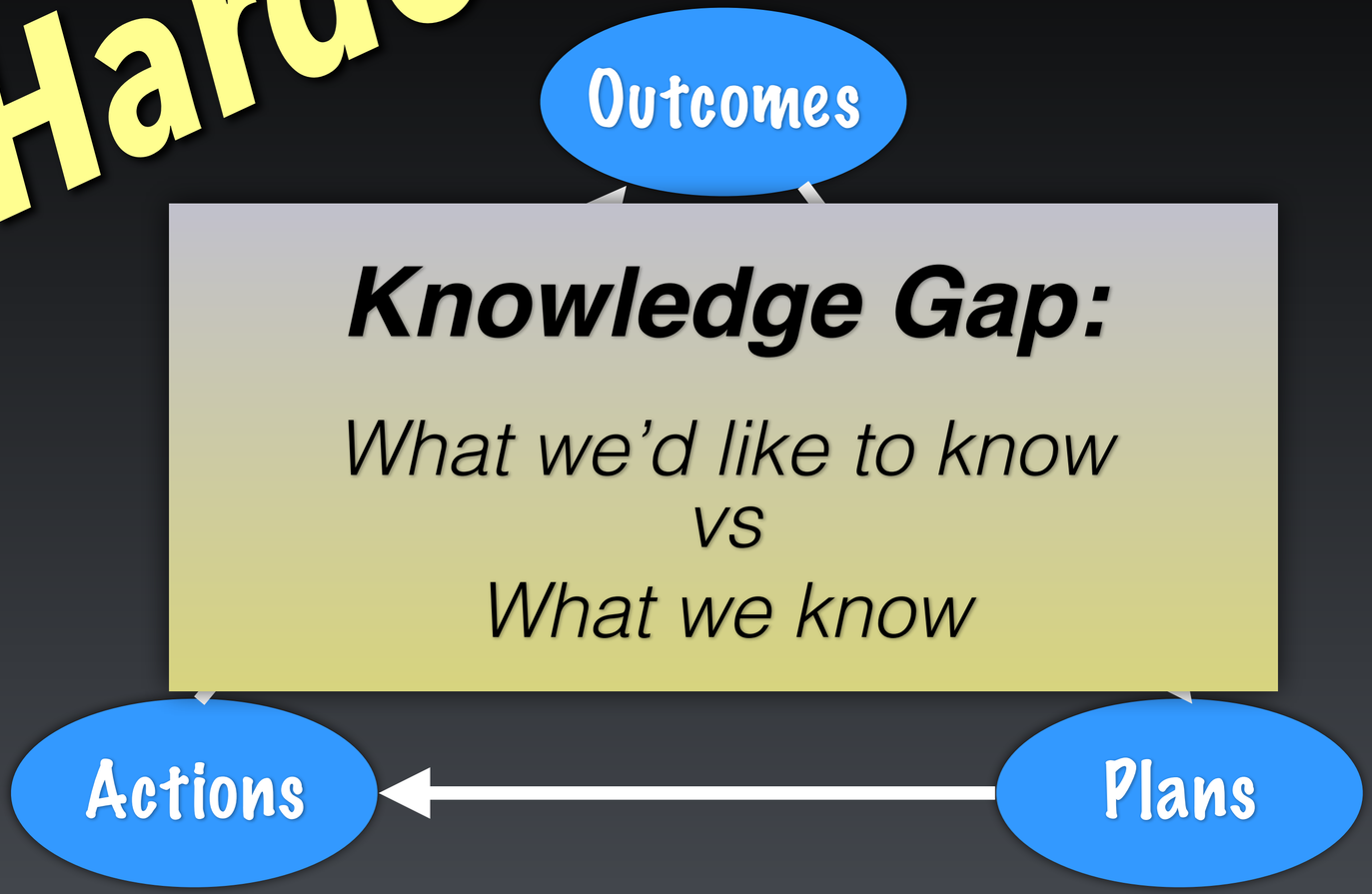
Classic Responses

Plan Harder!



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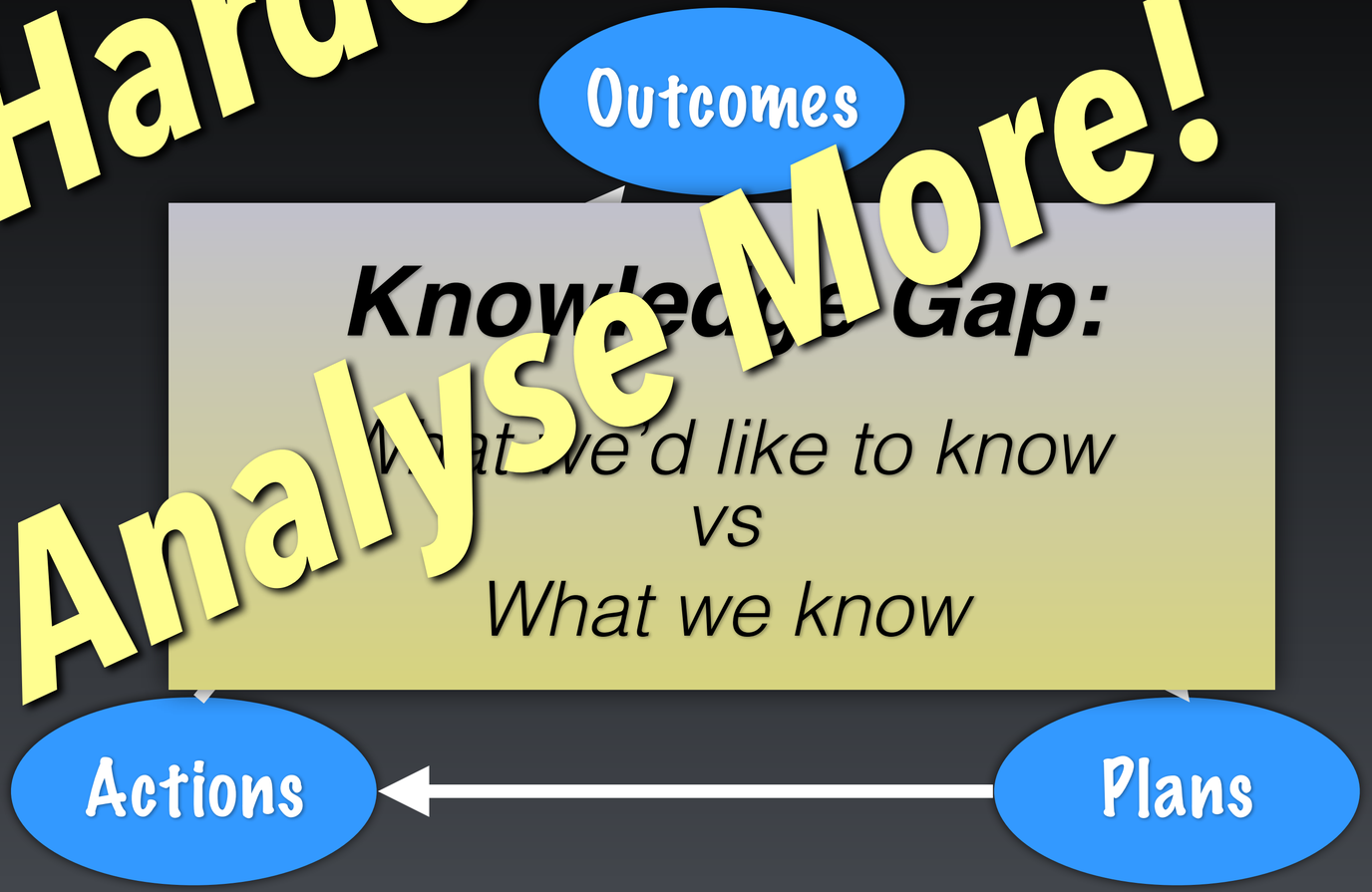

Plan Harder!

Analyse More!

Source: "The Art of Action" by Stephen Bungay

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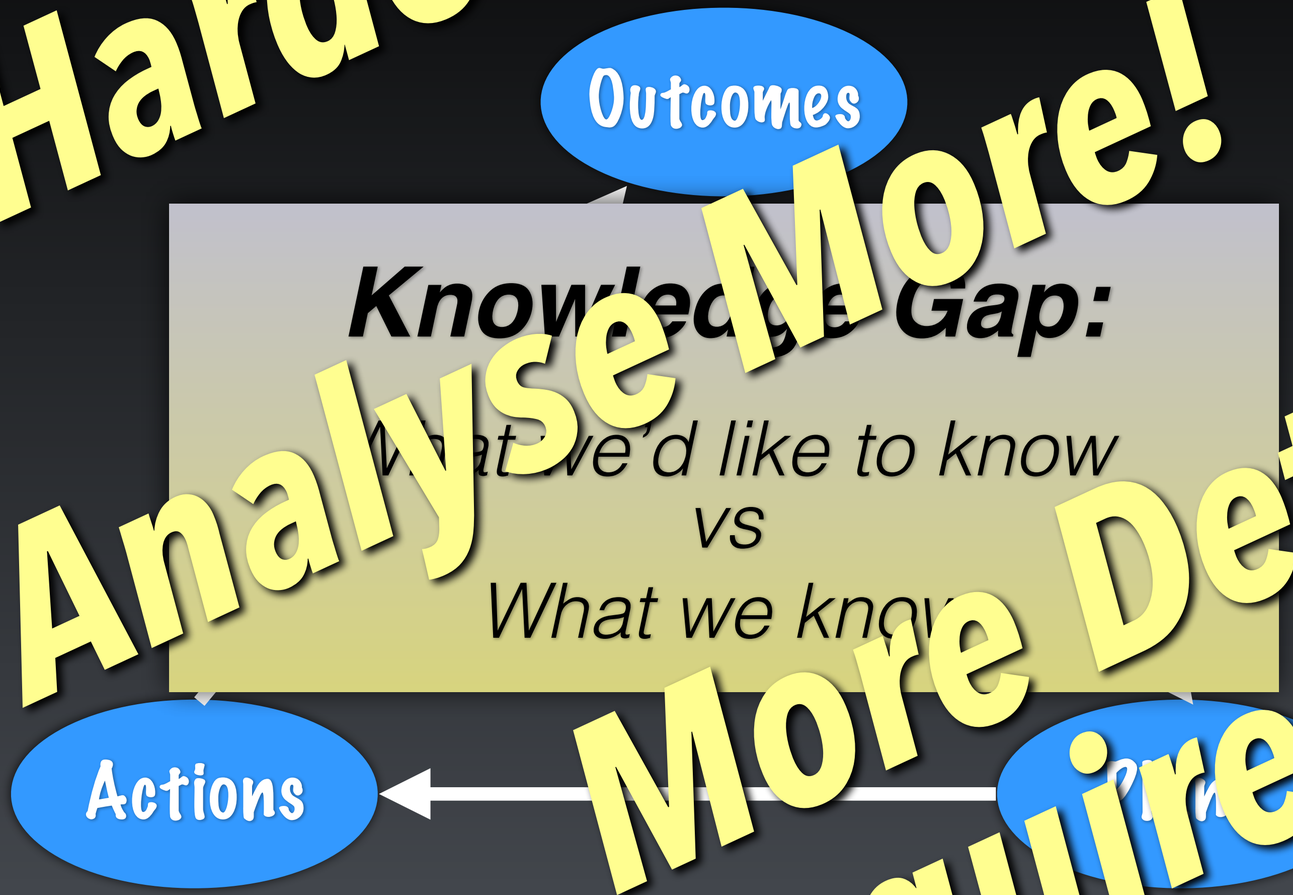
Classic Responses



Plan Harder!

Analyse More!

More Detailed Requirements!

Source: "The Art of Action" by Stephen Bungay

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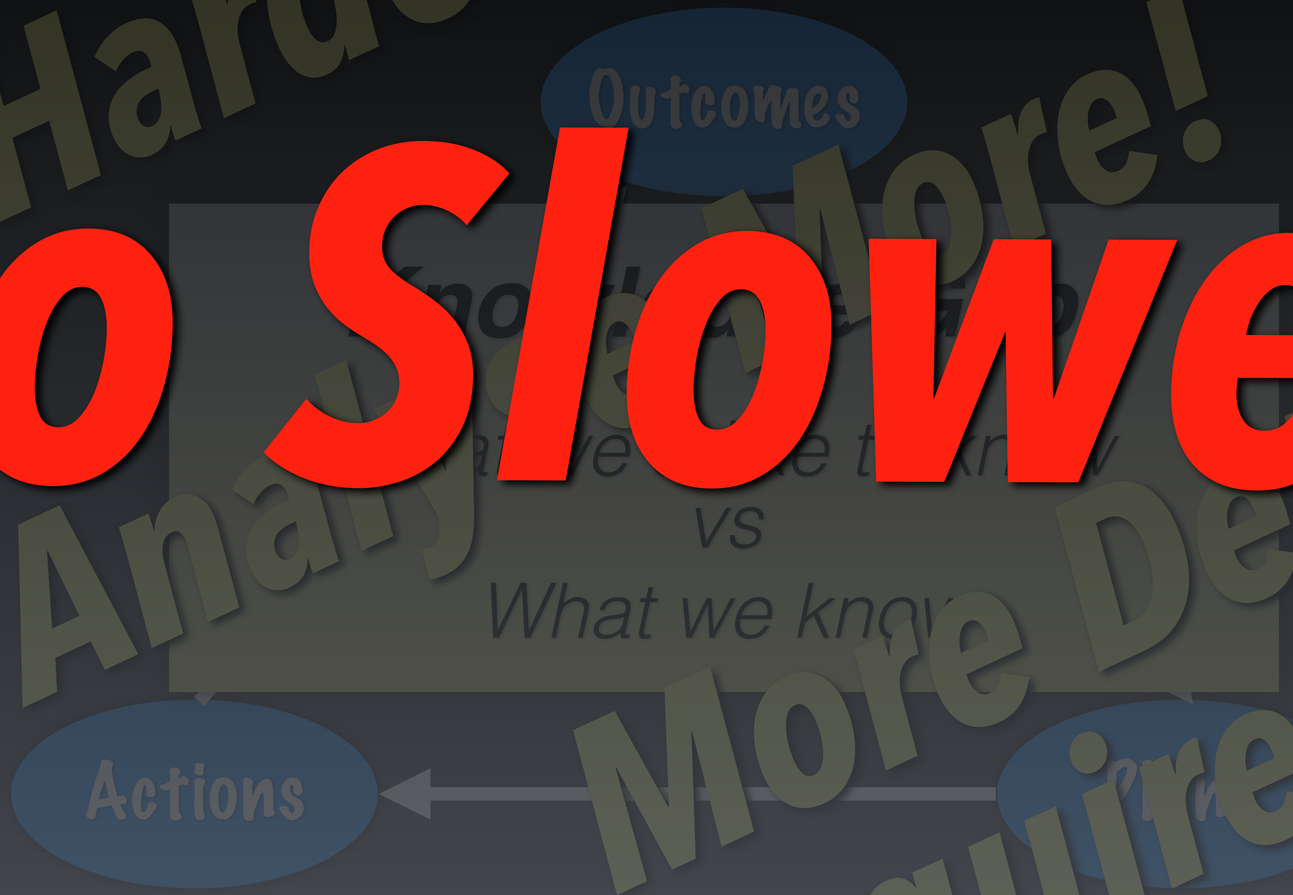
Classic Responses



Plan Harder!

Analyse More!

More Detailed Requirements!

Go Slower!

Source: "The Art of Action" by Stephen Bungay

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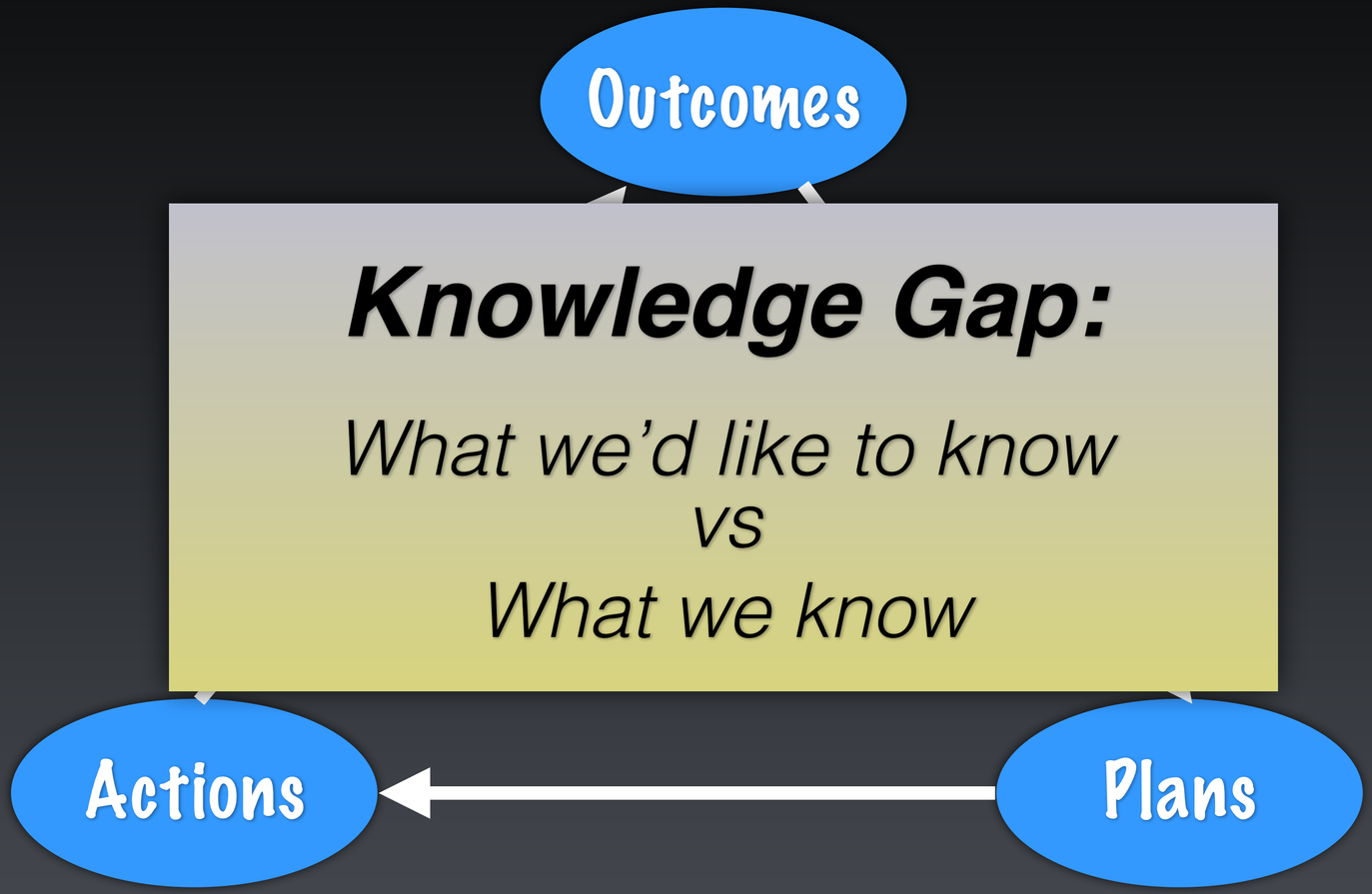
Classic Responses



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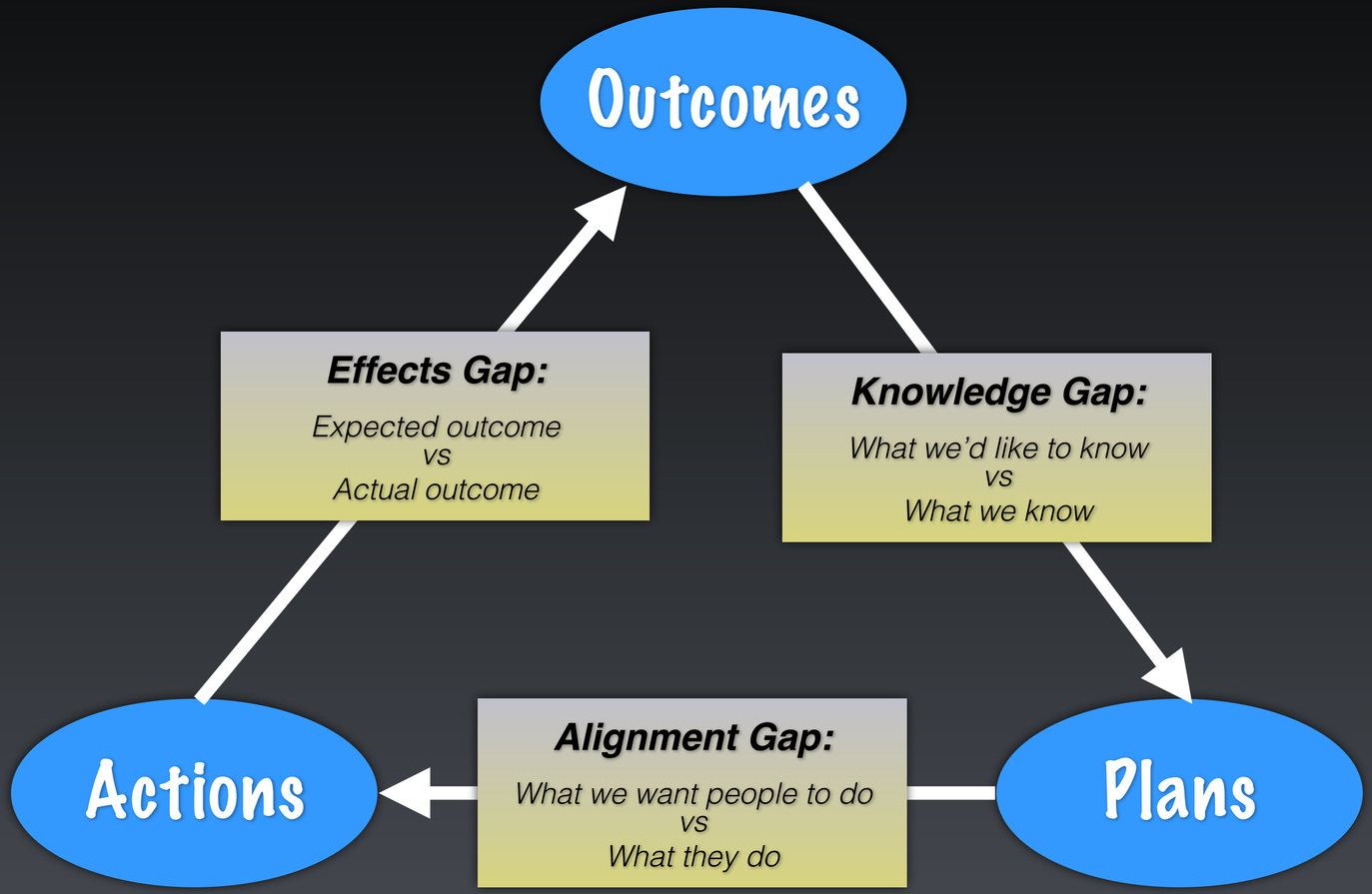

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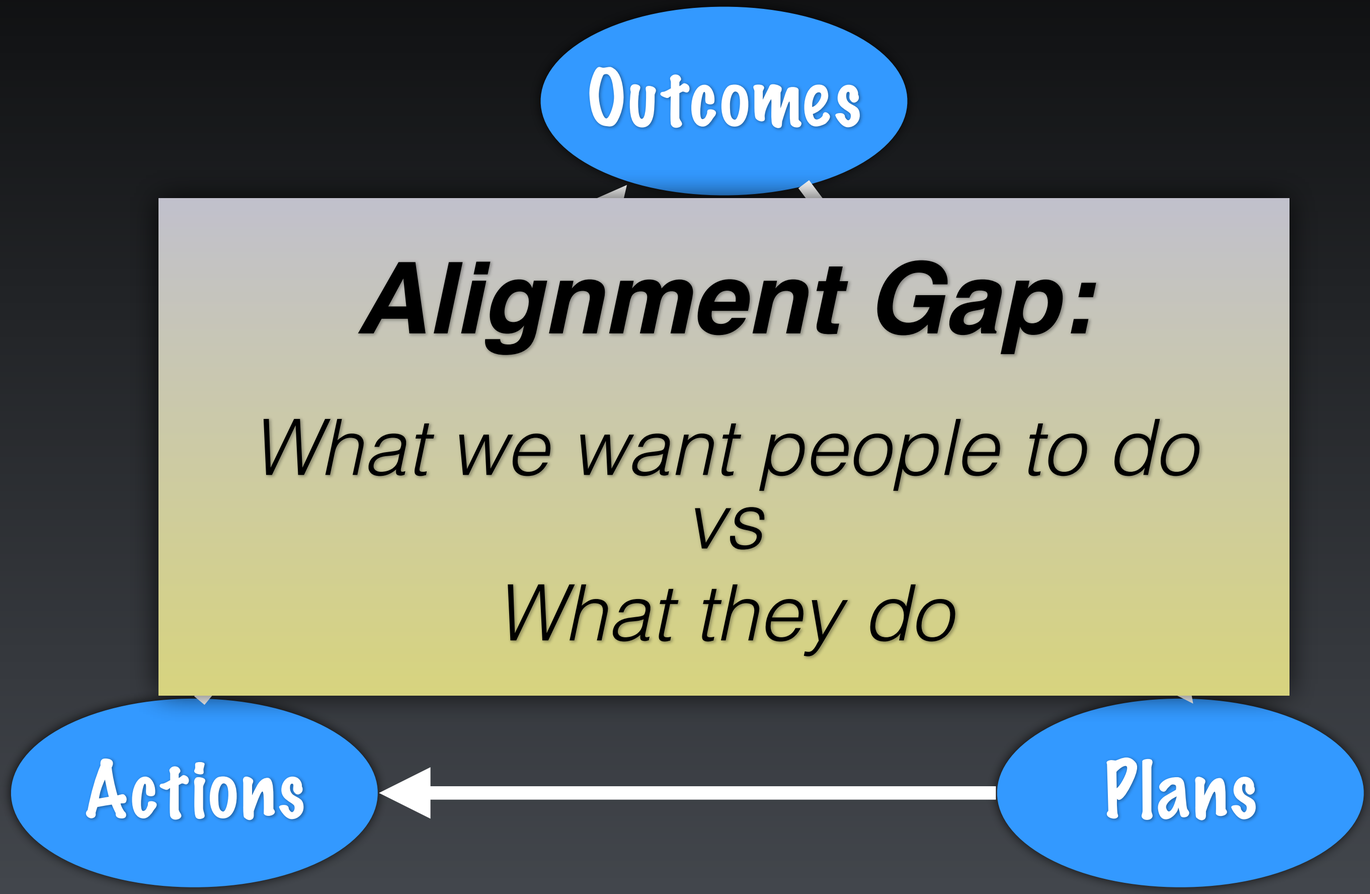

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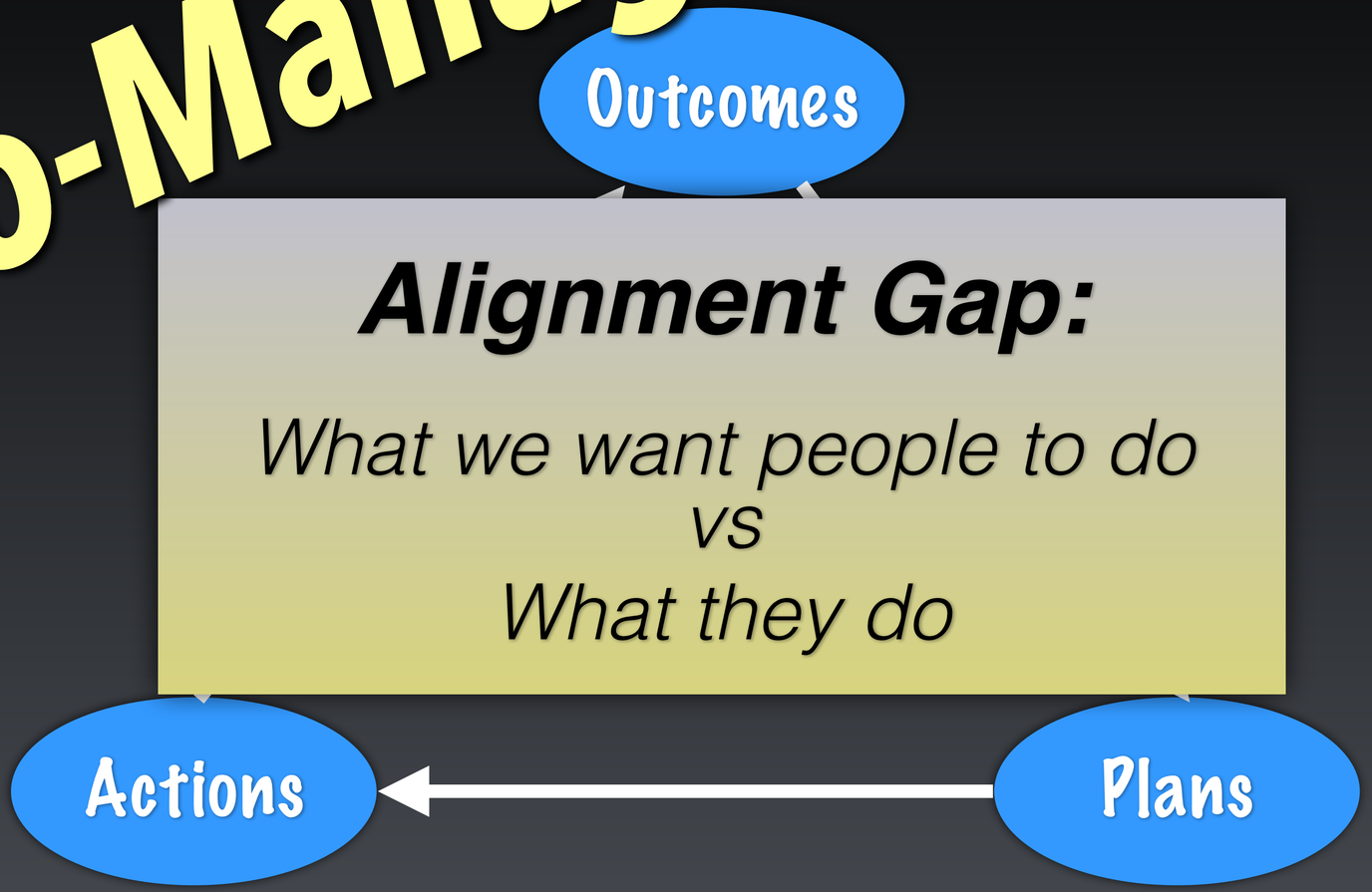
Classic Responses

Micro-Manage



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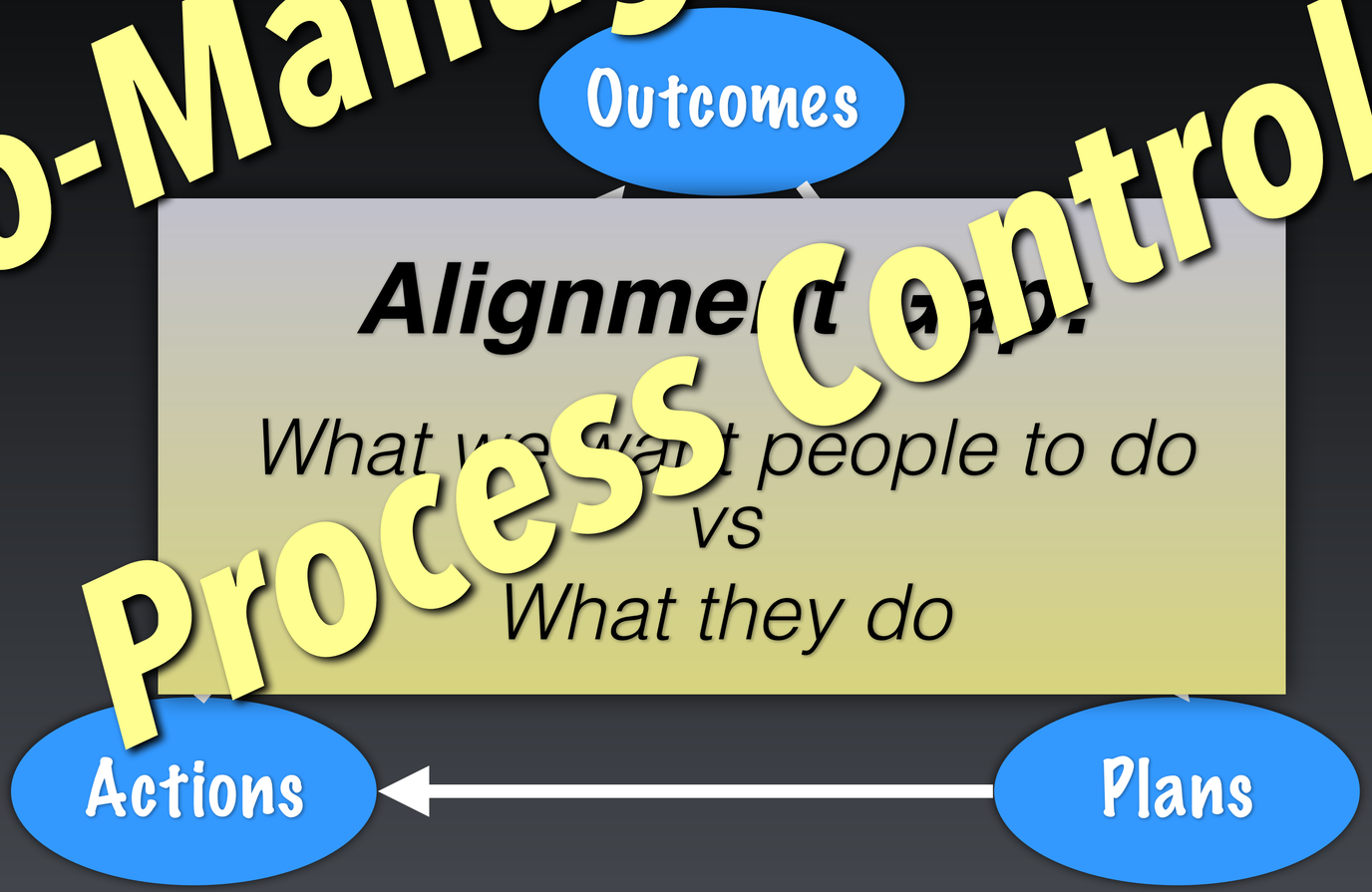

Micro-Manage

Process Control

Source: "The Art of Action" by Stephen Bungay

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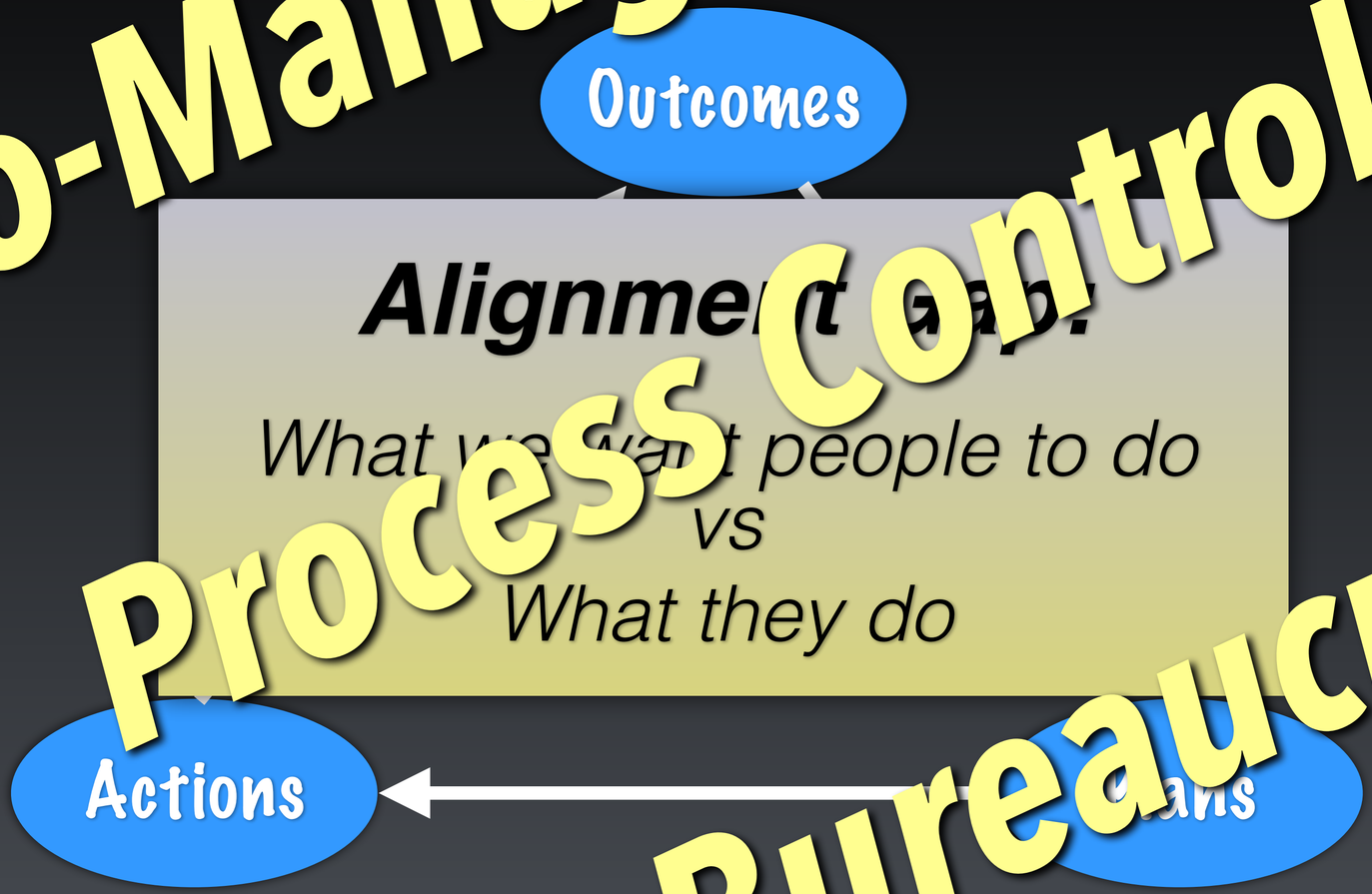
Classic Responses



Micro-Manage

Process Control

Bureaucracy

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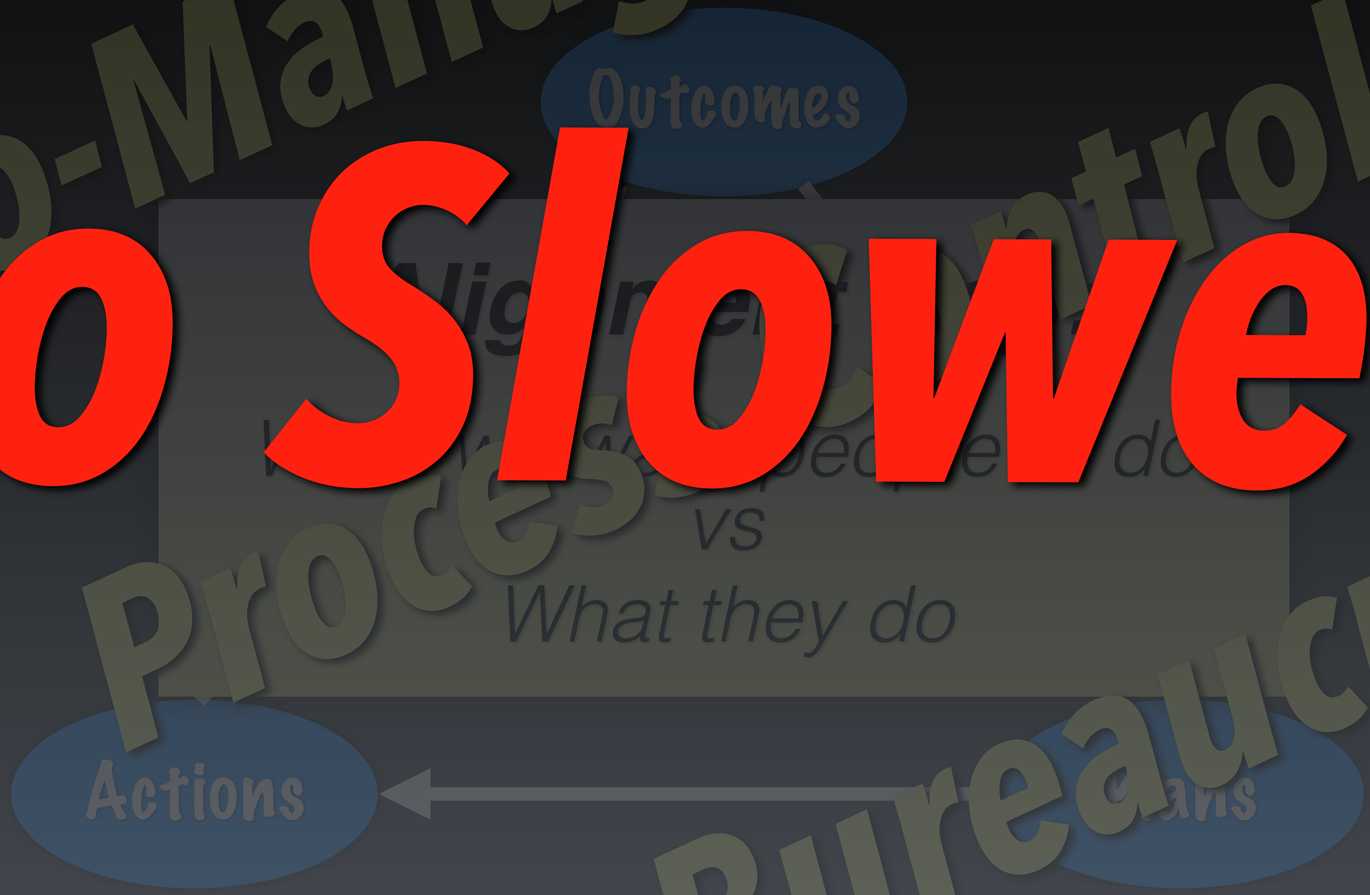
Classic Responses



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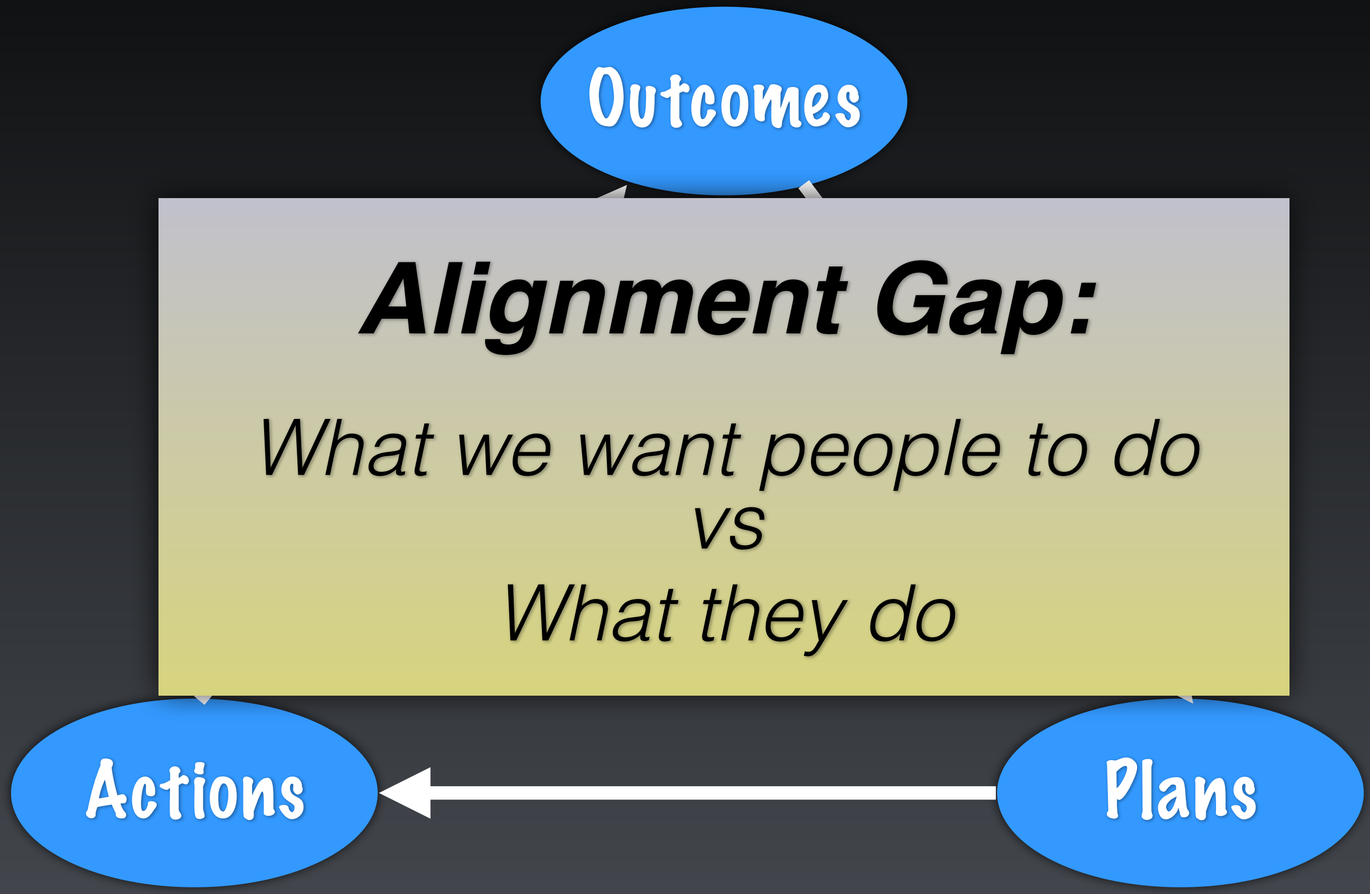

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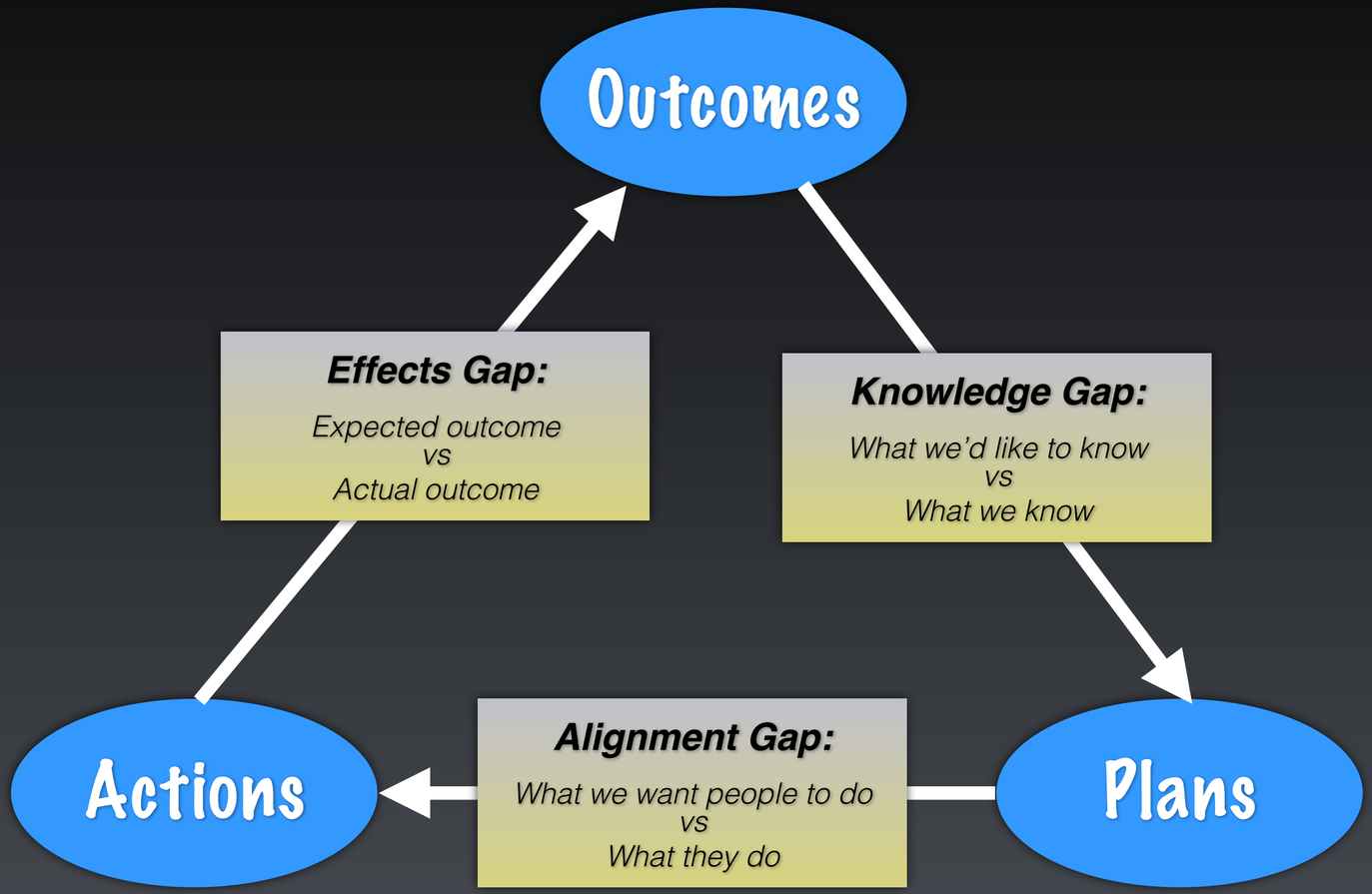

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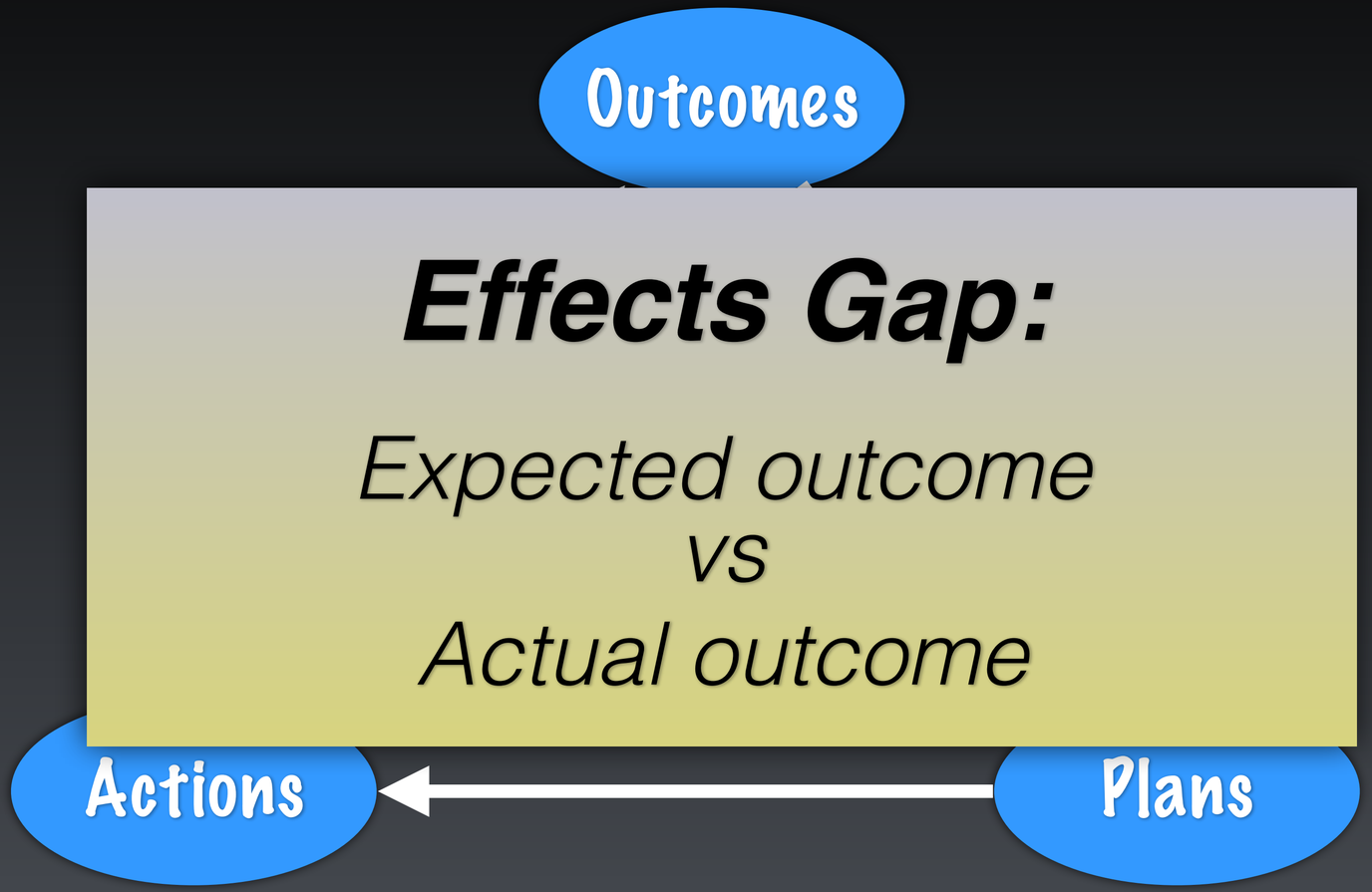

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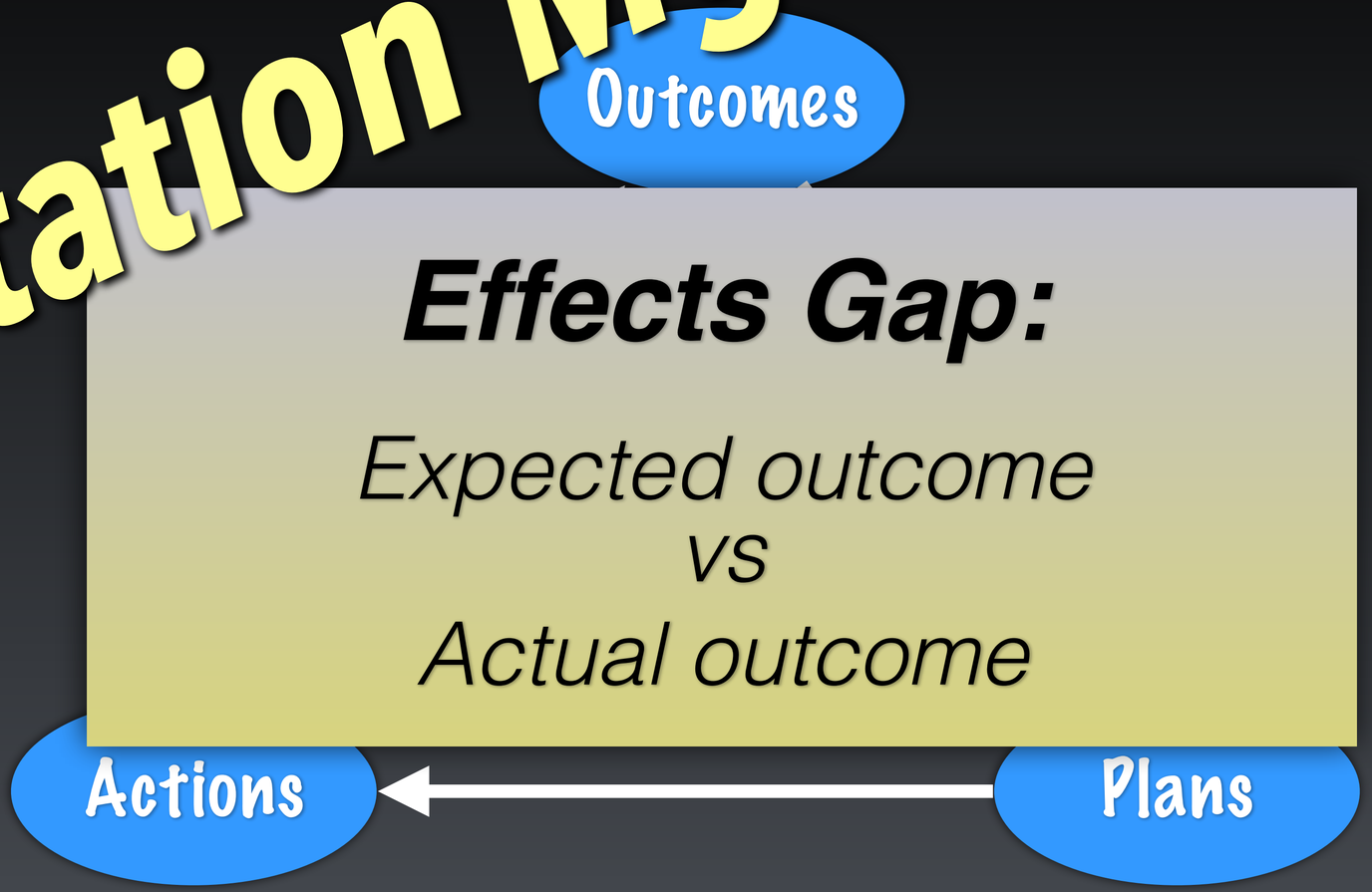
Classic Responses

Expectation Mgmt



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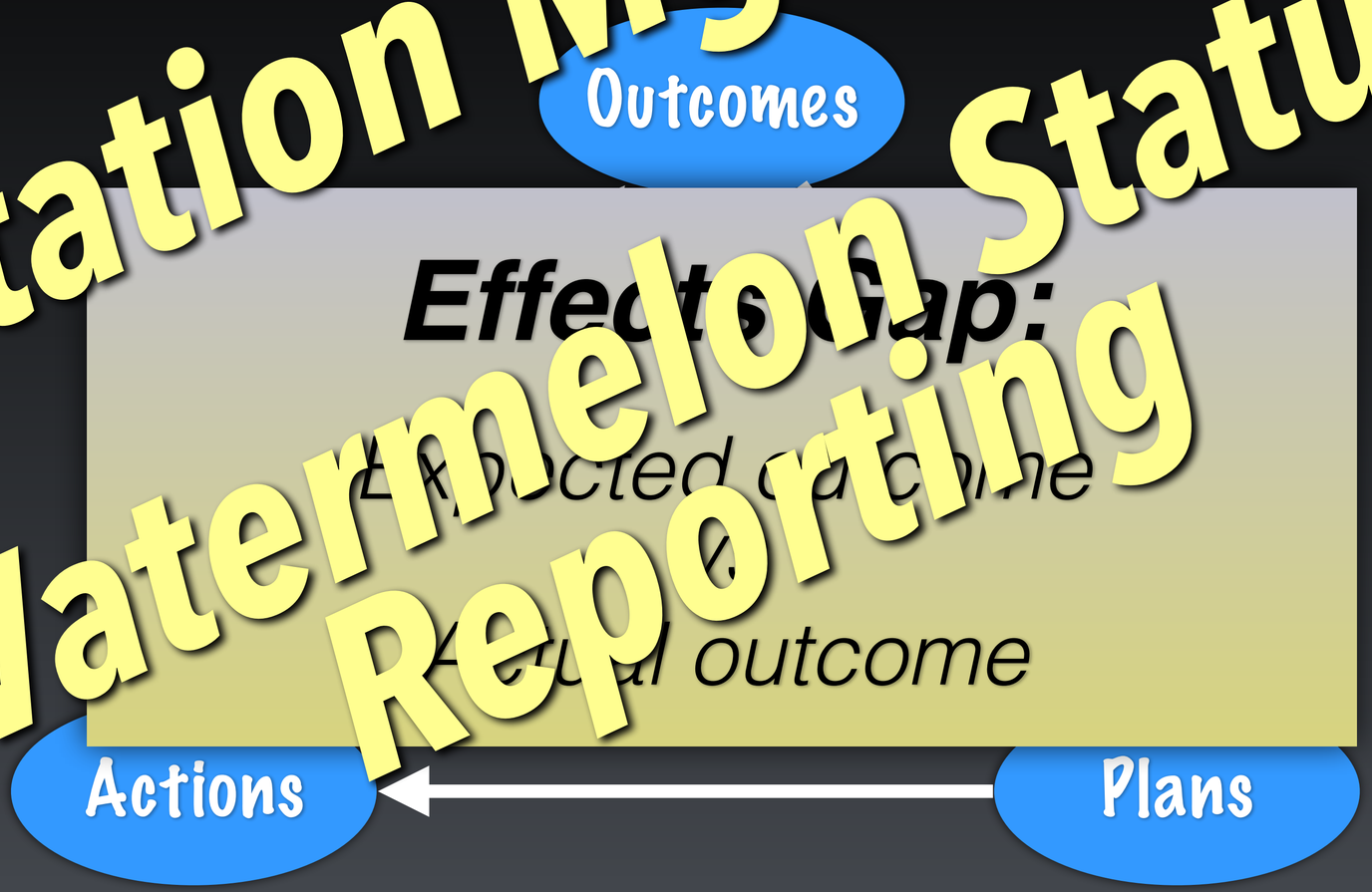

Expectation Mgmt

Watermelon Status

Reporting

Source: "The Art of Action" by Stephen Bungay

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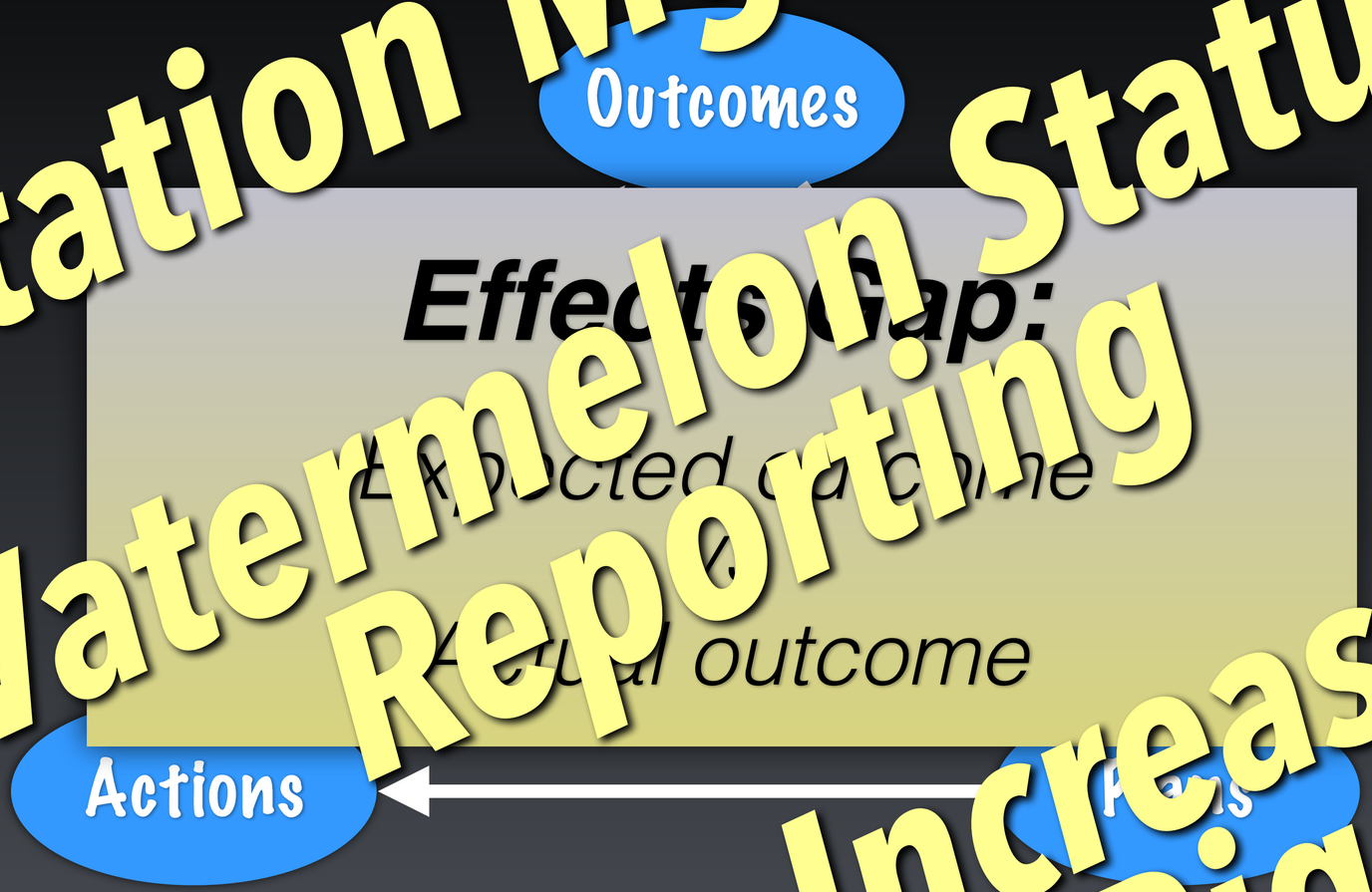
Classic Responses



Expectation Mgmt

Watermelon Status Reporting

Increase PM Rigour

Source: "The Art of Action" by Stephen Bungay

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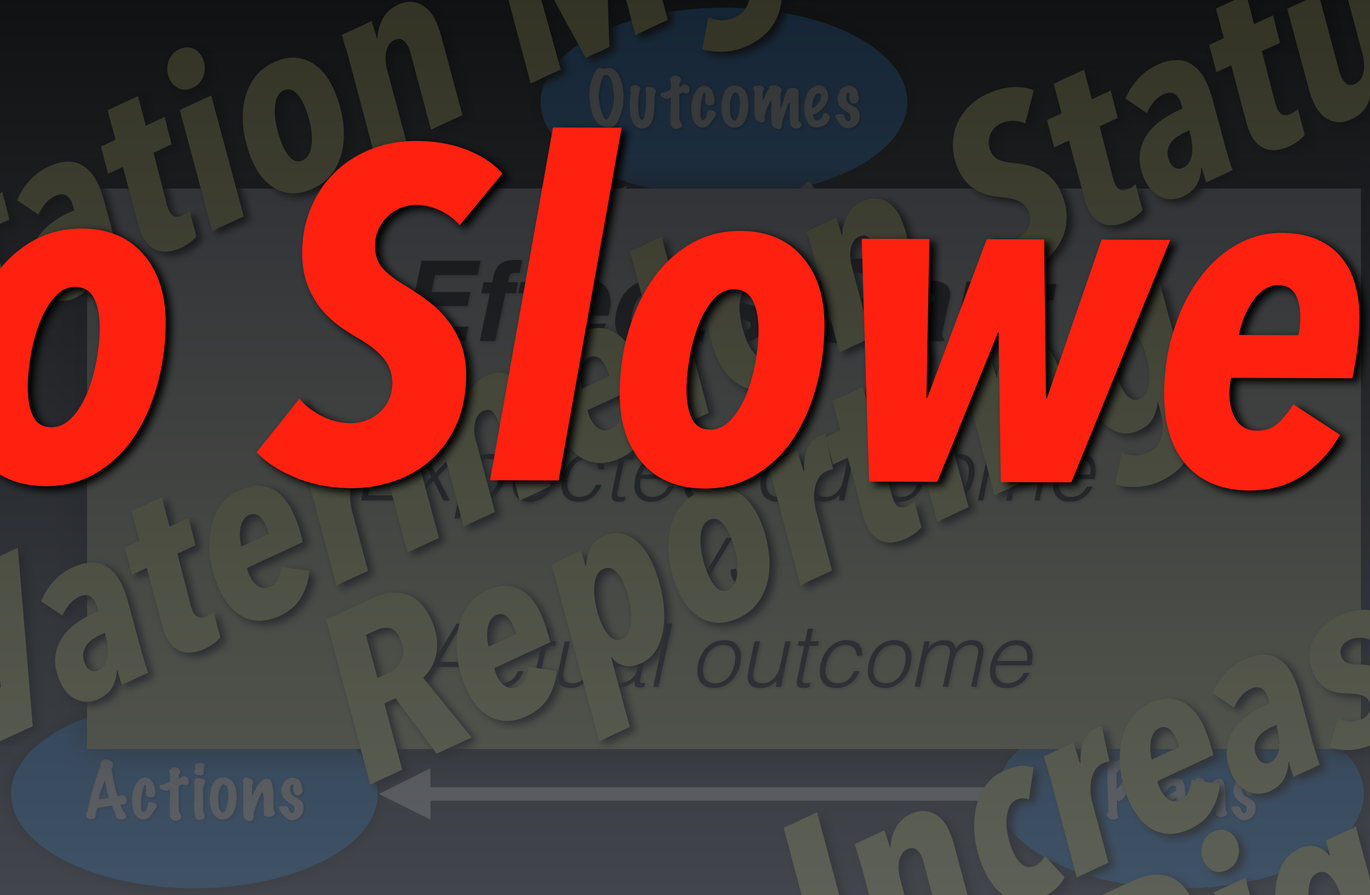
Classic Responses



Expectation Mgmt

Go Slower!

Water-Fall Reporting

Status Reporting

Increase PM Rigour

Source: "The Art of Action" by Stephen Bungay

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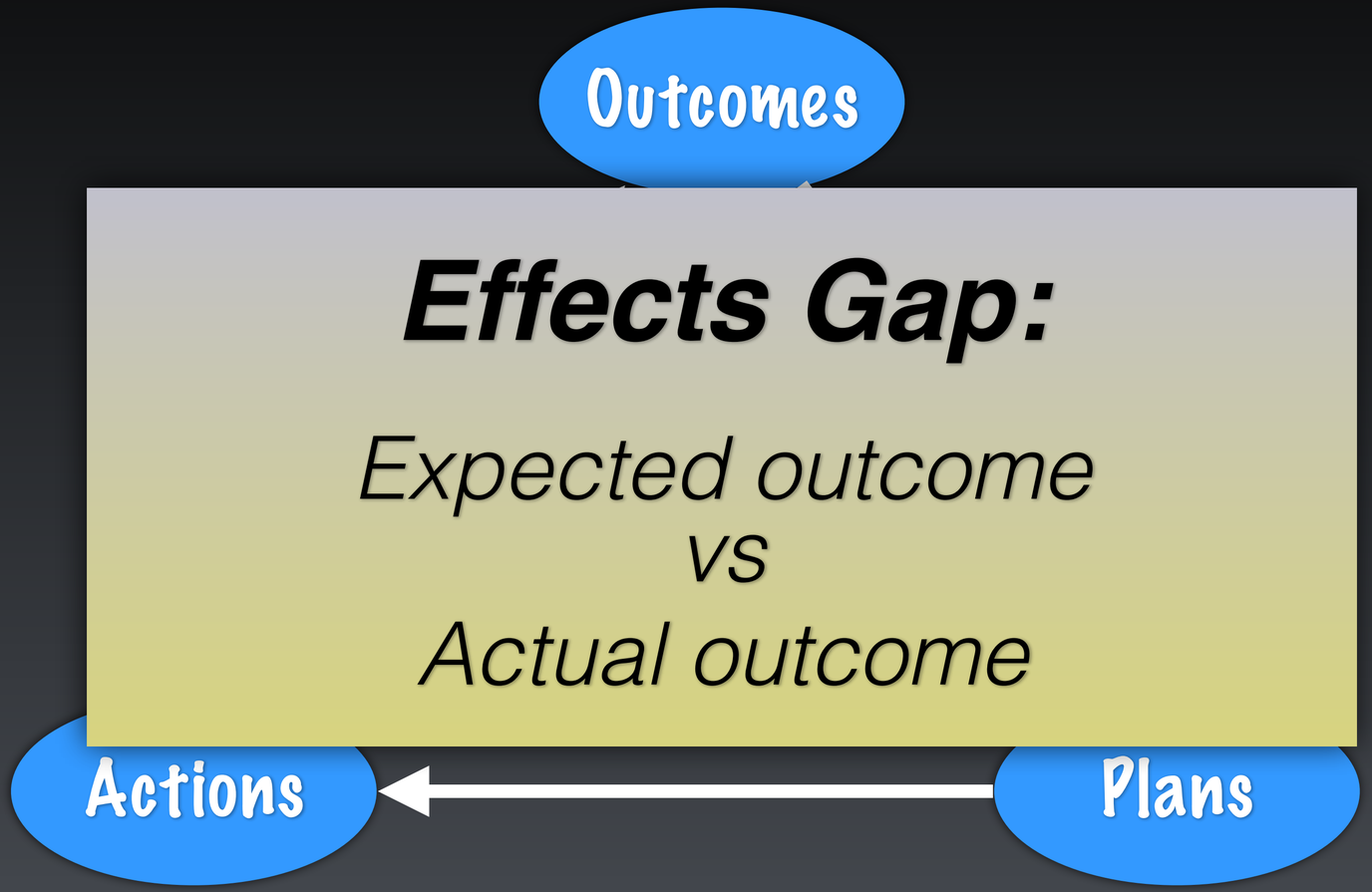

Source: "The Art of Action" by Stephen Bungay

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But its Worse Than That...

Speed & Quality

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If we Go Slower…

If we Go Slower…

We Build Worse Software Slower!

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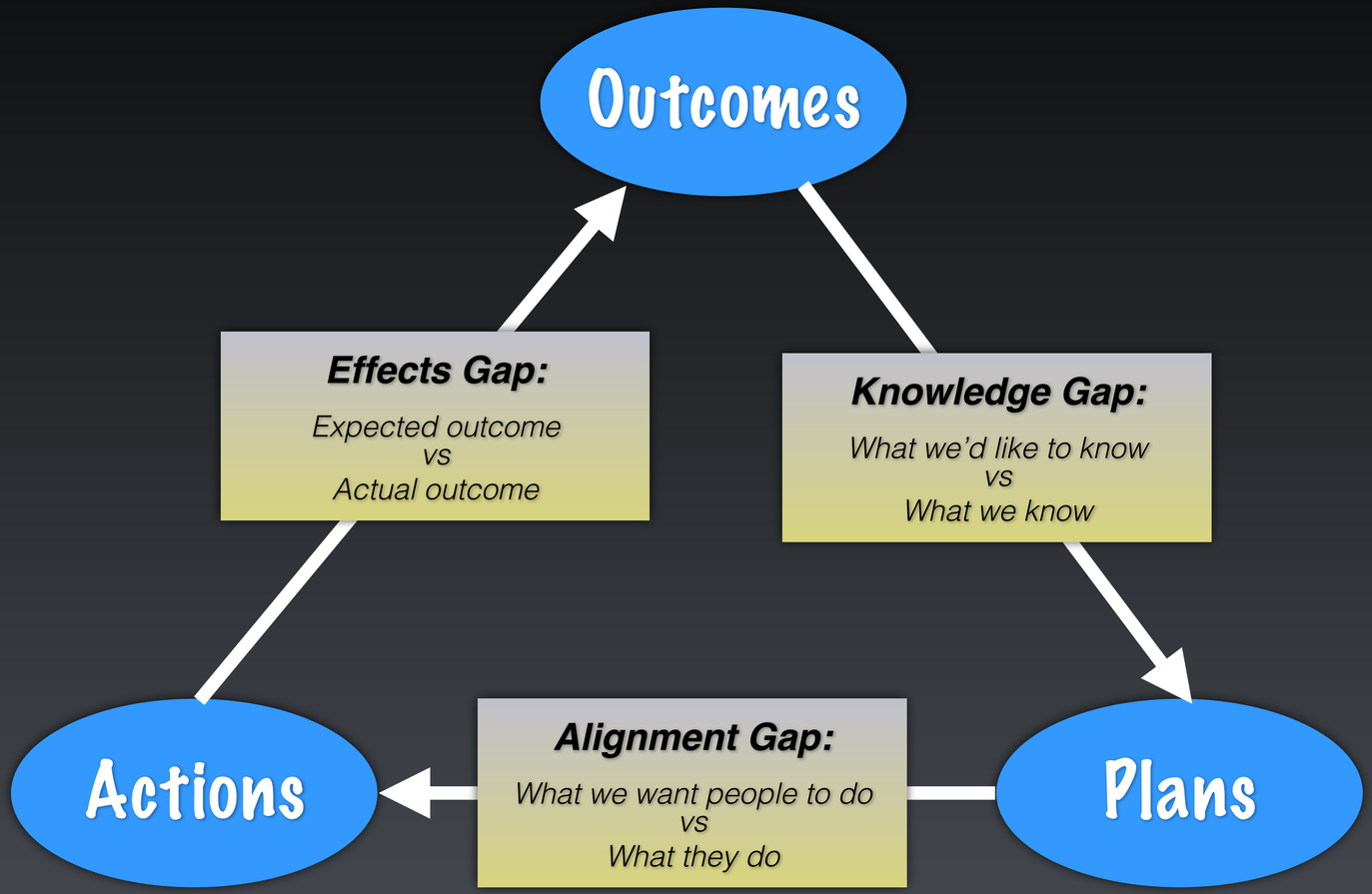

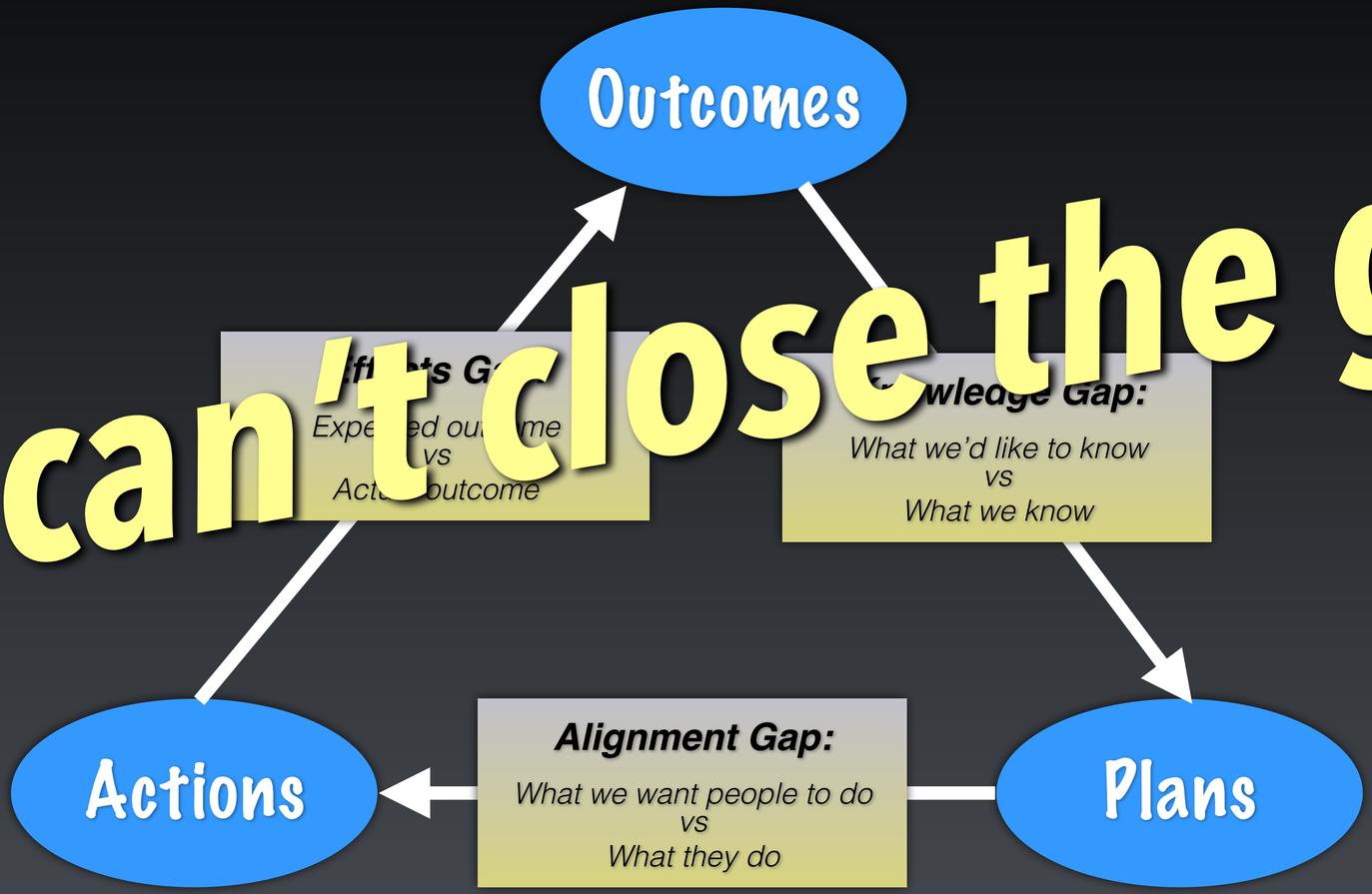

You can't close the gaps!

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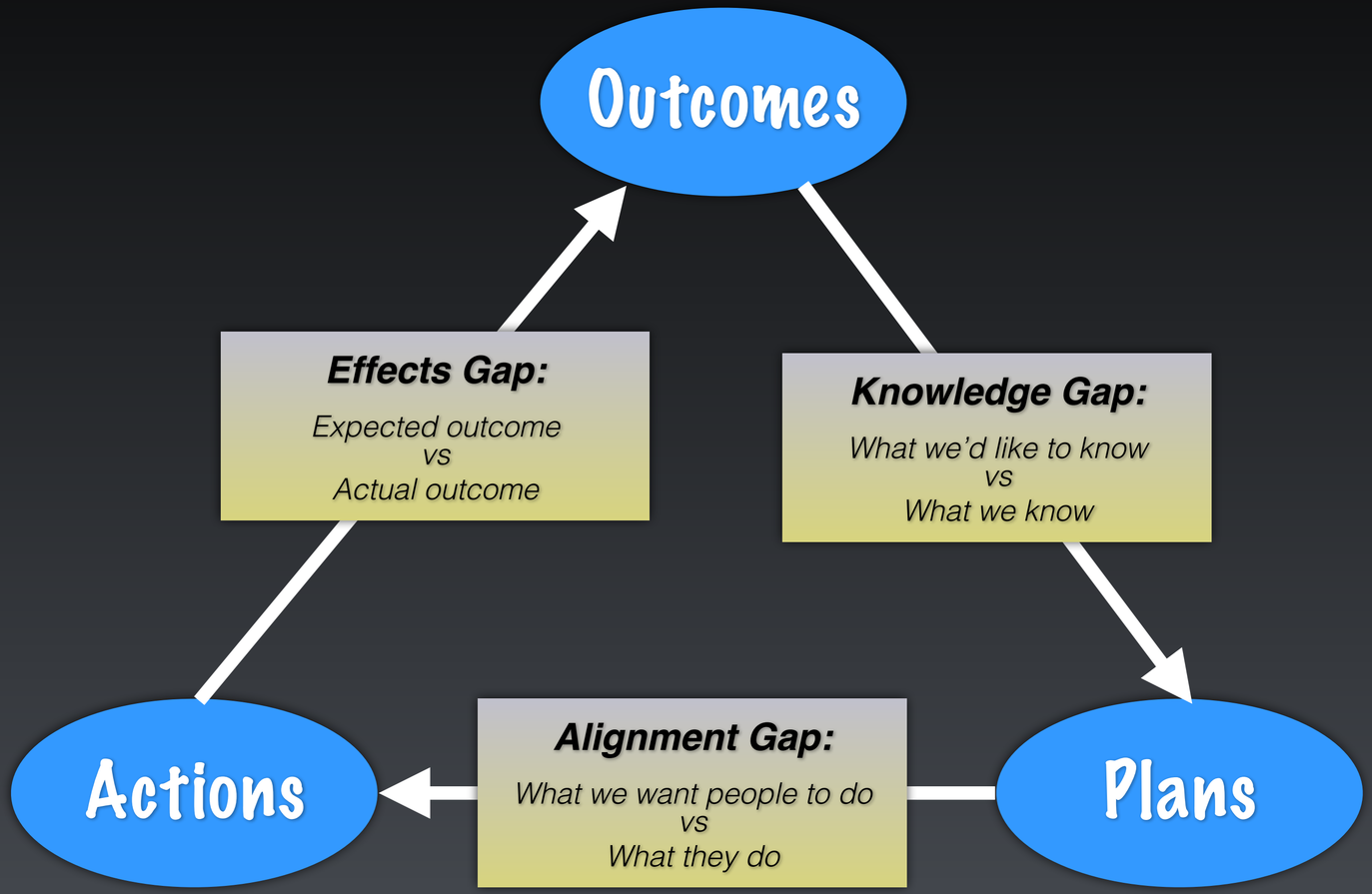

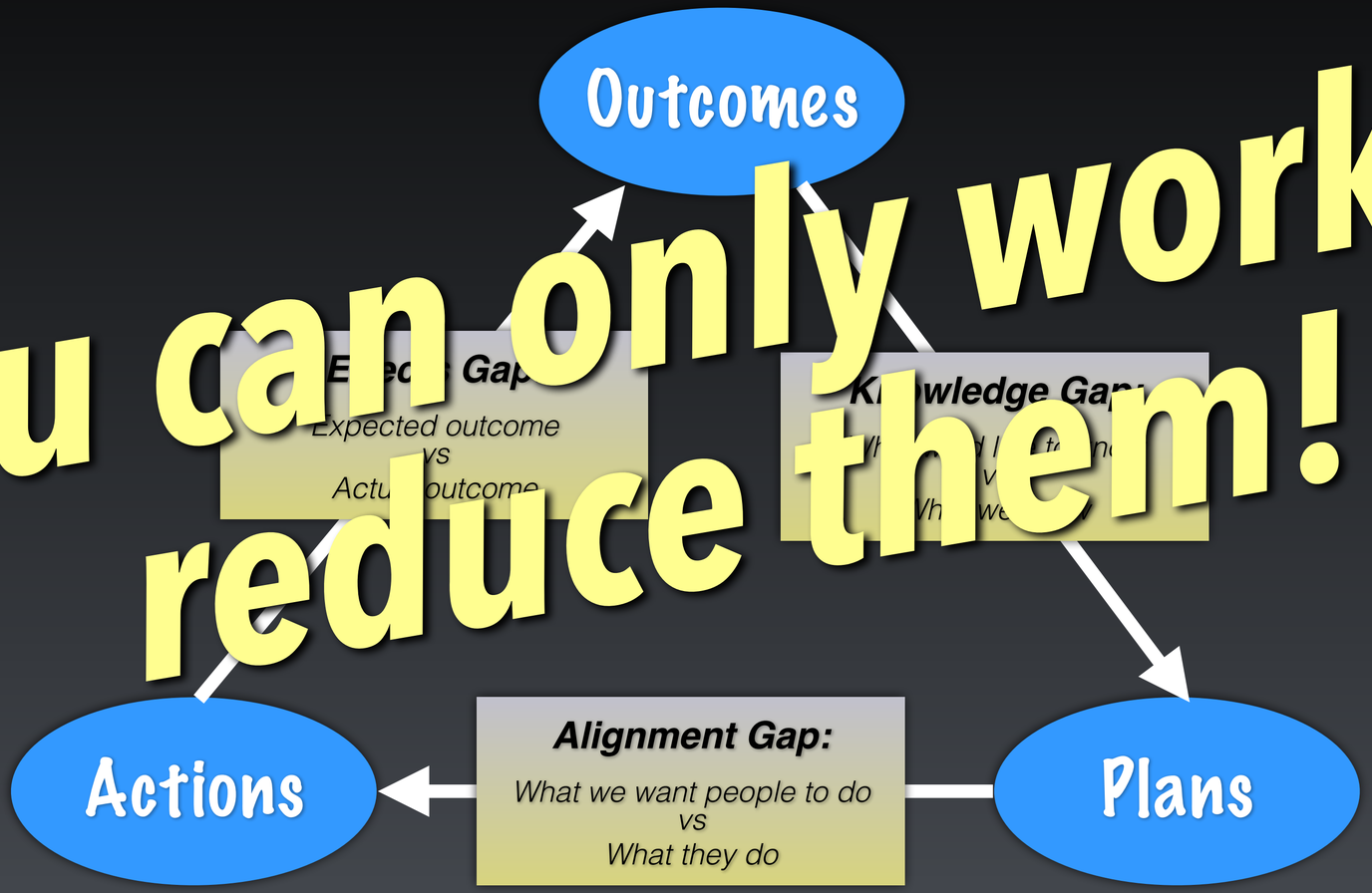

You can only work to reduce them!

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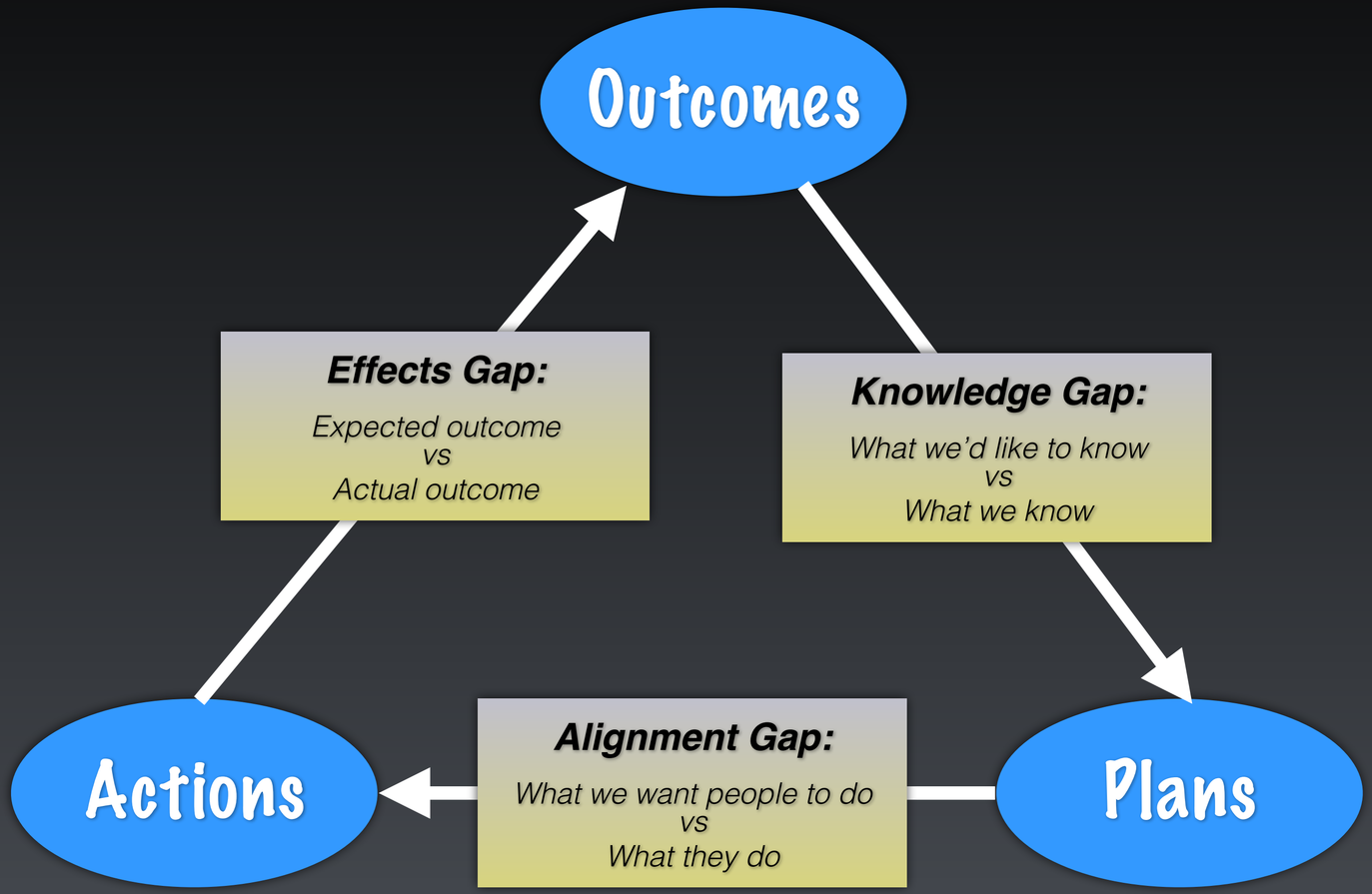
Best Way to Reduce Gaps - Speed Up!



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Best Way to Reduce Gaps - Speed Up!

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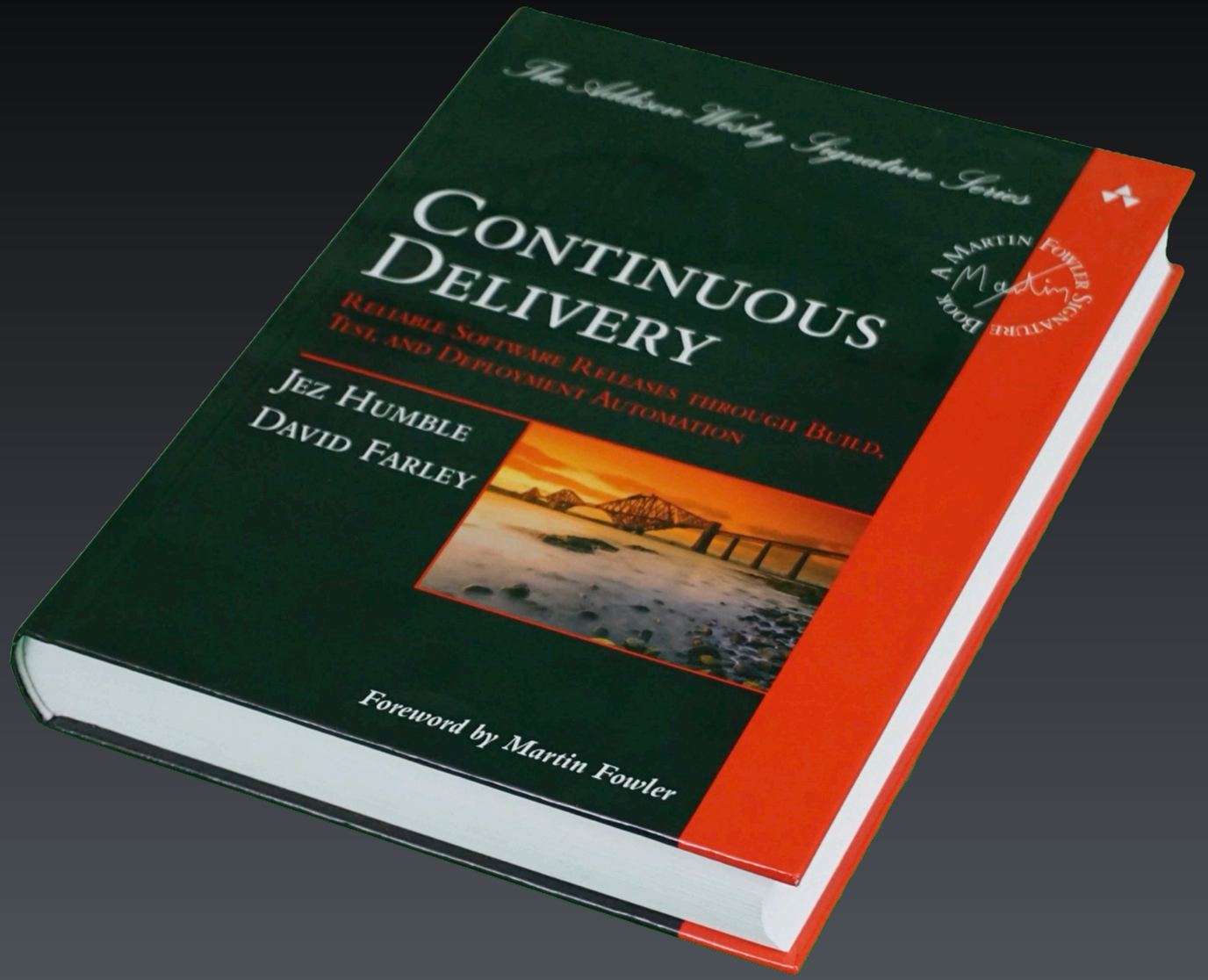
Work In Small Steps!



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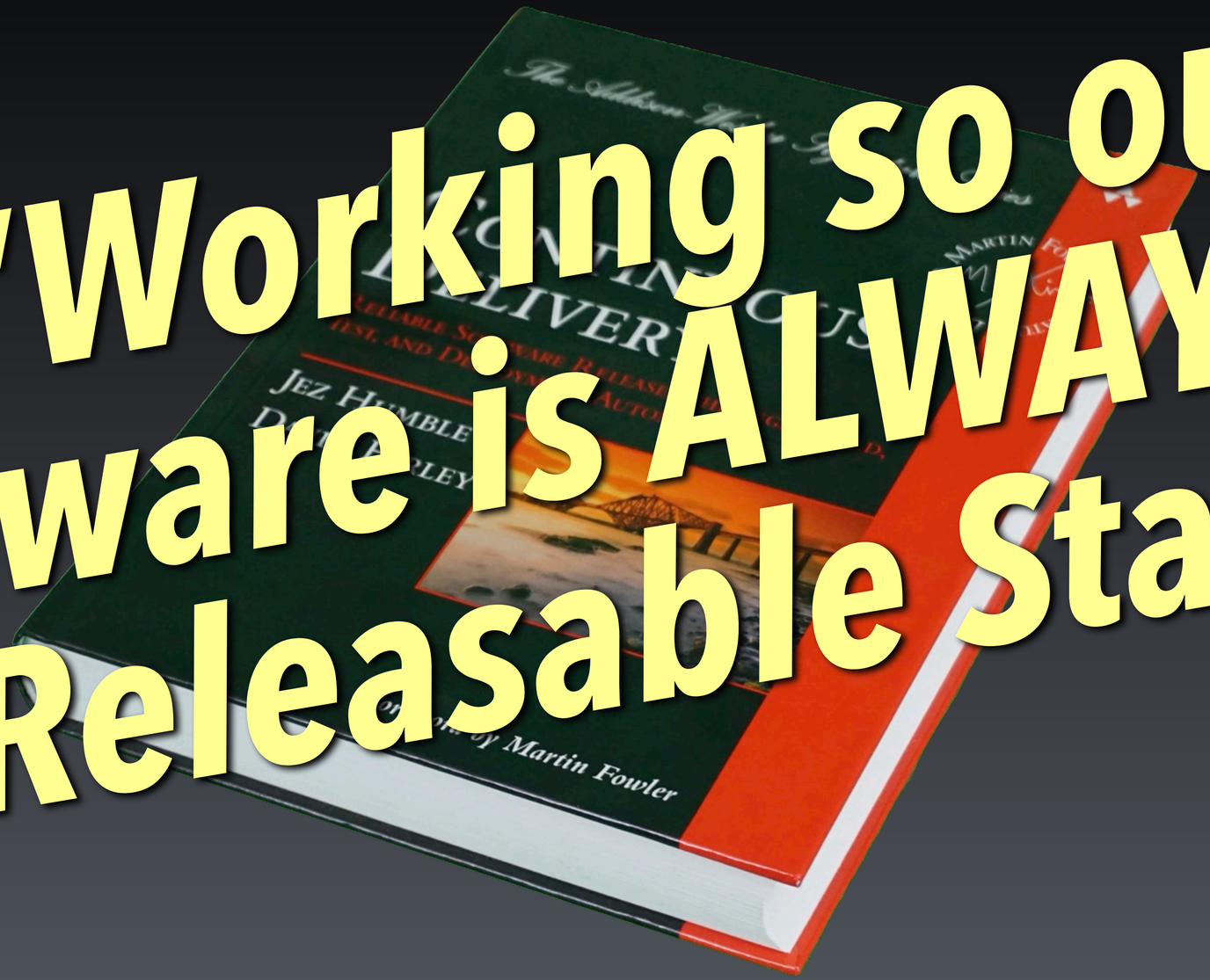
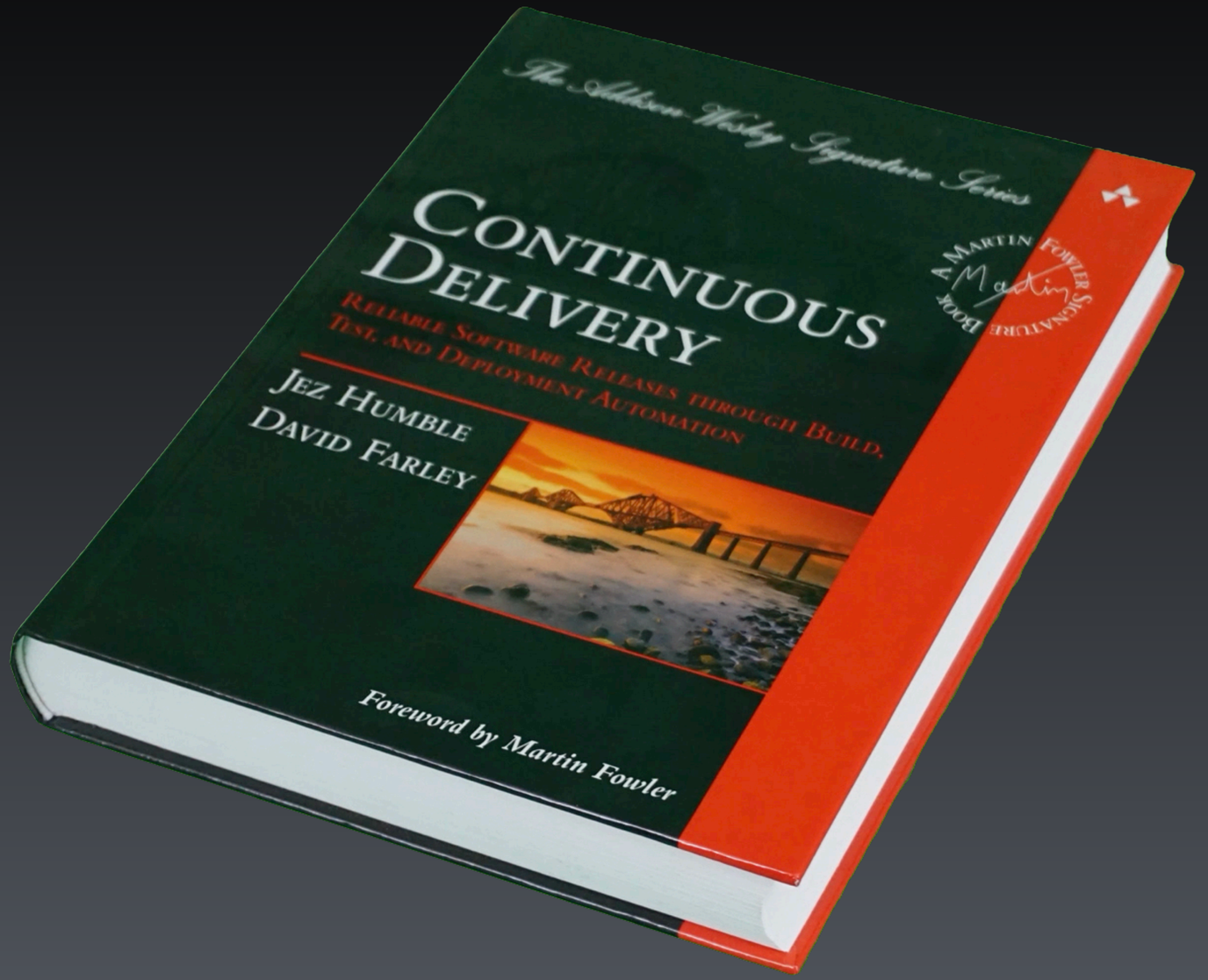


"Working so our Software is ALWAYS in a Releasable State"

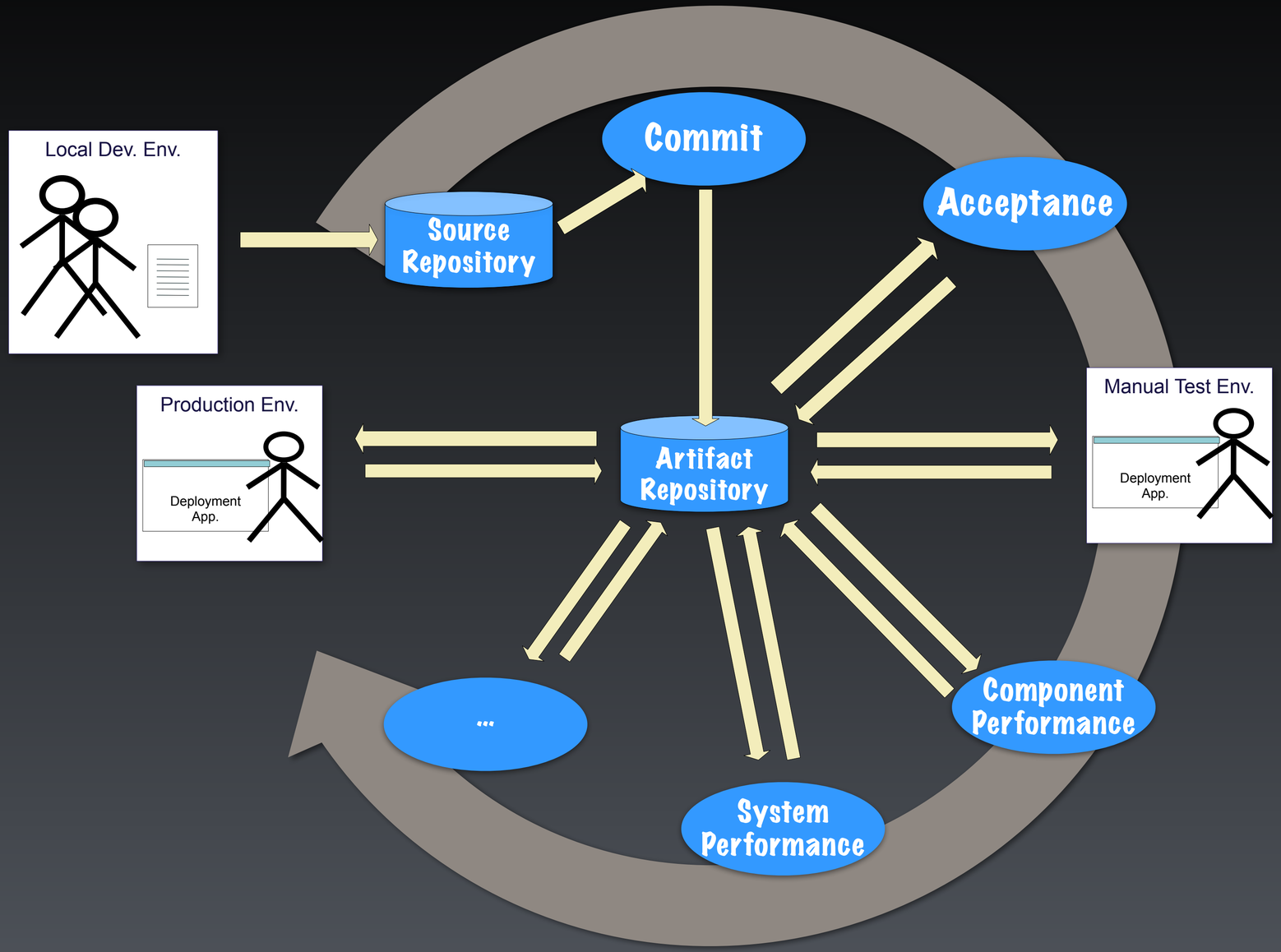
Continuous Delivery ltd



Continuous Delivery ltd

So What Determines 'Releasability'?

Continuous Delivery ltd



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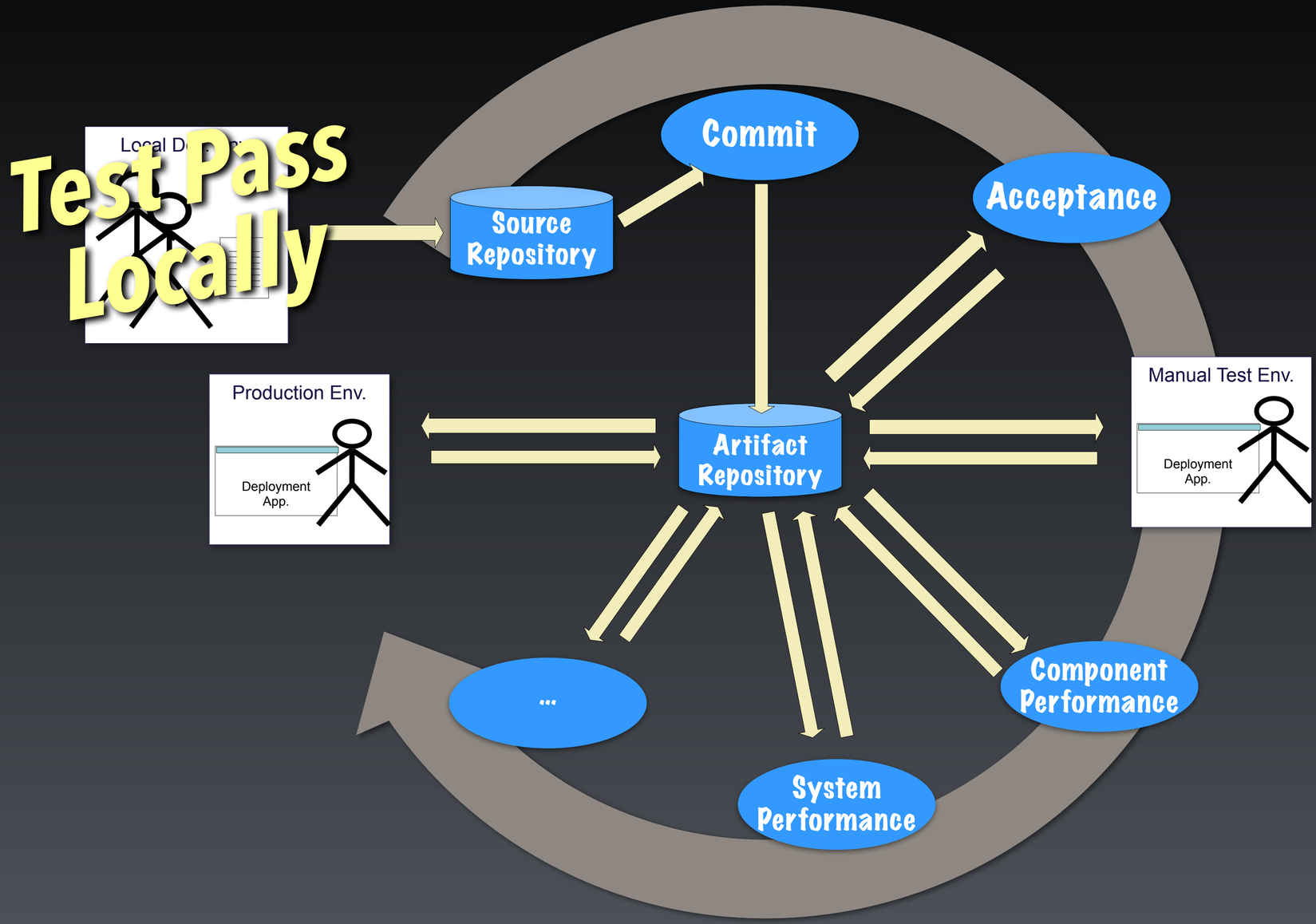

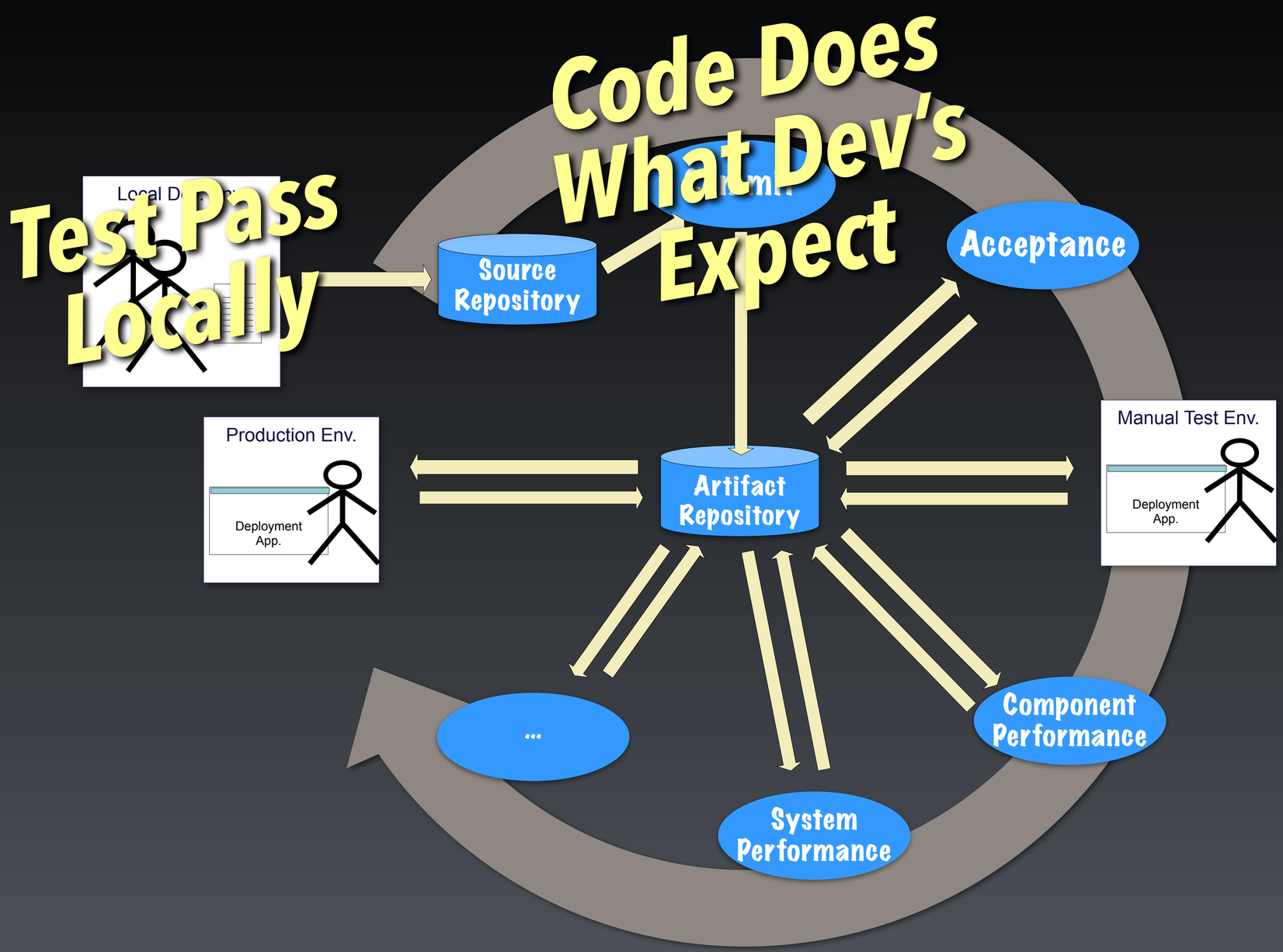

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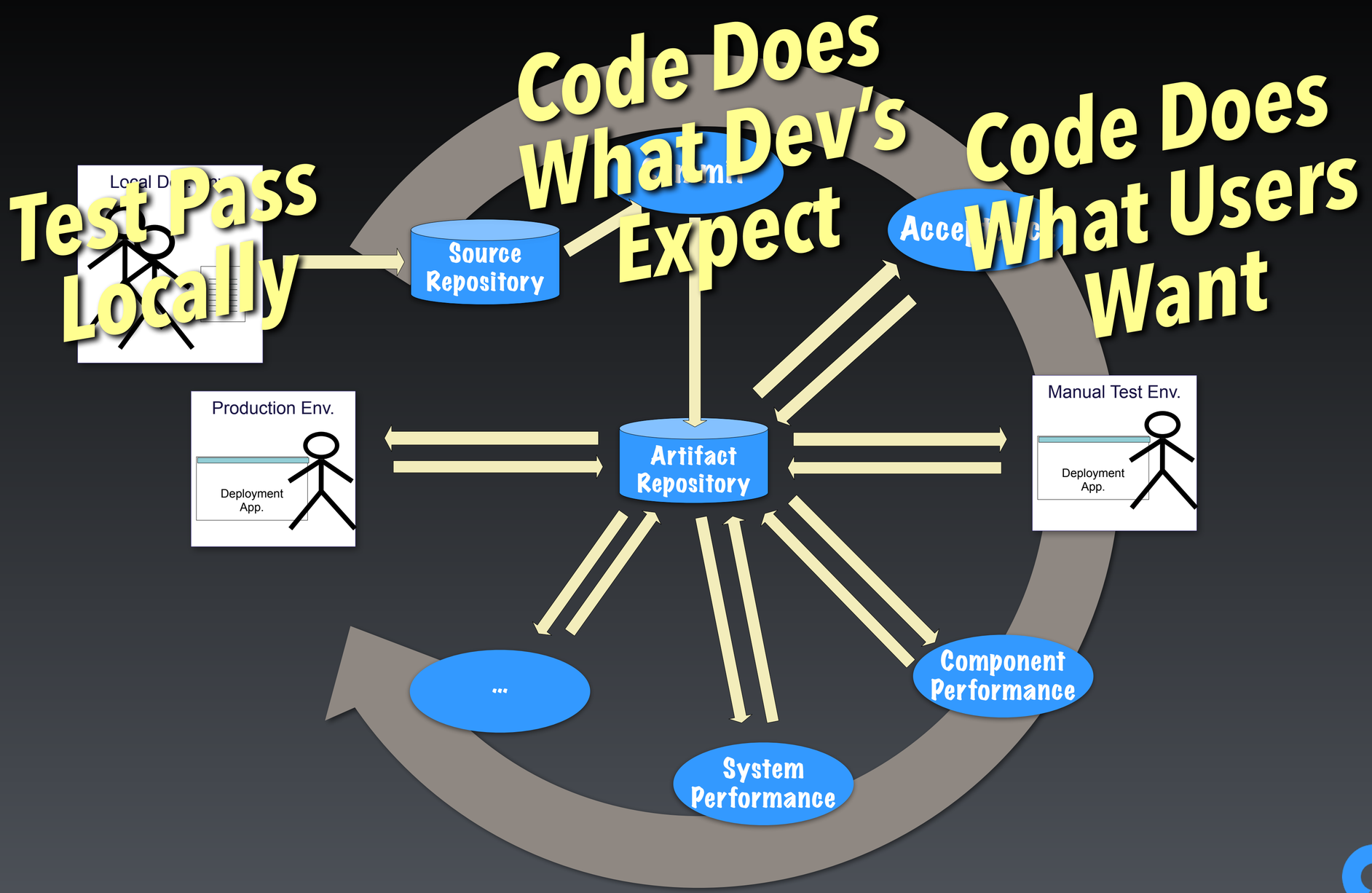

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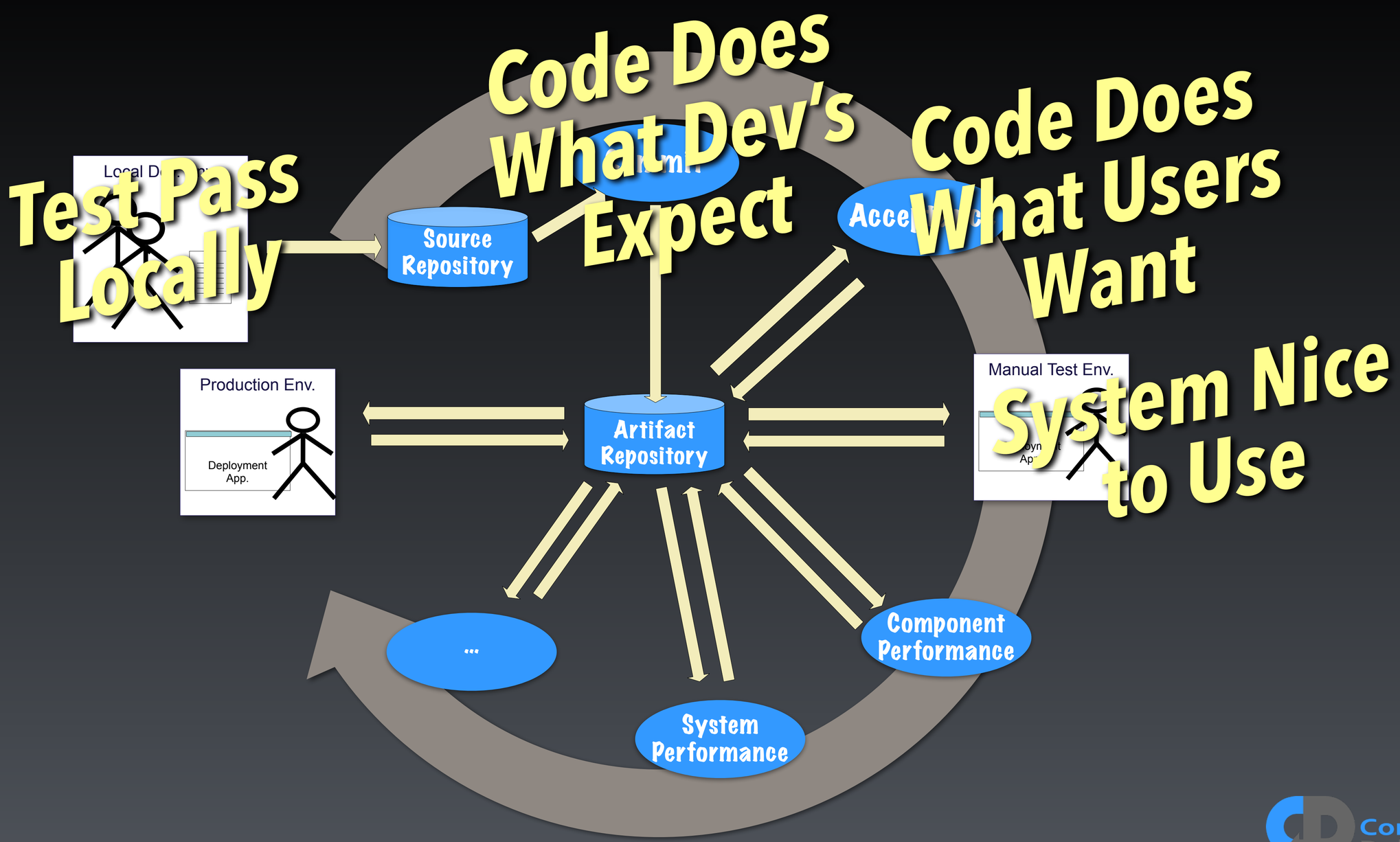

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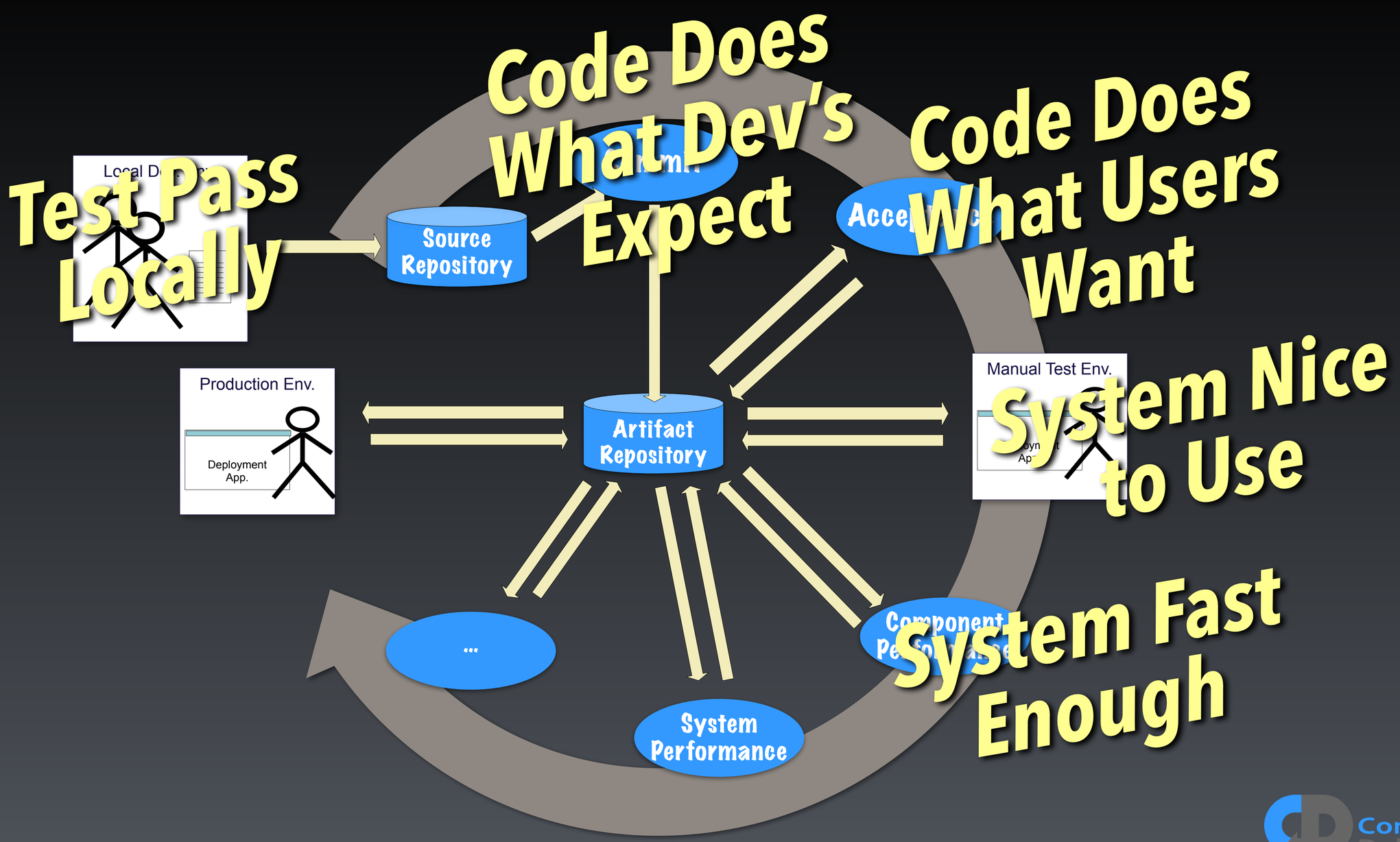

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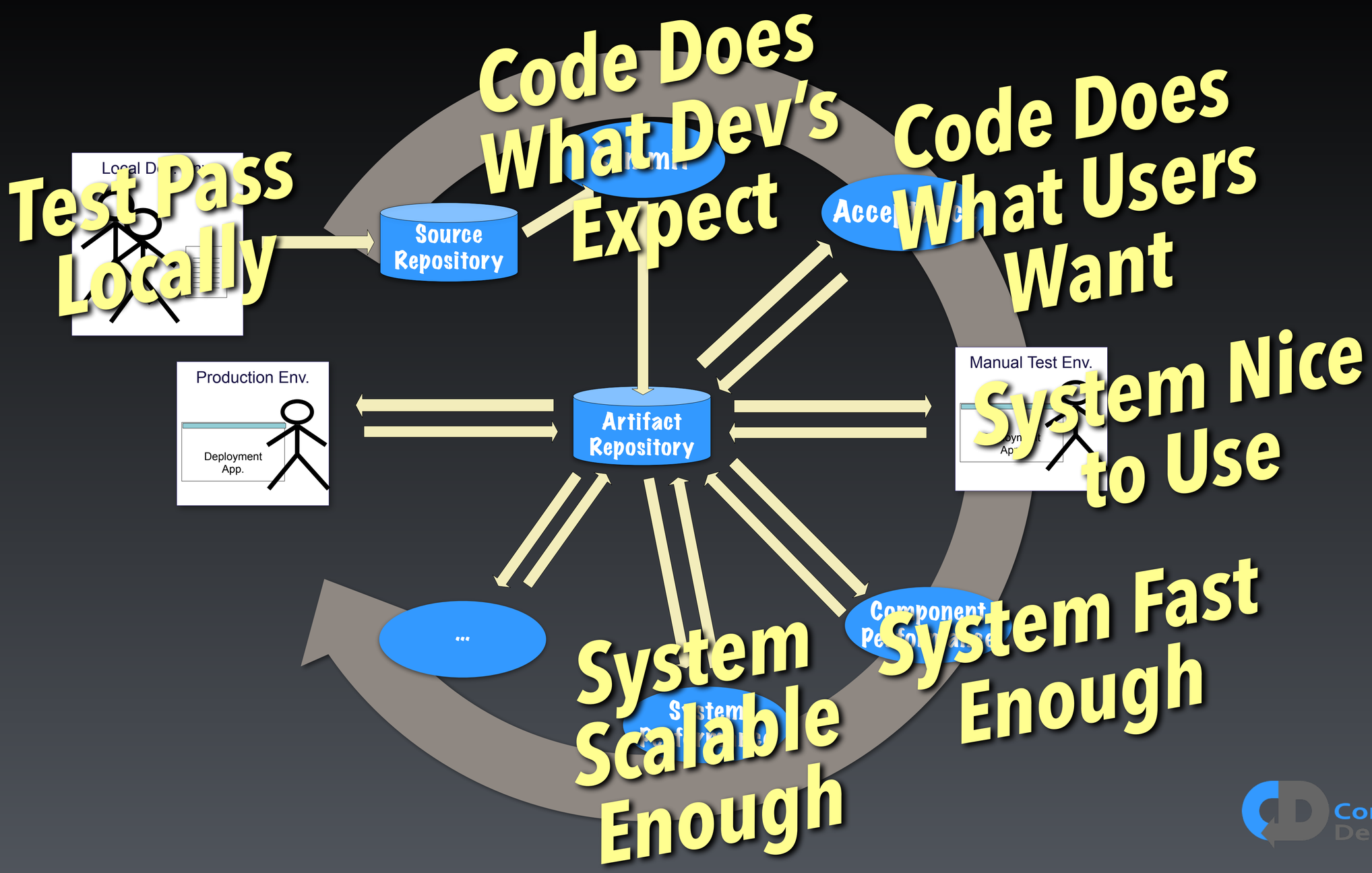

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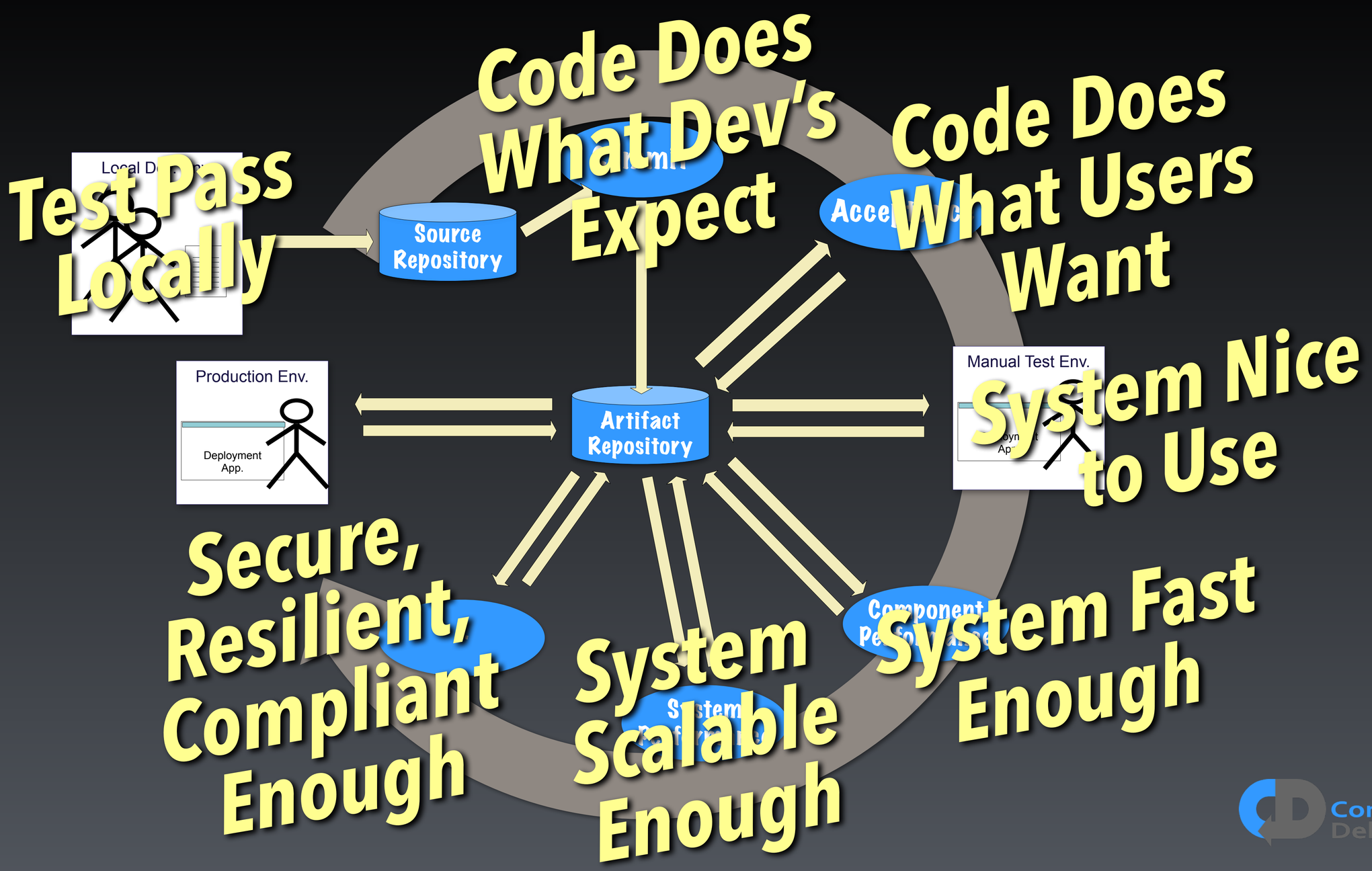

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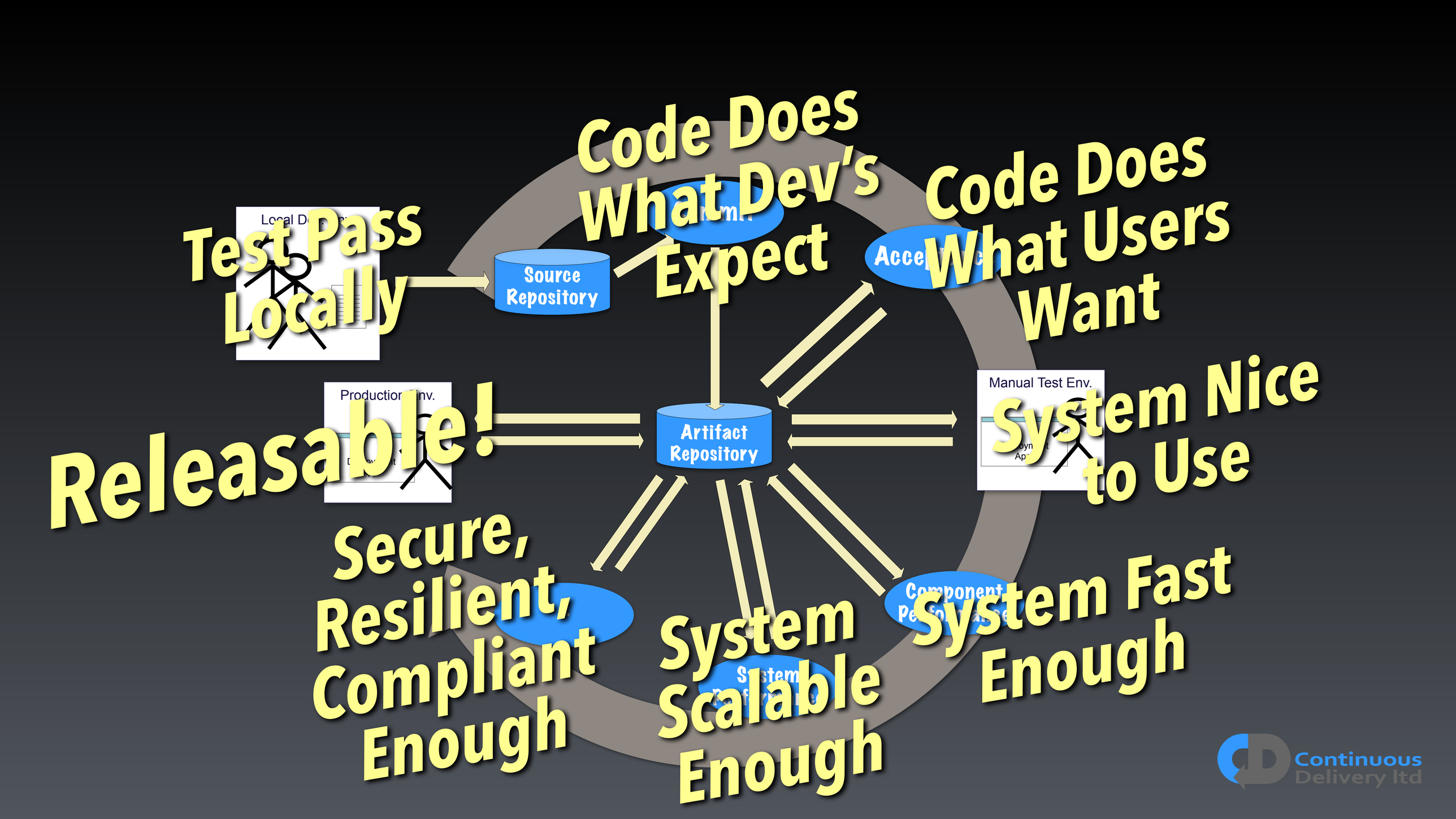
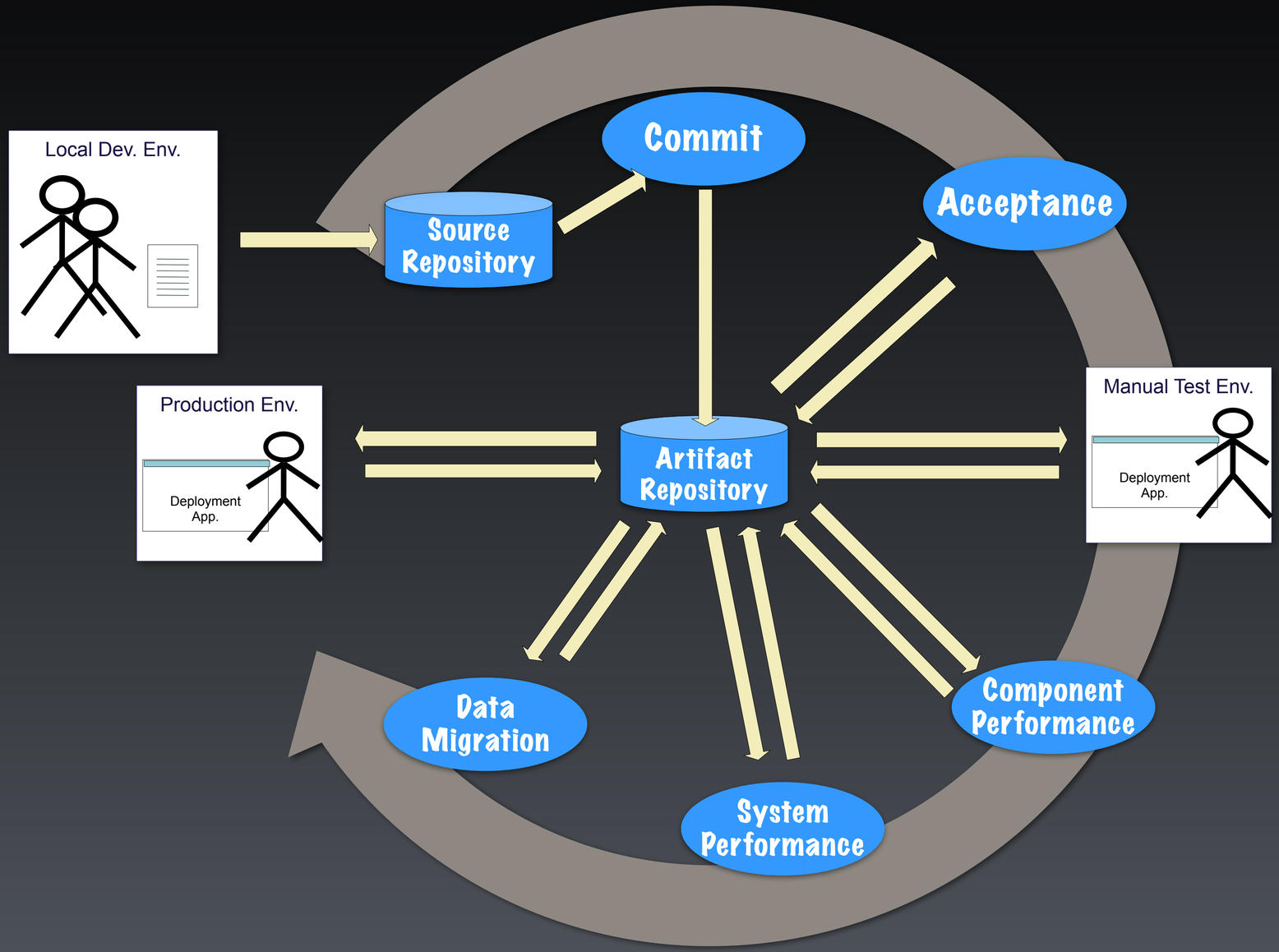
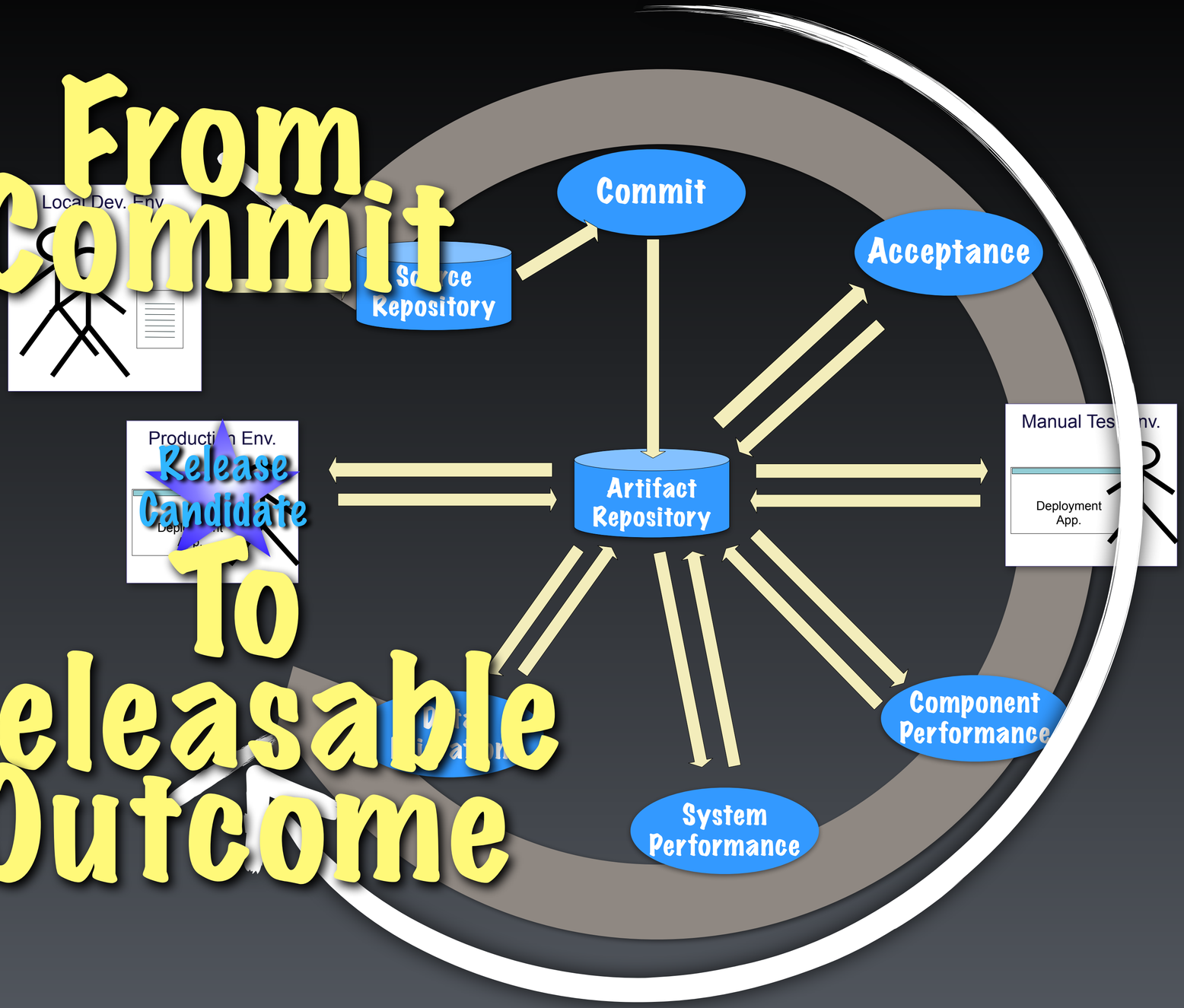

Test Pass Locally
Source Repository
Code Does What Dev's Expect
Code Does What Users Want
Manual Test Env.
System Nice to Use
Releasable!
Artifact Repository
Secure, Resilient, Compliant Enough
System Scalable Enough
System Fast Enough
Continuous Delivery ltd



Continuous Delivery ltd

From Commit To Releasable Outcome



Continuous Delivery ltd

Confident to Make Progress

- We Gain Confidence by Testing Our System Thoroughly
- Testing Thoroughly, Means Automated Testing
- I Think of this as ***Engineering*** for Software

Confident to Make Progress

- We Gain Confidence by Testing Our System Thoroughly
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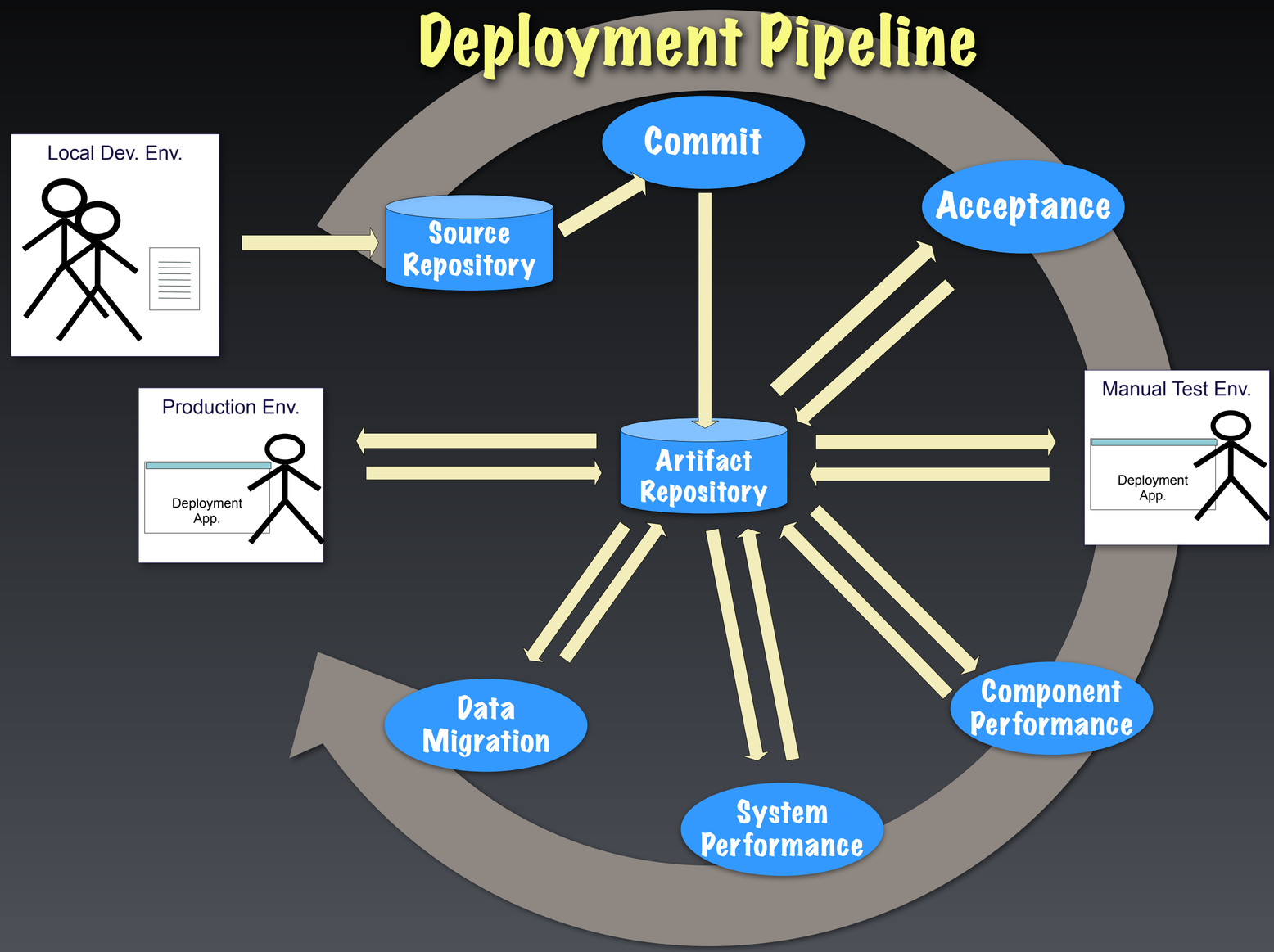
True Software Engineering

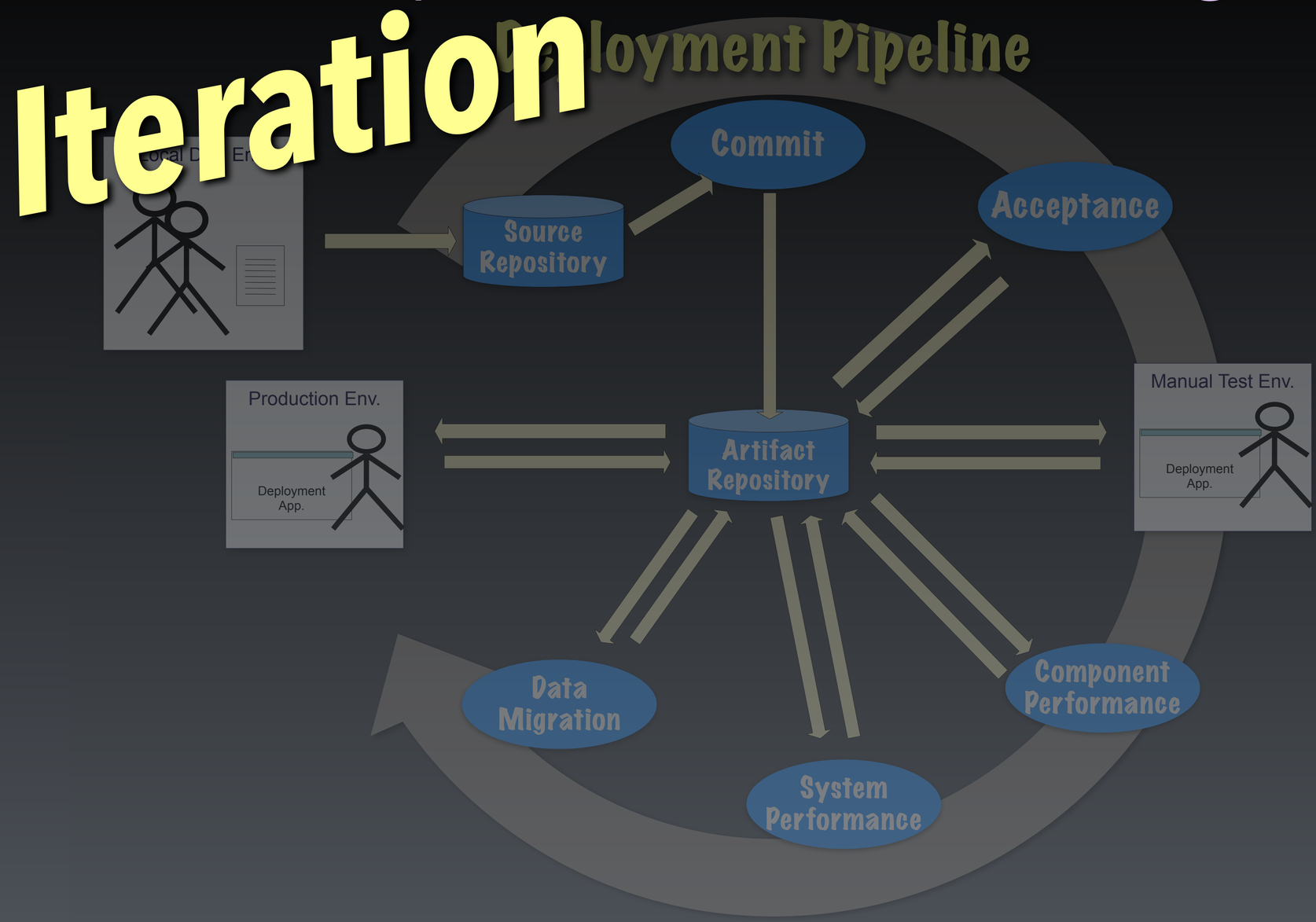
Continuous Delivery ltd

Optimise for Learning



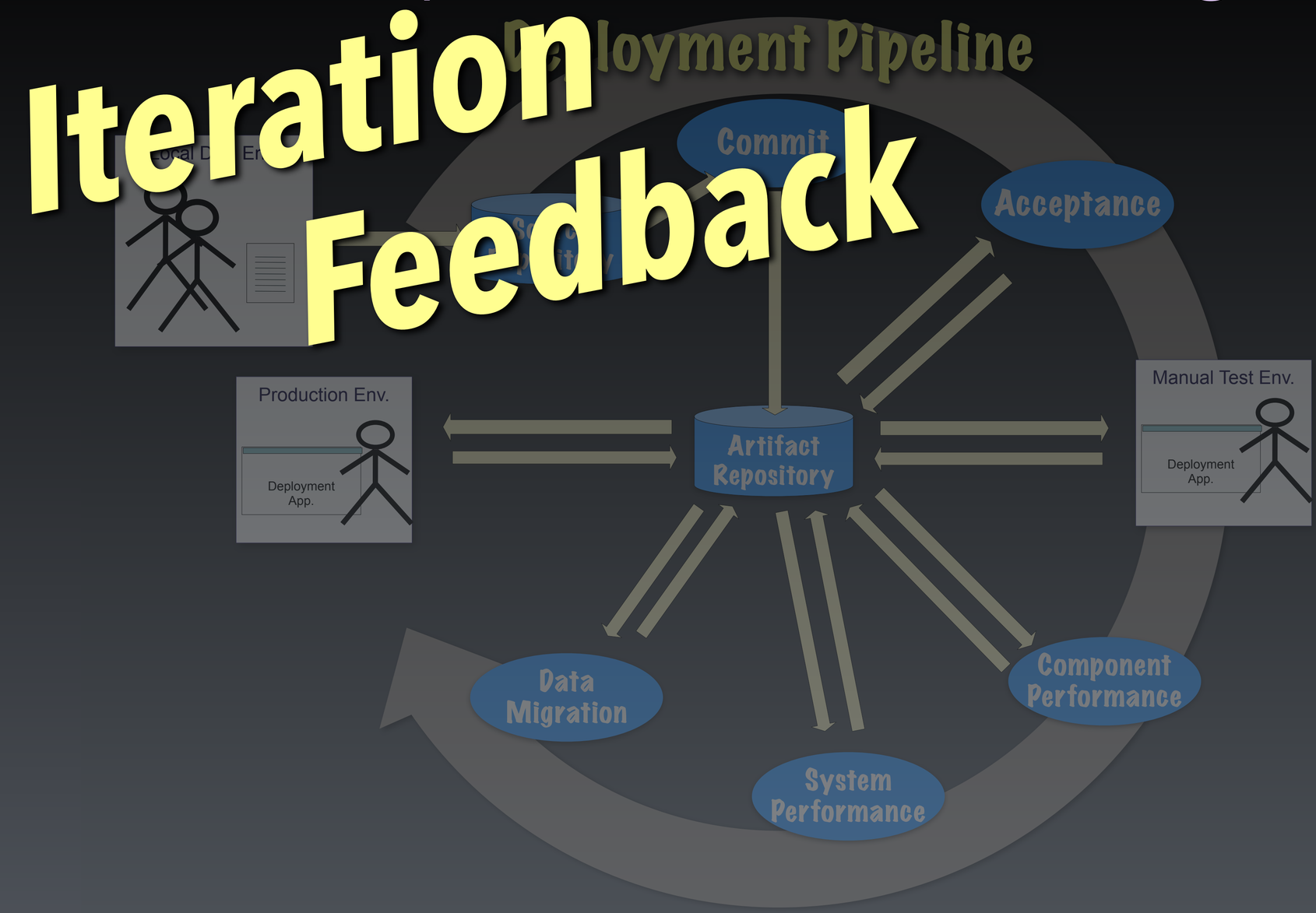
Continuous Delivery ltd

Optimise for Learning



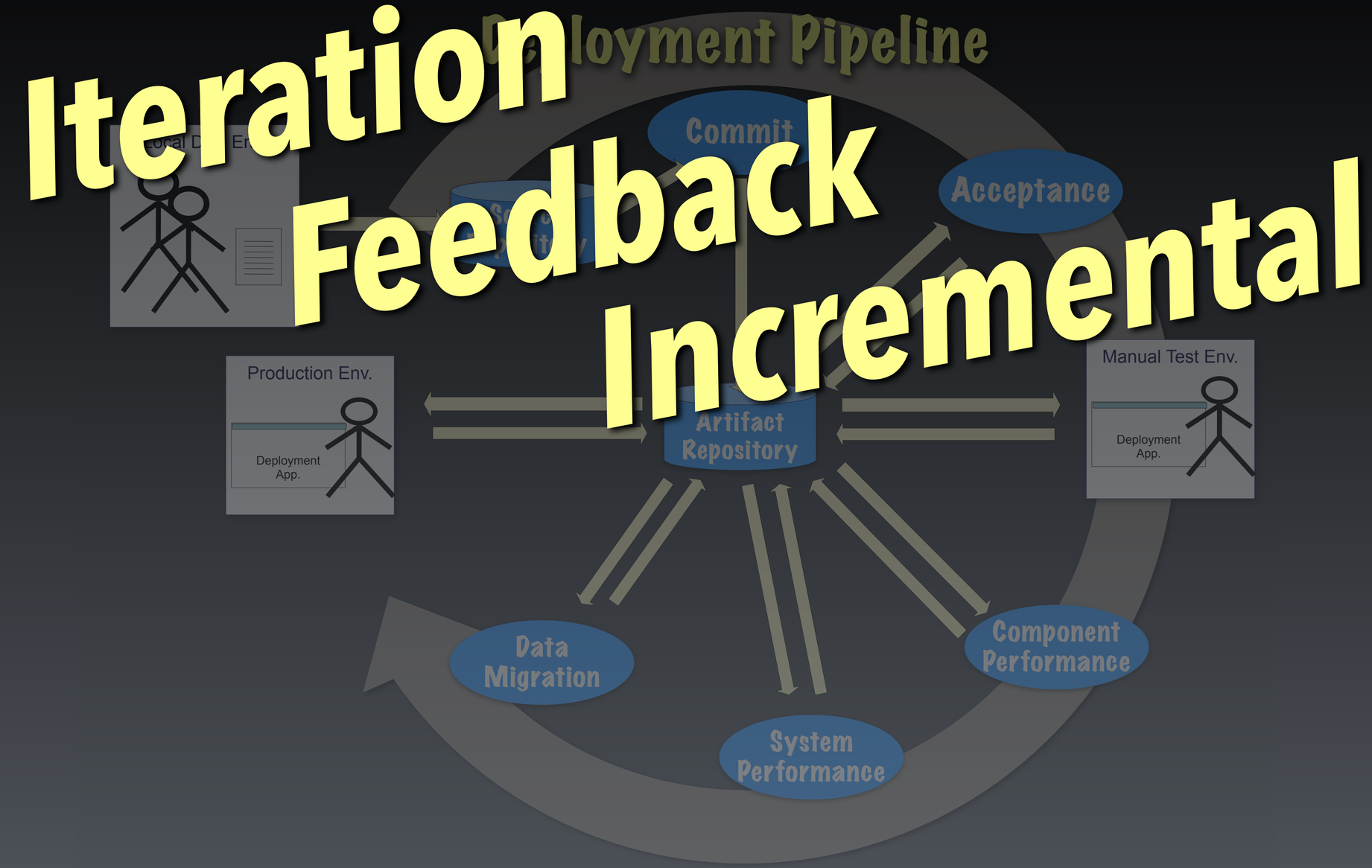
Continuous Delivery ltd

Optimise for Learning



Continuous Delivery ltd

Optimise for Learning



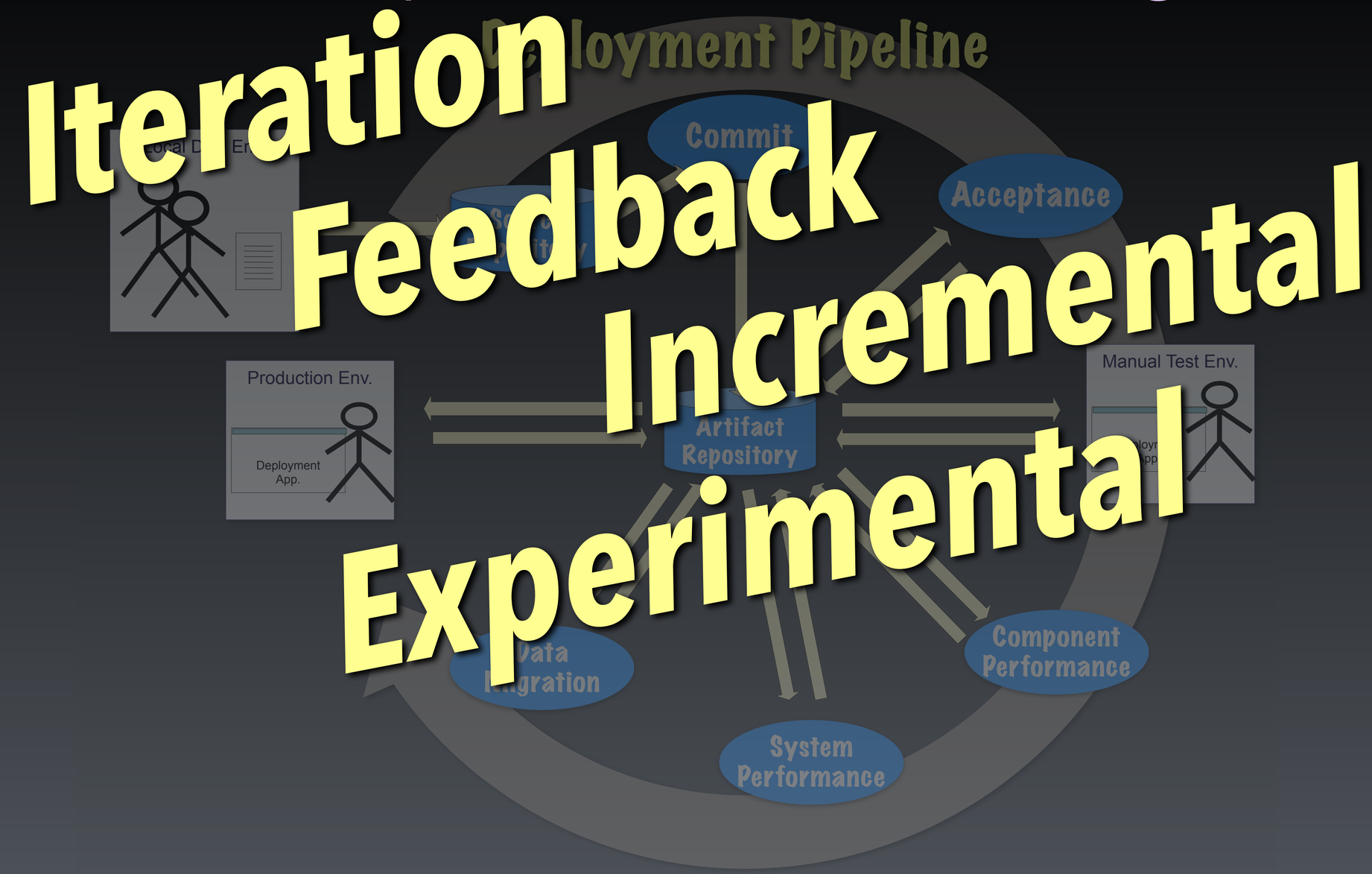
Iteration

Feedback

Incremental

Continuous Delivery ltd

Optimise for Learning



Iteration

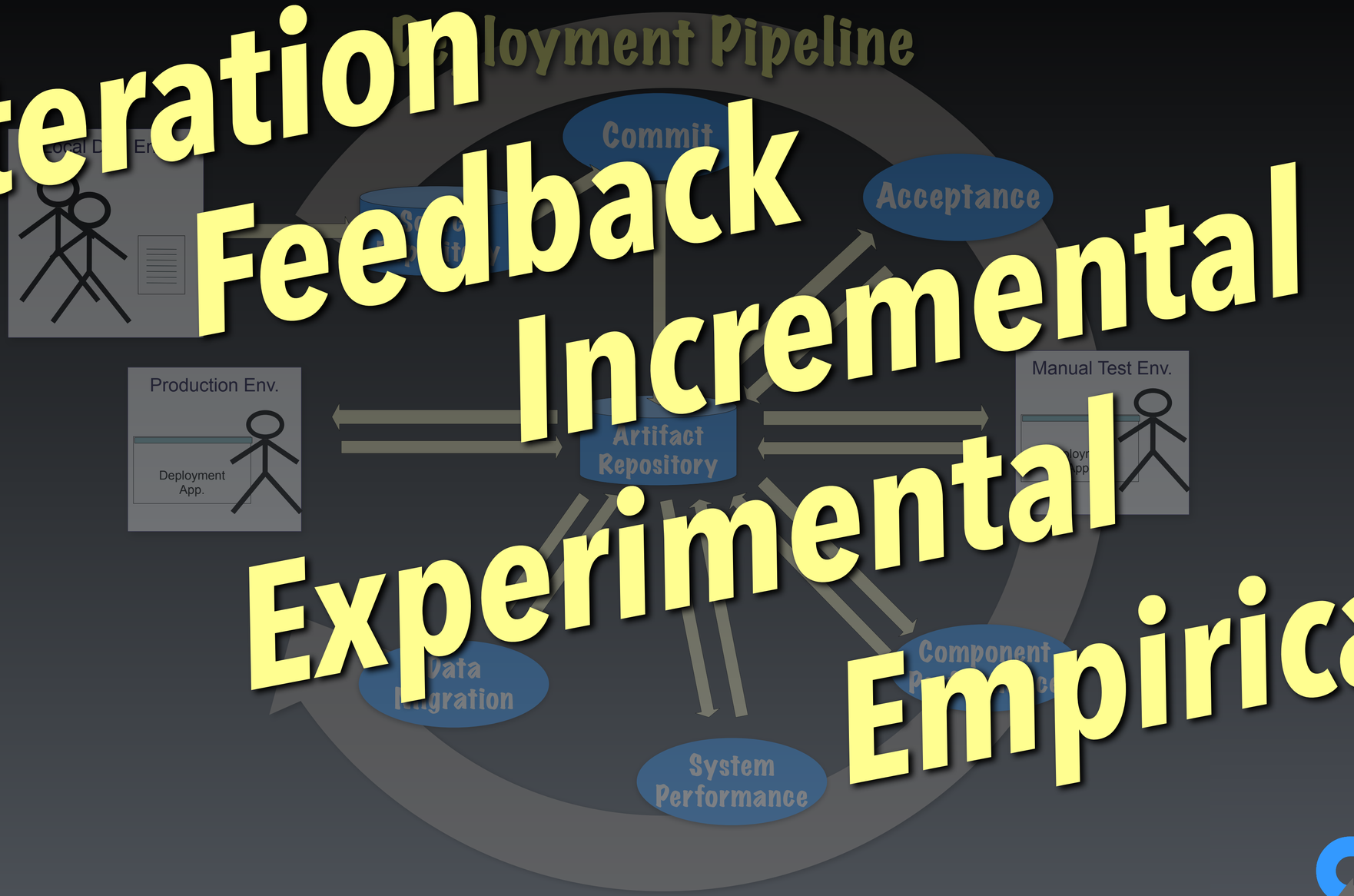
Feedback

Incremental

Experimental

Continuous Delivery ltd

Optimise for Learning



Iteration

Feedback

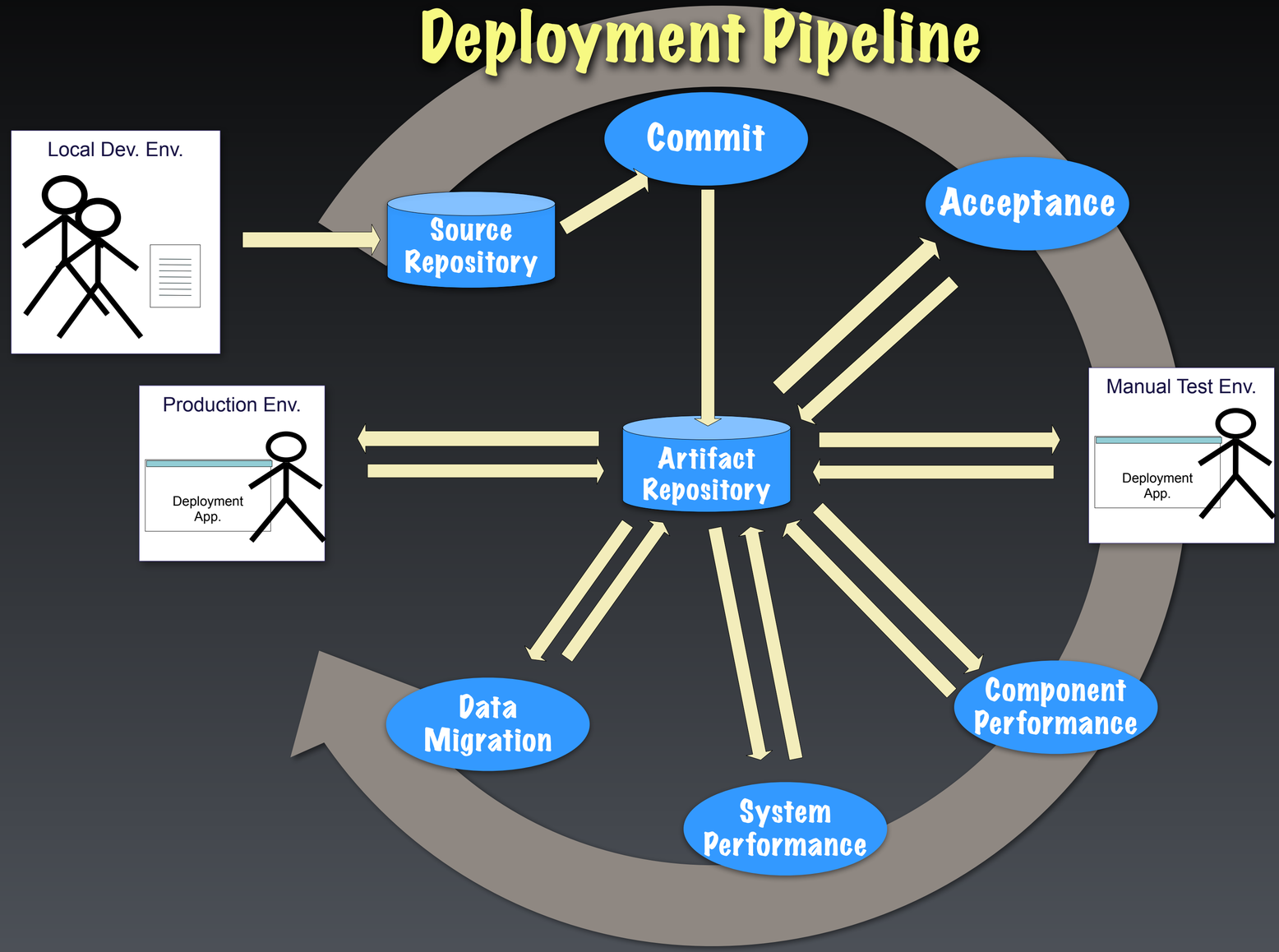
Incremental

Experimental

Empirical

Continuous Delivery ltd

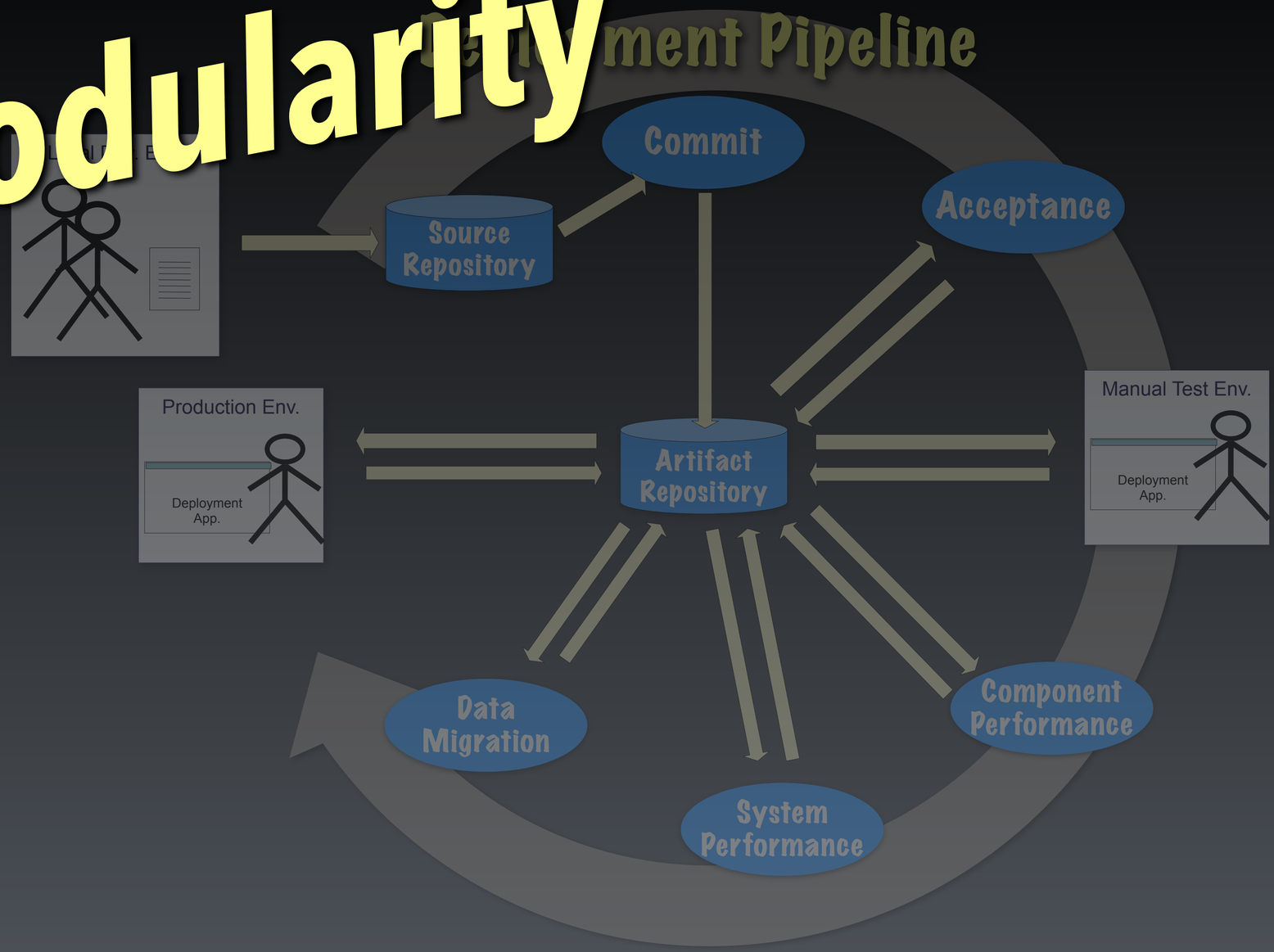
Managing Complexity



Continuous Delivery ltd

Managing Complexity

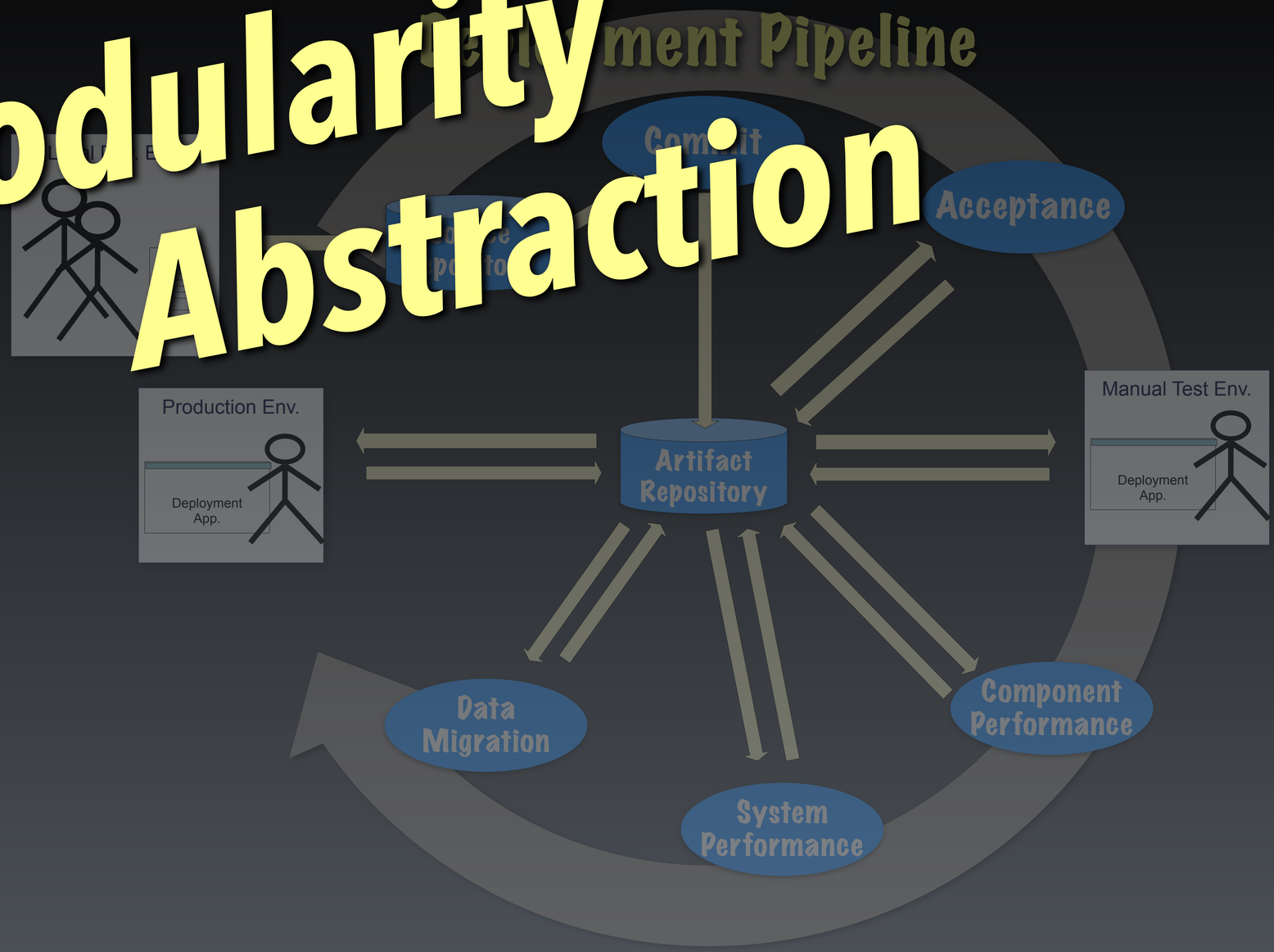
Modularity



Continuous Delivery ltd

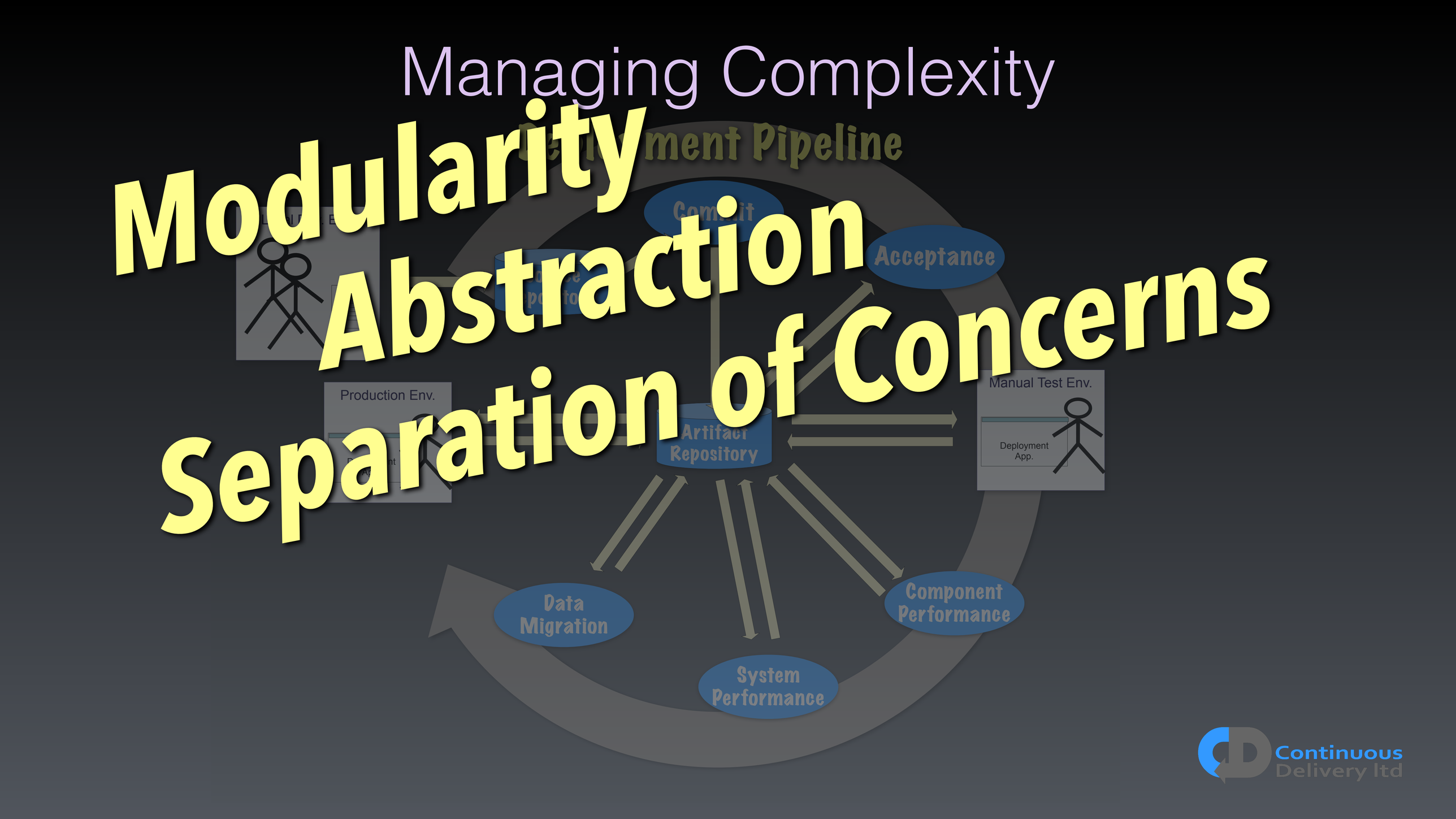
Managing Complexity

Modularity
Abstraction



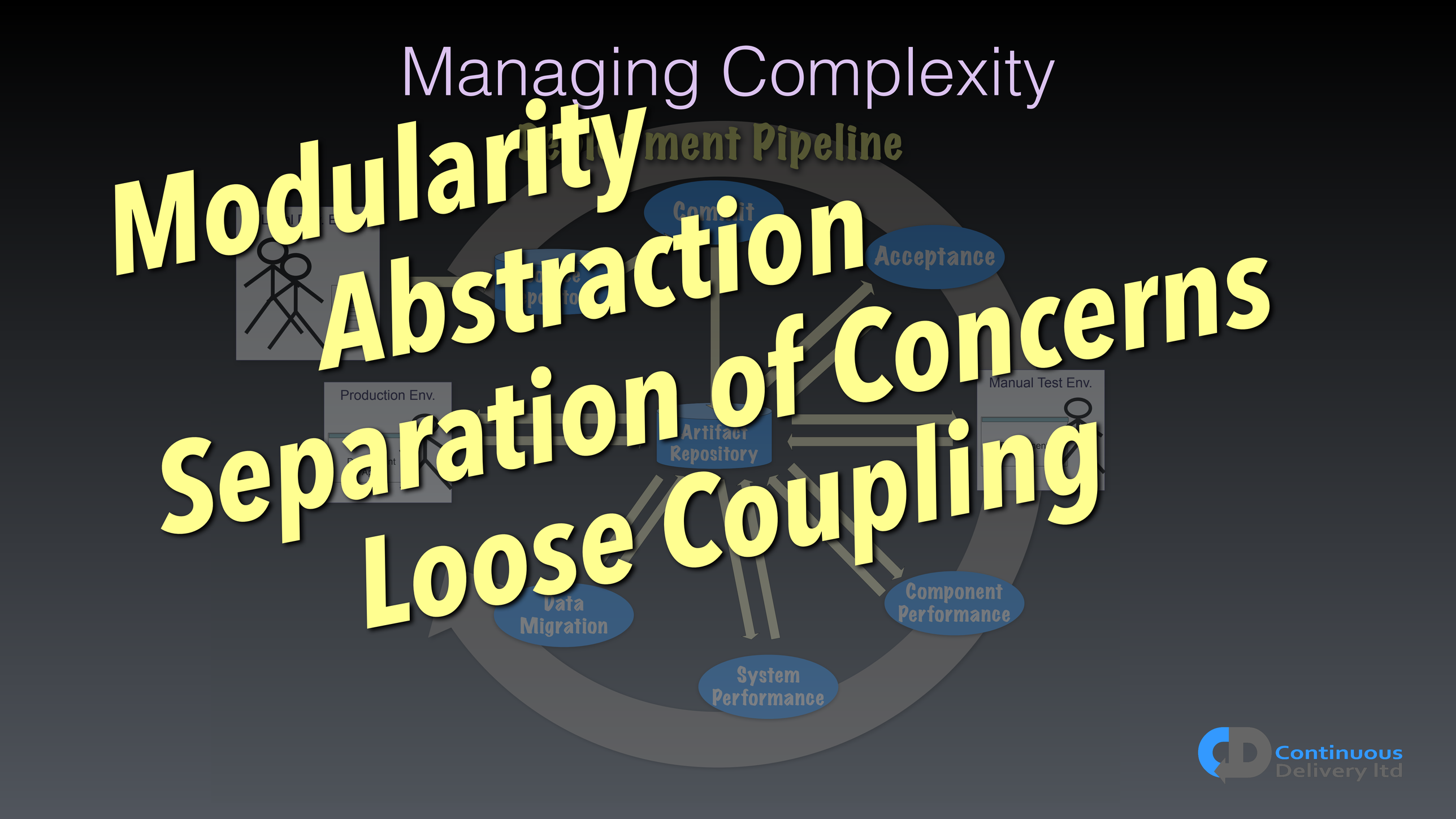
Continuous Delivery ltd

Managing Complexity



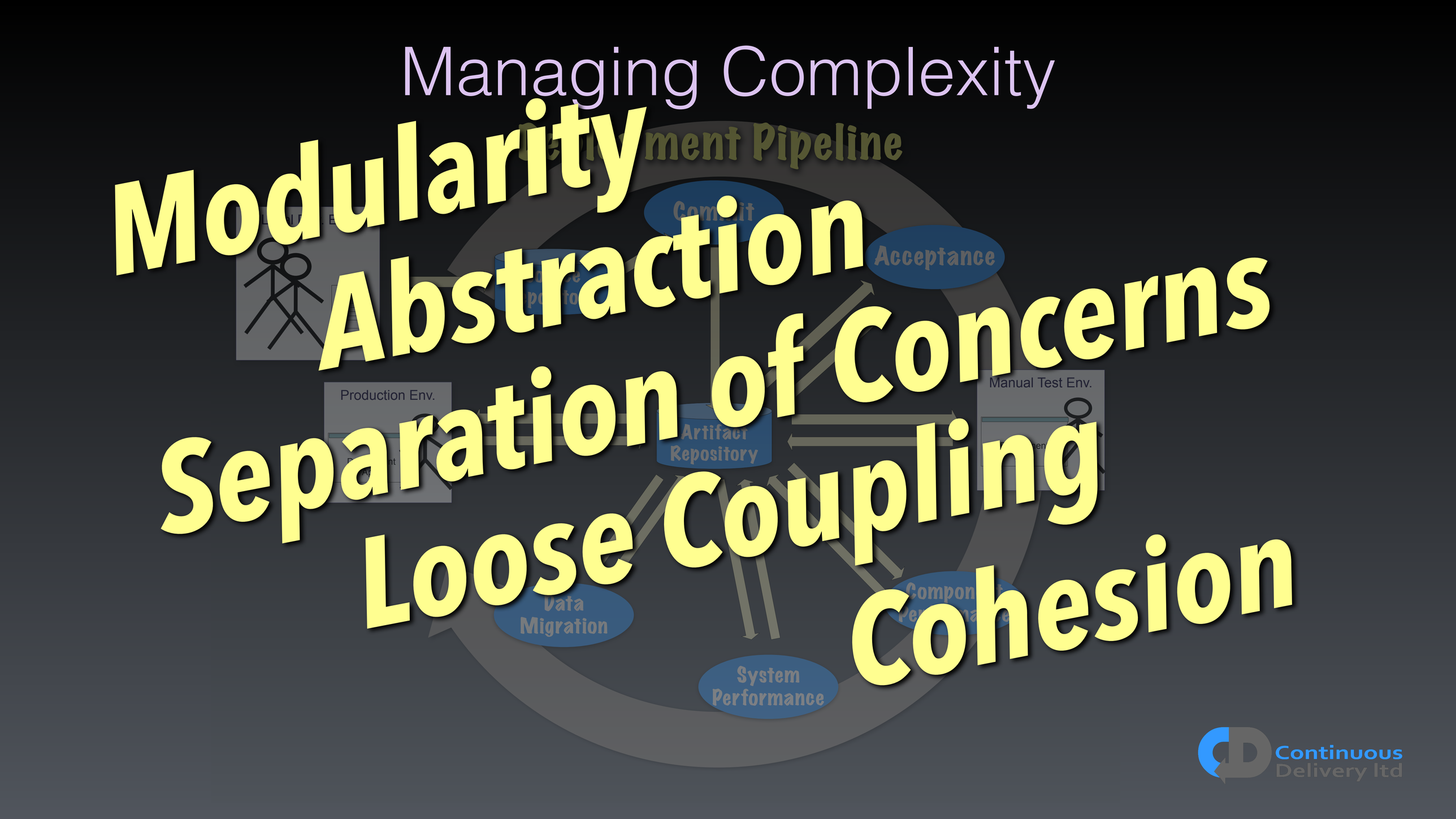
Continuous Delivery ltd

Managing Complexity

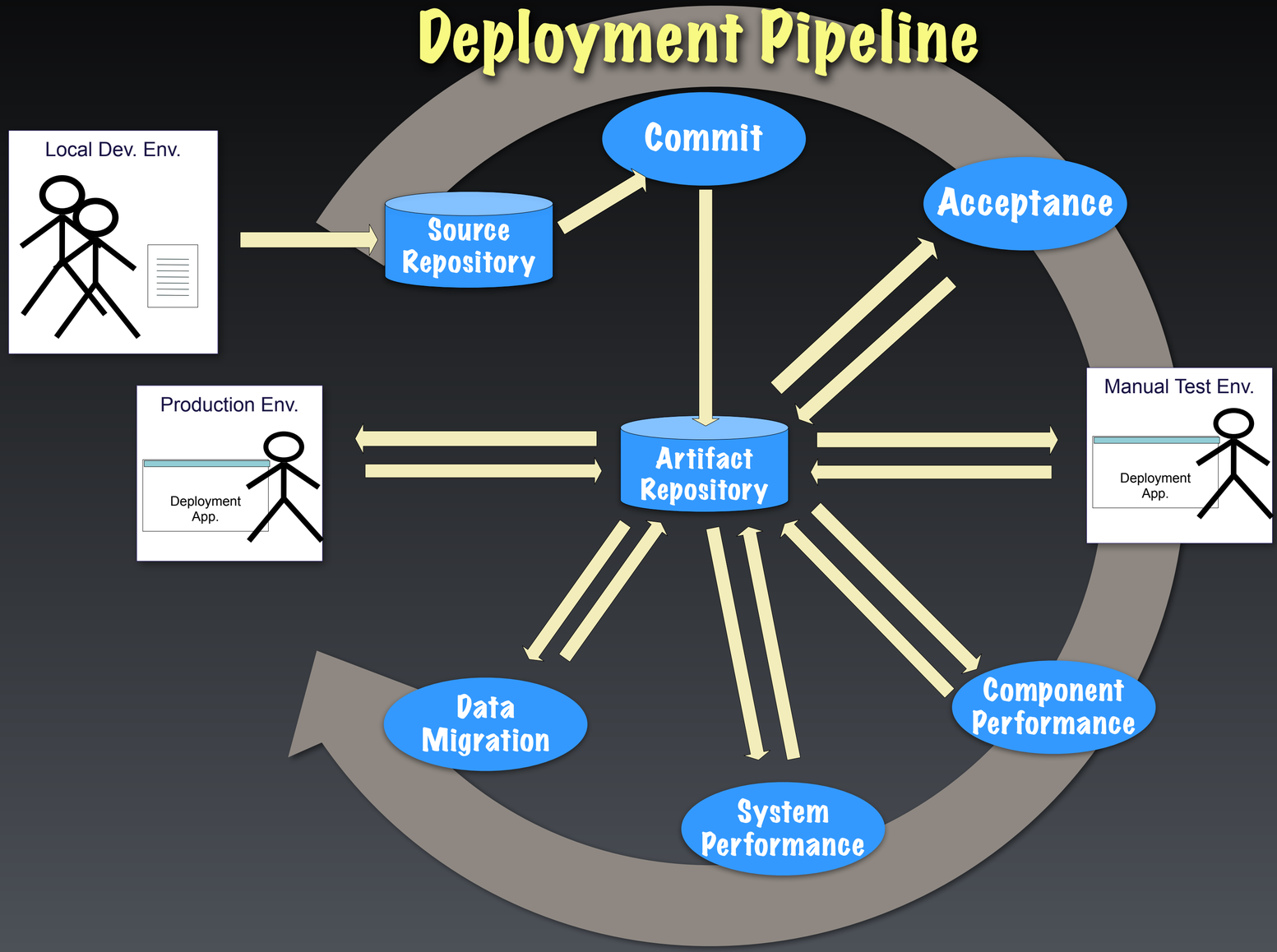


Continuous Delivery ltd

Managing Complexity

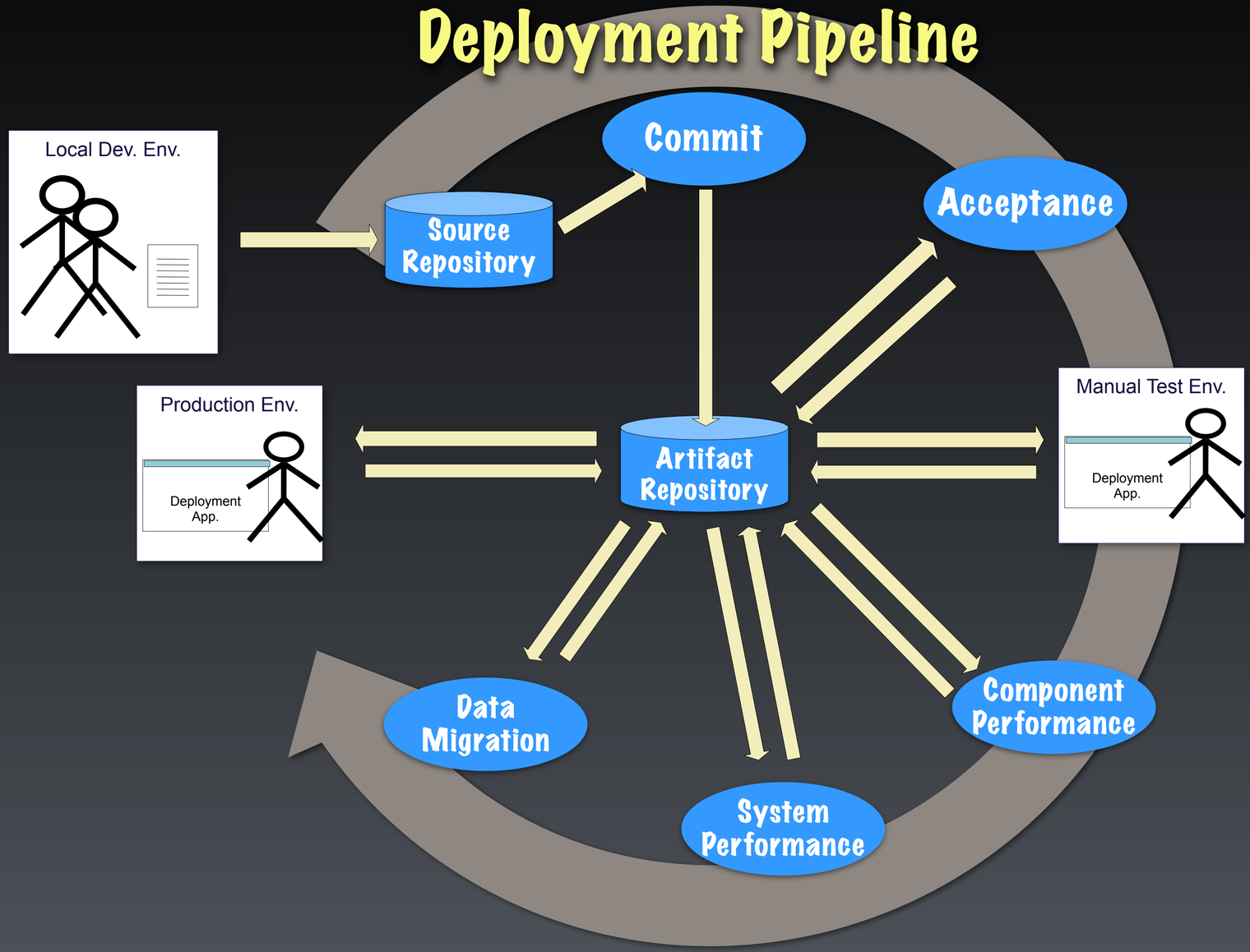


Deployment Pipeline



Continuous Delivery ltd

Deployment Pipeline



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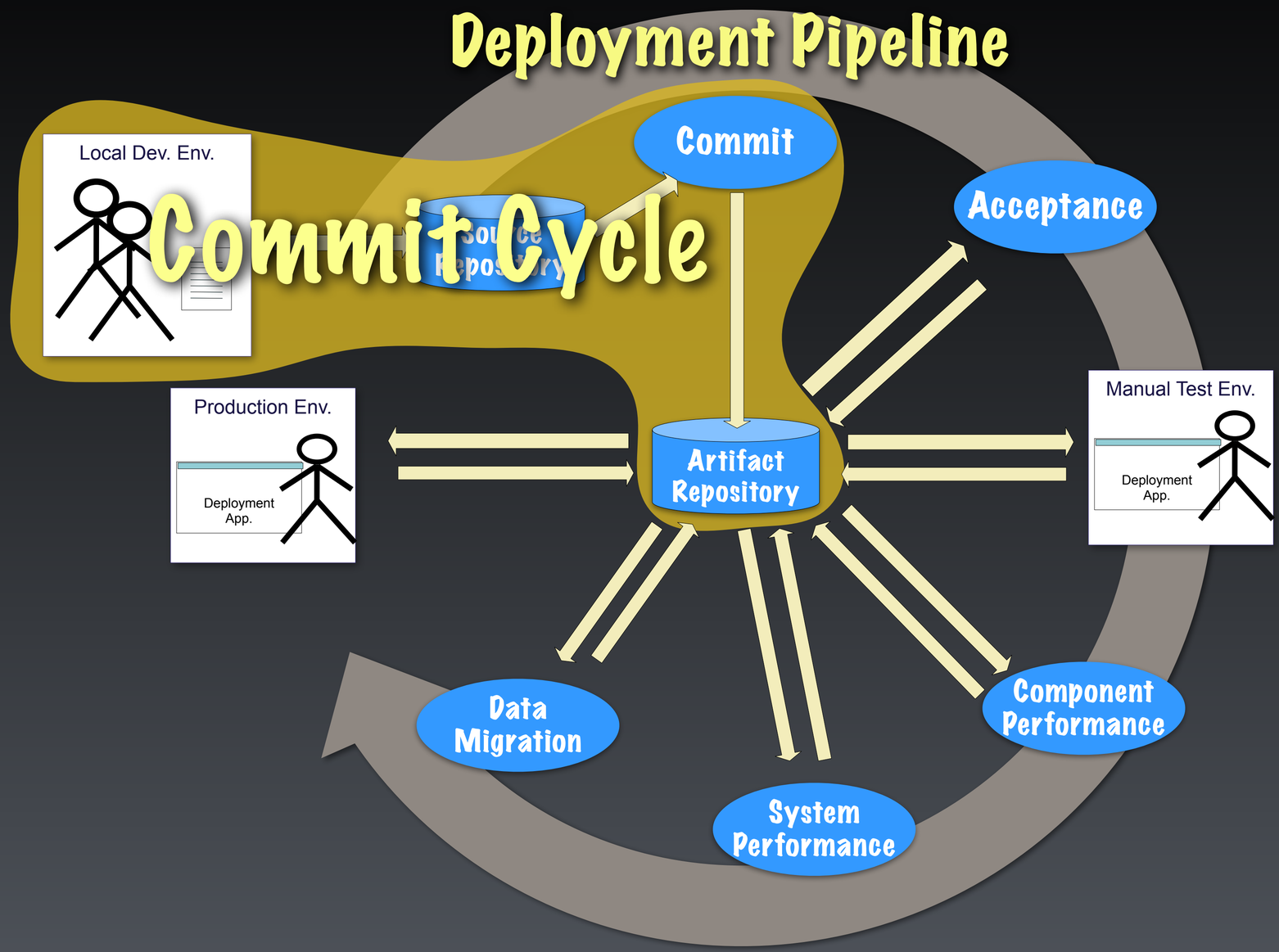

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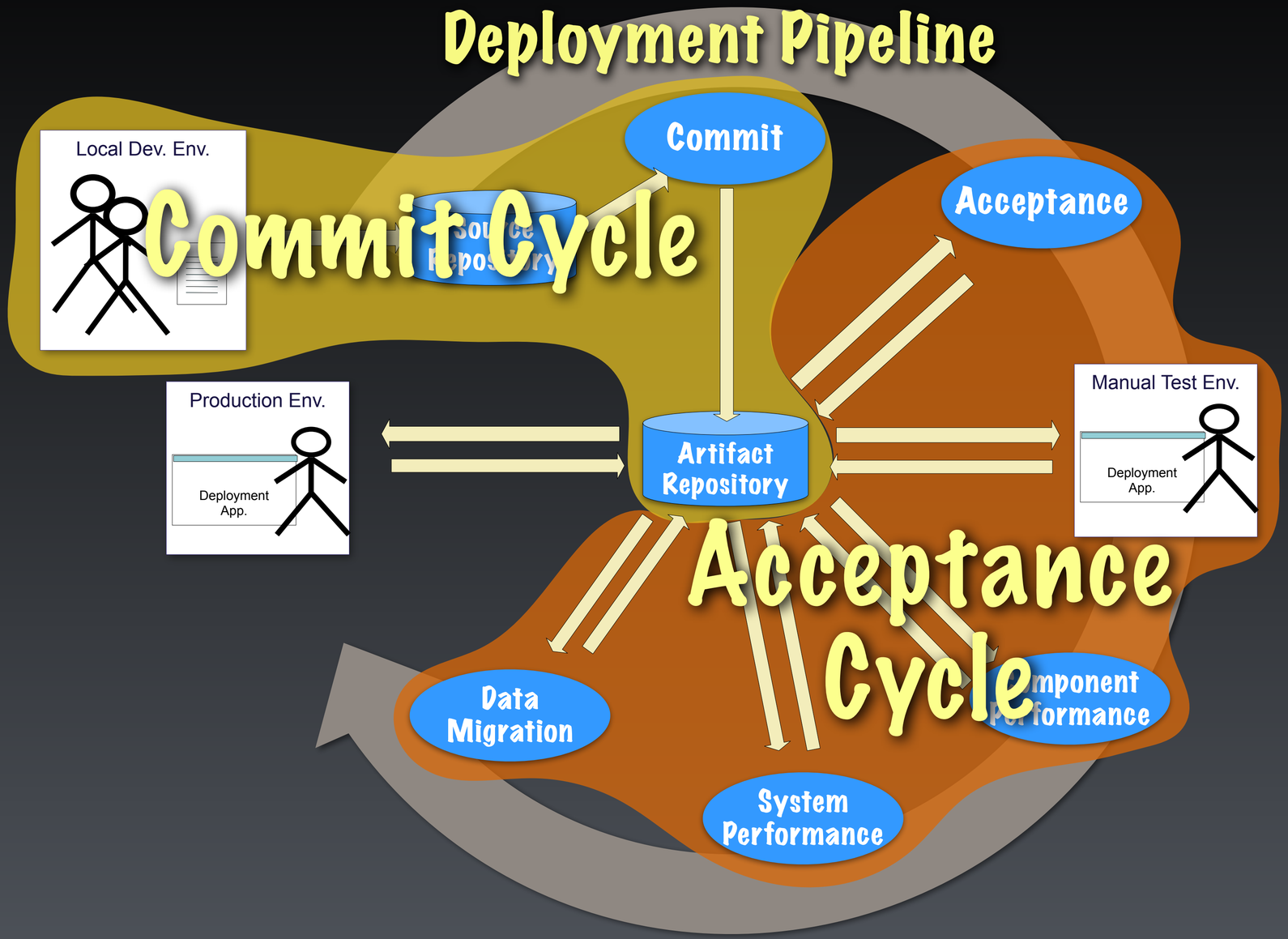

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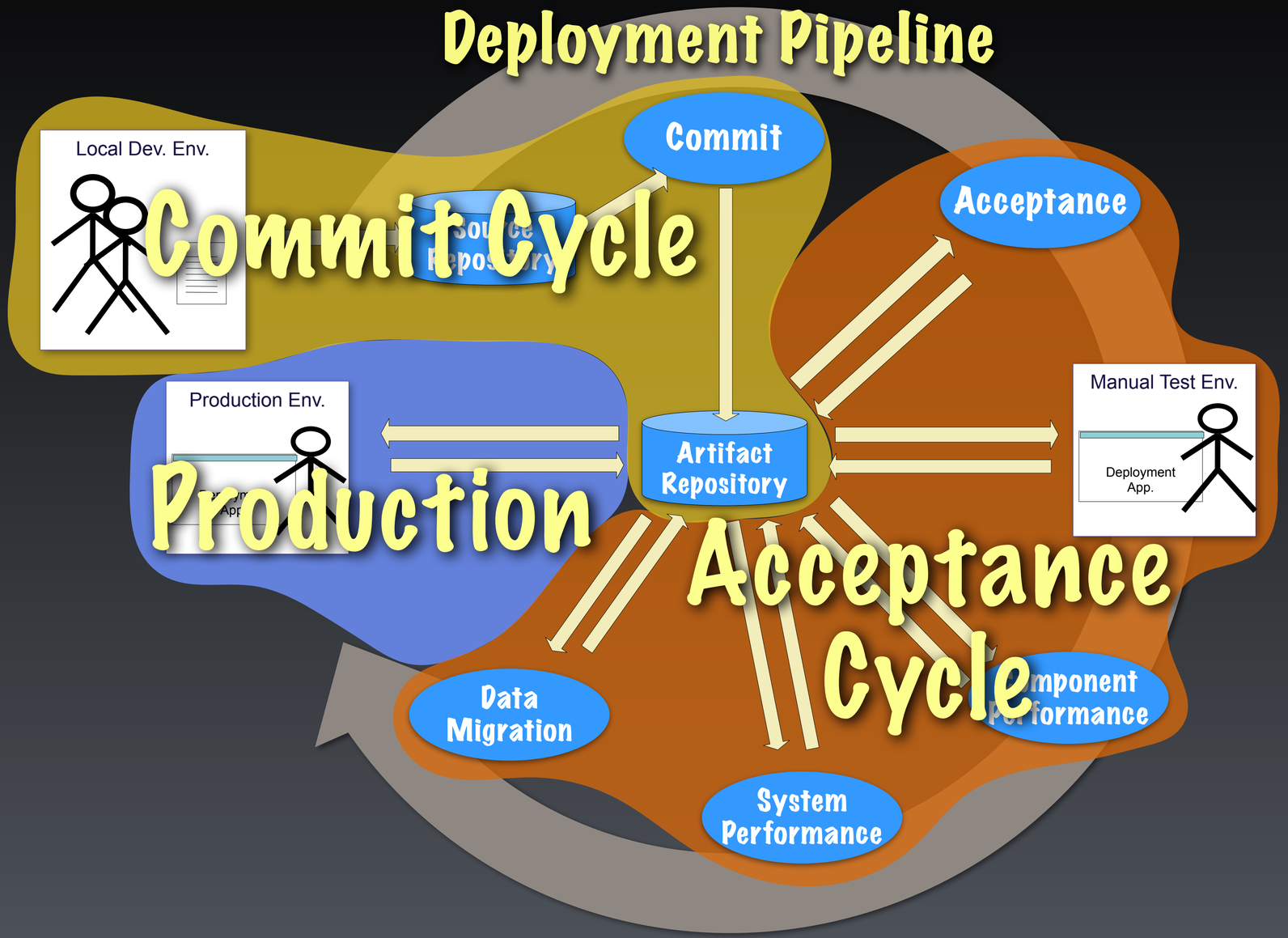
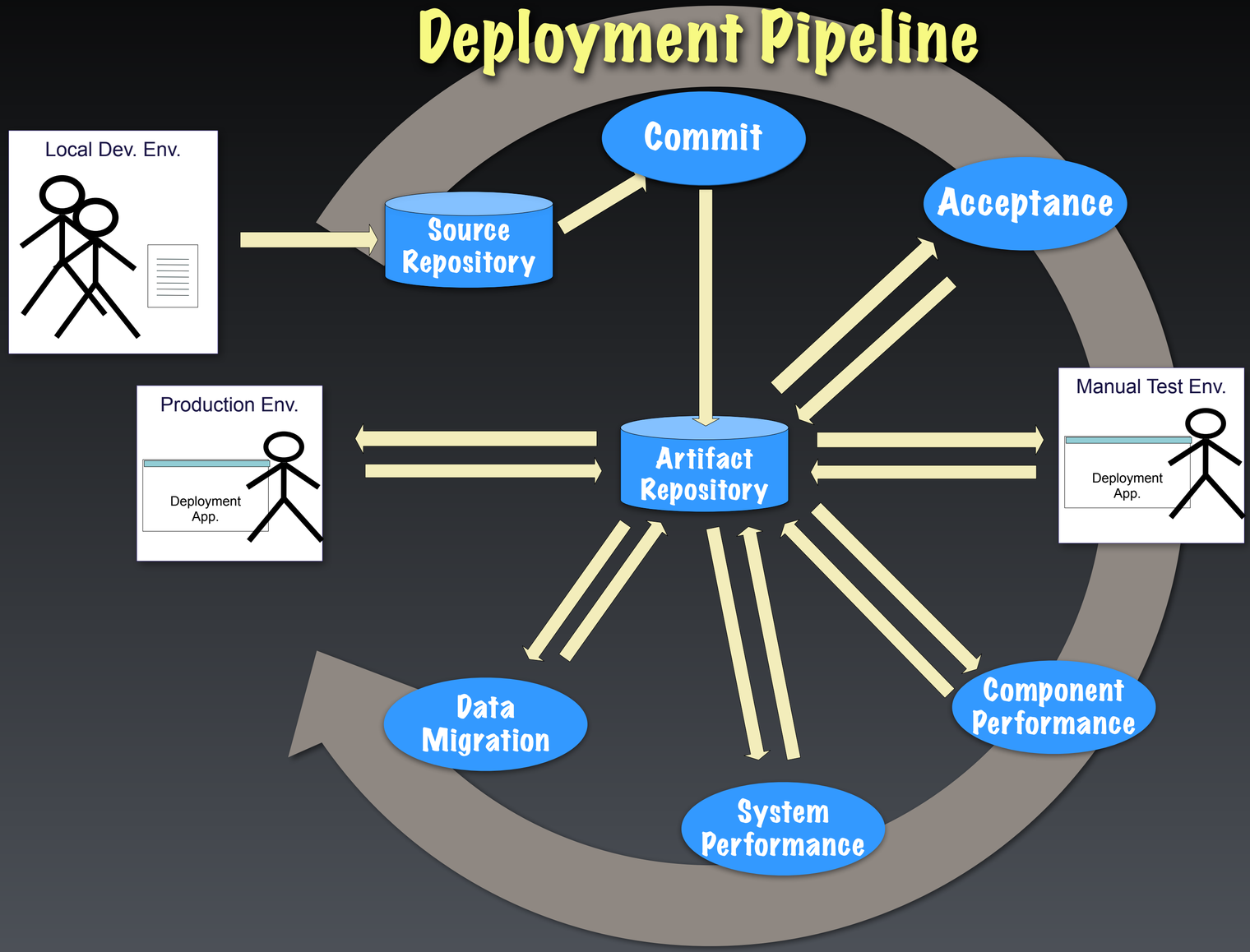


Deployment Pipeline



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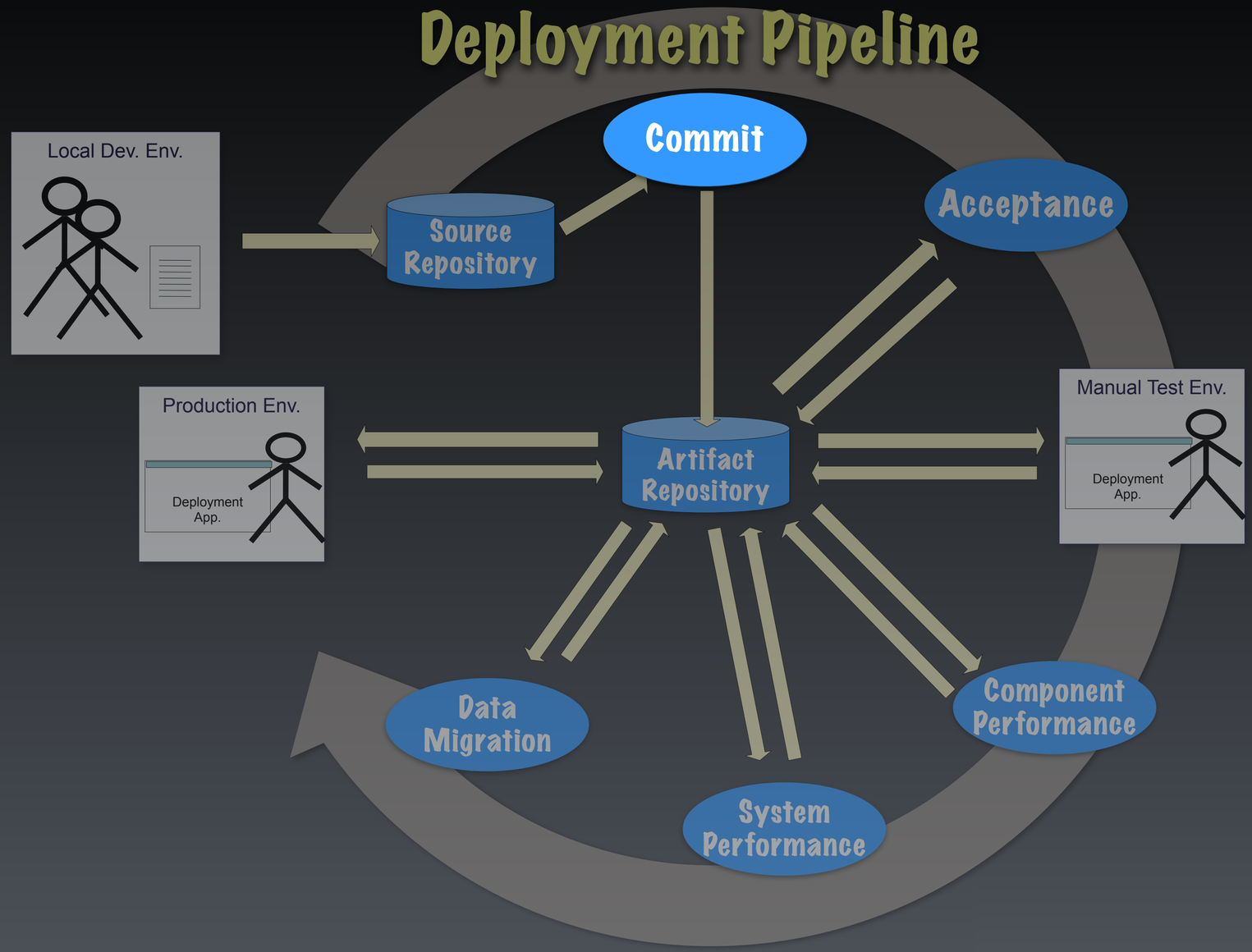

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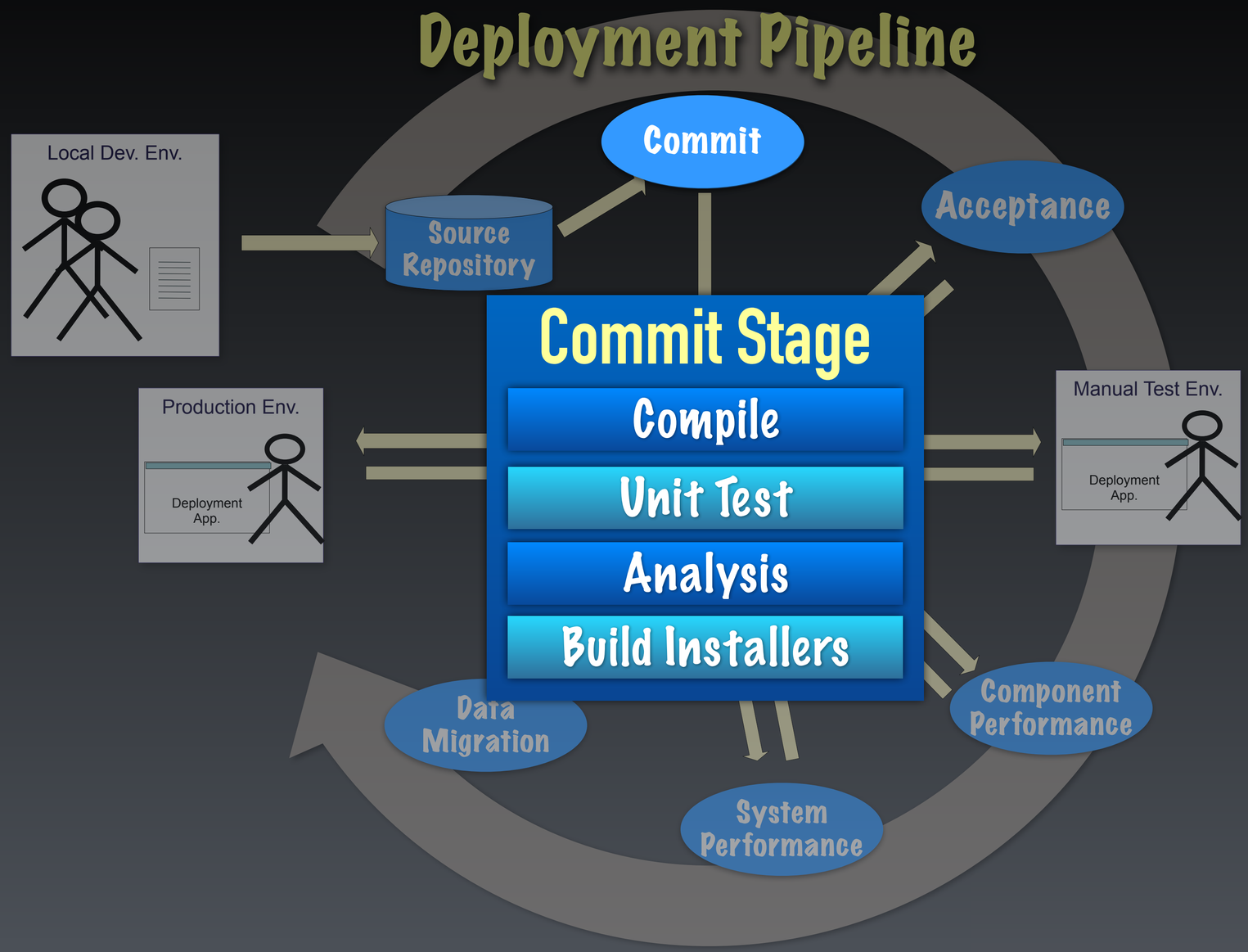

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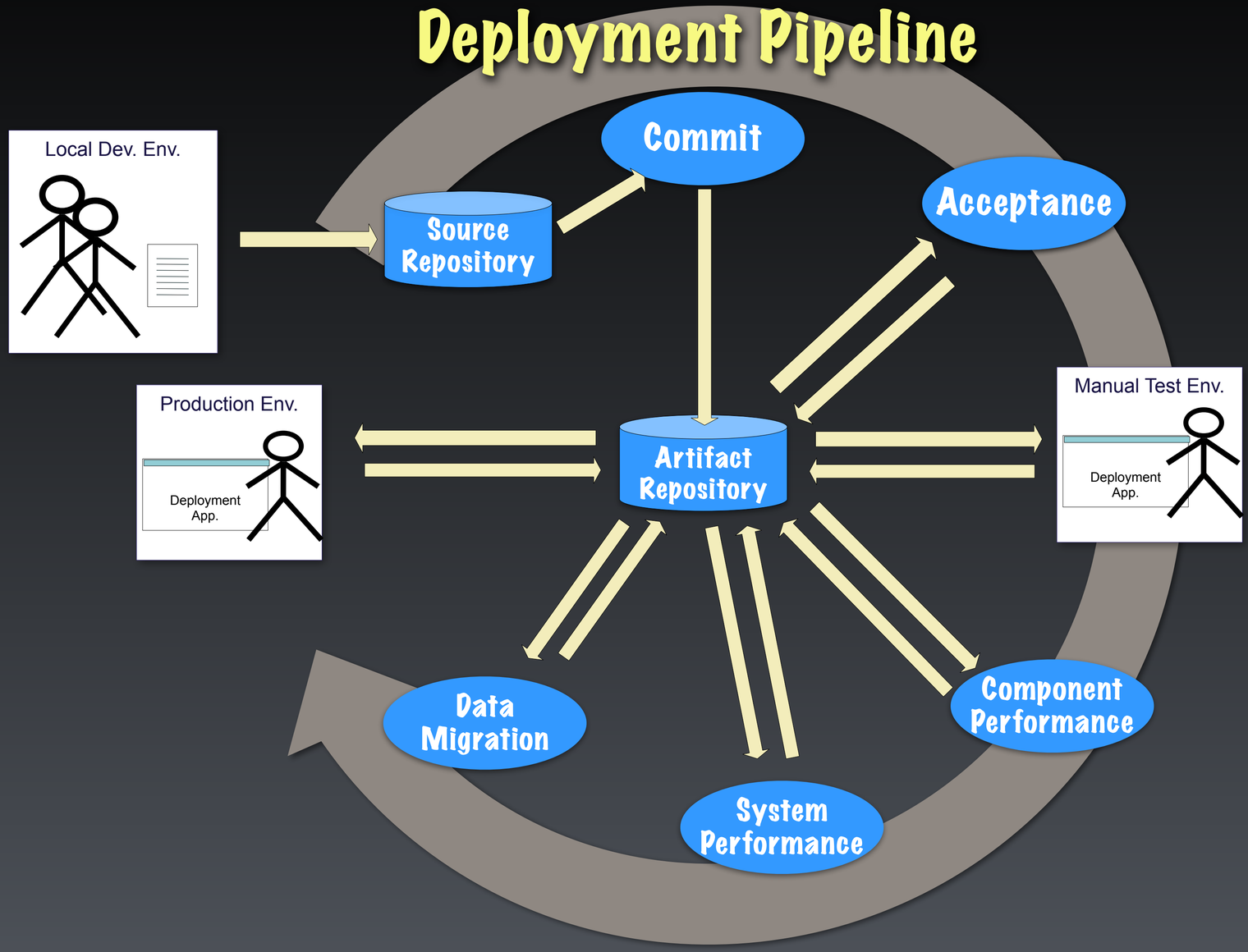
Deployment Pipeline



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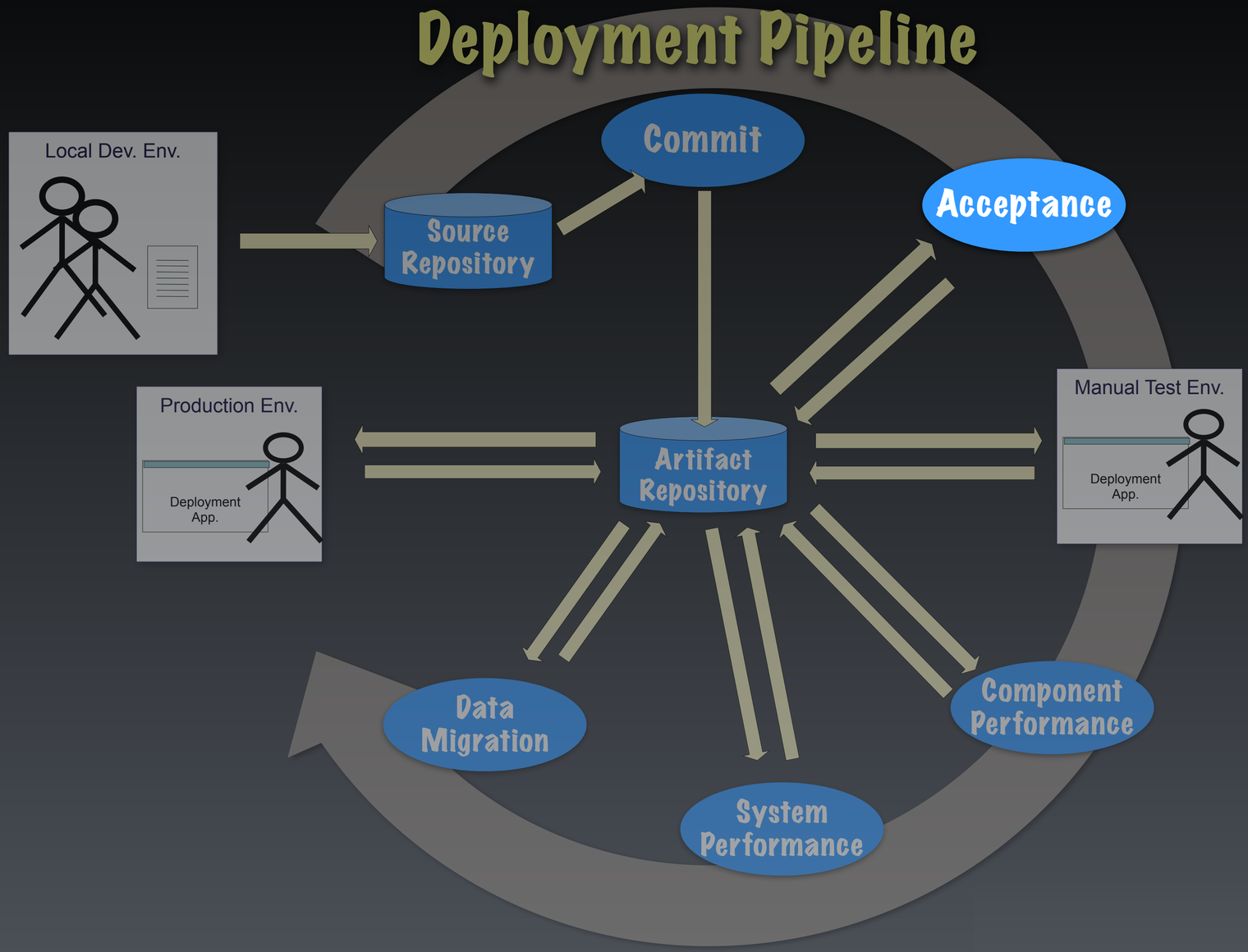

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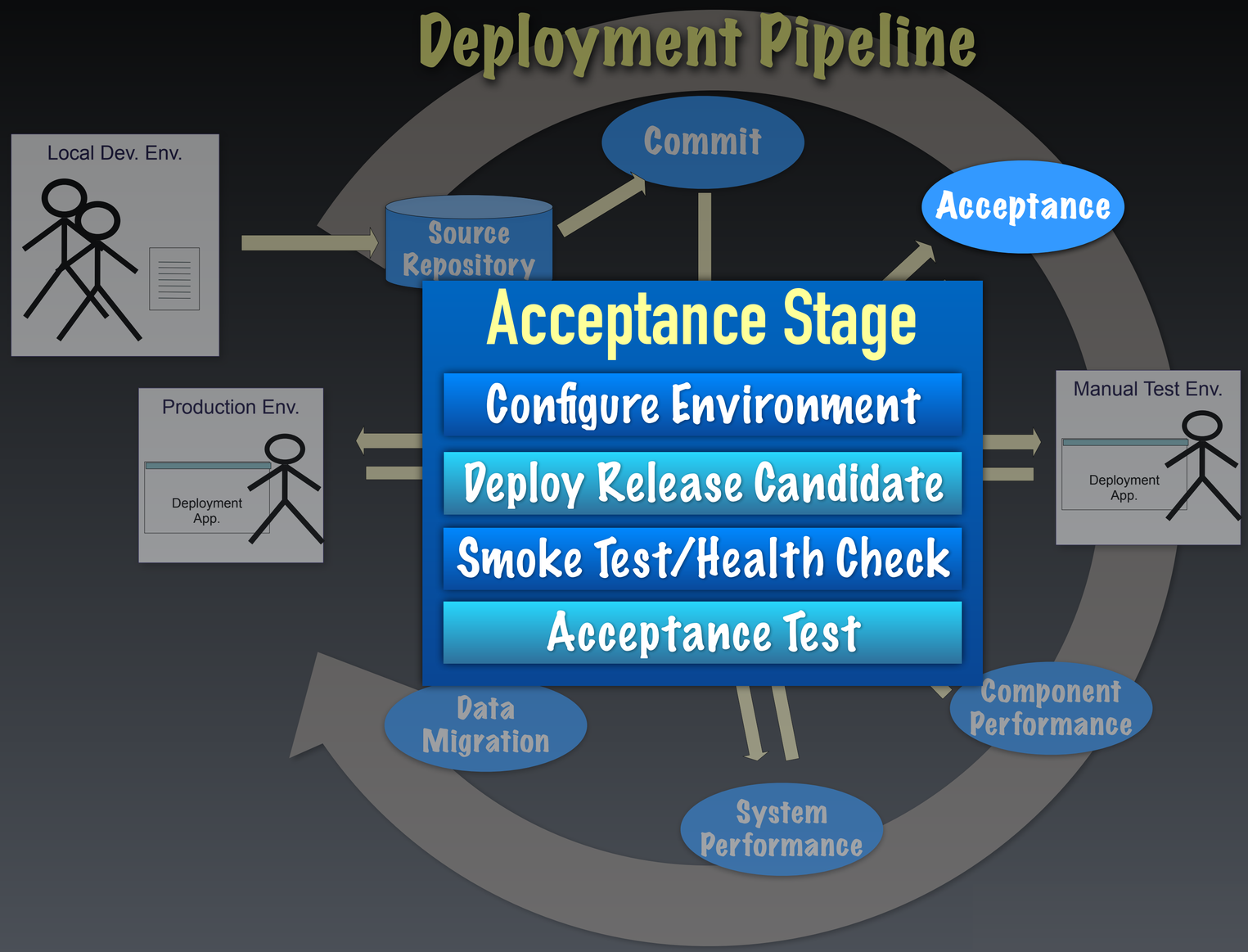

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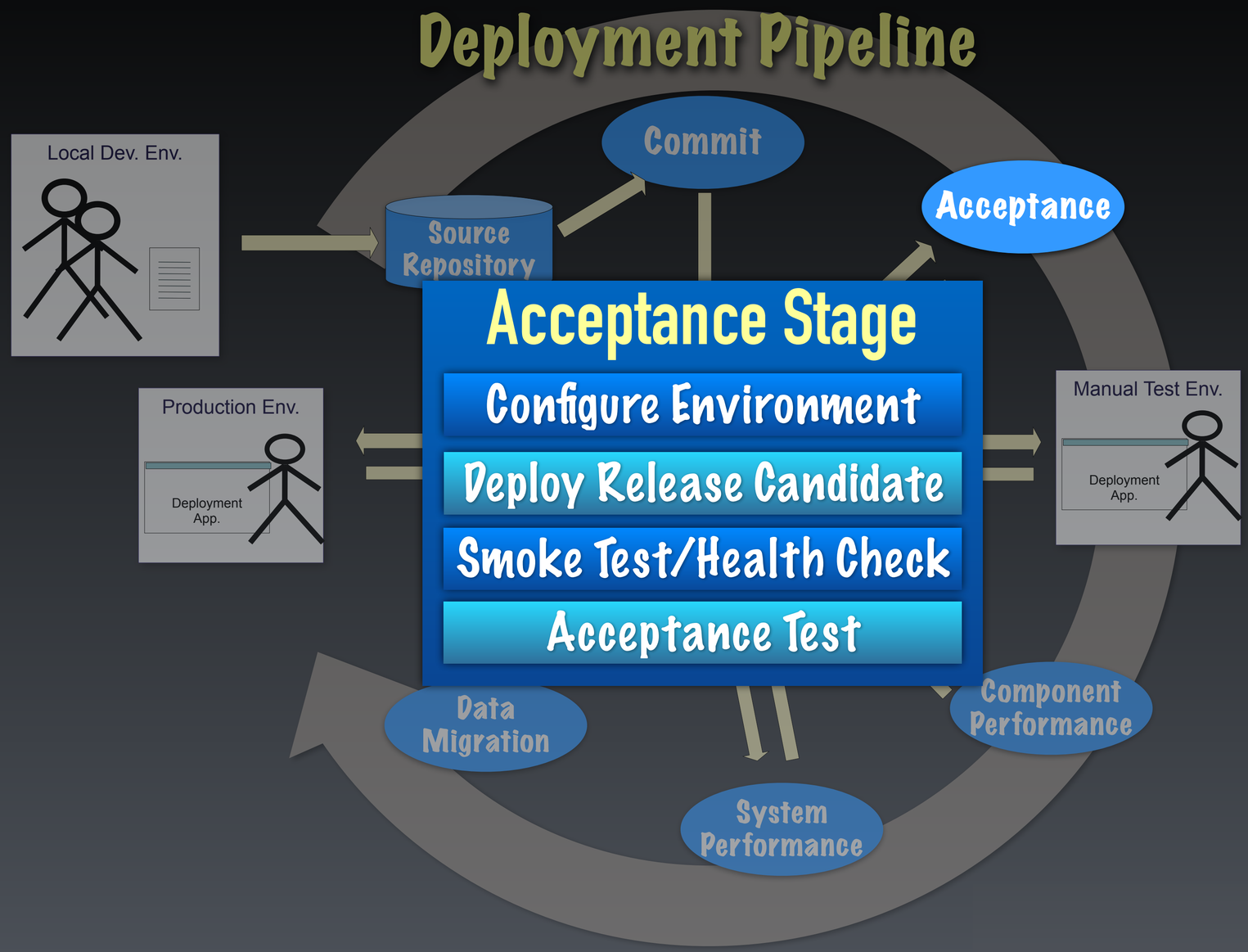
Continuous Delivery ltd



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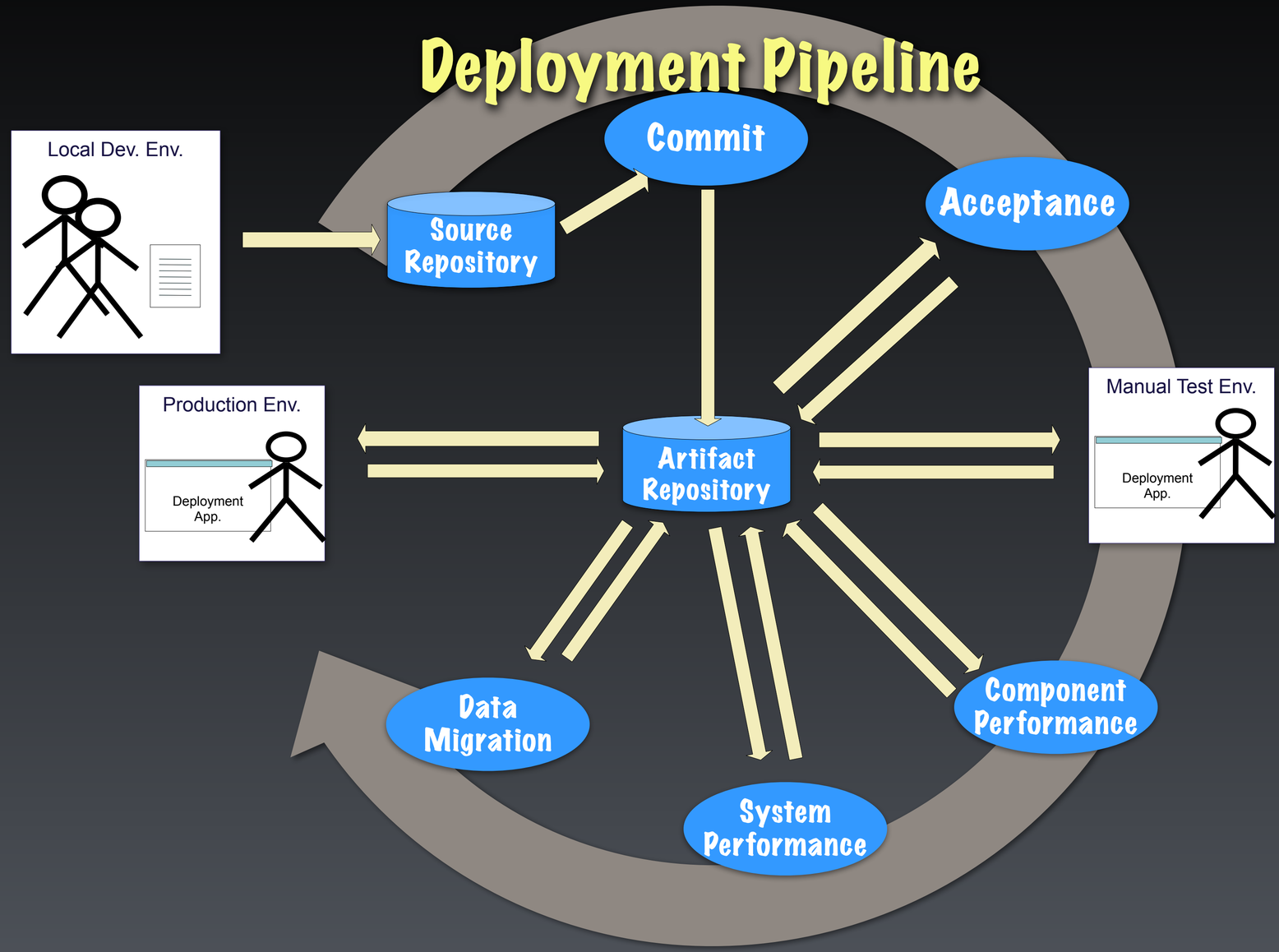

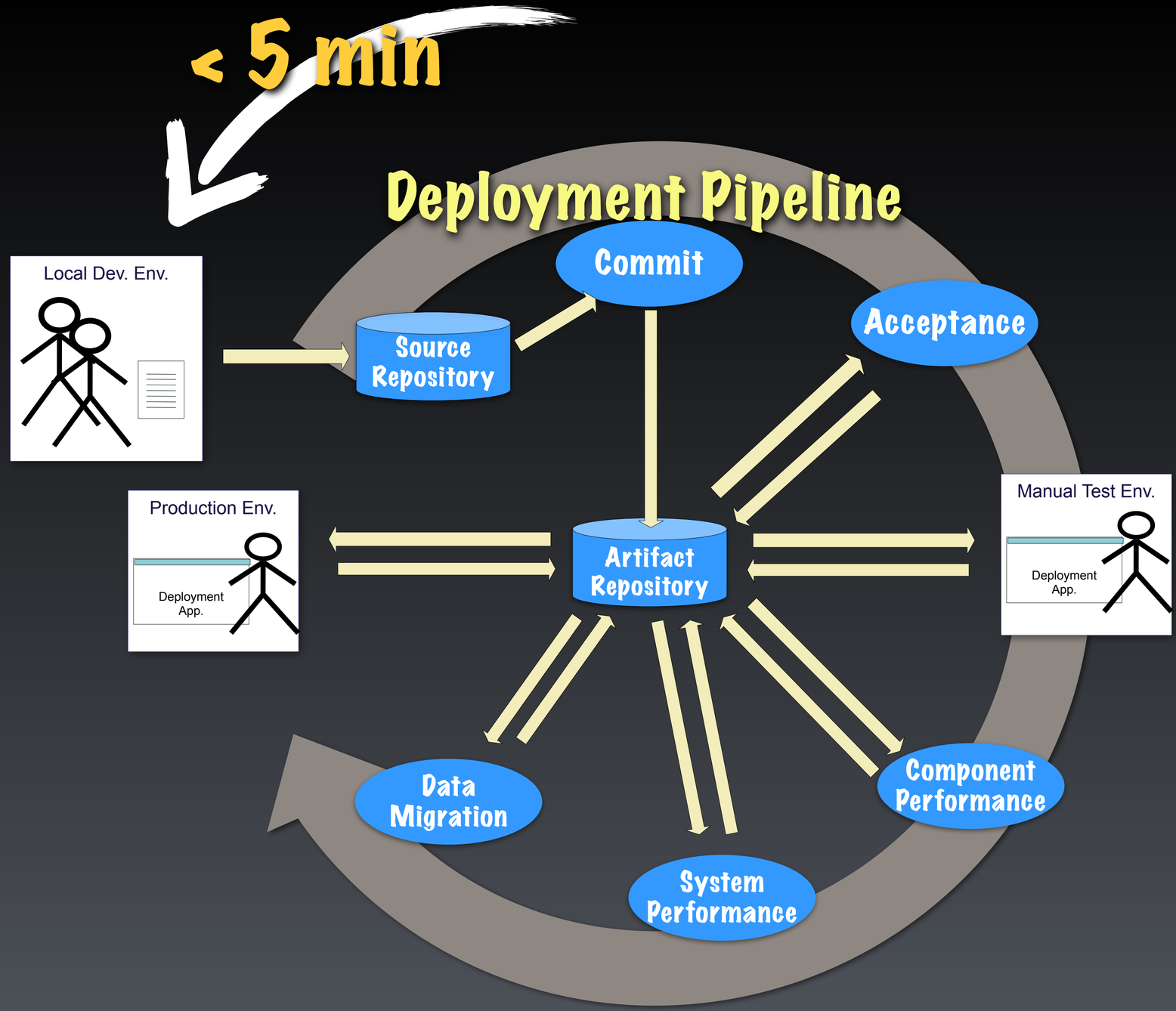

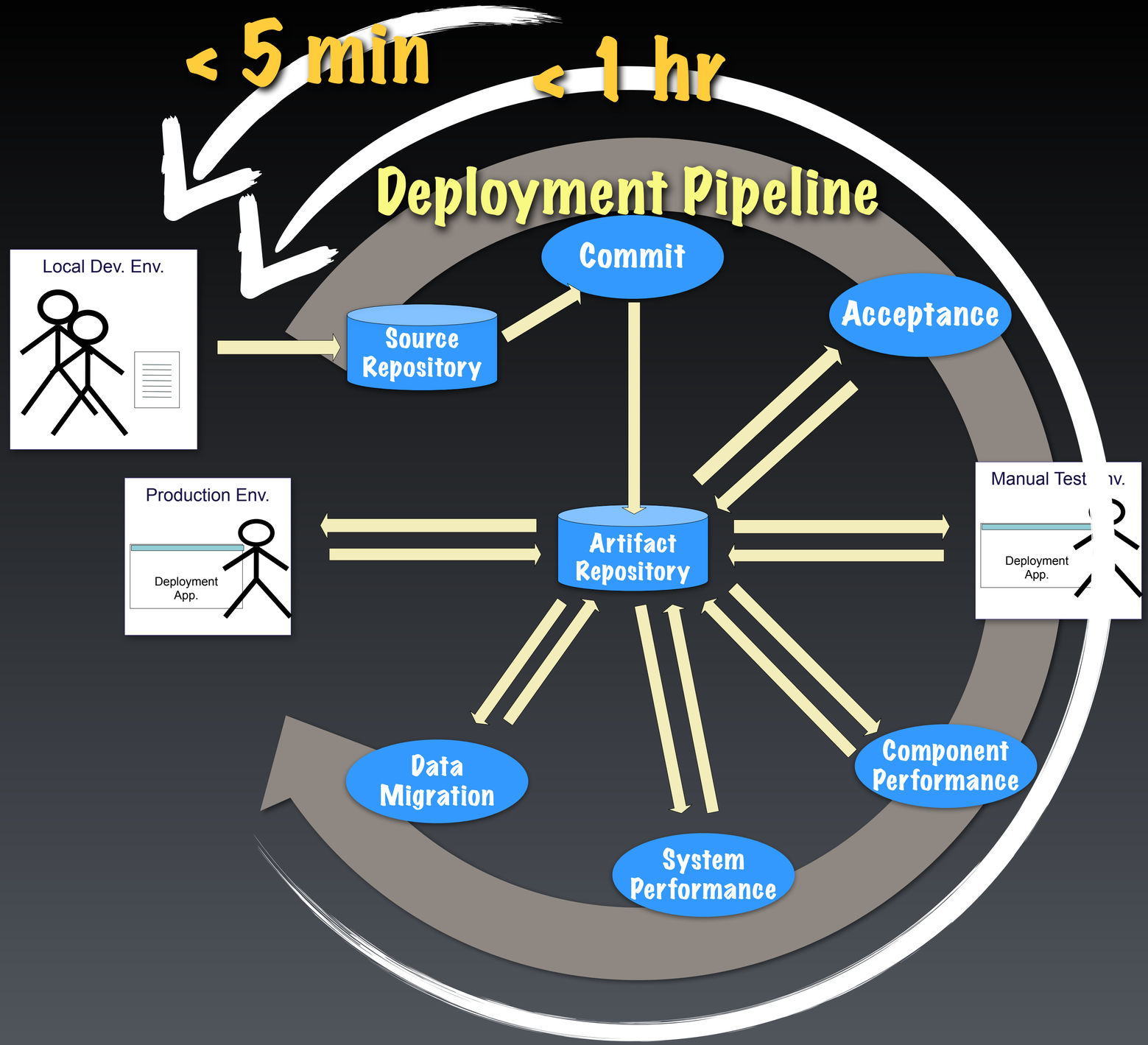

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If This Were Real Engineering…

It Would Improve the Quality & Efficiency of Our Work!

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Spee

Thr

ncy

Qual

Sta

ery

Time

ELITE PERFORMERS

Comparing the elite group against the low performers, we find that elite performers have…

208

TIMES MORE

frequent code deployments

106

TIMES FASTER

lead time from commit to deploy

2,604

TIMES FASTER

time to recover from incidents

7

TIMES LOWER

change failure rate

(changes are $^{1}/_{7}$ as likely to fail)

Throughput Stability

Source: "State of DevOps Report" by Nichole Fosgren, Jez Humble and Gene Kim 2019

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Source: "State of DevOps Report" by Nichole Fosgren, Jez Humble an Kim 2019

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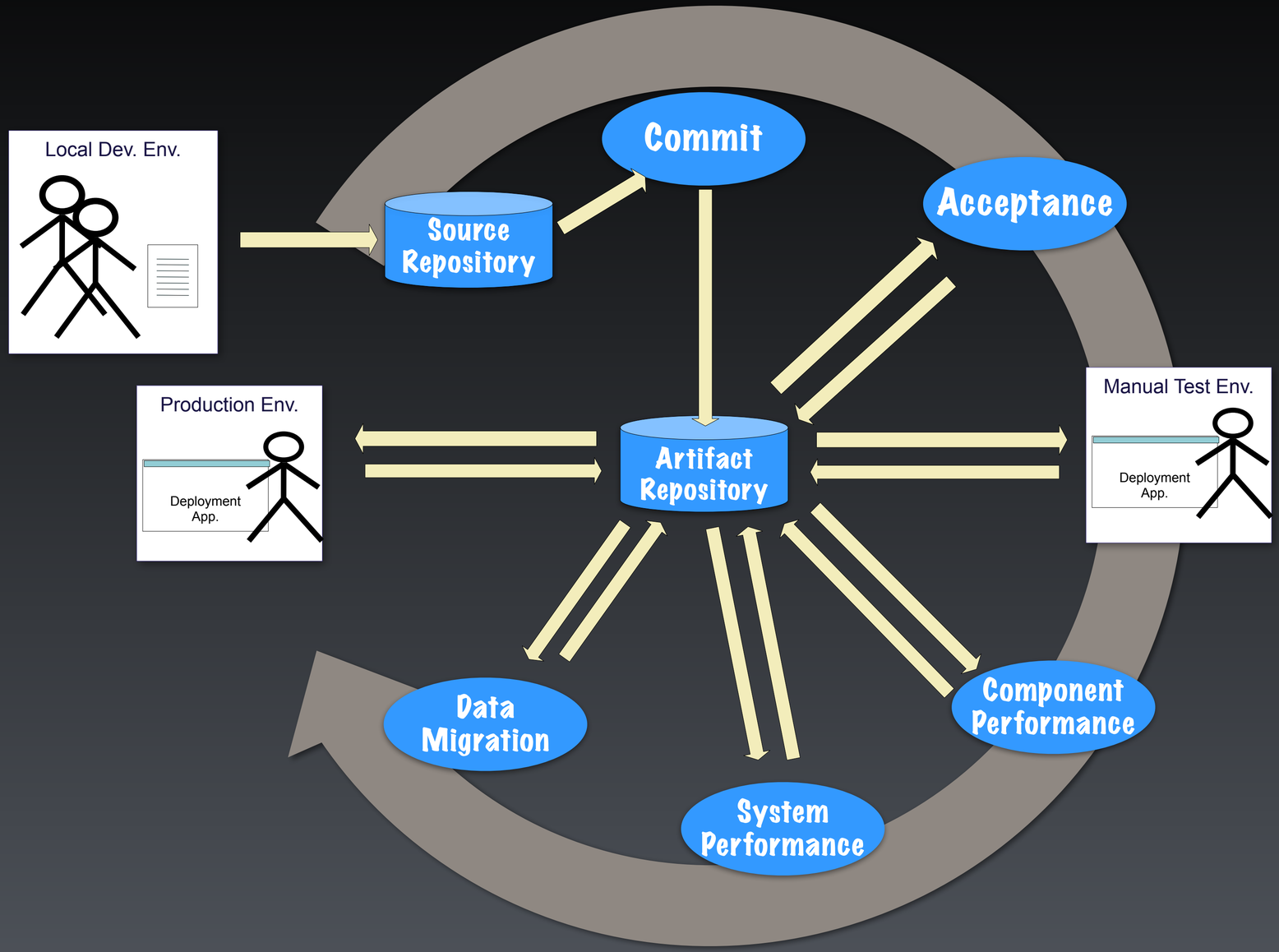

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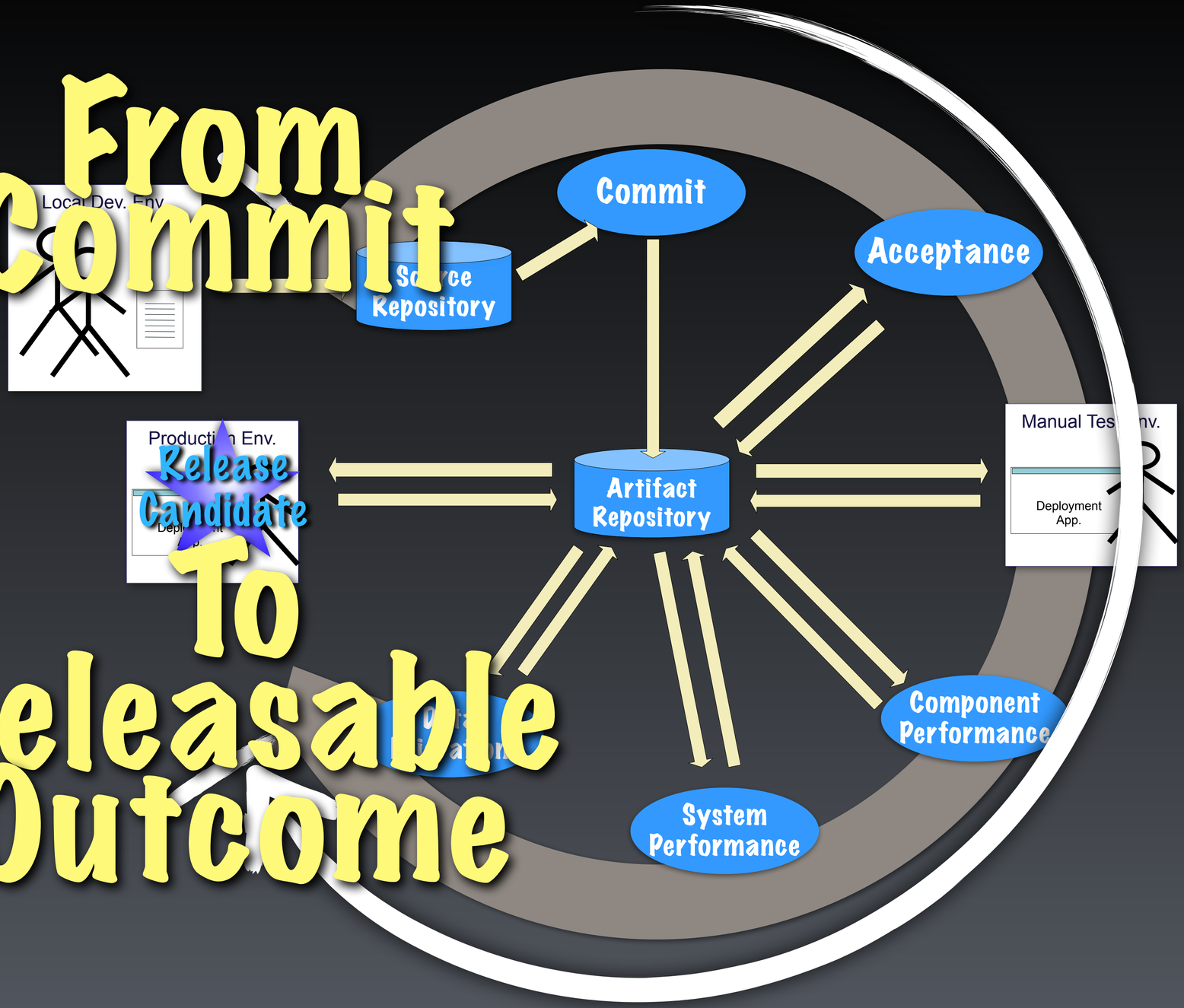
From Commit To Releasable Outcome



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Q&A

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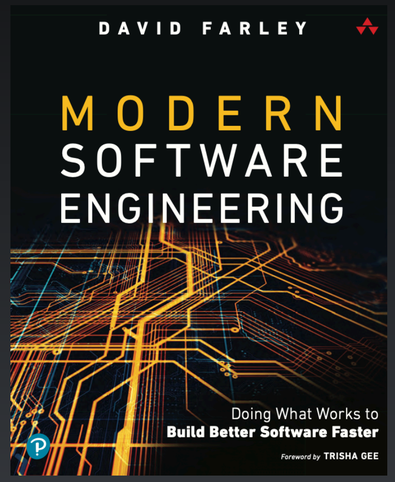
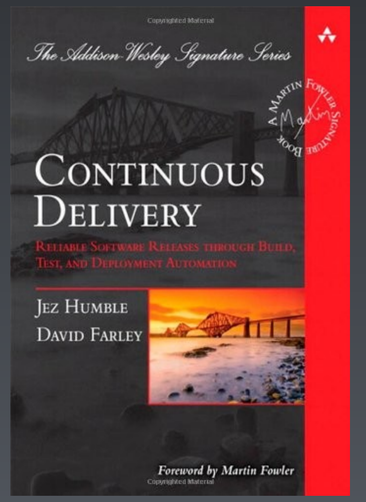
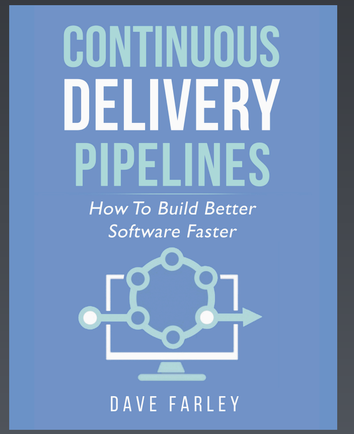
http://www.continuous-delivery.co.uk







Dave Farley

http://www.davefarley.net

@davefarley77

YouTube: https://bit.ly/CDonYT