

# DEVOPS CULTURE AND PRACTICES TO CREATE FLOW

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*ThoughtWorks* | *IT Revolution Press*

the production line



<http://www.flickr.com/photos/toyotauk/4711057997/>

# the production line?



## The Deployment Production Line

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2006 Article



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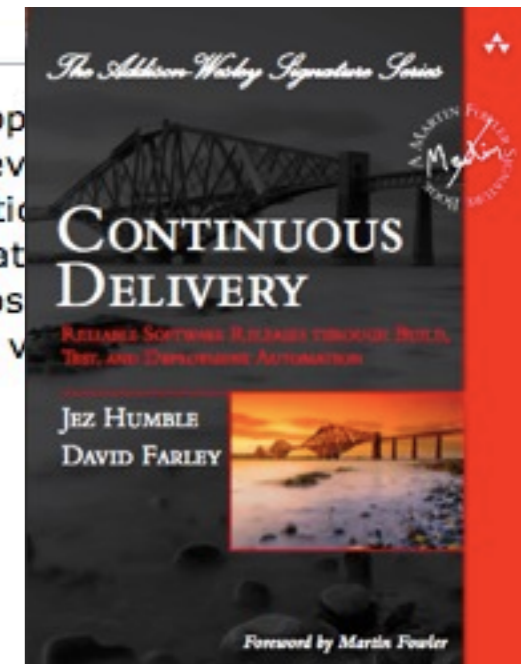
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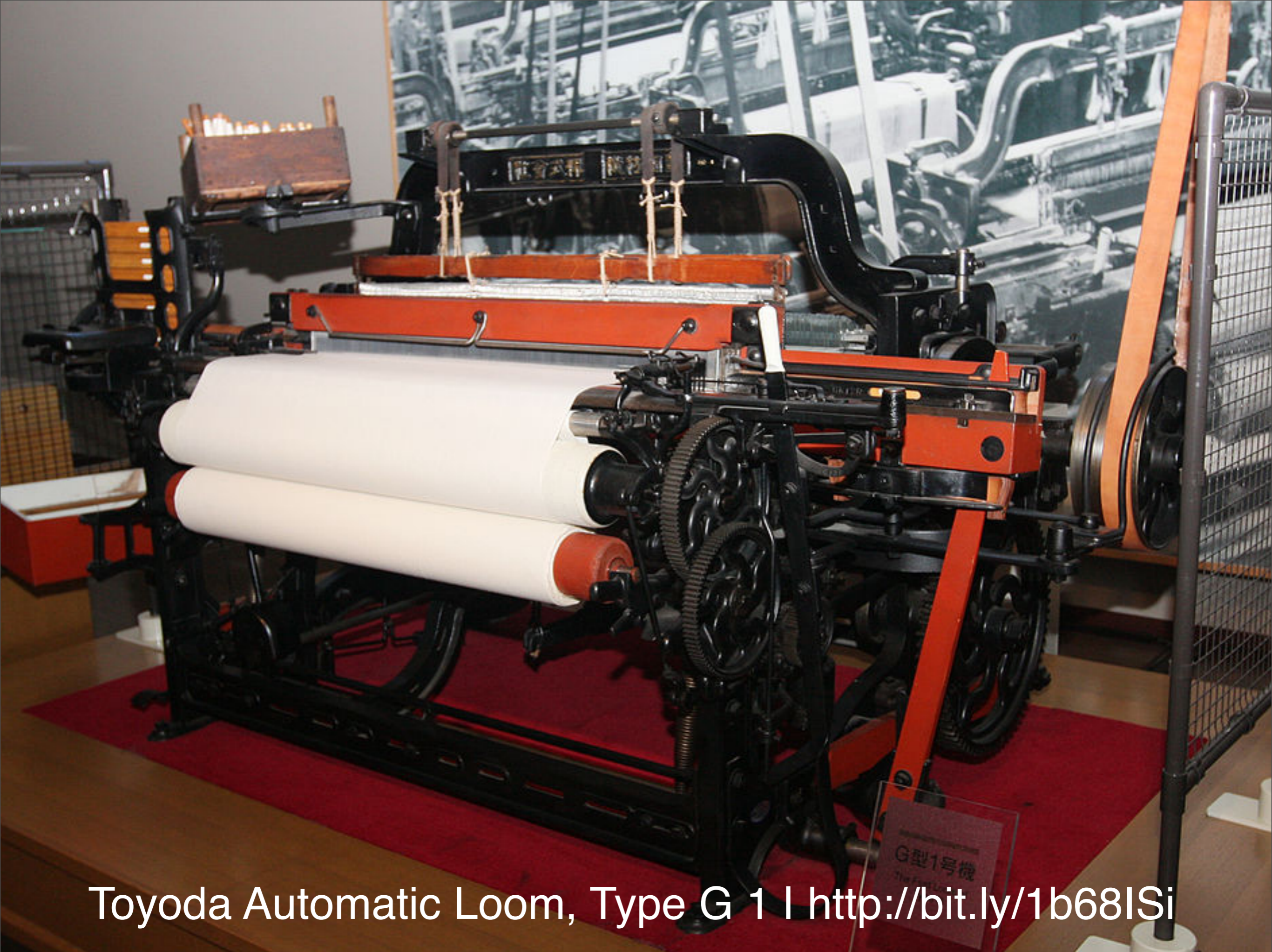
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Testing and deployment can be a difficult and timeconsuming process in complex environments comprising app messaging infrastructure and interfaces to external systems. We have seen deployments take several days, even have used automated builds to ensure their code is fully tested. In this paper we describe principles and practice environments to be created, configured and deployed to at the click of a button. We show how to fully automate deployment process using a multi-stage automated workflow. Using this "deployment production line", it is possible to get tested code into production environments quickly and with full confidence that you can fall back to a previous version if a problem occur.





Toyoda Automatic Loom, Type G 1 | <http://bit.ly/1b68ISi>

*jidoka*

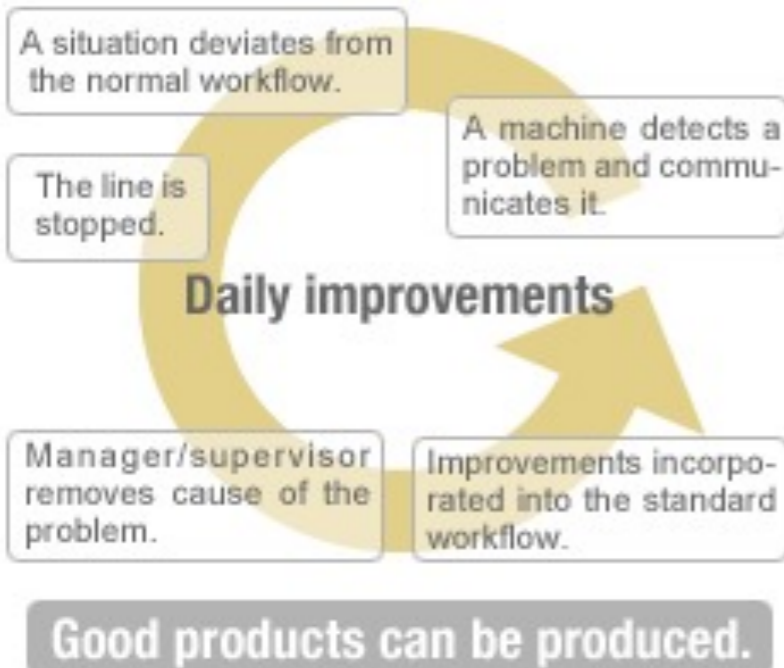
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自動化 + 人 = 自働化

automation + people  
= automation

# *jidoka*

## Concept of jidoka



## Visual Control using Andon



*An operator communicating an abnormality*



*An andon problem display board that communicates abnormalities*

[http://www.toyota-global.com/company/vision\\_philosophy/toyota\\_production\\_system/jidoka.html](http://www.toyota-global.com/company/vision_philosophy/toyota_production_system/jidoka.html)



Local Workstation



Mainline Server



pull

push

Done!





Local Workstation

# Everyone Commits



# To the Mainline



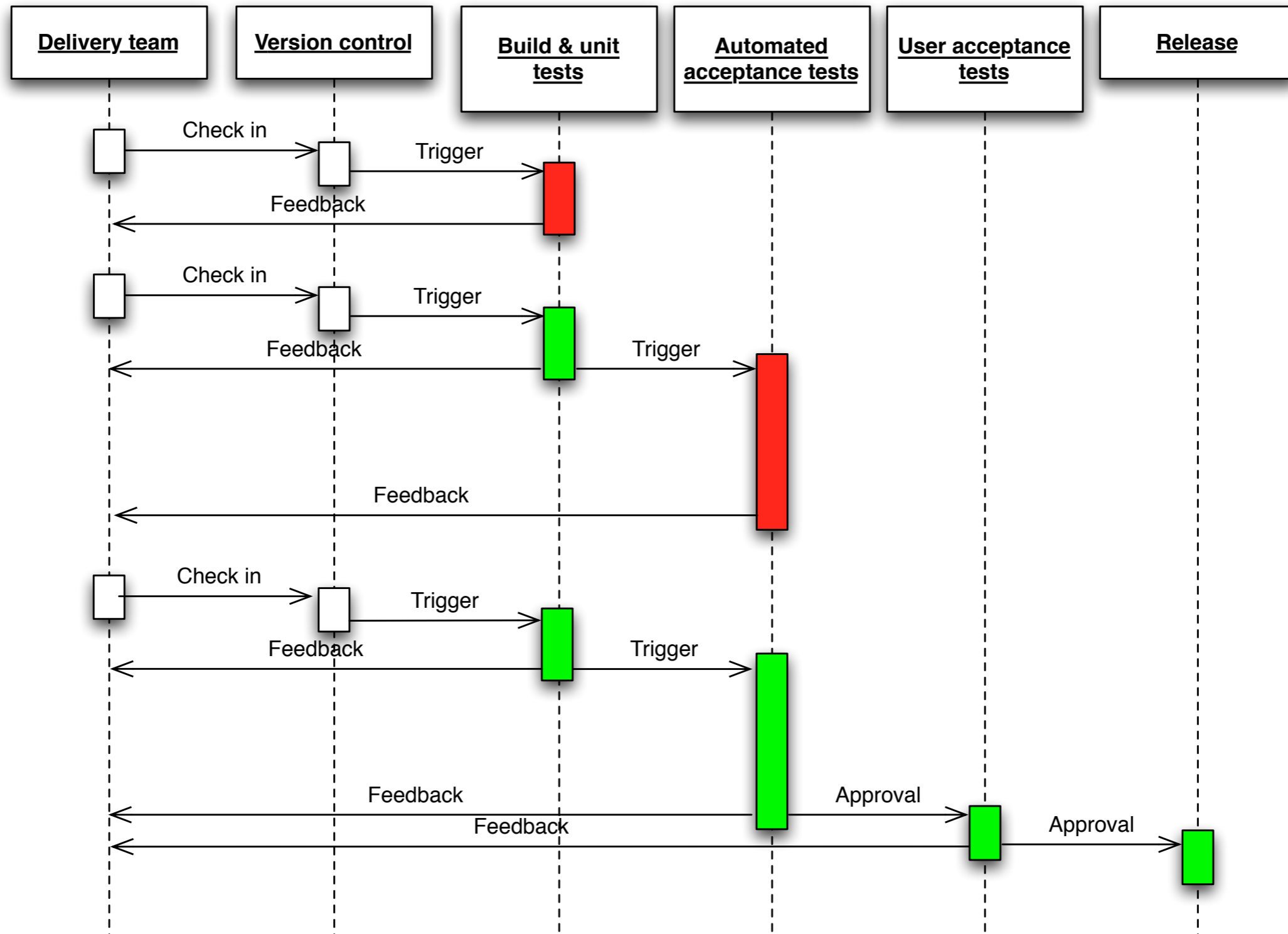
# Every Day

pull

push

✓  
Done!

# deployment pipeline



# cycle time

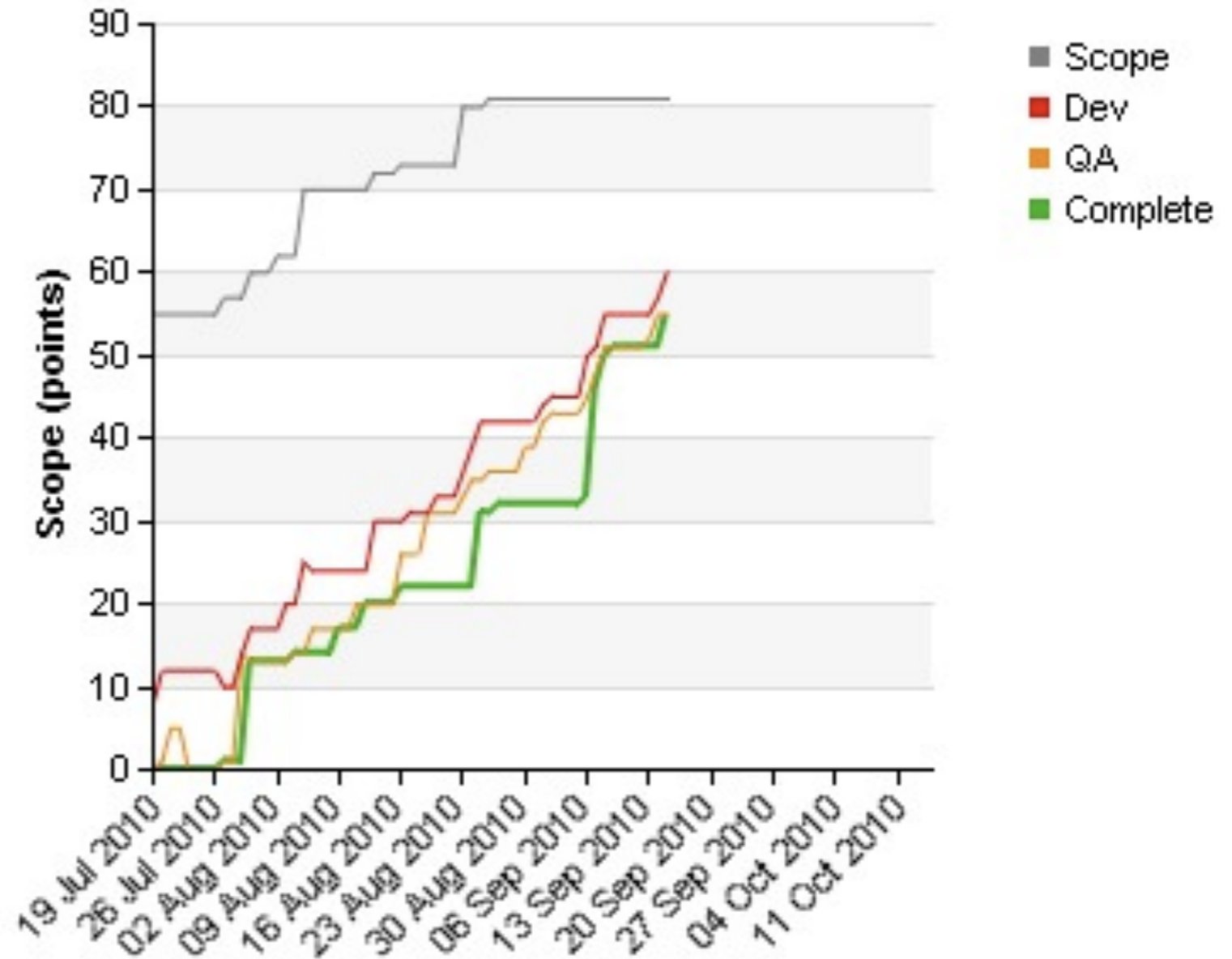
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“How long would it take your organization to deploy a change that involved just one single line of code? Do you do this on a repeatable, reliable basis?”

Mary and Tom Poppendieck, *Implementing Lean Software Development*, p59.

# batch size

$L = \lambda W$   
(Little's Law)

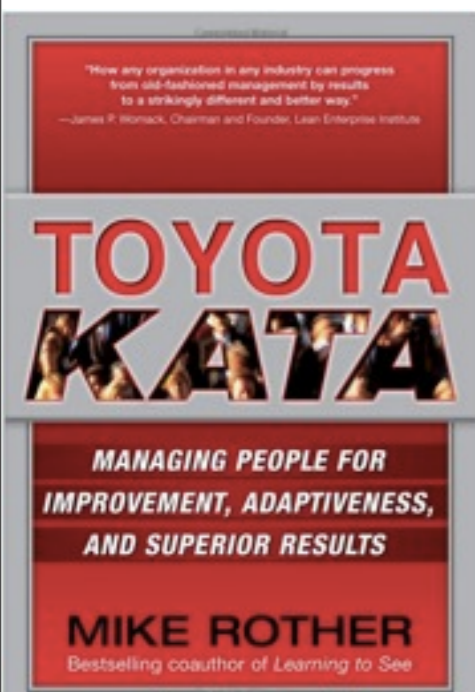
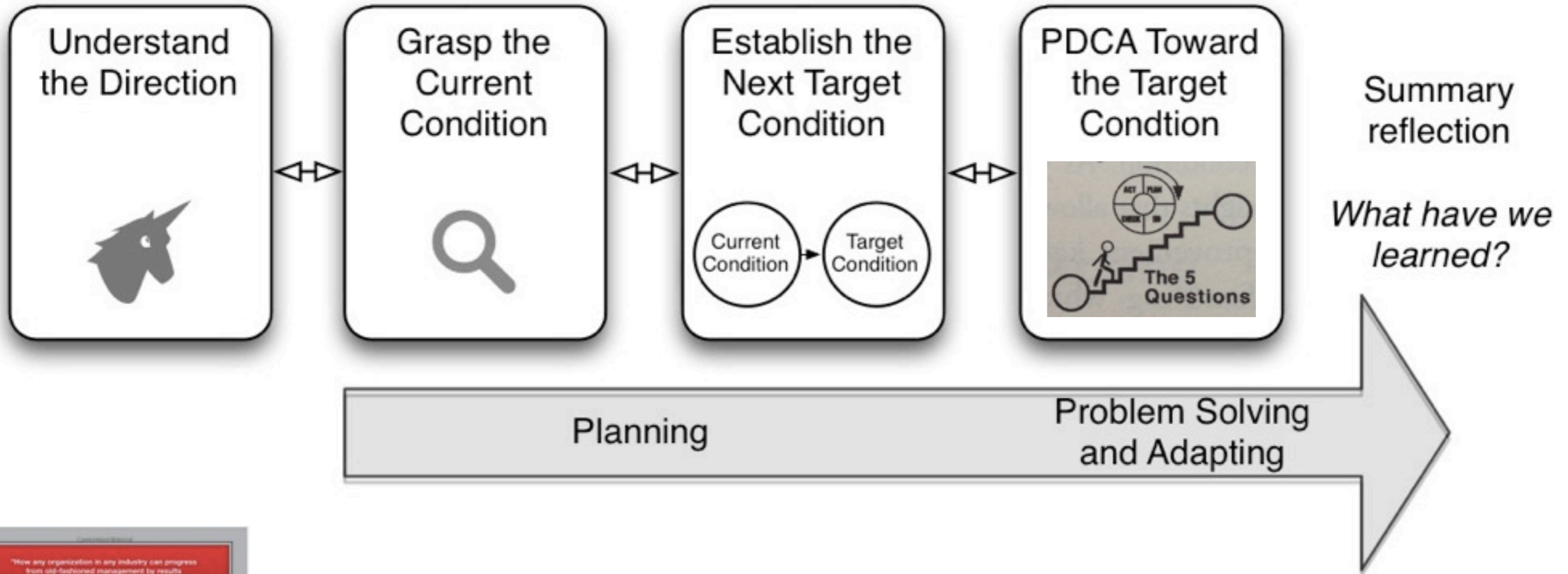


# utilization

---

$$\frac{\textit{Cycle time}}{\textit{Value added time}} = \frac{1}{1 - \rho}$$

# improvement kata



# improvement kata

---

What is the target condition? (*The challenge*)

What is the actual condition now?

What obstacles are preventing you from reaching it?  
which one are you addressing now?

What is your next step? (*Start of PDCA cycle*)

When can we go and see what we learned from  
taking that step?

# hp laserjet firmware team

---

2008

10% - code integration

20% - detailed planning

25% - porting code

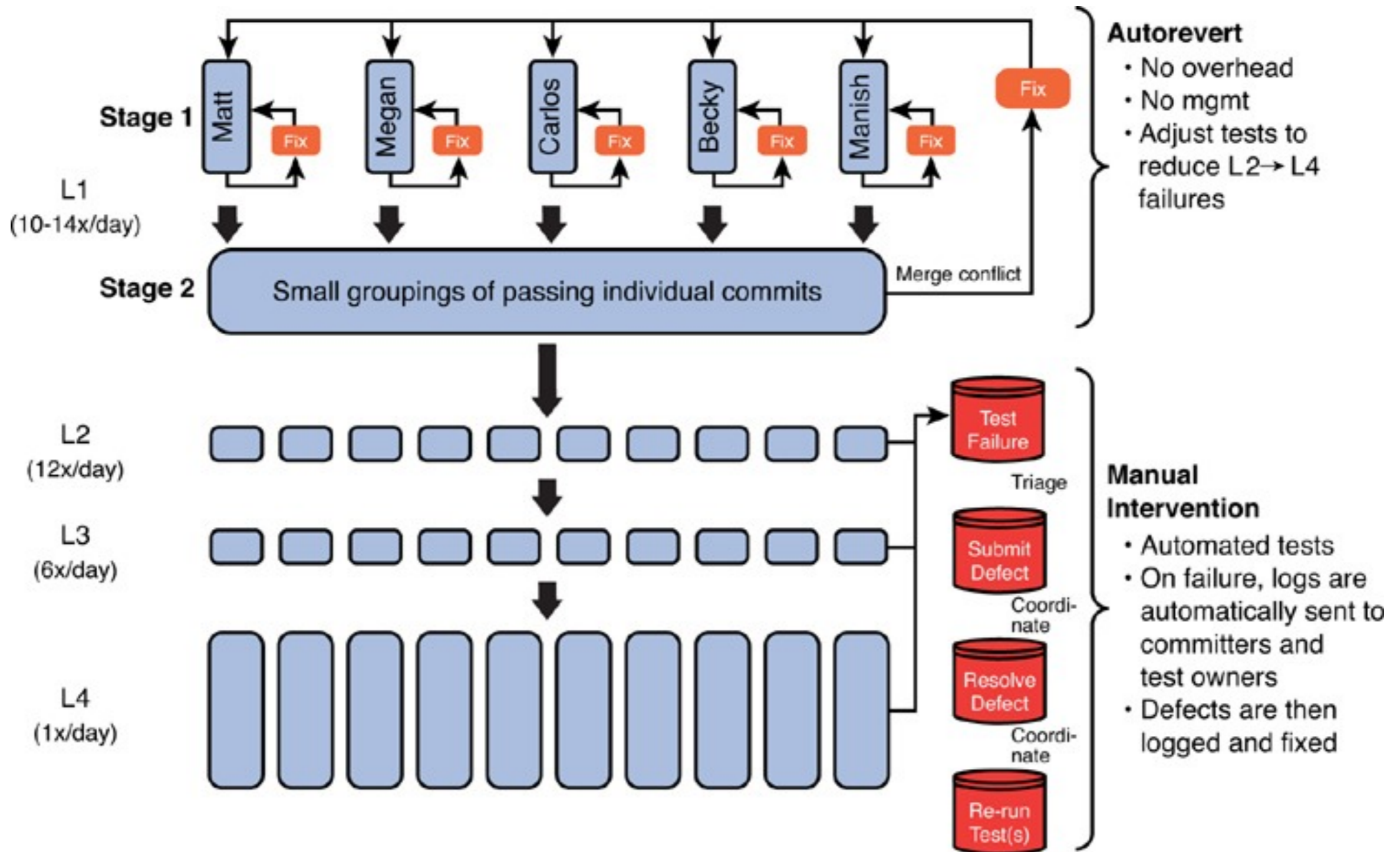
25% - current product support

15% - manual testing

**~5% - innovation**



# deployment pipeline



# hp laserjet firmware team

2008

10% - code integration

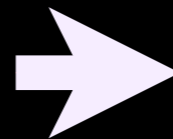
20% - detailed planning

25% - porting code

25% - current product support

15% - manual testing

**~5% - innovation**



2011

2% - continuous integration

5% - agile planning

15% - one main branch

10% - one branch cpe

5% - most testing automated

**~40% - innovation**

The remaining 23% on RHS is spent on managing automated tests.

# the economics

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## 2008 to 2011

- overall development costs reduced by ~40%
- programs under development increased by ~140%
- development costs per program down 78%
- resources now driving innovation increased by 5X



*A Practical Approach to Large-Scale Agile Development* - Gruver, Young, Fulghum

- Support Tools
- Compass
- Knowledge Base
- Flags
- Shop Name Changes
- Bulk Admin Actions
- Meteor

- Members
- Login History
- Name Changes
- Convo Unmute
- Feedback
- Compare

- Items
- Cases
- Itemator
- Infringing Sellers
- Currency Rates
- Order Search
- Listing Freeze

- Shipping
- Labels
- Providers
- Events
- Scores

- Checkout
- Audit Lookup

- Billing
- Showcase
- Deadbeats

- Forums
- Close/Reopen a Thread
- (Un)Delete a Thread
- (Un)Delete a Post
- (Un)Delete per User

Choose a different test...

Home →

similar items when unavailable between 09/11/2012 to 10/11/2012 Filter How many days are needed?

Description: No description given

0.50 off  
0.50 on  
show filtered

0.15 cart\_payment  
0.01 cart\_review  
0.84 cart\_view

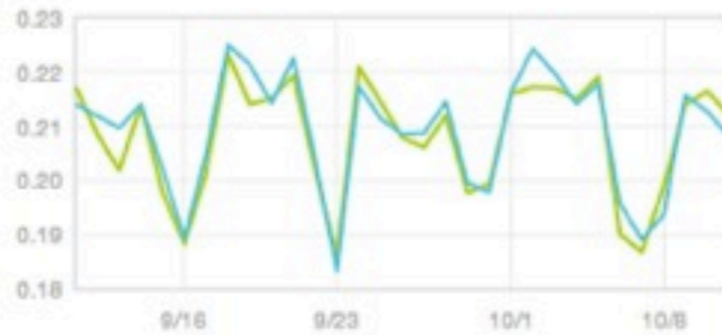


Business Metrics Feature Funnel (beta) Listing Funnel (beta)

Show me visits - fraction of visits for adding an item to their cart (add) Add

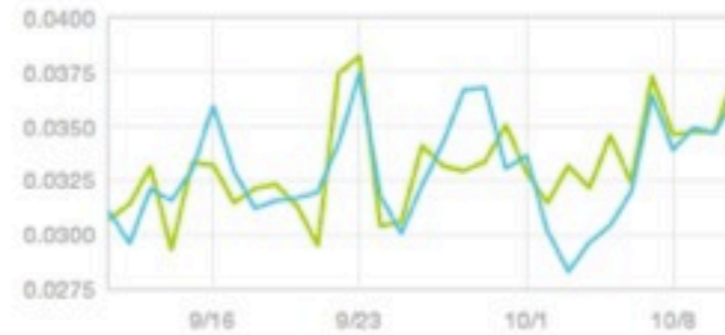
### cart payment - visits

CONTROL +0.49%



### site - bounces

CONTROL -0.01%



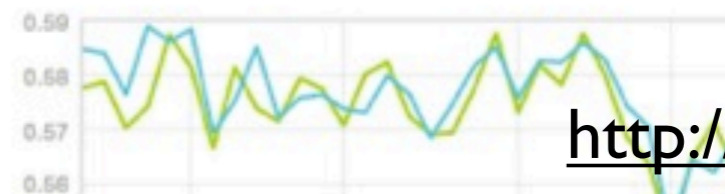
### site - page count

CONTROL +0.26%



### added to cart - visits

CONTROL +0.34%















<http://bit.ly/I9Z5izl>

Have an upcoming launch? [Add an item](#)

Active experiments

Upcoming launches

Recent 100% launches

Date	Name	Team	Notes
Nov 7	<a href="#">Gift Ideas browse pages</a>  	Buyer Experience	This is a gift guide browse destination. Subsections will focus on recipient (for him, for her, for kids, etc.) and price (under \$25, under \$100, etc.). It will work just like all other browse pages. There will be NO HAND ...
Nov 7	<a href="#">Etsy for iPhone (v2.1.1)</a>	Mobile	<b>Example</b> — We submitted the app on Friday. We will be pushing it out when it's approved by Apple; our hope is that it's approved by Wednesday. There will be no coordination with PR or blog post. We may send ...
Nov 2	<a href="#">Winter Holidays browse pages</a>  	Buyer Experience	<b>Example</b> — These are browse pages for the Winter Holidays and will feature subsections for holiday decor, cards, etc. They'll be similar to our holiday merch hub from last year, but much deeper in terms of browsing opportunities. Those in UK ...
Nov 1	<a href="#">Updated treatment of homepage browse links</a>  	Buyer Experience	<b>Example</b> — Over a two week period we observed 4%-5% increases in browse landing page and subsection page views. There were also slight increases in add to cart and listings viewed events. Visits with a search and search events were down ...
Oct 24	<a href="#">Next day availability of DC funds</a>  	Payments	We plan to allow established sellers to be able to deposit their funds prior the next day after a sale. Non established sellers will still need to ship items to have available funds.
Oct 23	<a href="#">Reduce one-time hold from 10 days to 5 days</a>	Payments	Whenever a new seller signs up for direct checkout, a 10 day hold is placed on deposits. This also occurs anytime a bank account is updated. We have decided to reduce this standard hold period to 5 days. The main ...
Oct 23	<a href="#">Etsy for iPhone (v2.1)</a>  	Mobile	<b>Example</b> — Update: We have been approved by Apple and will be launching Tuesday, 10/23 at 8am ET. _____ Our target submit date to Apple is Wednesday 10/10. Depending on Apple's turnaround time, we expect the app to be ...
Oct 22	<a href="#">Recipient Query Rewriting</a>	Search & Destroy	<b>Example</b> — This didn't move metrics positively or negatively. However we decided to keep it because this is the first step towards using recipient in search, and encouraging users to properly associate their listing w/ a recipient. We will reevaluate how ...
Oct 19	<a href="#">Parcel Insurance for Shipping Labels</a>  	Seller Team	<b>Example 1, Example 2</b> — Rampup started 10/9. Scheduled to finish 10/19.
Oct 18	<a href="#">Search Ads respecting filters</a>	Search & Destroy	This experiment didn't hurt inventory: <a href="https://splunk.etsycorp.com/en-US/app/search/flashtimeline?sid=1350940765.163366&amp;vs=h8m3sk4b">https://splunk.etsycorp.com/en-US/app/search/flashtimeline?sid=1350940765.163366&amp;vs=h8m3sk4b</a> Also it looks like CTR might have improved.

<http://bit.ly/I9Z5izl>

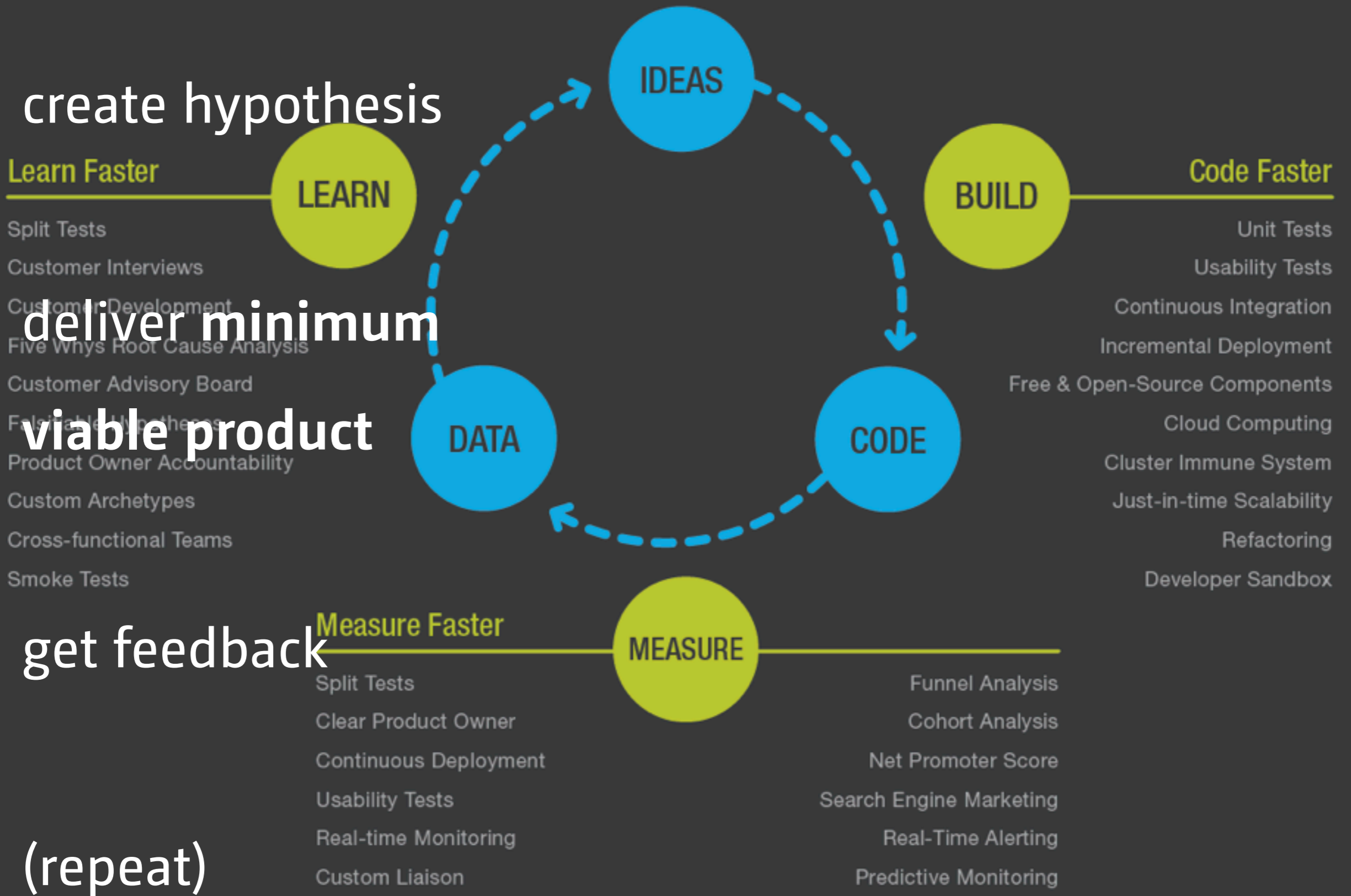
# do less

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“Evaluating well-designed and executed experiments that were designed to improve a key metric, **only about 1/3** were successful at improving the key metric!”

“Online Experimentation at Microsoft”, Kohavi *et al* <http://stanford.io/130uW6X>

# scientific method



# three ways

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systems thinking

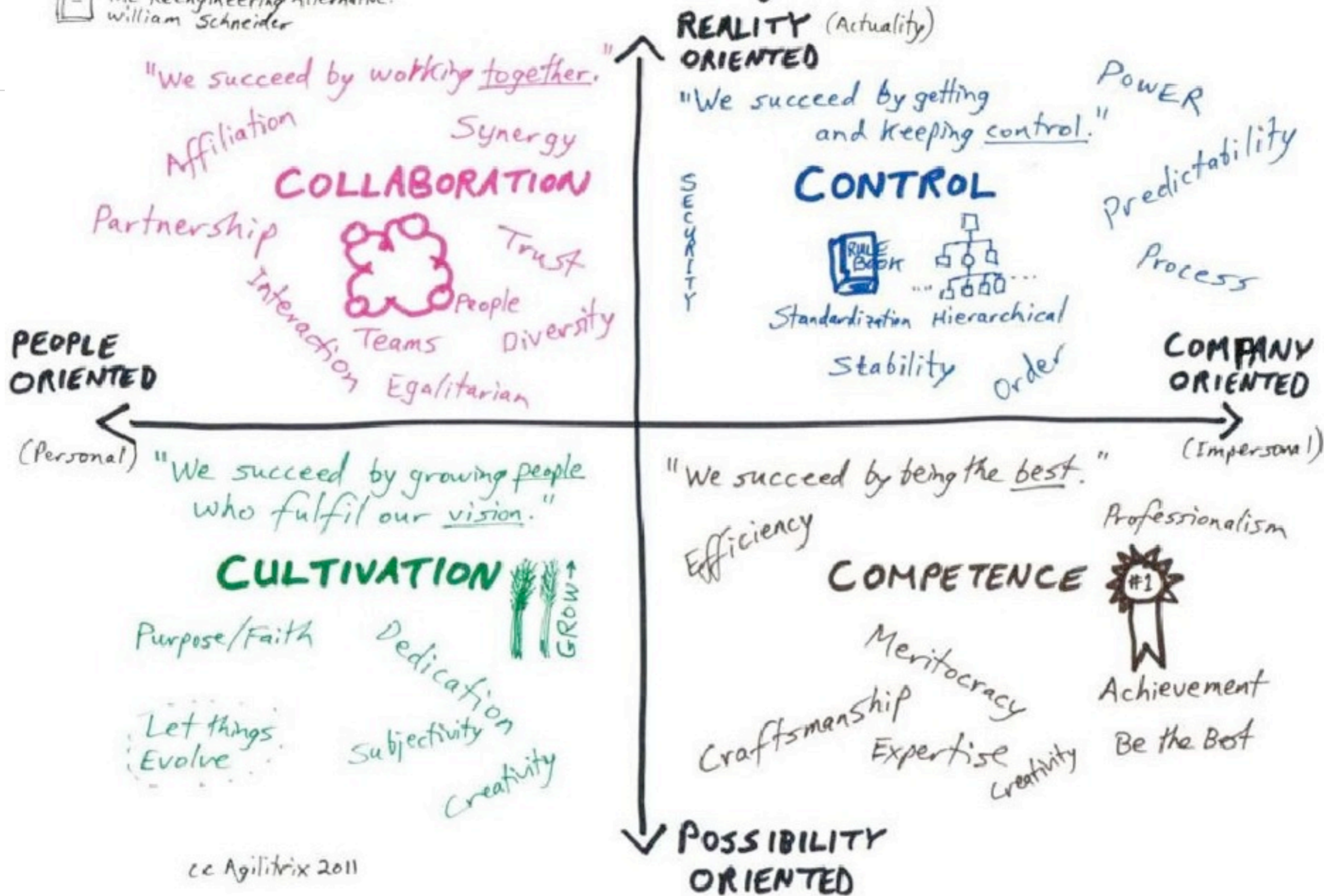
feedback

culture of experimentation



# CULTURE = "How we do things around here to succeed."

 "The Reengineering Alternative."  
William Schneider



Michael Sahota | @MichaelSahota | <http://bit.ly/13Btc5c>

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HELPING SPARK THE IT CAMBRIAN EXPLOSION

QUESTIONS



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