

# Leading a Journey to Better Quality

# Agenda

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**What problem are we trying to solve?**

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**How to get started on improving quality?**

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**Selecting metrics**

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**Evolving metrics based on what we learn**

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Our clients are unhappy

Please fix Quality

Our releases are delayed

We don't catch issues early

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# STRANGE INCIDENTS



1



2



3

**Does not happen with the QA  
team only**

**Need a top-down approach to  
echo the practice**

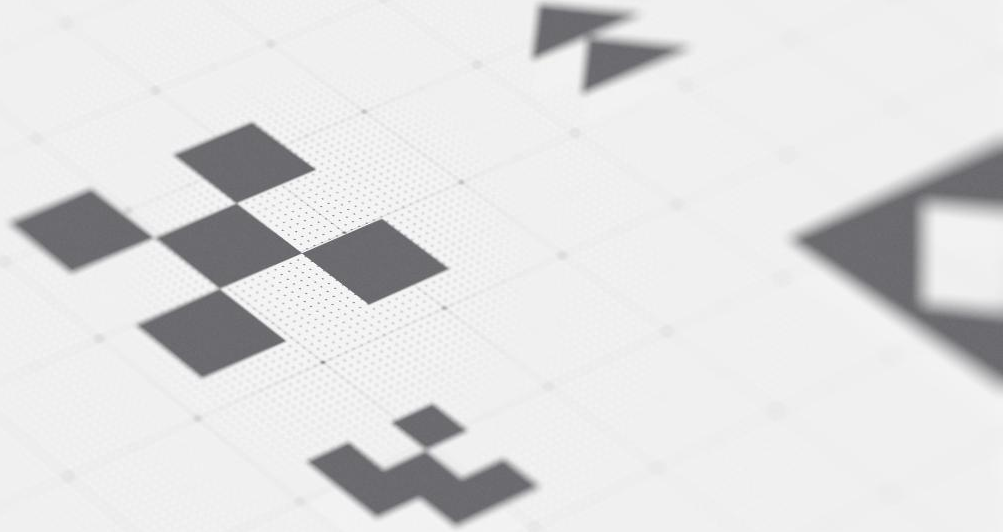
**How do we know where we are  
with Quality?**





Quality BINGO!

# Action Plan\*



# Visualise the Problem

## Overview

### Create a Vision Statement

What is the moto to get there?

### Identify the Stakeholders

Who are the people who can assist in reaching the goal

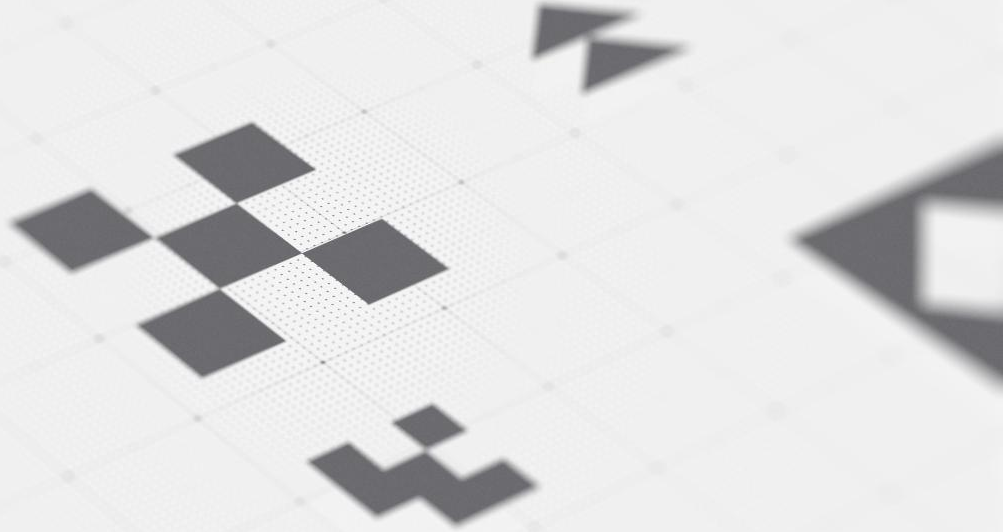
### Identify the Areas

What areas do we want to improve Quality in?

### Define Metrics



Assuring Quality  
enables teams to  
drive for customer  
satisfaction at a  
sustainable pace.



# Who are your Stakeholders?

- CEO/CTO
- Tech leads
- Testing team
- Incident Management
- Release Management

Questions to ask:

- How do you know quality was bad?
- Escaped defects?
- What's your code coverage like?
- Do you have the right processes in place?

# Software Delivery Performance

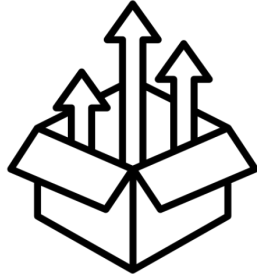
Aspect of Software Delivery Performance*	Elite	High	Medium	Low
<b>Deployment frequency</b> For the primary application or service you work on, how often does your organization deploy code to production or release it to end users?	On-demand (multiple deploys per day)	Between once per day and once per week	Between once per week and once per month	Between once per month and once every six months
<b>Lead time for changes</b> For the primary application or service you work on, what is your lead time for changes (i.e., how long does it take to go from code committed to code successfully running in production)?	Less than one day	Between one day and one week	Between one week and one month	Between one month and six months
<b>Time to restore service</b> For the primary application or service you work on, how long does it generally take to restore service when a service incident or a defect that impacts users occurs (e.g., unplanned outage or service impairment)?	Less than one hour	Less than one day <sup>a</sup>	Less than one day <sup>a</sup>	Between one week and one month
<b>Change failure rate</b> For the primary application or service you work on, what percentage of changes to production or released to users result in degraded service (e.g., lead to service impairment or service outage) and subsequently require remediation (e.g., require a hotfix, rollback, fix forward, patch)?	0-15% <sup>b,c</sup>	0-15% <sup>b,d</sup>	0-15% <sup>c,d</sup>	46-60%

# Areas to improve

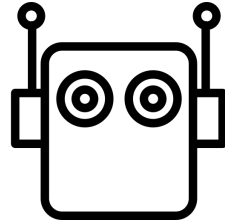
Hiring



Releases



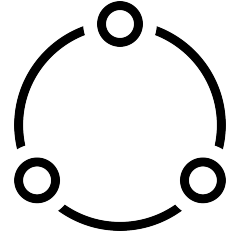
Test Automation



Product Quality



Process Quality



# Releases

- Create visibility landscape for releases
- Monitor issues found post-release vs pre-release
  - How good is your regression cycle?
- Release notes
  - Changes
  - Known issues; when to expect fixes
- How easy is it to create deployables?
- How quickly can you deploy?

The following releases are supported

- 1.6.0
- 1.5.0, 1.5.2, 1.5.4
- 1.4.4
- These are no longer in use by any client - 1.4.0, 1.4.1, 1.4.3, 1.3.0, 1.2.0, 1.1.0, 1.1.1, 1.1.2

- 1.4.4
- These are no longer in use by any client - 1.4.0, 1.4.1, 1.4.3, 1.3.0, 1.2.0, 1.1.0, 1.1.1, 1.1.2

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## Process Quality

**Defect Management Process**

**Product Feature sign-off  
Process**

**Definition of Done**

**Definition of Ready**

**Code Review Practices**

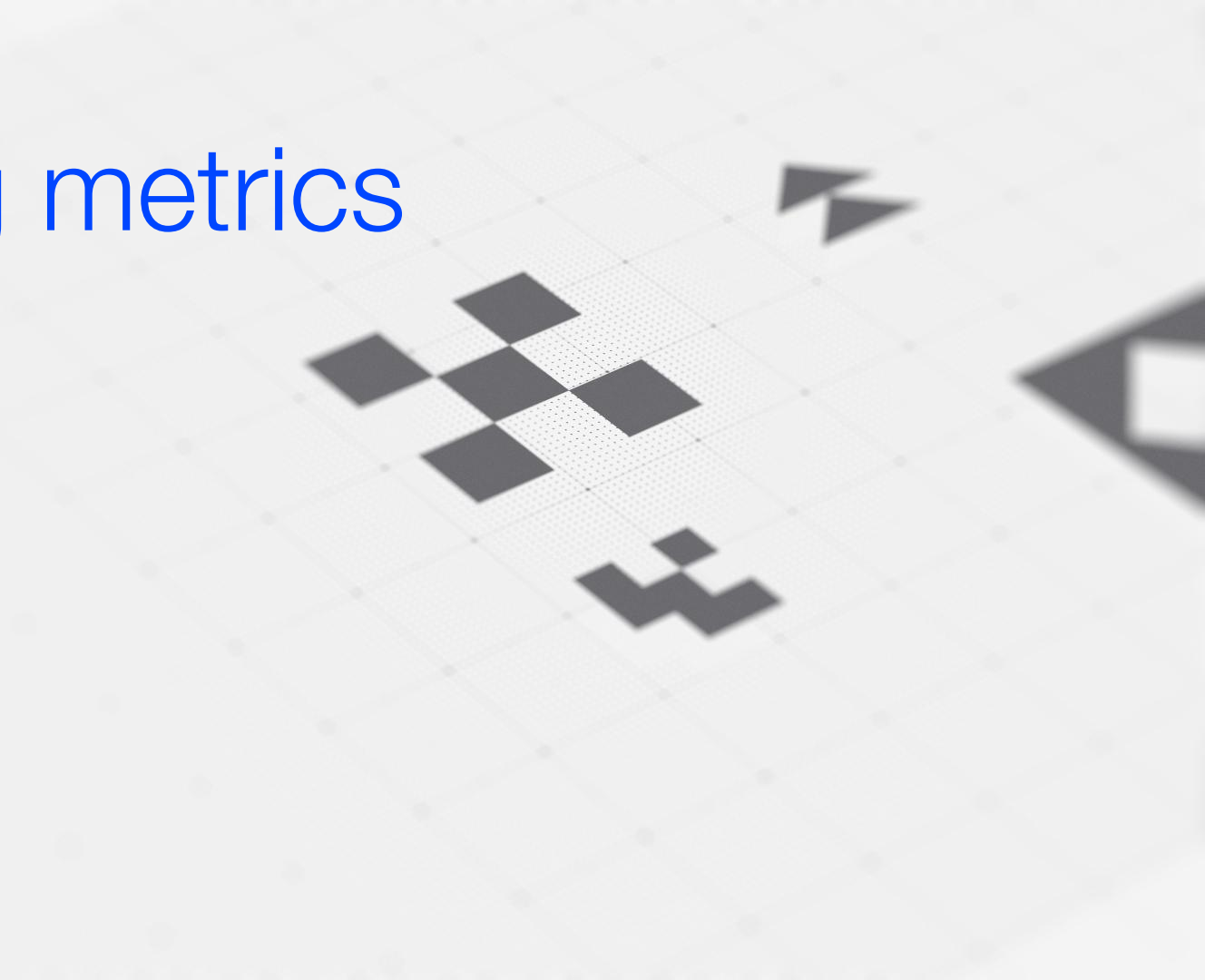
**Test Automation Practices**

**Definition of Acceptance  
Criteria**

**Estimation**

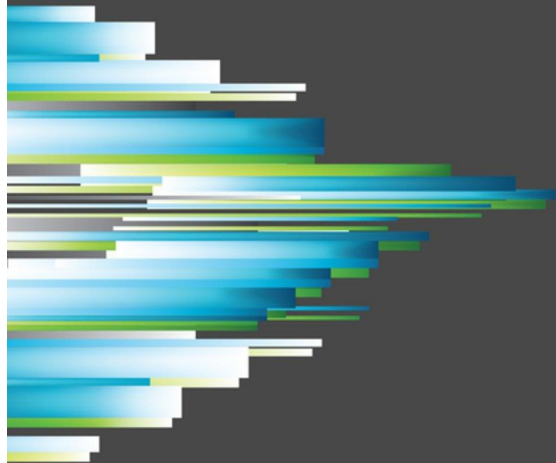


# Selecting metrics



THE SCIENCE OF DEVOPS  
**ACCELERATE**

Building and Scaling High Performing  
Technology Organizations



Nicole Forsgren, PhD  
Jez Humble *and* Gene Kim

ACCELERATE  
**State of DevOps**  
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**cloudbees**

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**Datical**

**New Relic.**

# Product Quality

## Metrics

MTTG

Build Time

Deploy Time

Build Failures

Test Coverage

PR review

PR commit rate  
per Sprint

Average Time in  
Status

QA Kick-back

%age of Flaky  
tests

## Product Quality (contd.)

### Metrics

Defects found in  
Sprint vs Escaped  
Defects

Defects found via  
Automation or via  
Exploratory testing  
per Feature

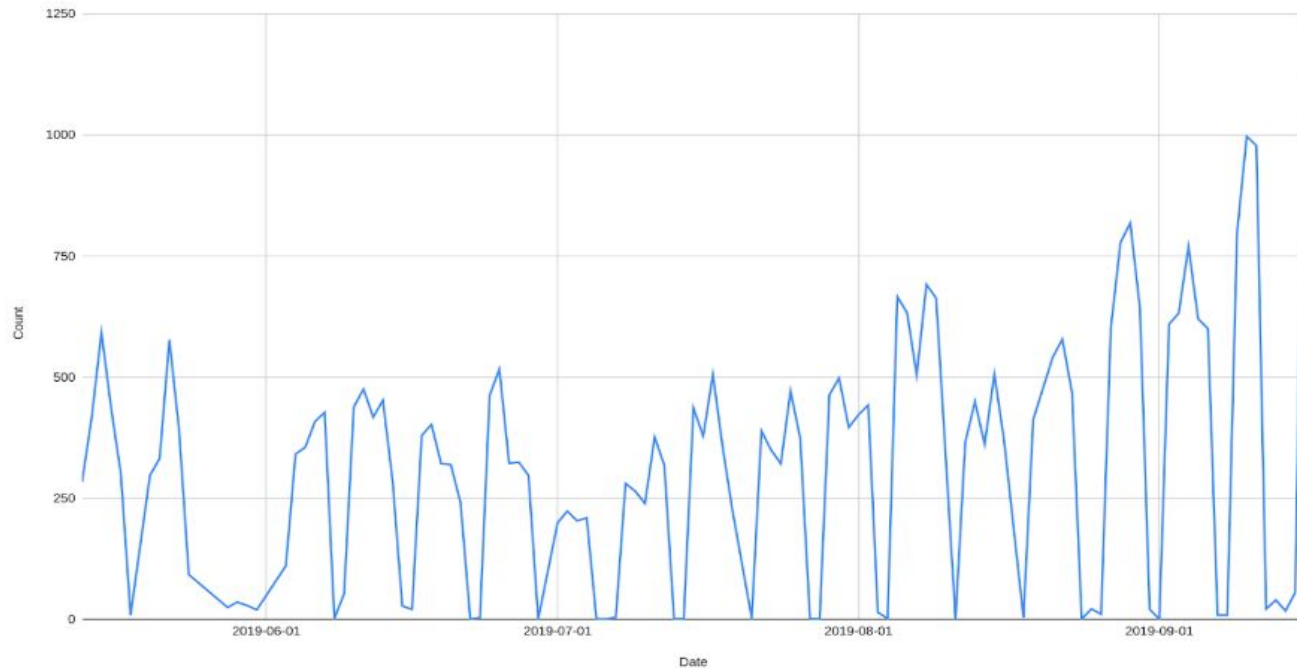
Bug resolution time  
per Severity level

Team Feedback



- **Processed 1,229 builds**
  - **First time > 1000 / day**
  - **Average time enqueued -> complete: 9 minutes**

Builds per day



## Time from check-in to deployed in test environment

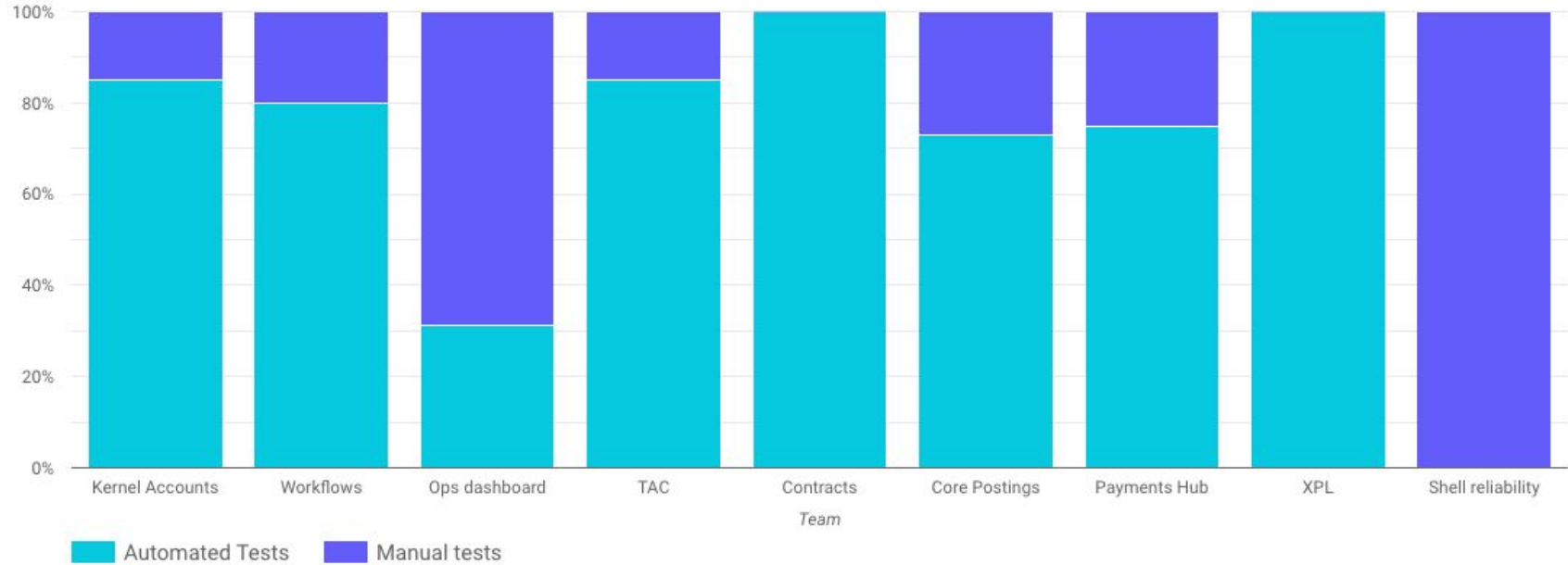
	Median	90th percentile	95th percentile
1 month ago	~40m	~1h45m	2h+
Now	5m22s	20m27s	26m32s

## Test greenness

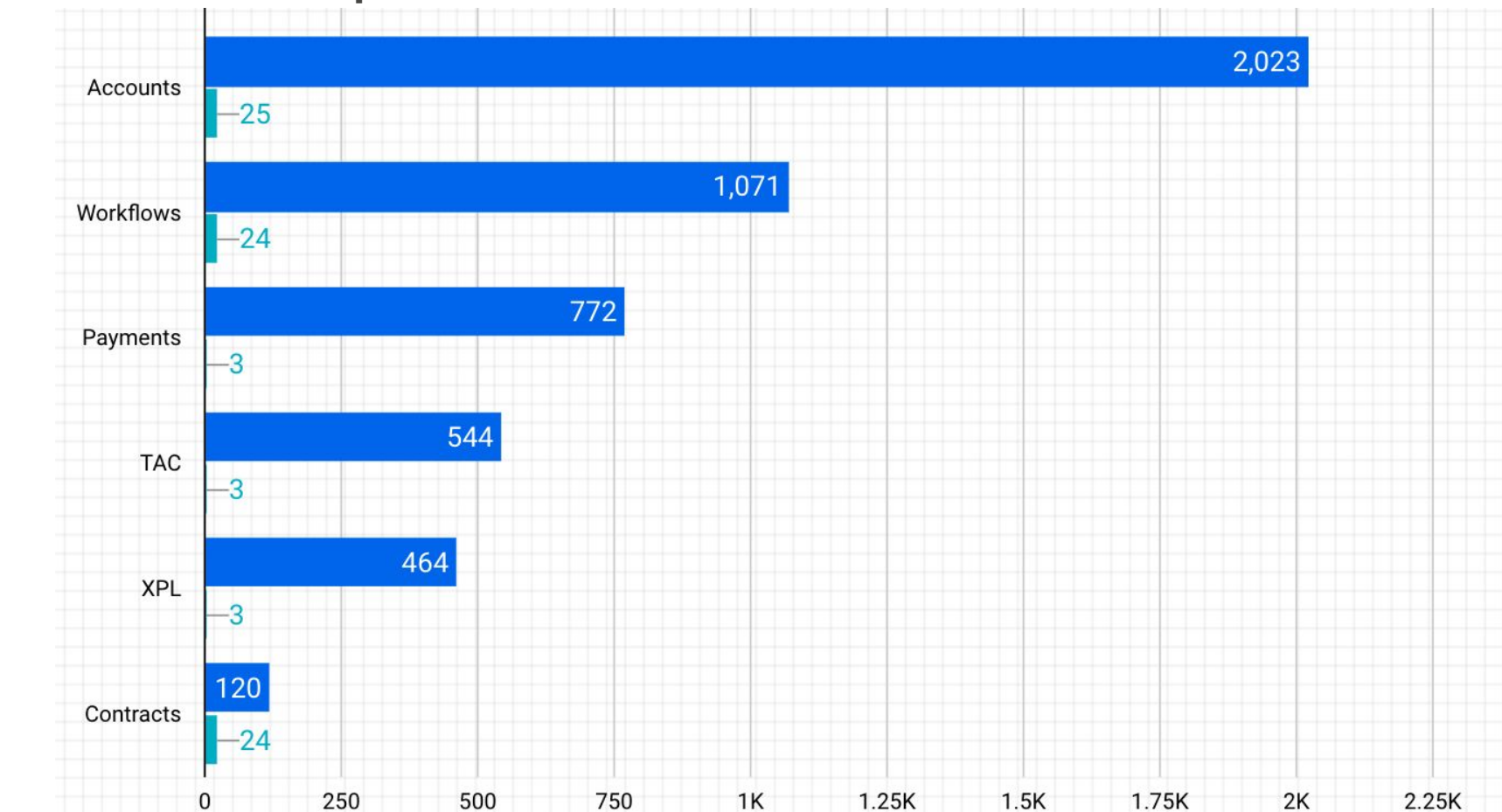
Postmerge dev	297 / 453 (65.6%)
Postmerge staging	399 / 450 (88.7%)
Postmerge preprod	102 / 290 (35.2%)

### Regression testing progress

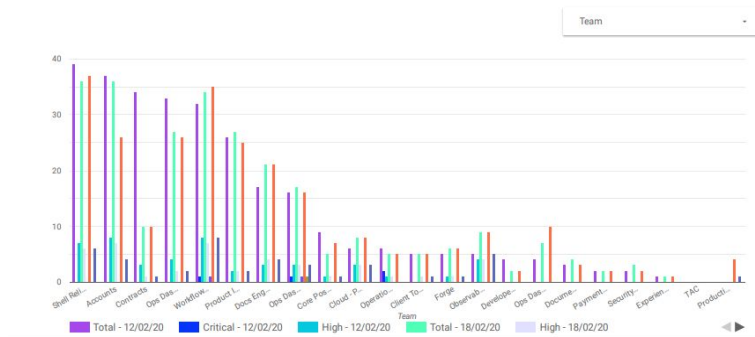
This graph shows the percentage of tests automated over time from the regression test suite.



# SATs vs Defects per Team



# Defects



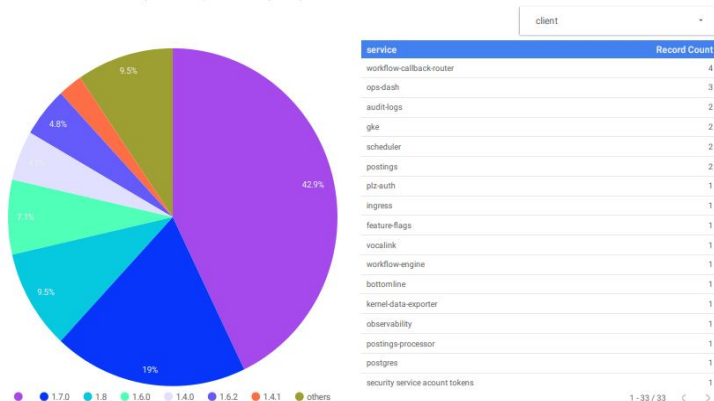
## Defects found after cut-off dates

The chart shows the number of defects reported in staging per release after cut-off date.

Release Version	Number of defects
1.4.0	46
1.5.0	30
1.6.0	28
1.7.0	13
1.8.0	29

## Incidents reported by Clients

The chart shows the incidents for every version along with the severity when you drill down.



# Psychological safety

“Wherever there is fear, you will get wrong figures”

— W Edwards Deming

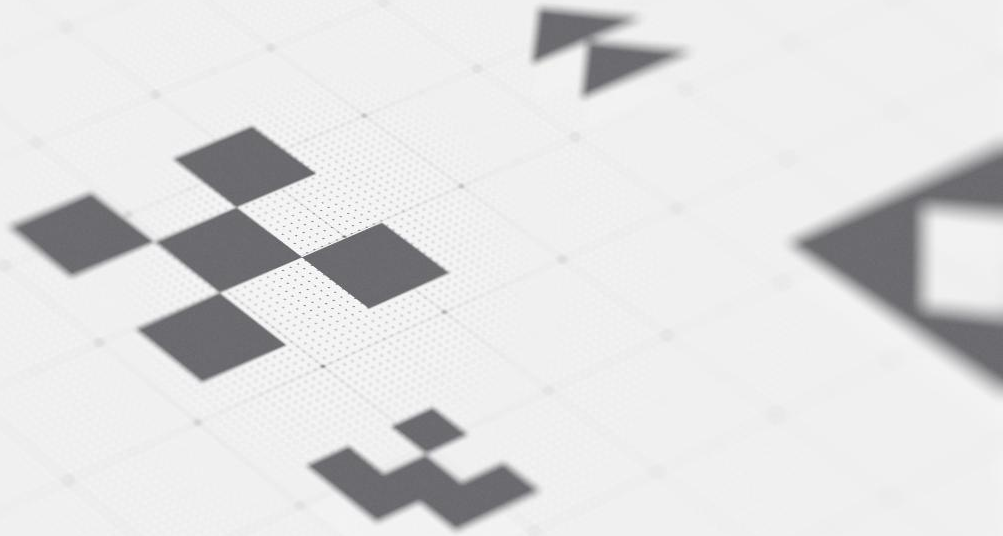
## How to make metrics safe

- Teams involved in creating vision
- Consult with teams when deciding what to measure
- Testing team makes quality visible
- Let teams set their own targets
- Regular retrospectives on what is being measured

## Conclusion

- Quality is subjective - what to focus on depends on many factors
- Start by creating a vision, selecting some metrics, and measuring
- What you measure will evolve, and will determine what teams work on

Thank you



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