

Scaling AI Adoption Across 3000+ Developers

at Booking.com



Laura Tacho

Chief Technology Officer

DX



Bruno Passos

Group PM, Developer Experience
& GenAI Innovation Lead

Booking.com

Booking.com Overview

Part of Booking Holdings,
Booking.com is a global
travel leader with:



1.5 M

Room nights booked
daily

500M

Monthly
visitors

24k

Employees
worldwide

\$23.7B

2024 revenue
across Booking Holdings

The Engineering Scale

At Booking.com, we operate at massive technical scale:

3,000+

Developers

Working across
multiple business
units and tech stacks

250K

Merge Requests

Processed annually

2.8M

CI Pipelines

Run per year

25+

years old

A mix of legacy and
modern services

All while maintaining systems that are **25+ years old** with substantial legacy code

DX and Booking.com Partnership

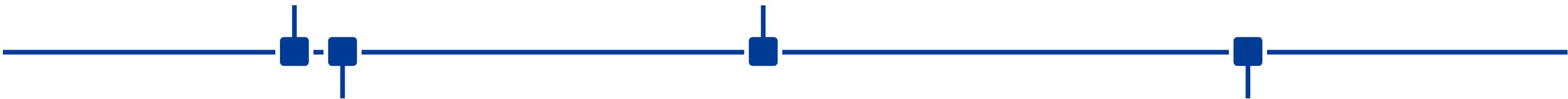
2023

Partnership begins with
Booking.com's dedication to
developer experience excellence

2024

DX and Booking.com collaborate to define AI
strategy across 3000+ developers

"The only partner on the same wavelength as us"



2023

Booking.com introduces initial AI tools with
DX providing strategic advisory

2025

Booking.com scales AI adoption with DX as
the backbone of AI impact measurement



DX is a developer intelligence platform created by leading researchers

The screenshot shows the DX platform's dashboard interface. At the top, there are navigation tabs: Dashboard (selected), Snapshots, Reports, Tools (with a dropdown arrow), and Teams. On the right side of the header are search, help, notifications, settings, and user profile icons.

Below the header, there are four main performance metrics displayed in cards:

- EFFECTIVENESS**: DXI (Developer Experience Index) value 59, showing a decrease of -5 vs previous. A blue line chart shows a slight upward trend.
- SPEED**: Diffs per engineer value 4 /week, showing an increase of +1 vs previous. A blue line chart shows a slight upward trend.
- QUALITY**: Change fail percentage value 4.7%, showing an increase of +0.7 vs previous. A blue line chart shows a slight upward trend.
- IMPACT**: Innovation ratio value 62.2%, showing an increase of +5.8 vs previous. A blue line chart shows a slight upward trend.

Below these cards, there are three buttons: Team (selected), Drivers, and AI Overview. To the right, there is a search bar and a sort icon.

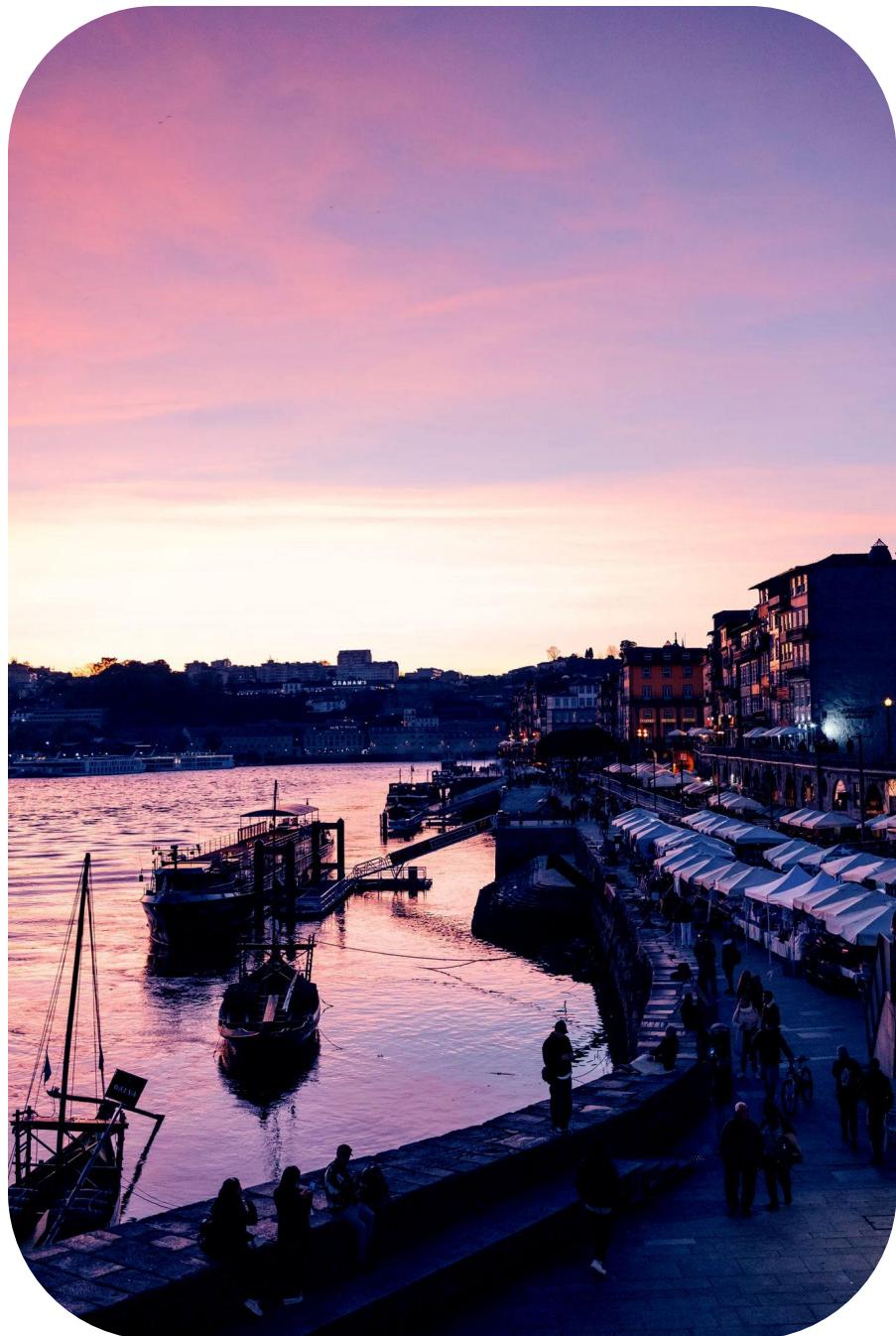
The main content area features a table comparing teams across various metrics:

Team	Contributors	Overall average	vs Previous	Trend
> Product & Data Platform	118	3.1 per eng/week	+1.3	
> Payments	149	2.8 per eng/week	+1	
> Growth	53	2.4 per eng/week	+0.6	

To the right of the table, there is a sidebar titled "DX AI". It contains a message from AI stating: "I've identified recurring areas where your team can improve the developer experience based on your data." Below this is a "RECOMMENDATIONS" section with three items:

- Local iteration speed → Add hot reloading to cut build times.
- Code maintainability → Standardize patterns and ownership.
- Documentation → Use one source of truth synced with code.

At the bottom right of the sidebar is a button labeled "What's the impact if we don't address these?". At the very bottom is a text input field with placeholder "Ask anything..." and a send icon.



Our Story Today

How did an enterprise company with lots of legacy code achieve 75%+ AI adoption across 3000+ developers in less than 2 years?

- Goals and business objectives
- Early experiments and barriers to adoption
- Finding an effective AI scaling strategy
- Turning measurement into a core strategic pillar
- Results and impact
- What's next



The Approach

Accelerate modernization

Key metric

Project completion time

Goal

Twice as fast

Remove toil from developers

Key metric

Innovation rate

Goal

80% innovation

Ship faster more reliable code

Key metrics

Change Failure Rate
PR throughput

Goal

Decrease CFR and Increase
throughput

Nov 26, 2023

Drivers Workflows **Delivery** Heatmap Hotspots CSAT Allocation

81% of teams triaged results

Speed
Perceived rate of delivery.

43 -30 vs Industry P75

Ease of delivery
Ease of being a technical contributor.

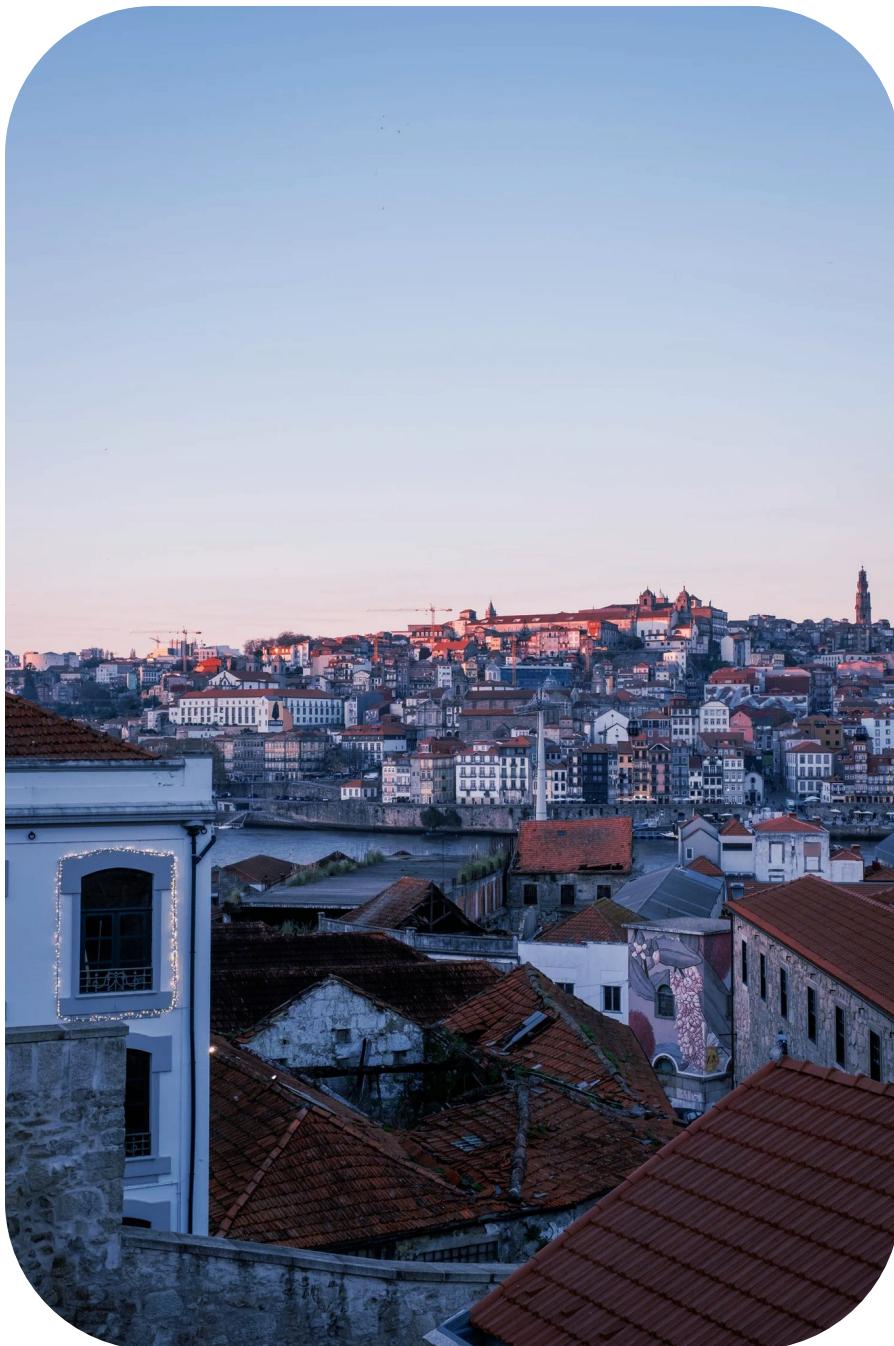
33 -42 vs Industry P75

Quality
Perceived technical stability of systems.

58 -8 vs Industry P75

Weekly time loss
Time lost due to inefficiencies.

27% +6 vs Industry P75



Experimentation + hypothesis testing

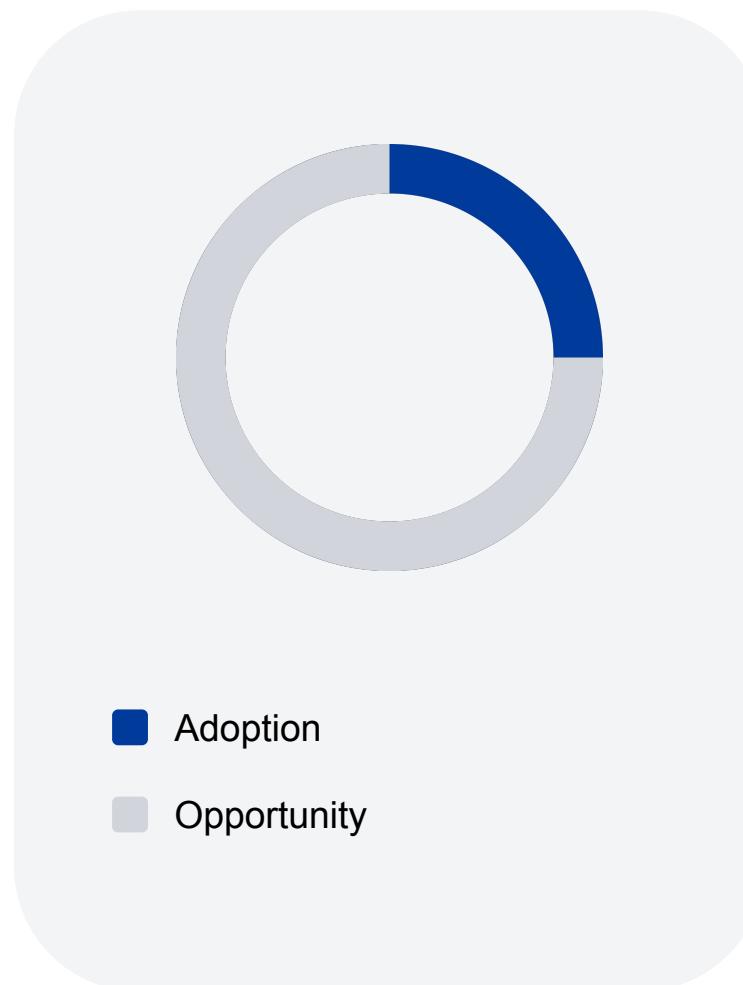
This helped avoid a generic goal
of “shipping faster” with AI

- Removed distraction to try to solve problems that weren’t part of the charter
- Monitor progress by tracking key metrics like change failure rate, PR throughput
- Benchmarking against past performance
- Do cohort analysis to compare AI vs Non-AI



Early Experiments

Booking.com's Early AI Adoption



Early Steps

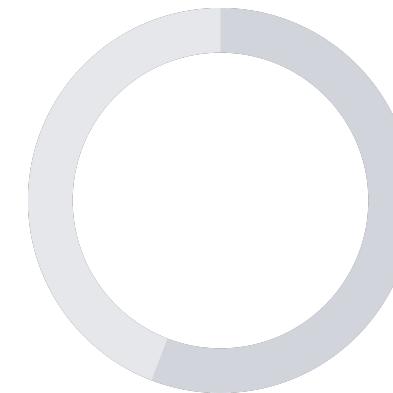
- Introduced Sourcegraph Cody 2+ years ago
- Positioned as a transformative productivity tool

Barriers

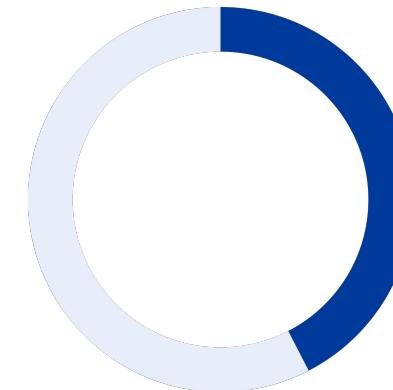
- Why weren't engineers adopting AI?
- How to measure impact?

How could we overcome adoption barriers and scale these tools to 3000+ developers?

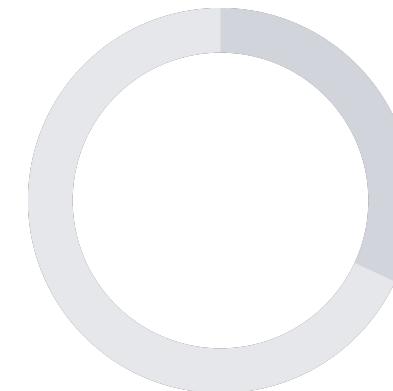
Lack of visibility into AI impact



Impact over time?



Hours saved



AI-authored code?

AI Measurement Framework

Utilization	Impact	Cost
<p><i>How much are developers adopting and using AI tools?</i></p> <ul style="list-style-type: none">• AI tool usage (DAUs/WAUs)• Percentage of PRs that are AI-assisted• Percentage of committed code that is AI-generated• Tasks assigned to agents*	<p><i>How is AI impacting engineering productivity?</i></p> <ul style="list-style-type: none">• AI-driven time savings (dev hours/week)• Developer satisfaction• DX Core 4 metrics, including<ul style="list-style-type: none">◦ PR Throughput◦ Perceived rate of delivery◦ Developer Experience Index (DXI)◦ Code maintainability◦ Change fail percentage• Human-equivalent hours (HEH) of work completed by agents*	<p><i>Is our AI spend and return on investment optimal?</i></p> <ul style="list-style-type: none">• AI tool usage (DAUs/WAUs)• Percentage of PRs that are AI-assisted• Percentage of committed code that is AI-generated• Tasks assigned to agents

*Metrics for autonomous agents



Data beats hype

Expectations aren't matching reality.
There's a lot of hype and sensational headlines,
and the only way to stay grounded is with real
data from your org.



The path to widespread adoption



The path toward widespread adoption

Use data whenever possible

Partner with DX to gain visibility into developer workflows and pain points, use data to prove strategy effectiveness, show impact, and validate

Uncover and remove barriers to adoption

Interviews with developers, leaders, and domain experts (e.g., PERL community) to Identify obstacles, create removal plans, and establish success metrics

Enablement, training, and community

Solve real business problems in context, build and leverage internal champions, proactively go out to your dev community

Organizational Challenges

Legal & Compliance Concerns

Uncertainty around data privacy, intellectual property, and regulatory compliance

Procurement Bottlenecks

Traditional enterprise procurement processes too slow for rapidly evolving AI tools

Developer Hesitation

- Job security concerns
- Uncertainty about appropriate AI usage
- Copyright and licensing questions

Positioning Problems

Initial messaging focused on individual productivity rather than team enablement

Take Away

Leaders can't sponsor something they don't understand.

Without proper understanding, leaders couldn't articulate the vision or purpose for AI adoption

It's leadership's responsibility to position AI tools effectively

Enablement and Training Gaps

- **How does the technology work?**
 - Prompting
 - Context
 - LLMs
 - Data storage
- **When and why should I use this at Booking?**
 - What business problems can be solved?
 - What's allowed?
 - How and where do I use this?



Overcoming Adoption Barriers



Addressing Organizational Challenges

- Measure impact and share real results
- Leadership education and guidance
- Create a Centralized Evaluation Committee
- Fast-Track procurement processes
- Use standardized evaluation framework for new tools

Enablement and Training Reimagined

Problem-Based Learning

Replaced generic AI training with education focused on solving real developer problems specific to Booking.com's codebase

Community Building

Created dedicated Slack channels for knowledge sharing, prompt examples, and celebrating AI wins, office hours, hackathons

Experience-Based Accelerators

3-5 day intensive sessions focused on solving specific business problems with AI:

- Day 1: AI paradigms training
- Days 2-5: Applying AI to real business challenges
- Pre-built context models to accelerate problem-solving

Leadership by Example

Executives participated in AI-focused hackathons, demonstrating commitment and experiencing tools firsthand

Building Trust Within the Dev Community

— Open conversations about the tech, not just skepticism

— Engaged community with advocates spread around the business

— Include both leaders and devs in the discussions

— Keep listening and solving real problems for developers – they're your customers

Use data to validate strategy and find new opportunities

Partnered with DX to develop a comprehensive measurement framework that went beyond simple "time saved" metrics:

Core Engineering Metrics

Core 4 Framework

Speed

PR throughput

Effectiveness

DXI

Quality

Change Failure Rate

Business Impact

Innovation rate

AI Metrics

AI Activity: % code written with AI, usage patterns

Developer Satisfaction: Leading indicator of adoption

Quality: Vulnerabilities in production, AI-generated code quality, codebase cleanup statistics

AI Metrics



Measures what
is happening

Core Metrics



Measures whether
it is working

If you don't know what matters when it comes to engineering performance, you won't be able to go beyond vanity metrics like LOC and adoption rate



Results & Impact

The success we've
observed is not related
to the travel industry

Increased adoption

<10%

Initial Adoption

After first rollout of AI
tools

>75%

Current Adoption

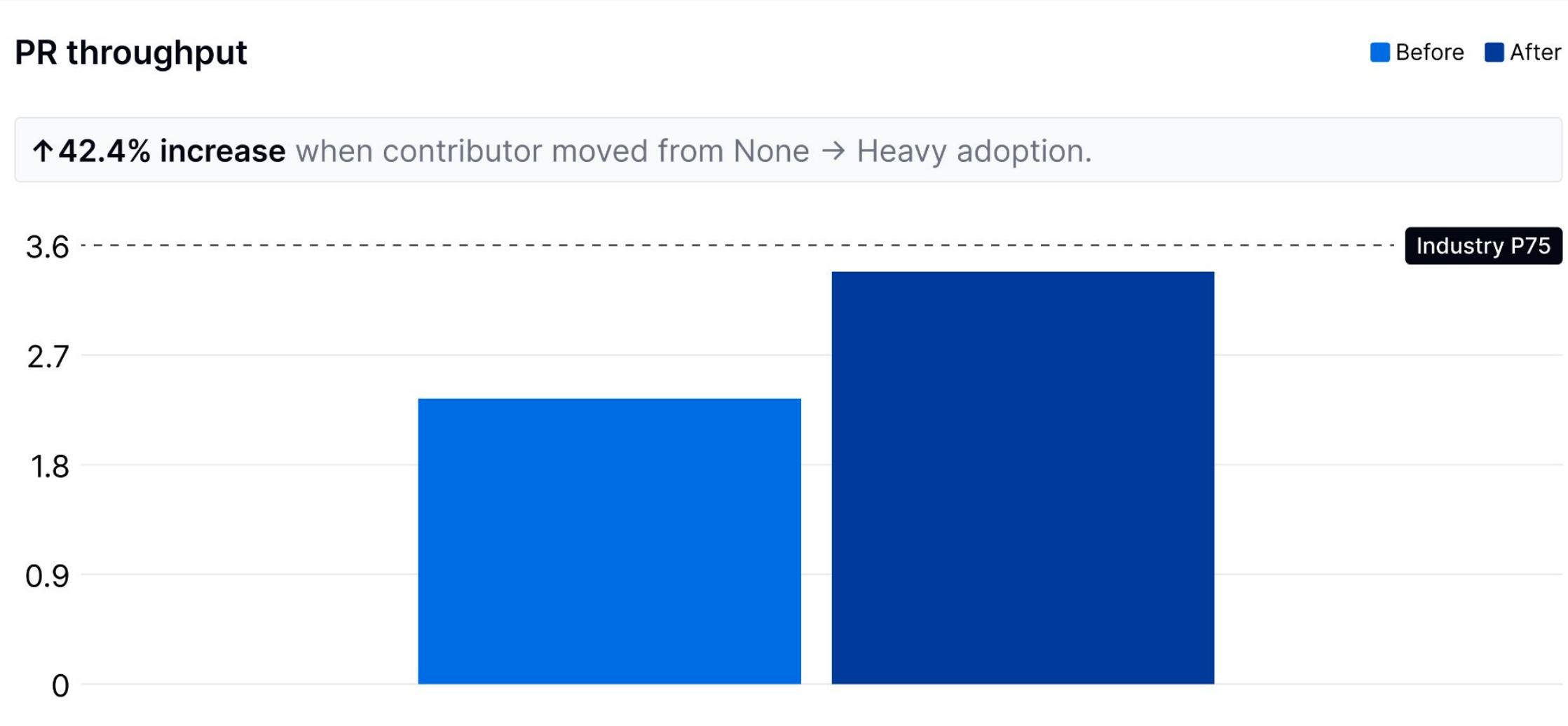
Across all of
Booking.com's 3000+
developers

65%

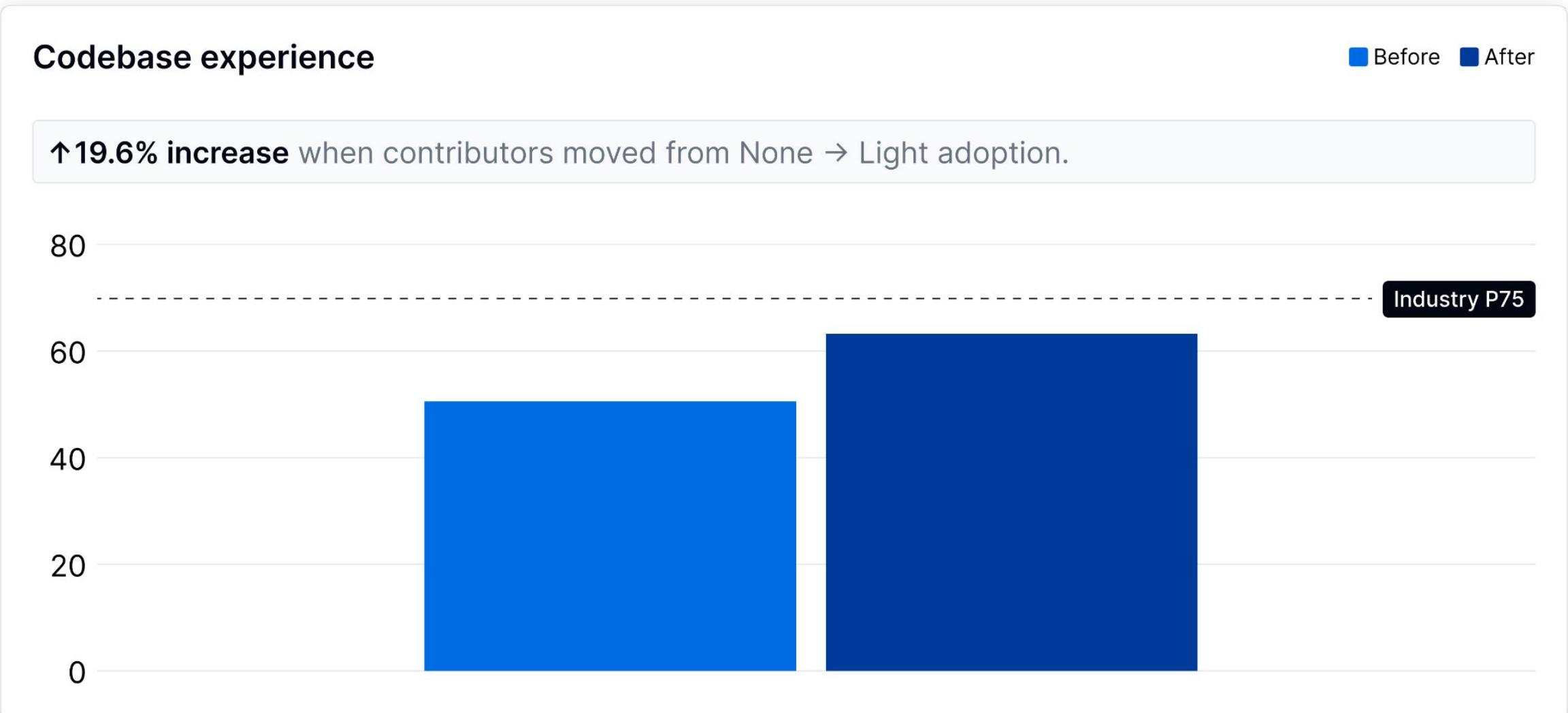
Moderate/Heavy Usage

Adopters using AI tools in
their workflows

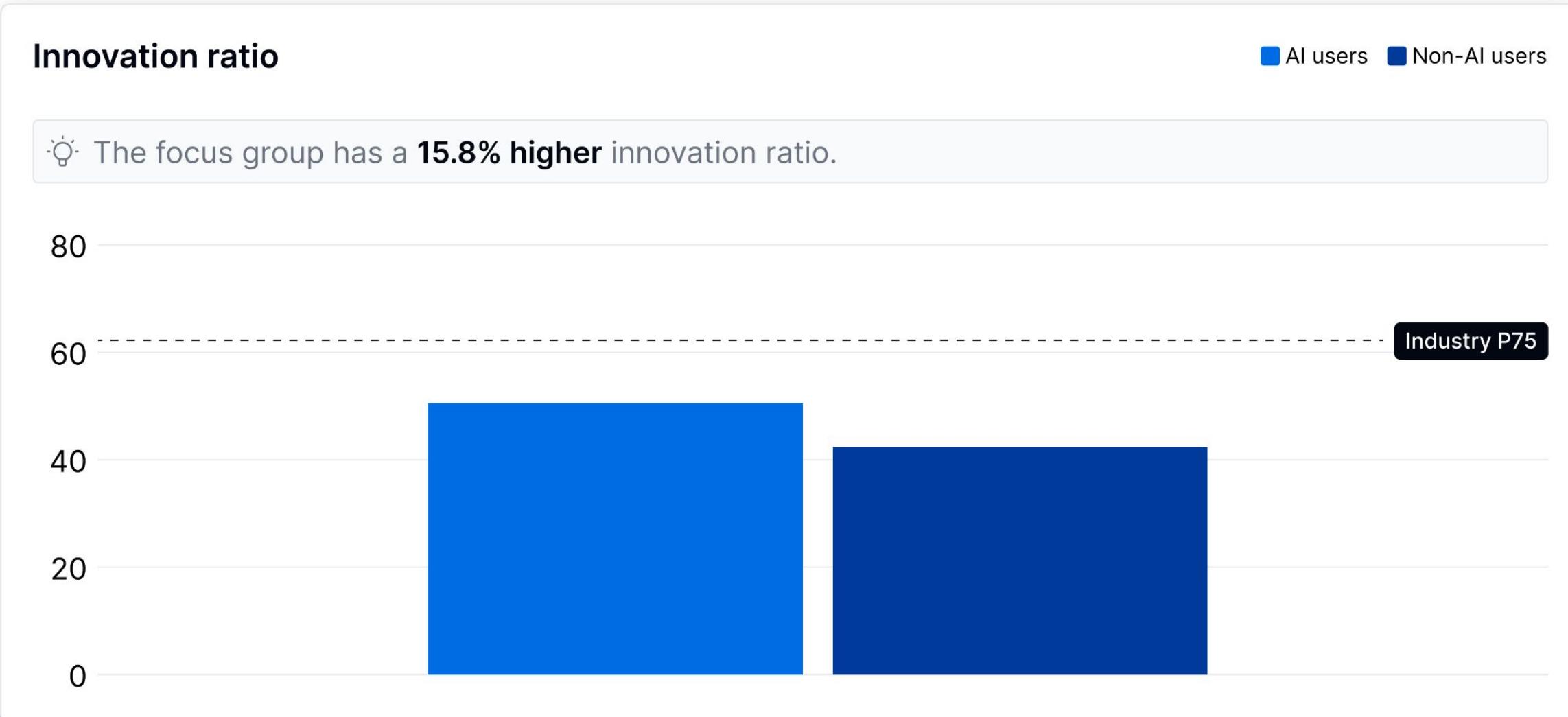
Daily AI users ship 30%+ more than non-AI users



AI makes it easier to understand and modify code



AI users can spend more time on innovation

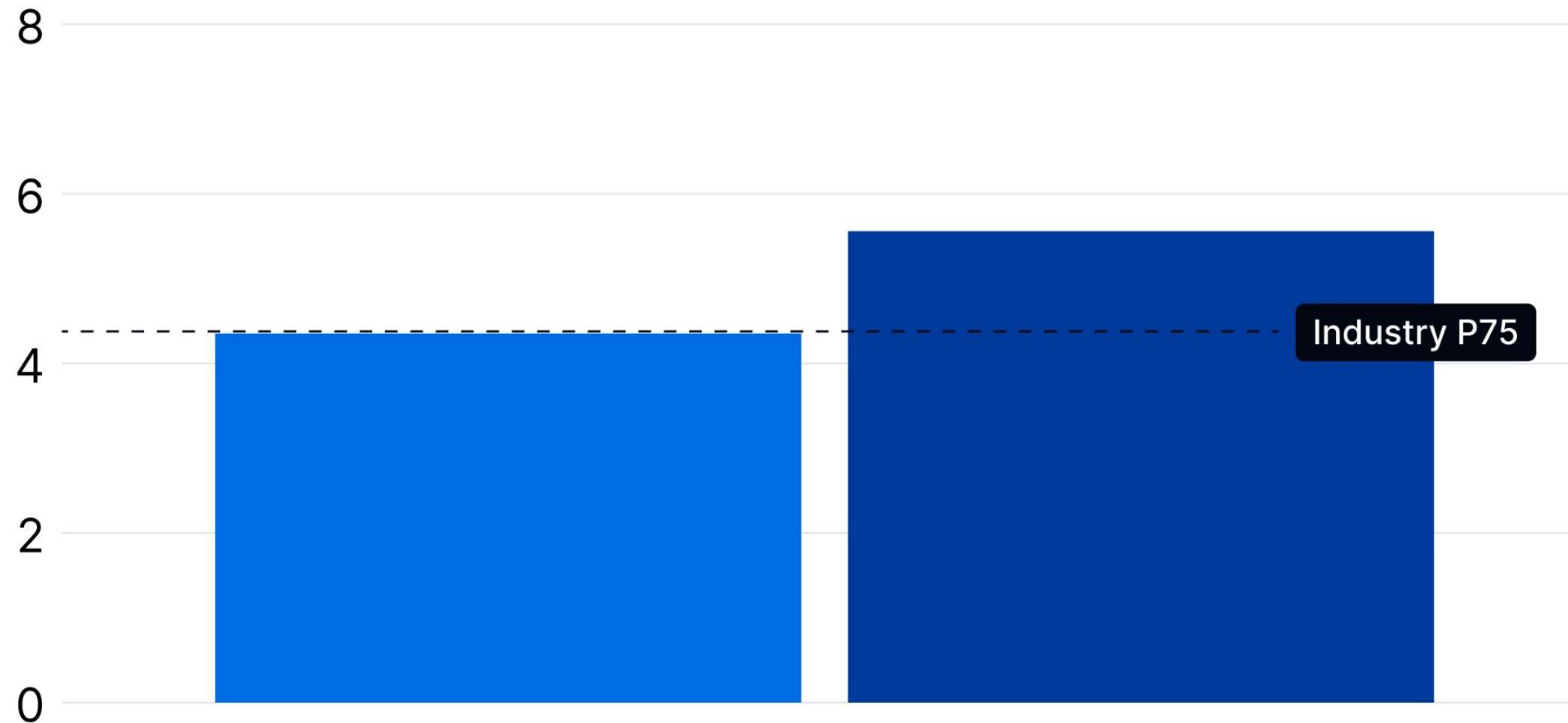


Change fail percentage

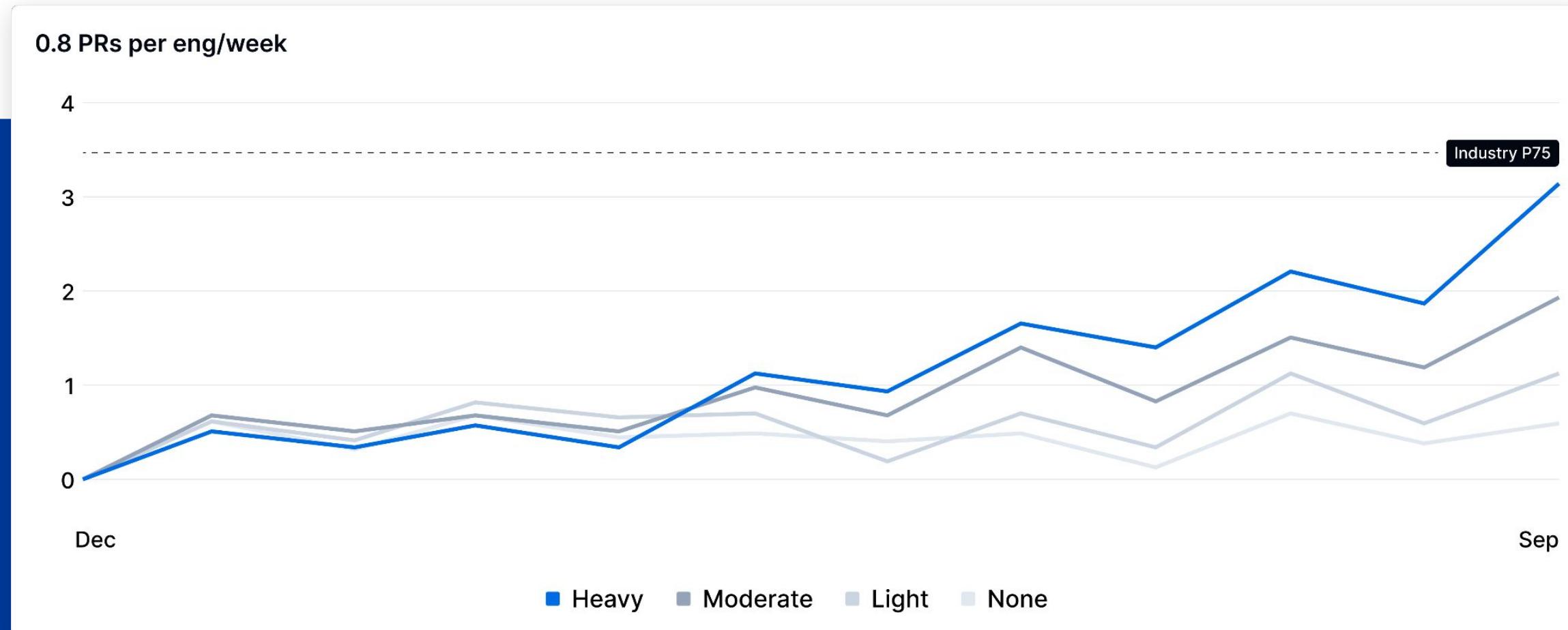
Focus Comparison



The focus group has a **22.4% lower** failure percentage



Success continues to compound over time



Business Impact

Accelerated Legacy Modernization

70% of replatforming work is now accomplished with AI assistance, significantly accelerating the pace of technical debt reduction

Automated Technical Debt Cleanup

AI tools have enabled systematic identification and remediation of technical debt, improving overall code health

Enhanced Cross-Team Collaboration

AI tools have broken down silos between business units by facilitating knowledge sharing and code understanding

Improved Developer Satisfaction

42% increase in Developer Satisfaction with AI tools.



Lessons Learned

Lessons Learned

Access ≠ Adoption

"If you build it, they will come" doesn't apply to AI tools. Even with curiosity and enthusiasm, you still need to:

- Ensure tools solve real problems
- Market tools effectively within the organization
- Remove adoption barriers proactively

Education Must Be Practical

Training and enablement are critical, but must be centered on:

- Solving real business problems
- Creating sticky adoption through immediate value
- Building on existing developer workflows

Measurement Is Foundational

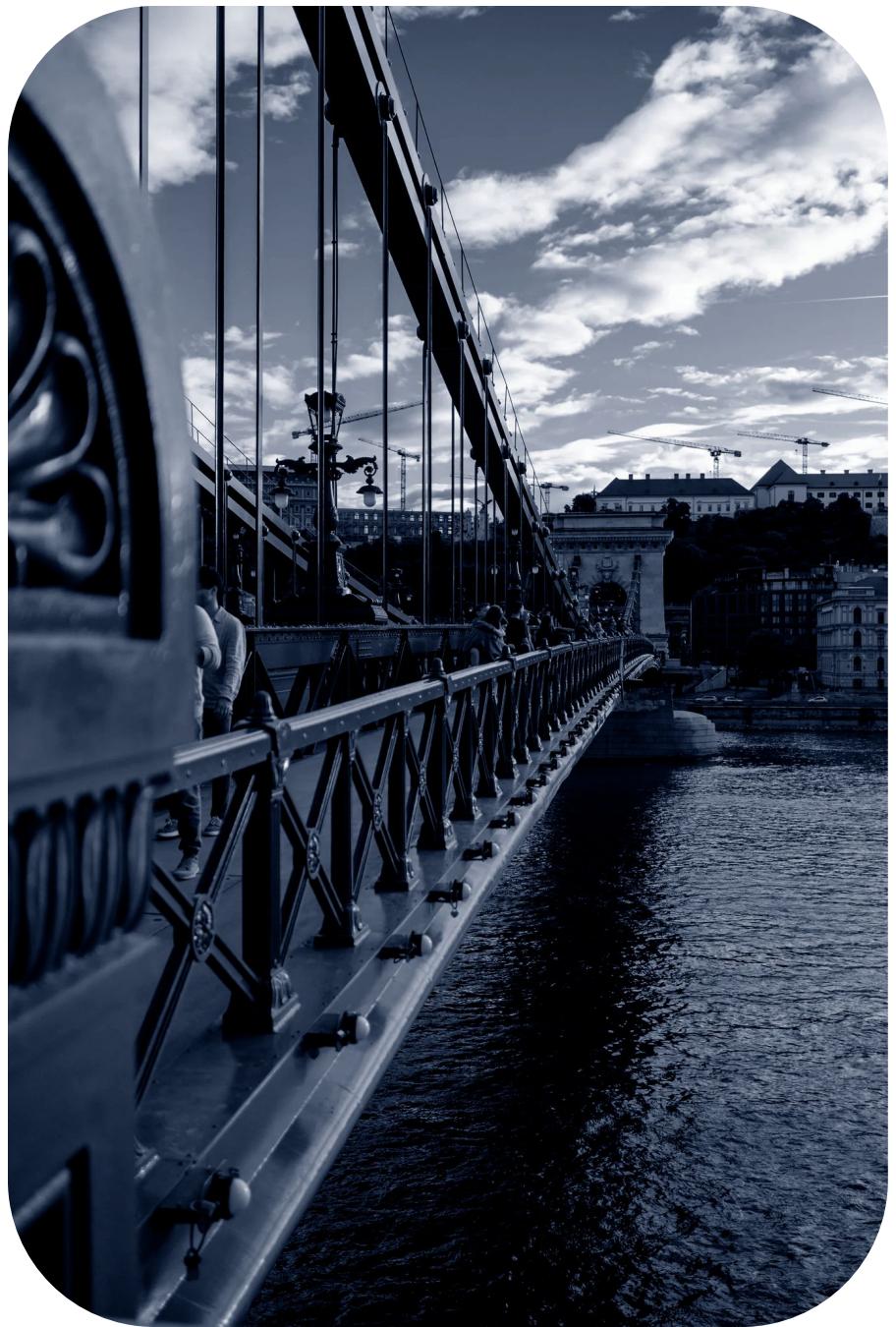
Solving the measurement problem from day one is essential:

- Go beyond simplistic "time saved" metrics
- Establish DX baseline measurement immediately
- Use data to demonstrate wins and maintain momentum

Think Organizational, Not Individual

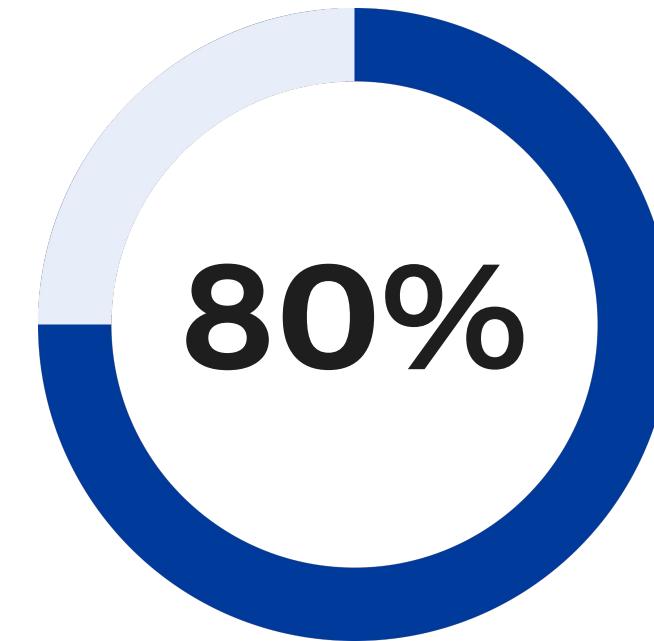
AI adoption has a low ceiling when viewed as individual productivity:

- Focus on organizational impact
- Build community around shared problems
- Enable collaborative problem-solving



What's Left to Do

- Integrate AI across the SDLC
- Ensuring tools work across IDEs, agentic workflows, and chat
- 80% of their time on innovation rather than maintenance



Innovation Ratio Target

Where We Need Help From the Community

Have you built agentic workflows to reduce toil in a legacy codebase?

Are you integrating AI in other parts of the SDLC?

We're looking to exchange ideas with teams who are using AI to solve problems unique to aging codebases:

Automated Refactoring

AI-driven approaches to modernizing legacy code at scale

Context Building

Techniques for helping AI understand complex, poorly documented systems

Feature Flag Cleanup

Strategies for identifying and safely removing obsolete feature flags



Let's Connect



Bruno Passos
Booking.com

bruno.passos@booking.com

[linkedin.com/in/brpassos/](https://linkedin.com/in;brpassos/)

Group PM, Developer Experience
& GenAI Innovation Lead



Laura Tacho
DX

laura@getdx.com

linkedin.com/in/lauratacho/

Chief Technology Officer