



Bringing DevOps into the RPG and IBMi World,
Trends, Pitfalls and Business Value

Nick Blamey - ARCAD Software UK

AGENDA

- View of IBMi from an IBMi Novice
- DevOps on IBMi (setting the scene)
- IBM DevOps “workshop” Research (Peter Eeles)
- Ideas for elimination of DevOps bottlenecks (tools)
- Short overview of how ARCAD are helping IBMi Developers (best practices)



Latest Content



IBM I: The Most Amazing IBM Product You've Never Heard Of

By Rob Enderle | Posted February 13, 2019

NEW PRODUCT ANALYSIS: The IBM I platform (the second "I" stands for Integrated) is converged packaged software platform that evolved out of that legendary AS400, and it is even more amazing.

A view from an IBMi Novice

A DevOps of view IBMi from a Novice

Family Spirit in the Community = unique and doesn't exist elsewhere in IT (ok maybe Mainframe ☺)

IBM i : “cost of failure is enormous”:
IBM i = money machine of your organisation

IBM i developers have structured process based on decades of best practices. You invented DevOps!

New direction of IBM drives DevOps need e.g.

- Speed of delivery = key driver
- Live partition mobility
- Future is modularised

Security reputation of IBM i:

- Compliance drives auditable and automated deployment
- Code review process critical



IBMi programmers are used to this



The road to CI/CD/CT

“As we adopt DevOps, we need to consider where are the new bottlenecks going to be.”



Do not under estimate the impact and value of DevOps



About DevOps Research and Assessment

DevOps Research and Assessment (DORA), founded by Dr. Nicole Forsgren, Jez Humble, and Gene Kim, conducts research into understanding high performance in the context of software development and the factors that predict it. DORA's research over four years and more than 30,000 data points serves as the basis for a set of evidence-based tools for evaluating and benchmarking technology organizations and identifying the key capabilities to accelerate their technology transformation journey.

Learn more at devops-research.com.

DORA State of DevOps 2018

COMPARING THE ELITE
GROUP AGAINST THE LOW
PERFORMERS, WE FIND THAT
ELITE PERFORMERS HAVE...



46 TIMES MORE
frequent code deployments



2,555 TIMES FASTER
lead time from commit to deploy

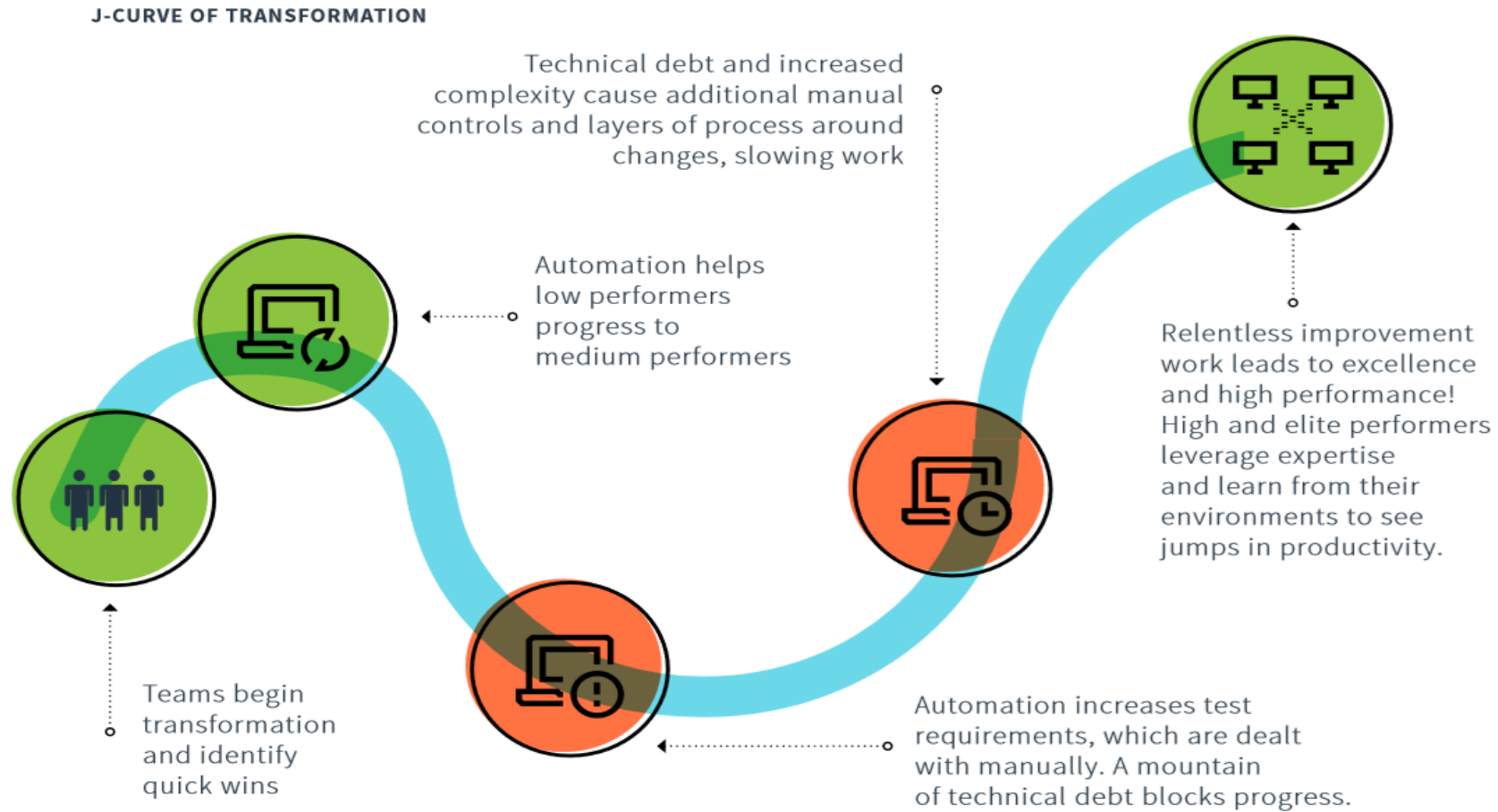


7 TIMES LOWER
change failure rate
(changes are 1/7 as likely to fail)



2,604 TIMES FASTER
time to recover from incidents

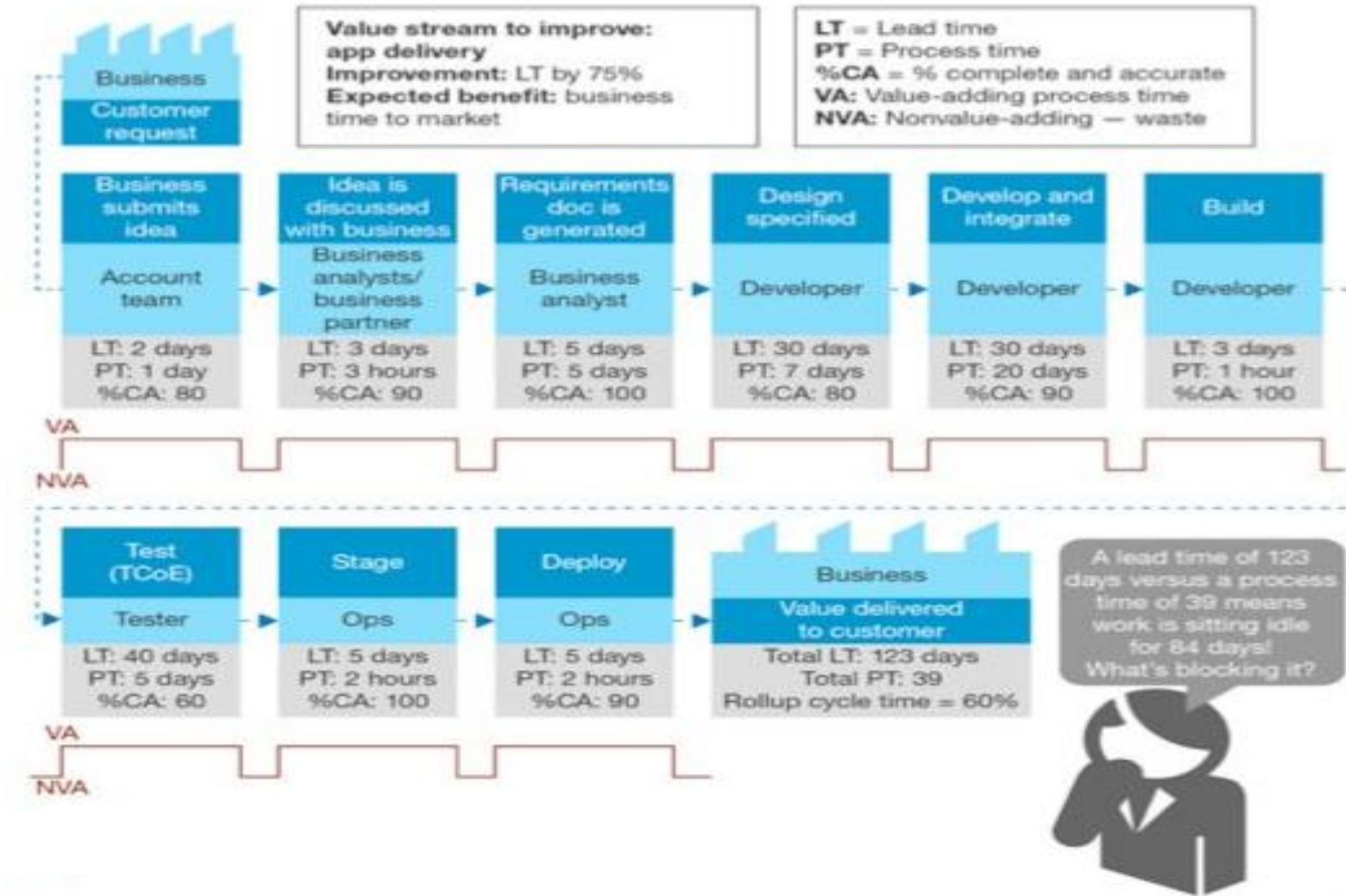
DevOps Not a Perfect Science: DORA Concept



DevOps – Value Stream Mapping

Use Value Stream Mapping to Uncover Waste in your pipeline.

Prioritize process automation using Value Stream Management.



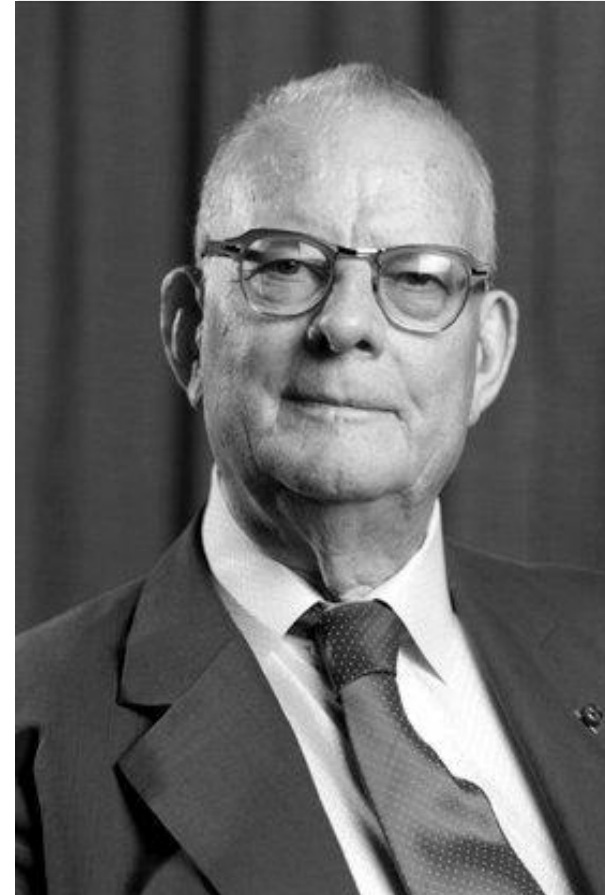
IBM DevOps View

Work of Peter Eeles (IBM DevOps team)

Conducted many DevOps Innovation Workshops across IBM clients (large and small)

Consolidated the results to produce

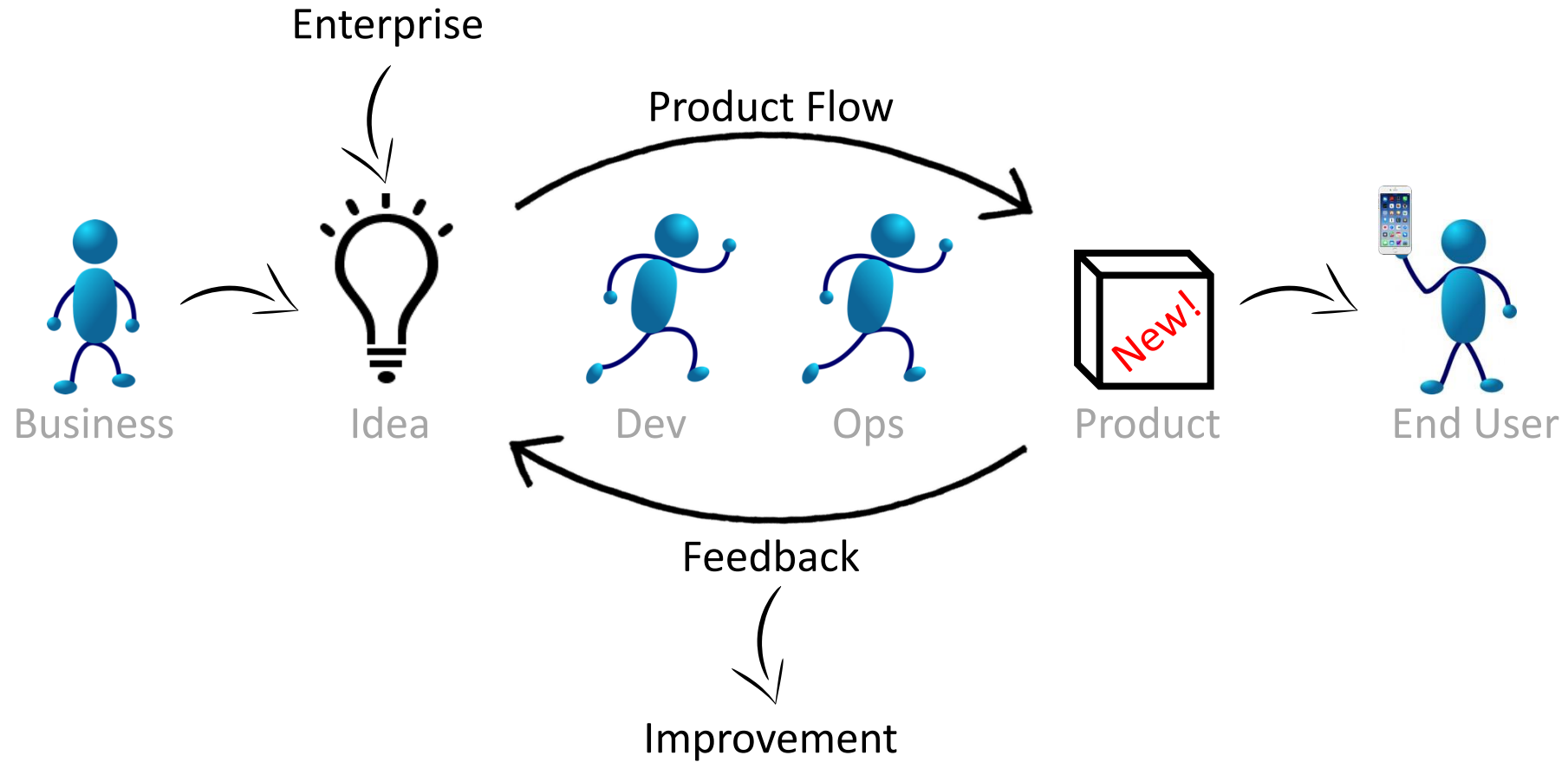
- DevOps adoption trend analysis
- Common Challenges



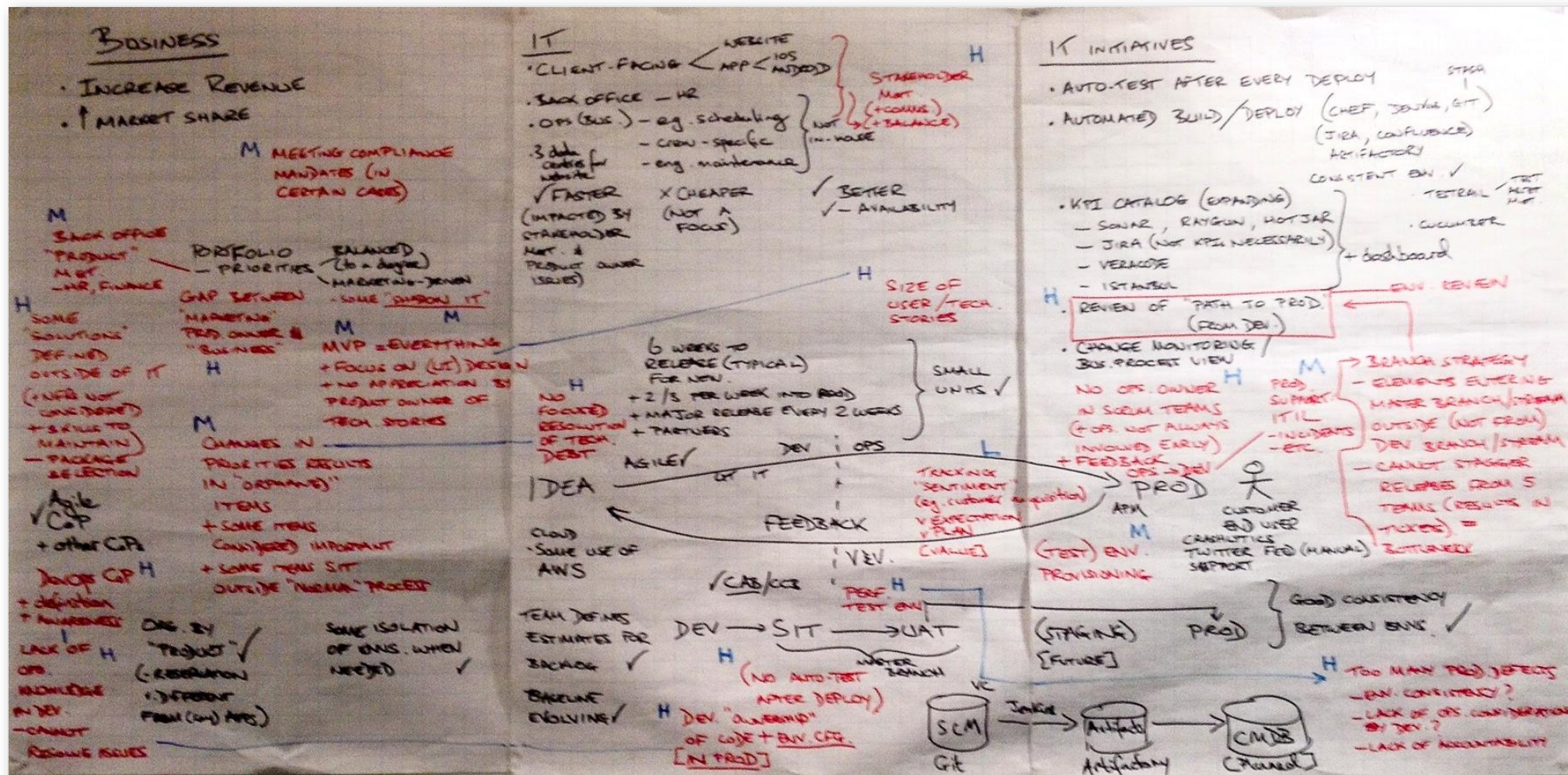
“Without data
you’re just
another person
with an opinion.”

- W. Edwards Deming,
Data Scientist

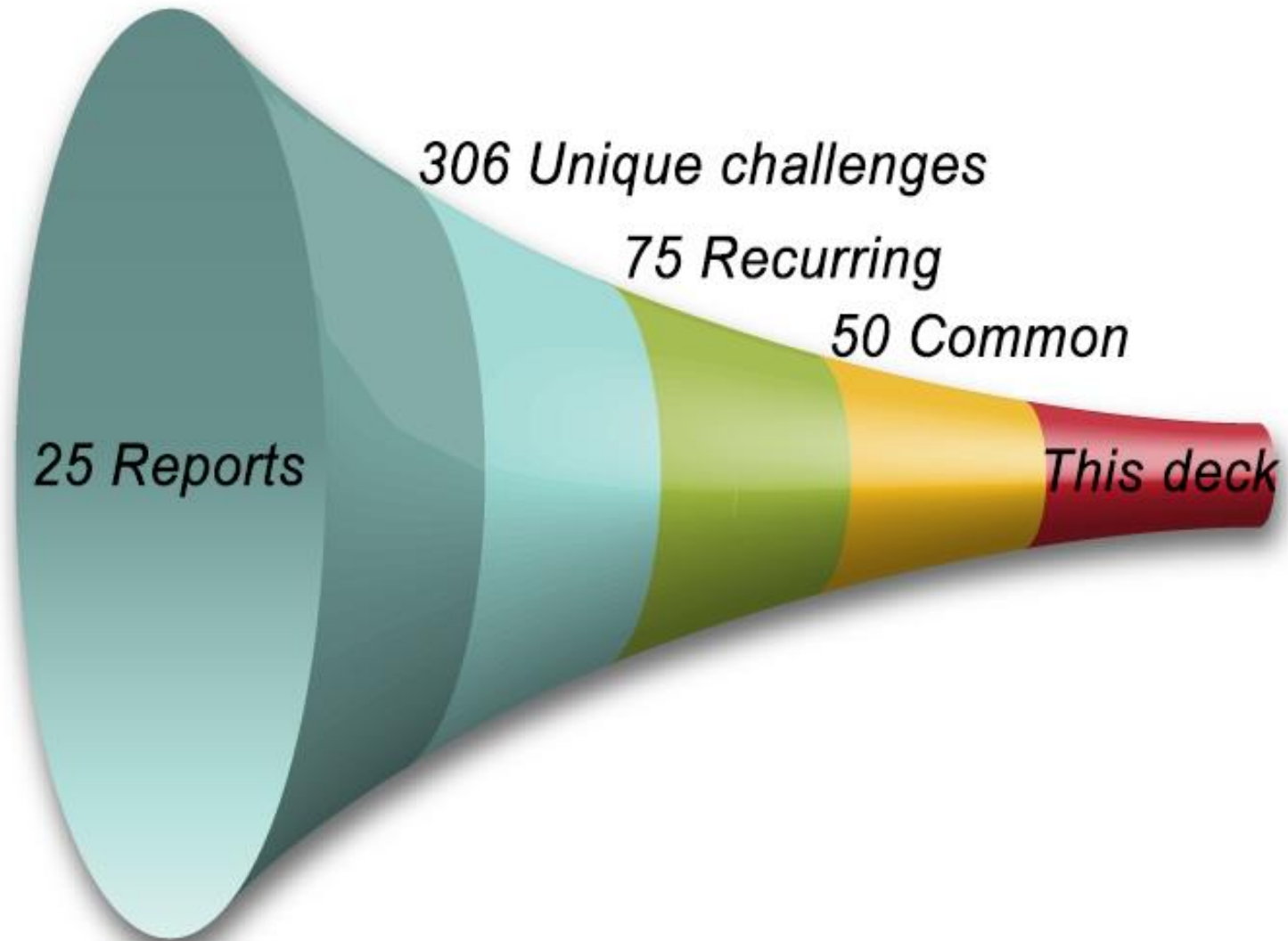
The DevOps Landscape we Consider



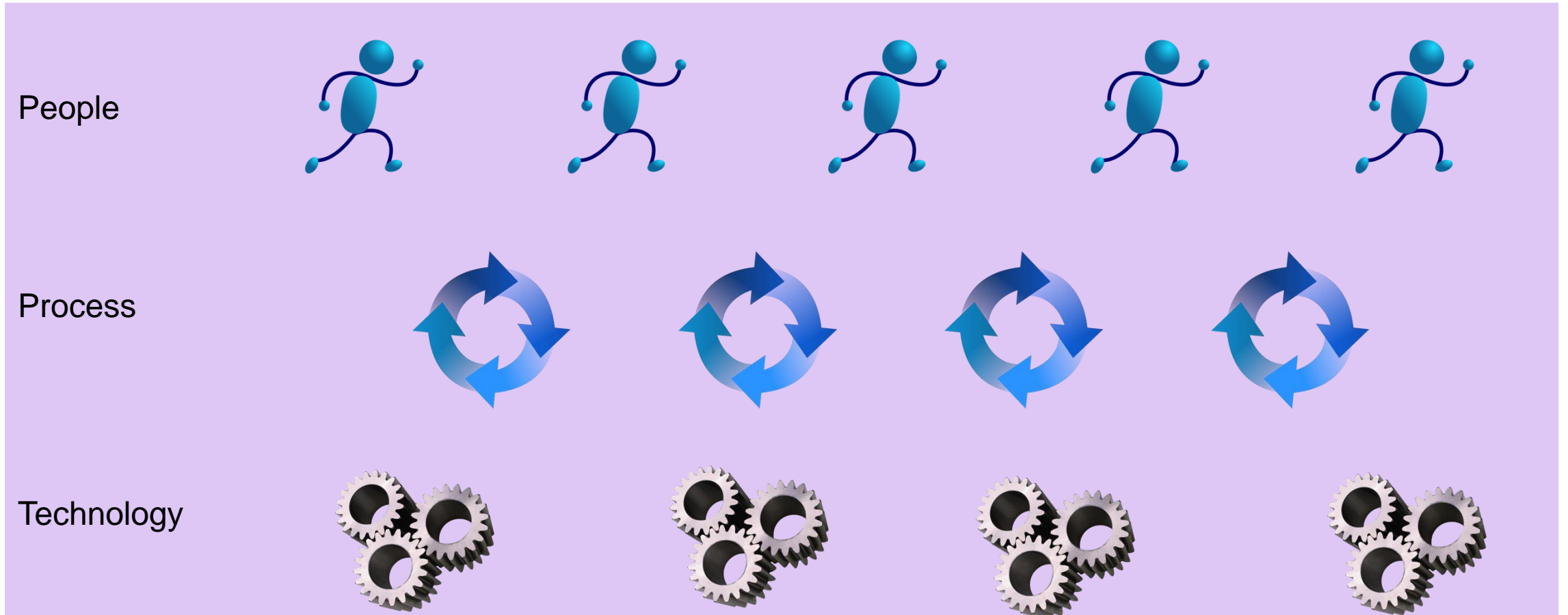
Sample Whiteboard: You can do this yourself!



Analysis of Reports



Major Themes




All are inter-related: ARCAD / IBM focus is tools


The tools give you a way to structure & document your Continuous Improvement process


Top 10 Challenges


#1 – Environment Provisioning 


#2 – Manual Testing 

#3 – No DevOps Centre of Excellence 


#4 – Test Data 


#5 – Manual Deployments 

#6 – Planning in a DevOps Environment 


#7 – DevOps and Suppliers 


#8 – DevOps and Governance 


#9 – No Integrated Tools Architecture 

#10 – Manual Releases 


Top 20 Challenges


#11 – No DevOps Metrics 

#12 – DevOps and Team Composition 

#13 – DevOps and Regulatory Compliance 


#14 – No Service Virtualization 


#15 – DevOps and Specialist Skills 

#16 – Traceability Across the DevOps Landscape 

#17 – Large Releases 


#18 – Inconsistent Environments 

#19 – Agile is Confined to Developers 


#20 – Limited Transparency 


Top 30 Challenges


#21 – Manual Processes 


#22 – Collaboration Between Dev and Ops 


#23 – No DevOps Vision or Strategy 

#24 – No Production-Like Environments 


#25 – Waste in Existing Processes 

#26 – Limited Customer Feedback 

#27 – Elicitation of Non-Functional Requirements 

#28 – Collaboration Across All IT Disciplines 

#29 – Collaboration Between Business and IT 

#30 – No Standard SCM Repository 



architecting.co.uk

Thoughts on Architecture, Agile and DevOps by Peter Eeles



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adoption?" "What challenges am I likely to face along the way?" and, "How do I resolve those challenges?" These are just a few of the recurring concerns I heard from enterprise DevOps teams during a series of focus groups I ran over the past year. From those sessions, I've compiled a list of the most common challenges DevOps teams say they face, along with solutions that just might help shape or refine your own DevOps journey.



[Interview with DevOps.com](#)

Posted April, 2017

From DevOps.com: "Peter Eeles speaking with Alan Shimel at IBM Interconnect 2017. Peter is a world wide lead for DevOps adoption at IBM. Peter has been compiling metrics on all of the workshops that IBM has been doing on DevOps for last several years. Crunching these numbers provides real insight into the state of DevOps. Great information!"



[DevOps Adoption - How do You Compare? \(Presentation\)](#)

Posted March, 2017. Presented at IBM InterConnect in Las Vegas, Nevada, USA

IBM has conducted over 100 in-depth DevOps workshops with clients. Several recurring challenges have emerged, along with their resolutions. What did these organizations do to improve, and how do you compare? What results did these organizations achieve? This session presents an analysis of workshop results with a view to helping you fine-tune your own DevOps transformation.



[Download PDF \(9.10 MB\)](#)

[Accelerating Your DevOps Journey \(Presentation\)](#)

Posted October, 2016. Presented at DevOps Strategy Forum in London, UK

is even dumber.



Mar 11, 2018

Peter Eeles Retweeted



nicole forsgren
[@nicolefv](#)

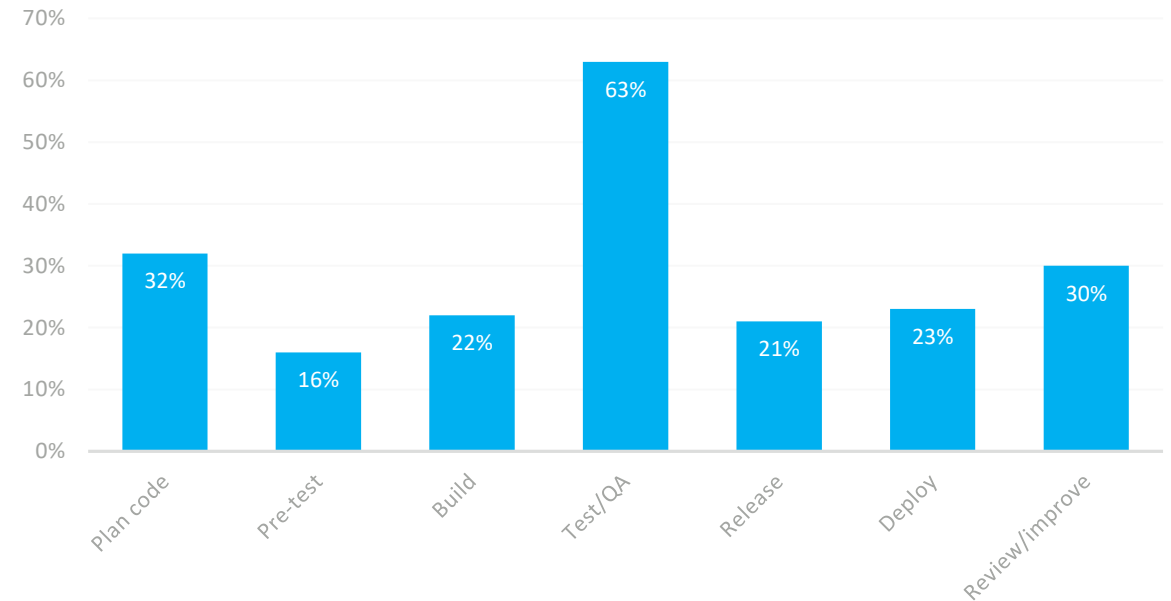
If you only read ONE article on DevOps, THIS should be it: Containers Will Not Fix Your Broken Culture (and Other Hard Truths) by [@bridgetkromhout](#)

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DevOps challenges.

Where are the main hold-ups in the software production process?



"2 or 3 years ago we were talking about Dev & Ops and DevOps. Now we talk about DevOps and testing. They themselves have become 2 separate departments. 2 separate fields.." Product director, Technology

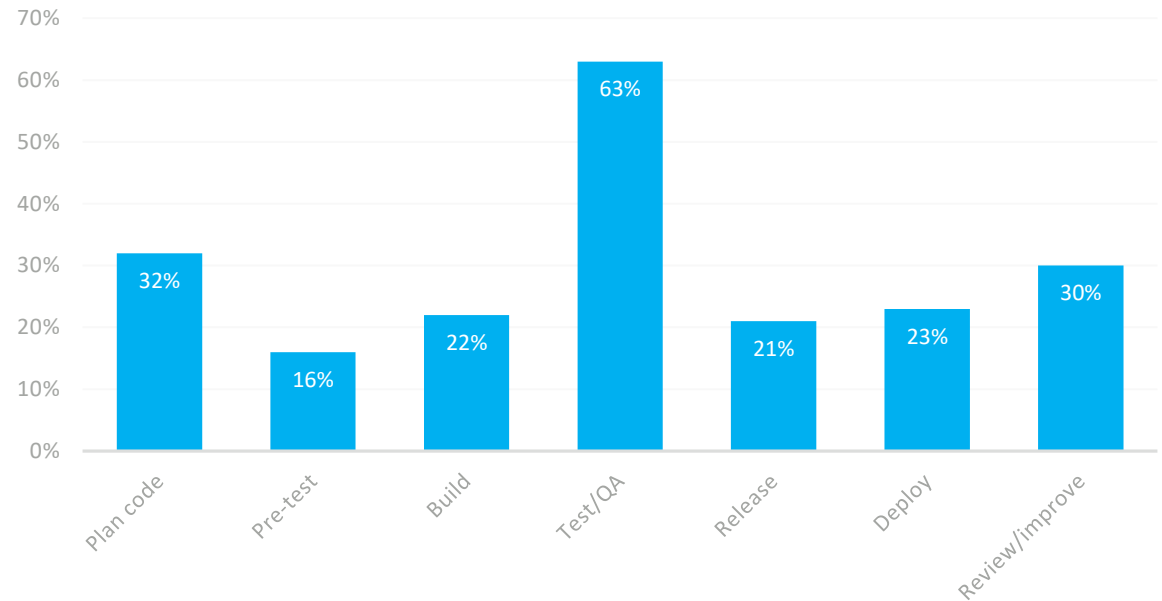
Computing magazine, UK 2017

DevOps challenges.

In an ideal DevOps culture those bottlenecks would not occur because, in theory, testing should be a continuous part of the development cycle rather than being conducted at the end of it.

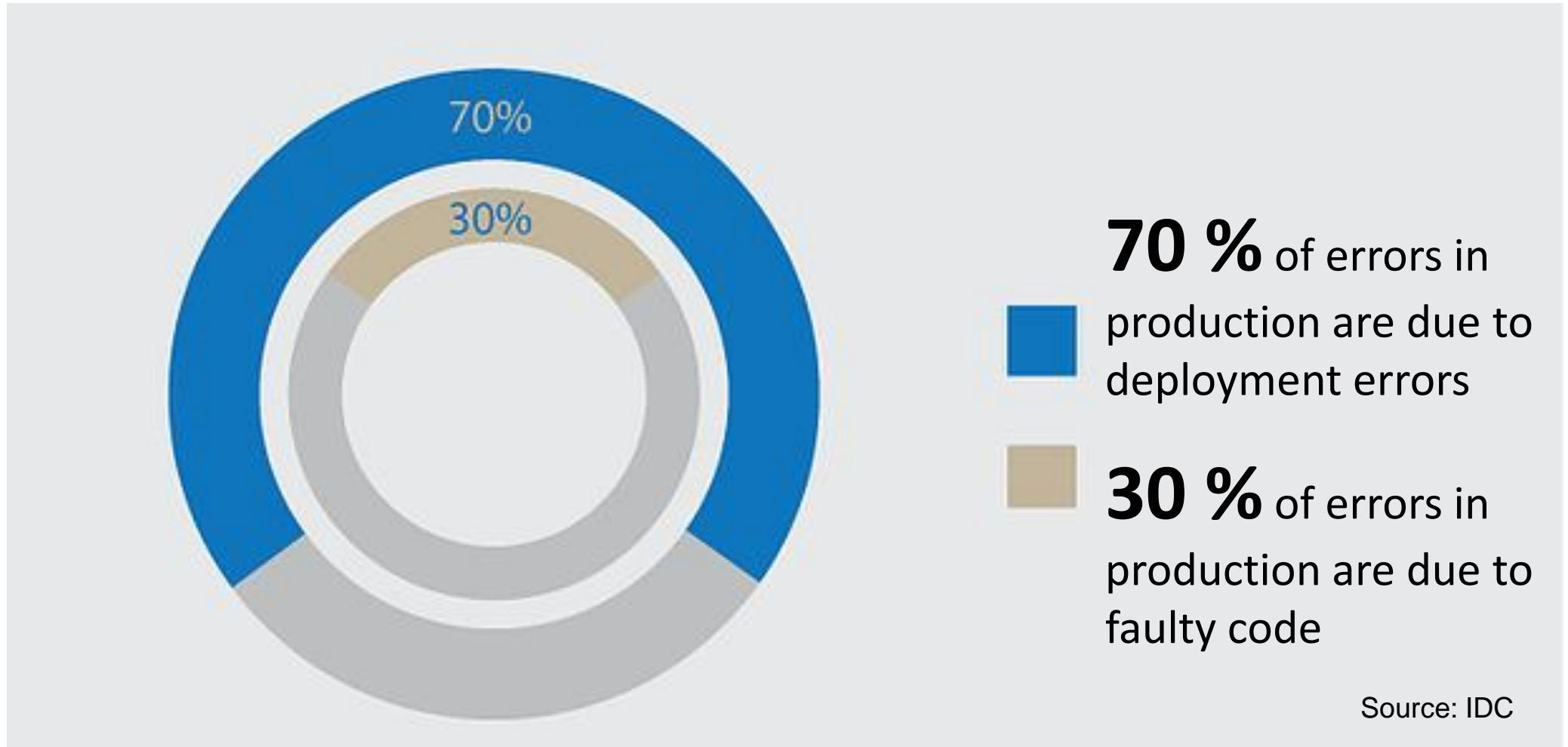
What is standing in the way of this rosy scenario? For some, the problems were structural, with testing being hived off into separate organisational silos – somewhat counter to the spirit of DevOps.

Where are the main hold-ups in the software production process?



"2 or 3 years ago we were talking about Dev & Ops and DevOps. Now we talk about DevOps and testing. They themselves have become 2 separate departments. 2 separate fields.." Product director, Technology

Causes of software errors in production



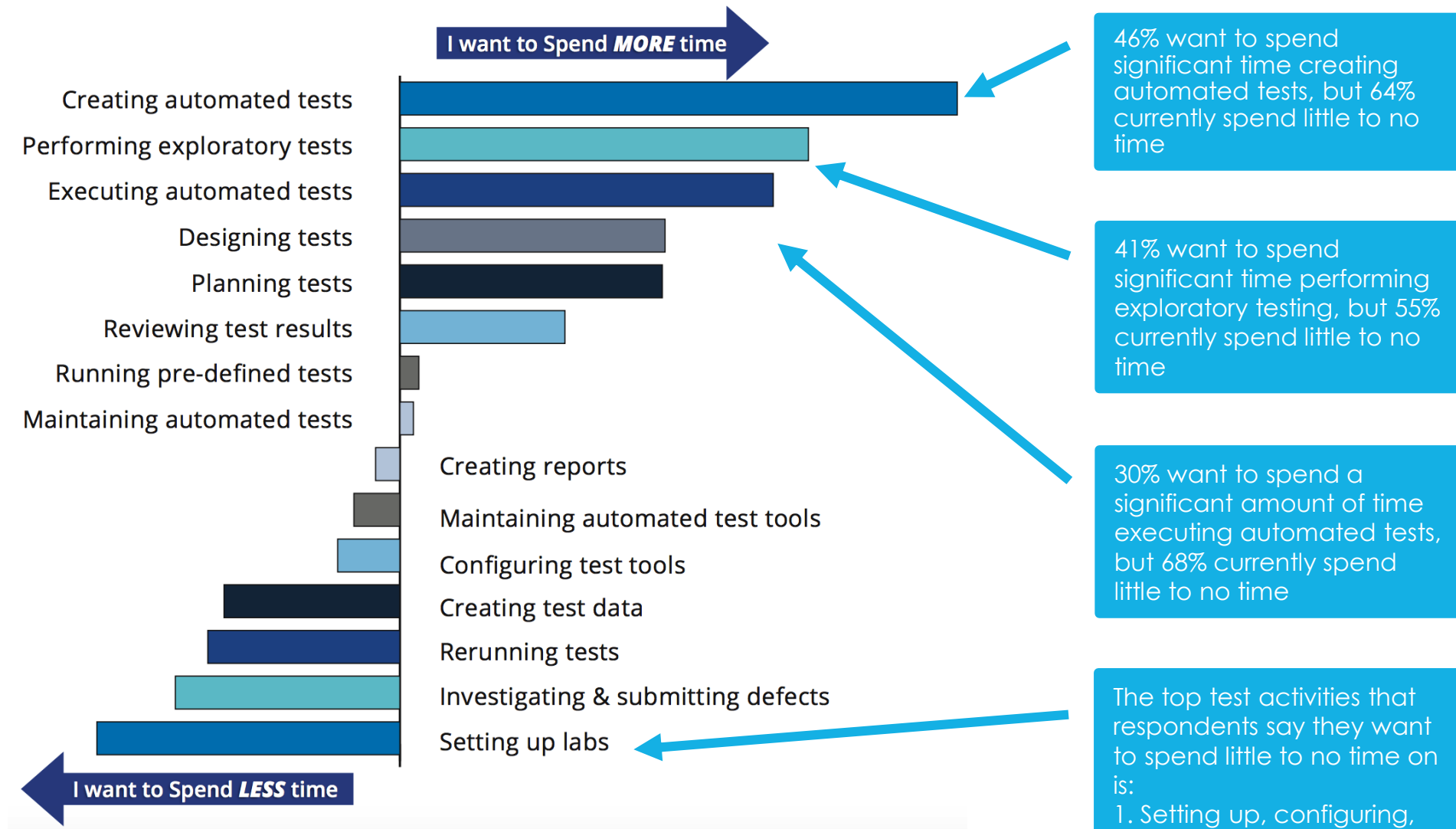
Facts.

By 2023, 75% of global enterprises will have implemented at least one application release orchestration (ARO) solution, which is a substantial increase from fewer than 20% today.

Source: Gartner 2018



Where Do Testers Spend Their Time ?.

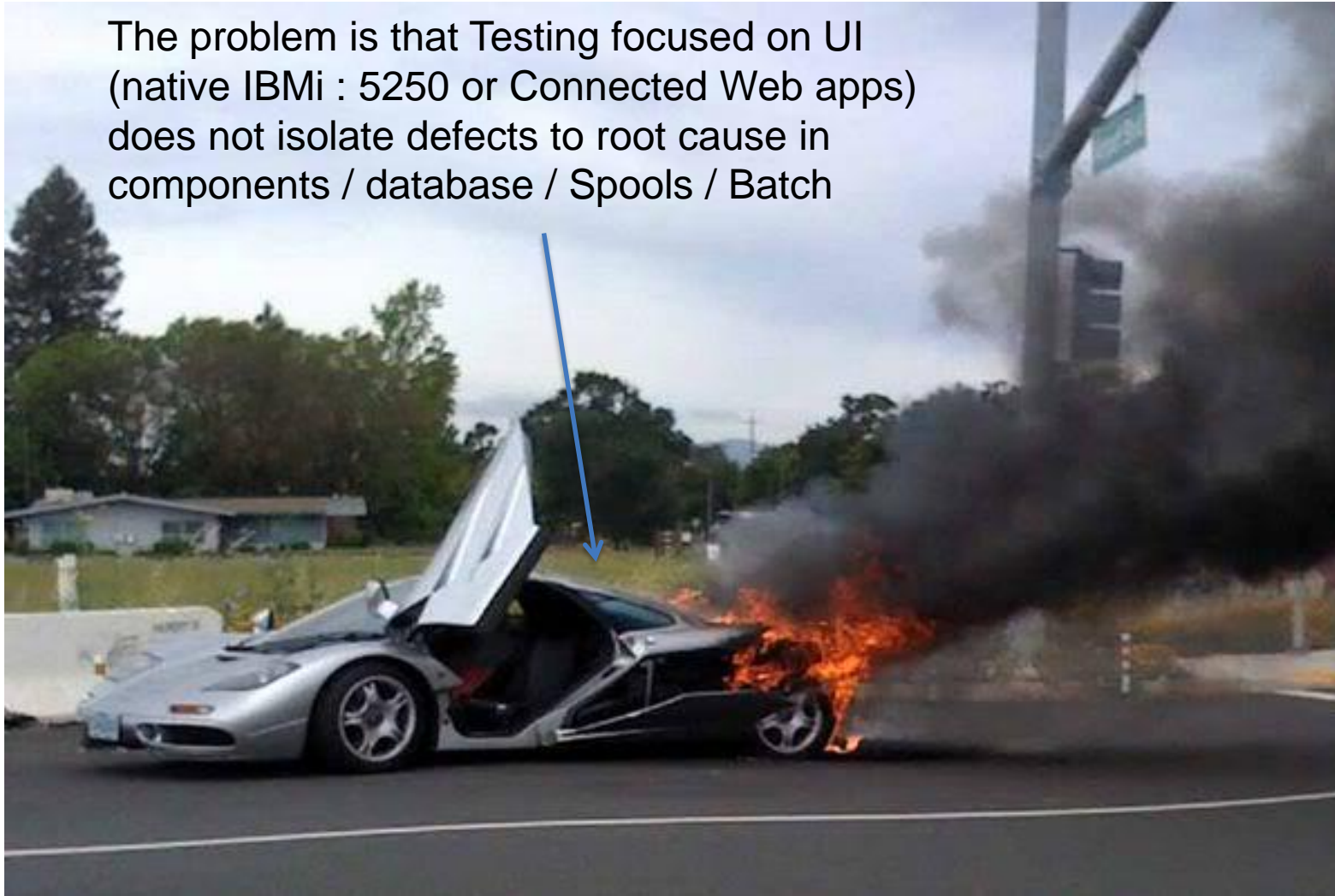


Source: The Future of Testing **Where Do Testers Spend Their Time?**

https://ibm.biz/BdFYLT?cm_mc_uid=01669932491314508556694&cm_mc_sid_50200000=1451877126

Traditional Testing: Build Prototype, Give to Testers, find defects then try to locate defects

The problem is that Testing focused on UI (native IBMi : 5250 or Connected Web apps) does not isolate defects to root cause in components / database / Spools / Batch



See DevOps in SuperCar Manufacture

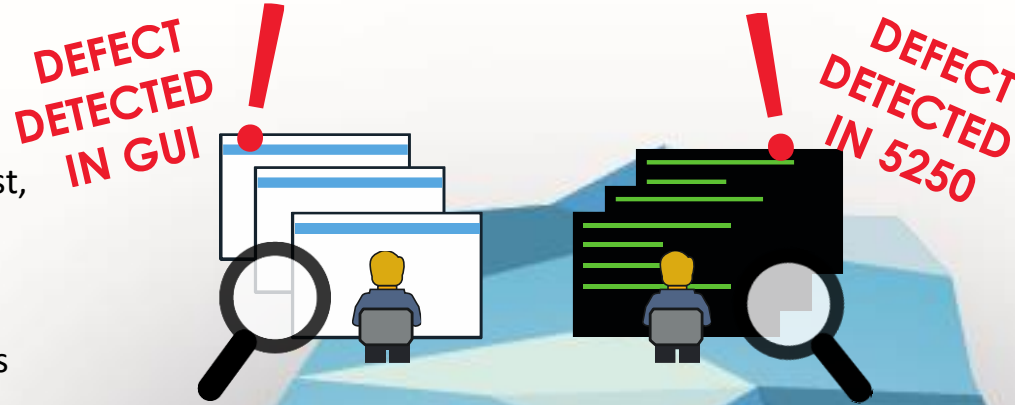


Automated Testing

Big Challenges:

Focus on Testing the UI causes:

- Multiple UI tests + enormous Triage cost,
- Manual localisation, “cannot reproduce on my machine”
- Propagation of defects
- High cost in Tester/Developer resources
- High downtime risk



Without metadata understanding from the Repository, any changes to any programs require full end to end re-test of entire suite of end to end tests = Cost / Delay



Your toolset needs to get under the Iceberg

Automated Testing



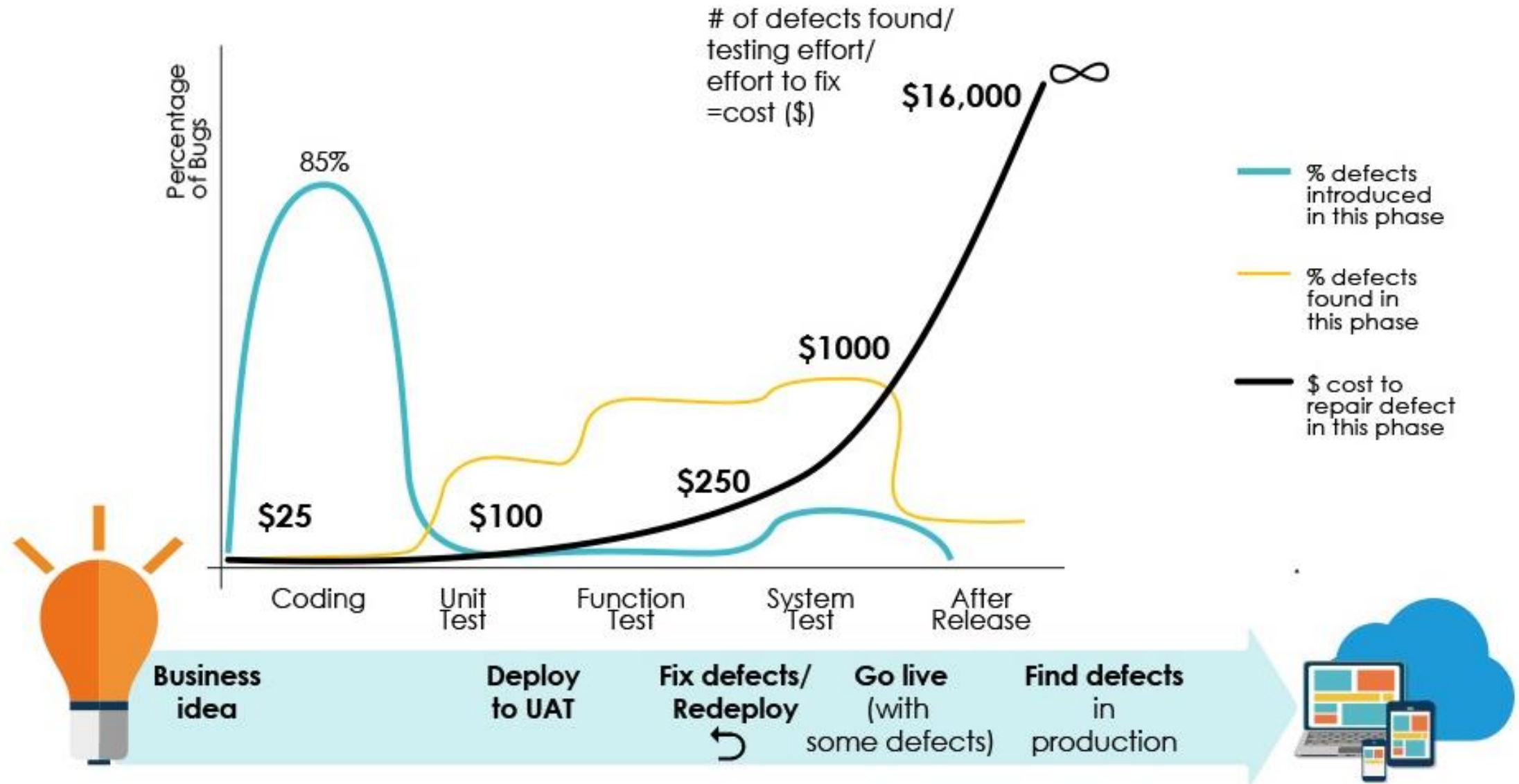
Future Tool should:

- Create Tests easily (record and playback)
- Isolate defects Deep within the Application
- Deliver the Developer (or 3rd party supplier) a way to reproduce the defect: With Breakpoints
- Transparently Manage environments & test data

Unit Tests at Program Level check each component works in isolation: then combined into Smoke Tests / Build Verification Tests

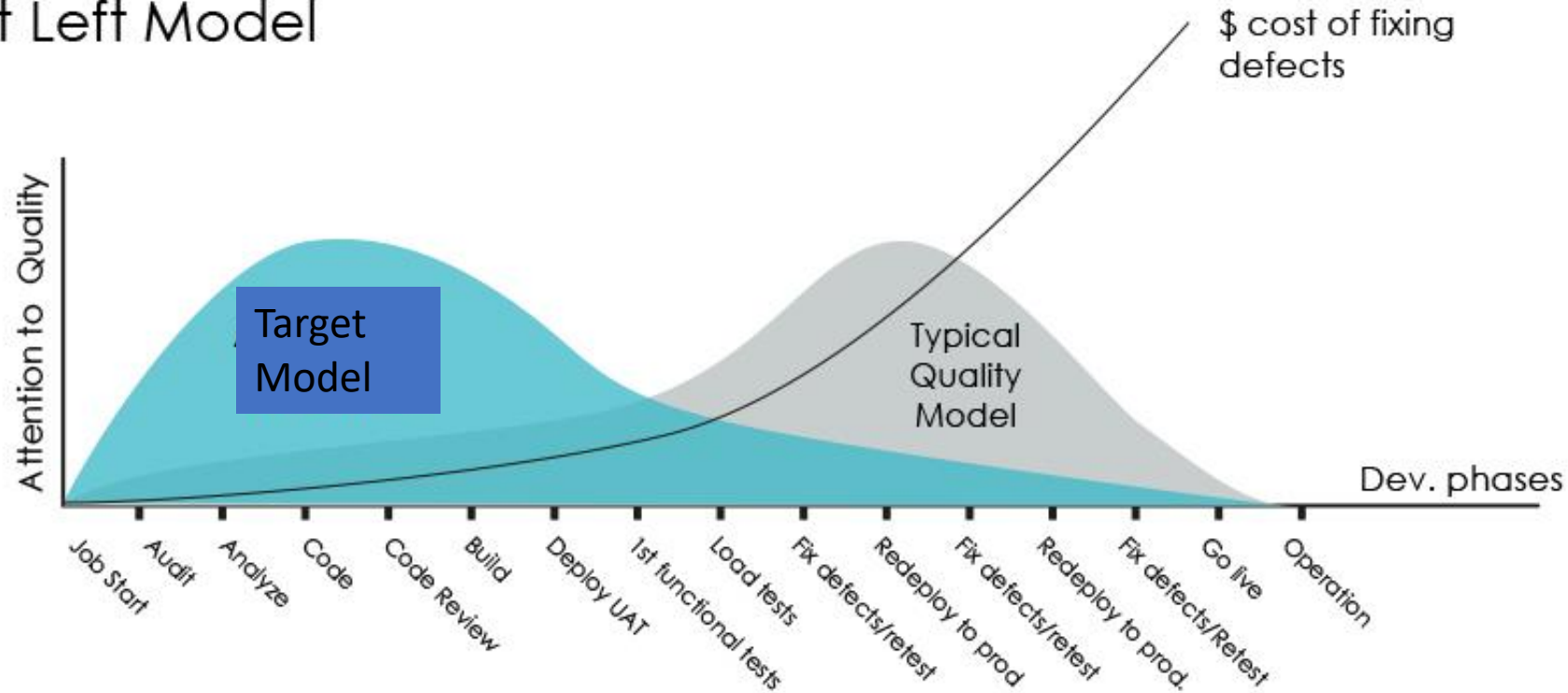
- Batch or Database defect isolated and their effect on other components immediately understood
- Database anonymized and re-deployed into correct state

Defect Map: defects introduced/repaired vs. cost.

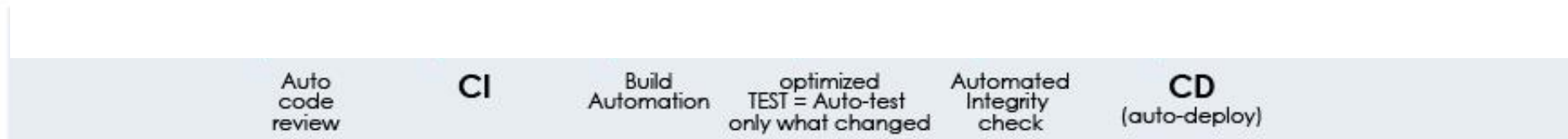


IBM i Quality Management challenge: shift left.

Shift Left Model



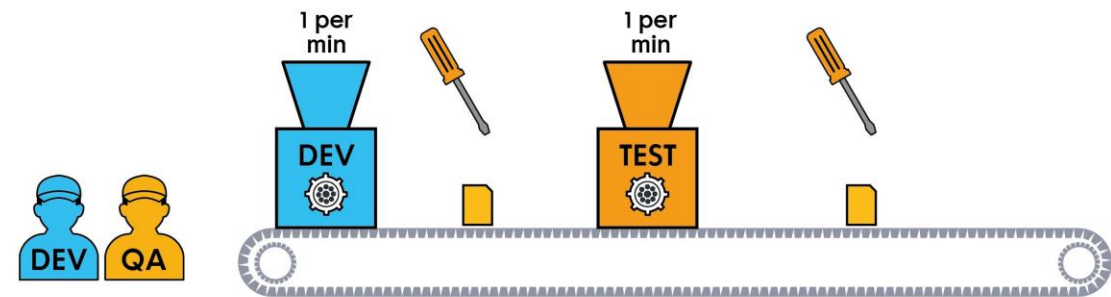
Tooling can help you by eliminating wastage in the process and then documenting the SHIFT LEFT of your new optimised process



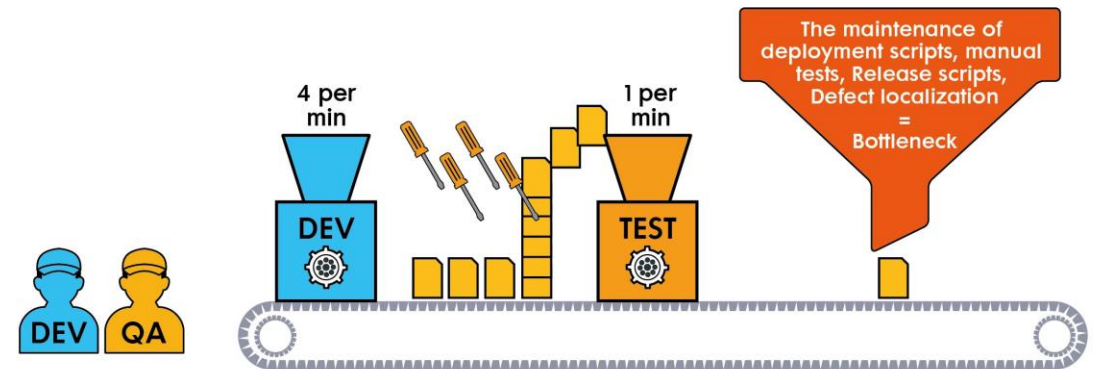
Deployment and Release Management is no different with IBM i.

Modern Development Teams face this problem

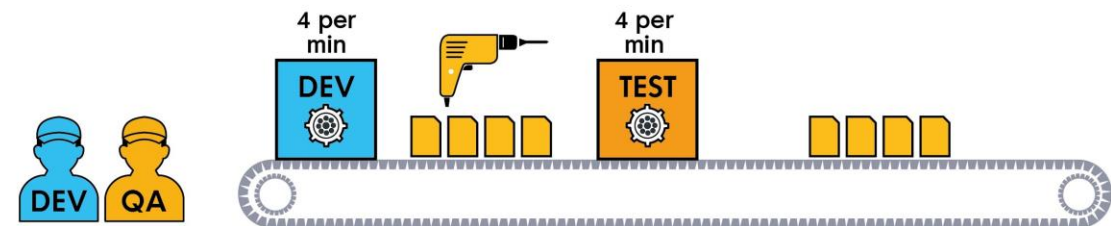
Before DevOps
Manual testing could keep up with limited releases



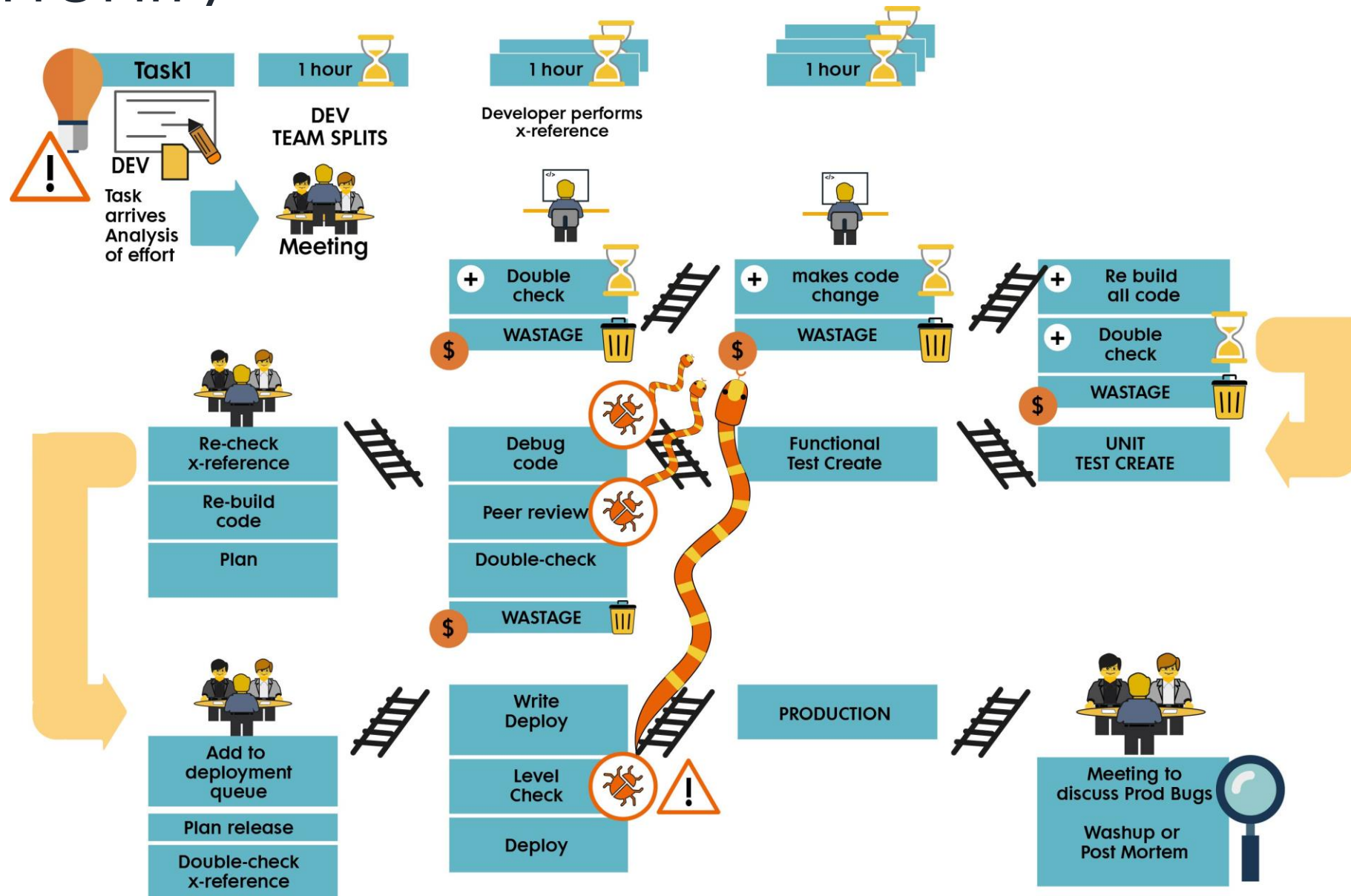
In the DevOps world
Manual creation of release scripts, peer review process can't keep up!



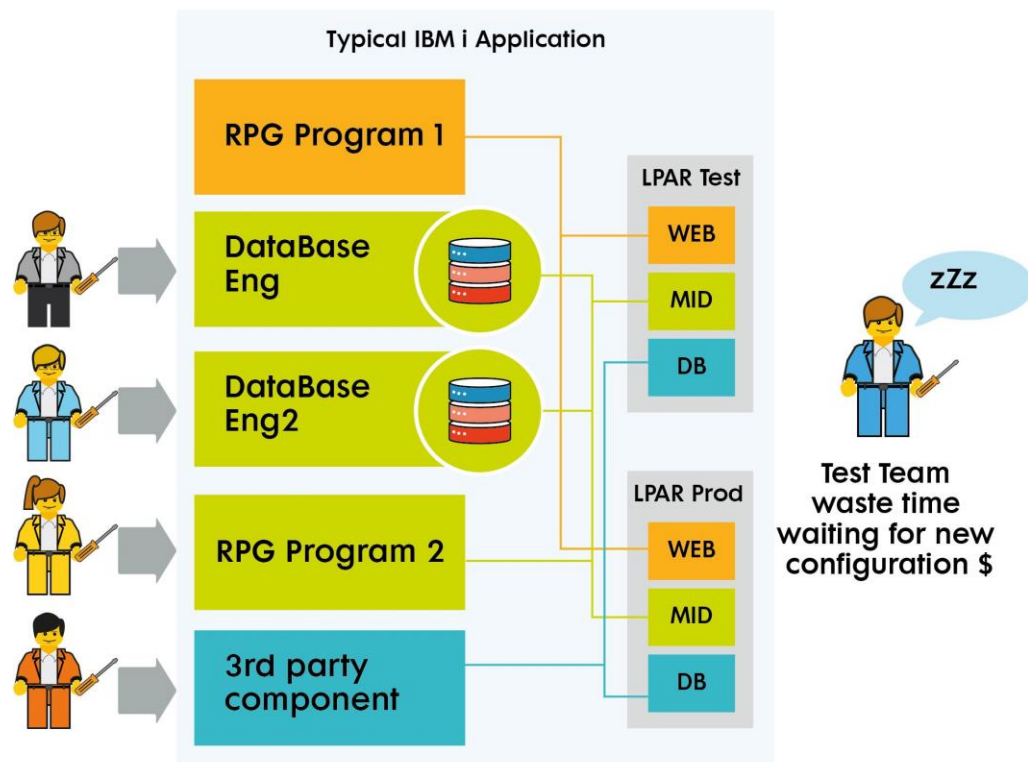
Testing needs to change
with automation and collaboration



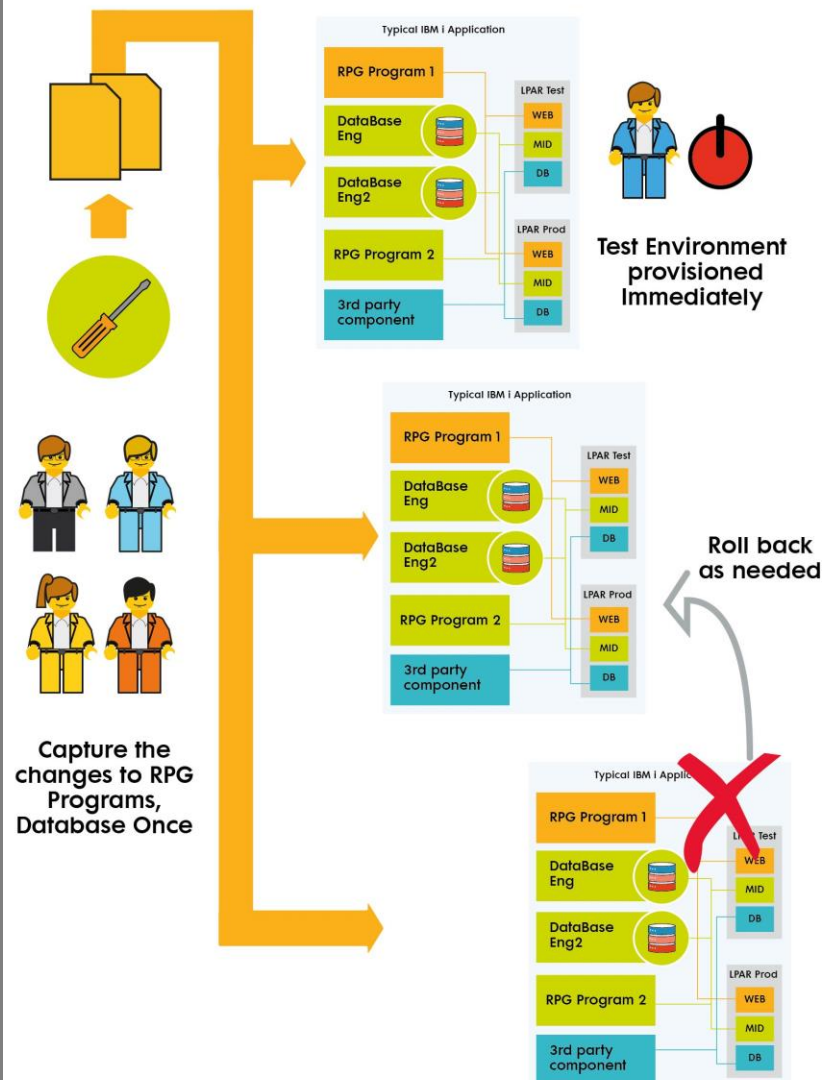
Typical Development process: Big Optimisation opportunity



Debugging a complex Load Testing Problem.



Without Deployment Automation



With Deployment Automation

Upcoming Event



ARCAD with Github “breakfast briefing”
Friday March 8th, IBM Southbank



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Questions?

