



Google Cloud

Accelerate State of DevOps 2023



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Key takeaways

Follow along:

<https://dora.dev/research/2023/>



Key insights from 2023



Healthy culture

All the tech, process, and capabilities wouldn't get you far with unhealthy culture



User centricity

Fast, stable, and reliable is great. But if you don't know who you build for the org, the team, and the employees will struggle



Quality documentation

Quality documentation not only leads to favorable outcomes and the establishment of technical capabilities, but provides the grounds for technical capabilities to have an impact



Flexible infrastructure

Creating a flexible infrastructures how cloud computing differentiates itself



Underrepresented groups

Those who identified as women or self-described their gender and people who identify as underrepresented have higher levels of burnout due to more toil and less-recognized work



BONUS: 6th finding




Teams with faster code reviews have
50% higher software delivery
performance







join the dora.community discussion
on code reviews **this week:**

Nov 8th: **20:00 UTC** | 3pm ET | 12pm PT
Nov 9th **10:00 UTC** | 21:00 ACT | 19:00 JST | 15:30 IST | 12:00
EET

- 
- Are peer code reviews **embedded** in your process?
 - How long is the **duration** between code completion and review?
 - What is the average **batch size** of your code reviews?
 - How many **teams** are involved in your reviews?
 - How many different geographical **locations** are involved in your reviews?
 - Does your team **improve code quality automation** based on code review suggestions?

About LinearB's Benchmarks

- 2,022 Dev Teams
- 3,694,690 Pull Requests
- 103,807 Active Contributors
- Time Frame: 08/01/22 - 08/01/23
- 14 Metrics Studied

 ELITE	Top 10%
 STRONG	11% - 30%
 FAIR	31% - 60%
 NEEDS FOCUS	Last 40%



Benchmarking DORA

by org size

Startup: 0-200 employees

Scale-up: 200-1000 employees

Enterprise: 1000+ employees

Metric	Elite	Good	Fair	Needs Improvement
Cycle Time (hours)	< 19	19 - 66	66 - 218	> 218
Deployment Frequency (per service)	> 1/day	> 2/week	1 - 2/week	< 1/week
Change Failure Rate (%)	< 1%	1% - 8%	8% - 39%	> 39%
MTTR (hours)	< 7	7 - 9	9 - 10	> 10

R&D Investment Benchmarks

Investment Profile	Percentage
New Value	55%
Feature Enhancement	20%
Developer Experience	15%
KTLO	10%

New Value

This is defined as the actions performed to invest in new features that increase revenue and growth by new customer acquisition or expansion.

Feature Enhancements

This is defined as actions taken to enhance features or deliver a product that ensures customer satisfaction.

Developer Experience

This is defined as the actions performed to improve the productivity of development teams and their overall experience of work.

KTLO (Keeping the Lights On)

This is defined as the minimum tasks a company is required to perform in order to stay operational on a daily level while maintaining a stable level of service.

Key Data Insights: LinearB + DORA



Insight #1

Pickup Time, Handoffs vs. Review Time

Key Takeaway

There is a positive correlation between longer PR pickup/handoff times and longer review times.

Pickup Time vs Review time

Correlation of 0.37



Handoffs vs Review time

Correlation of 0.4

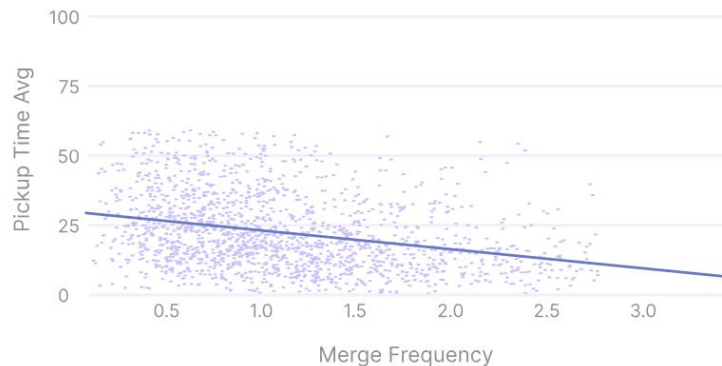


Insight #2

Merge Freq. vs. PR Review Cycle

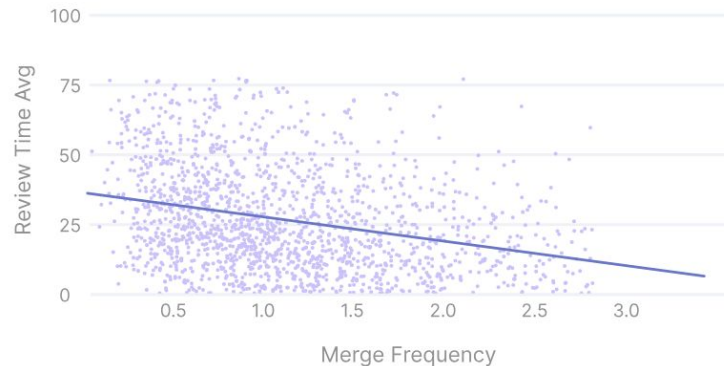
Merge Frequency vs Pickup Time

Correlation of -0.32



Merge Frequency vs Review time

Correlation of -0.32



Key Takeaway

Long PR review cycles are a key obstacle to achieving high merge frequency.

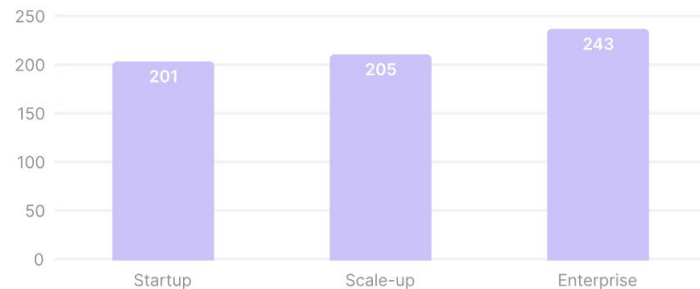
Insights #3 & #4

Cycle Time by Org Size

Key Takeaway

Enterprises have longer cycle times than startups and scale-ups.

Cycle Time By Org Size

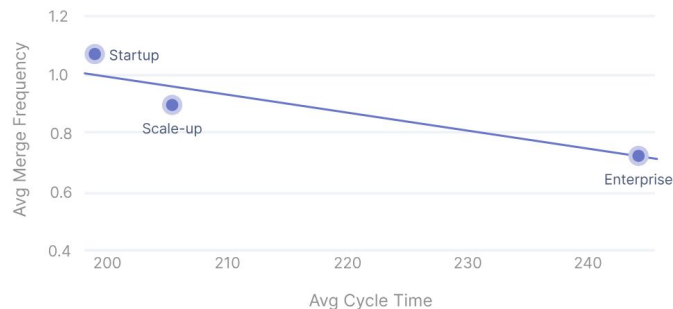


Startup: 0-200 employees

Scale-up: 200-1000 employees

Enterprise: 1000+ employees

Merge Frequency vs Cycle Time



Startup: 0-200 employees

Scale-up: 200-1000 employees

Enterprise: 1000+ employees

● Merge Frequency
— Trendline for Merge Frequency

Key Takeaway

Teams with shorter cycle times are able to achieve higher merge frequency.

Insight #5

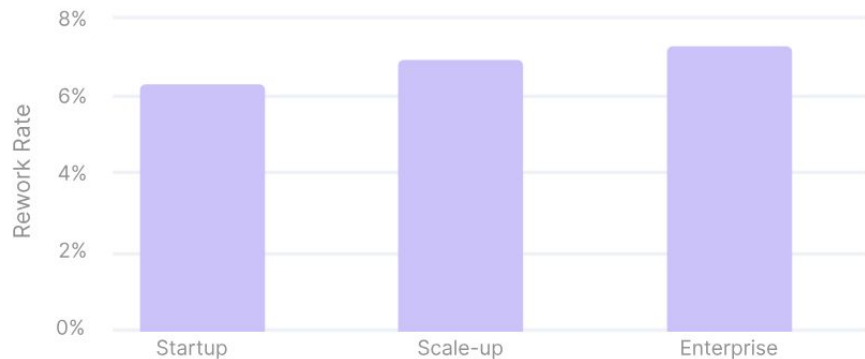
Rework vs. Cross Team PRs



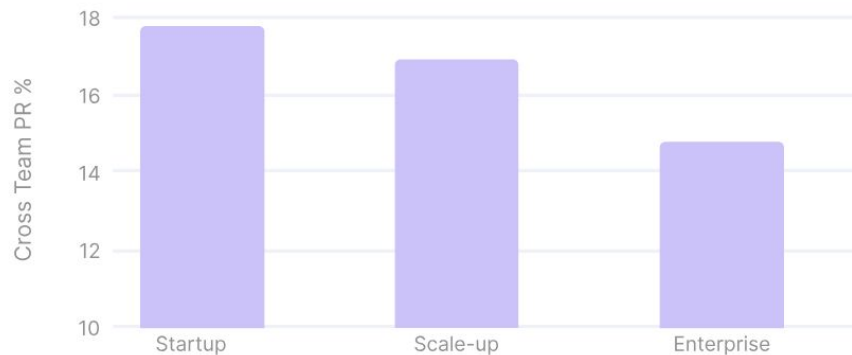
Key Takeaway

Enterprises have far less cross-team collaboration on PRs than startups and scale-ups.

Rework Rate



Cross Team PR %



What to do with these insights?



Get your team's DORA Metrics - for free

LinearB All Contributors Past 90 days July 25 - Oct 23 Dashboard Pulse Teams Activity Metrics Projects 🔔 ⚙️ 🔍 👤

CYCLE TIME ?

1 day 19 hours 75TH PERCENTILE CYCLE TIME

16h CODING | 54m PICKUP | 2d, 3h REVIEW | 5d, 18h DEPLOY

DEPLOY FREQUENCY ?

21 PRS PER WEEK

MTTR ?

344 AVG CODE CHANGES

MERGE FREQUENCY ?

12 PRS PER DAY

PULL REQUEST SIZE

21 WEEKLY

MERGE FREQUENCY

21 WEEKLY

GOALS AND REPORTING

Set engineering standards and get alerts for at-risk work

[Set Up Goals](#)

How do we calculate your metrics?

How to use is DORA? Cycle Time Deploy Frequency CFR MTTR PR Size Merge Frequency

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linearb.io/get-started

Drive Code Review Efficiency

Standardize your PR review process with
Programmable Workflows

Move Faster

```
automations:  
  safe_changes:  
    if:  
      - {{ is.formatting or is.docs or is.tests }}  
    run:  
      - action: add-label@v1  
        args:  
          label: 'safe-changes'  
      - action: approve@v1
```

Auto-approve

Improve Quality

```
automations:  
  double_review:  
    if:  
      - {{ branch | estimatedReviewTime >= 30 }}  
      - {{ files | length >= 10 }}  
      - {{ files | match(regex=r/src\/) | some }}  
    run:  
      - action: set-required-approvals@  
        args:  
          approvals: 2
```

Require 2 Reviewers

Compliance

linearb.io/platform/gitstream



Appendix



Insight #6

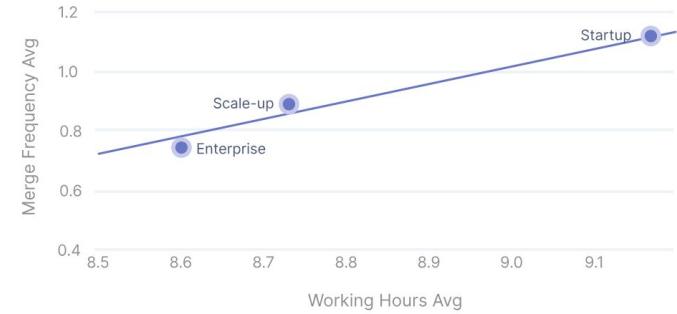
Merge Freq. vs. Working Day



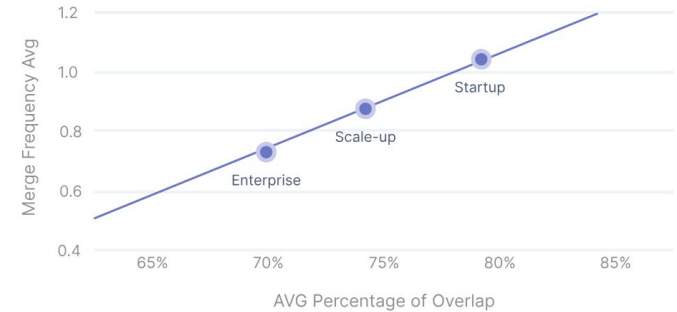
Key Takeaway

Startups work longer hours than scale-ups and enterprises, and have a higher Merge Frequency.

Merge Frequency vs Avg Working Day



Work Hours Overlap vs Merge Frequency in Teams



Benchmarks by number of employees

Startup: 0-200 employees

Scale-up: 200-1000 employees

Enterprise: 1000+ employees

- Merge Frequency
- Trendline for Merge Frequency

gitStream Improvement by the numbers

Repos that have gitStream see
an average **61% decrease in
Cycle Time**

61% ↓

Decrease in
Cycle Time

56% ↓

Decrease in
Pickup Time

38% ↓

Decrease in
Review Time

28% ↓

Decrease in
PR Size

New Metrics

Merge Frequency & Capacity Accuracy

Merge Frequency per dev


 > 2 /week

 2 - 1.5

 1.5 - 1

 < 1

Capacity Accuracy per sprint

 85% - 115%

Potential Under Commit
116 - 130%

Potential Over Commit
70 - 84%

Under Commit
> 130%