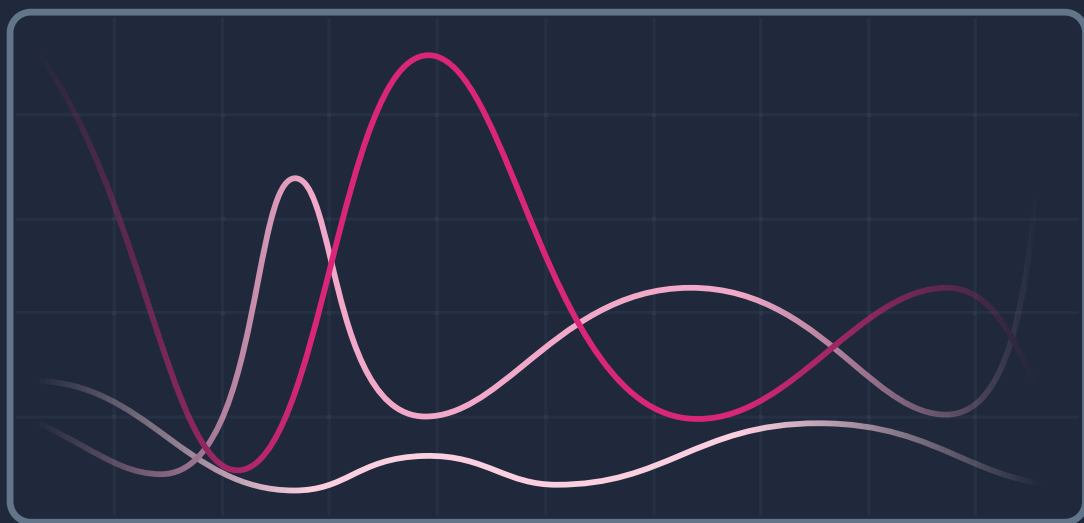
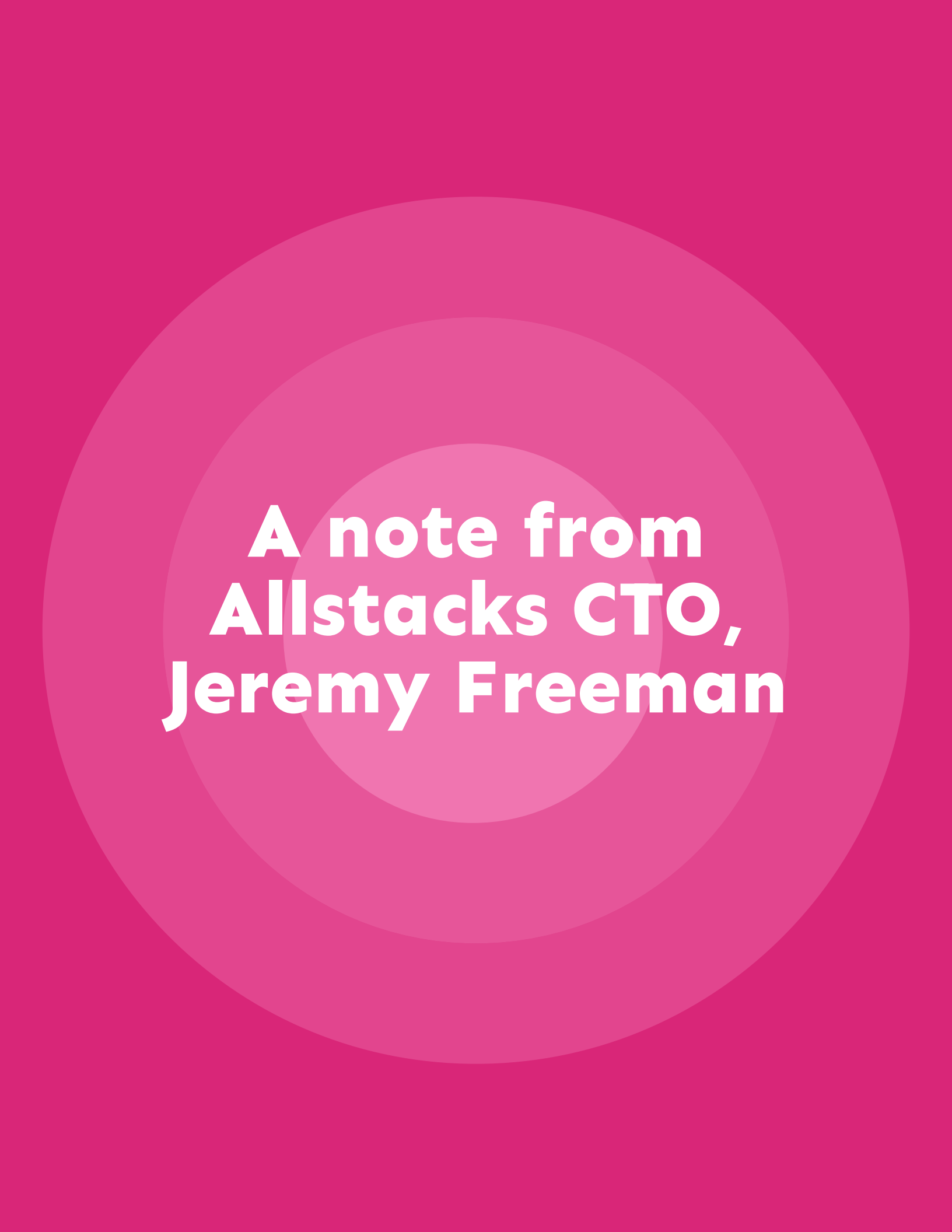




# Decoding Engineering Productivity

2024





**A note from  
Allstacks CTO,  
Jeremy Freeman**

In the spring of 2024, we fielded a survey asking about engineering productivity. We uncovered frustrated managers, burned-out developers, and a mixup of strategies, processes, and experiments aimed at achieving success in this market and the macroeconomic climate. We don't have to tell you it's tough out there—we heard you loud and clear.

What we can share with you, though, is what your peers are wrestling with, and perhaps some guidance on how your organization can tackle some of the same challenges. The history of economic progress is a history of productivity gains. Those gains are often slow and tested over years, and software engineering is no exception. We're constantly experimenting with new languages, frameworks, and technologies in order to do things better and more effectively than we were able to do before. It's often hard to gauge how effective any change or innovation has been until months or years after adoption. Who wants to wait that long when you're trying to be best-in-class?

At Allstacks, we're keenly interested in how these changes are being adopted and how impactful they are. It's risky to wait for the industry to crystallize an opinion on a technology and develop years of use cases, and it's also expensive to do primary research if you're a lean, fast-moving company. The best way to get a strong early signal is simply to ask a bunch of organizations how it's going. So, that's exactly what we did.

If you're looking for the next level of excellence, wondering how to maintain your technical edge as a business, and curious what your peers are seeing and doing, read on.

# Executive Summary

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## + Work that matters:

A majority of survey takers don't know if their work reduces costs or increases revenue for their organization.

## + Tracking productivity:

About one-third of respondents use metrics to determine productivity, while another roughly 25% orient the metrics they track around frameworks like DORA, SPACE, etc. But nearly 25% simply "pay attention" to productivity metrics without a formal process.

## + Barriers to productivity:

One theme dominated the comments from survey takers—how difficult it is to manage accurate expectations about productivity and set realistic goals.

## + DevEx in the spotlight:

Over 80% of organizations take developer experience into account when assessing engineering productivity, and over 60% think it's as important as output metrics.

## + The burnout is real:

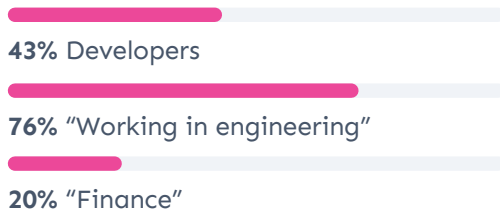
Almost 44% of those surveyed said between 25% and 50% of their developers are burned out.

## + AI and productivity:

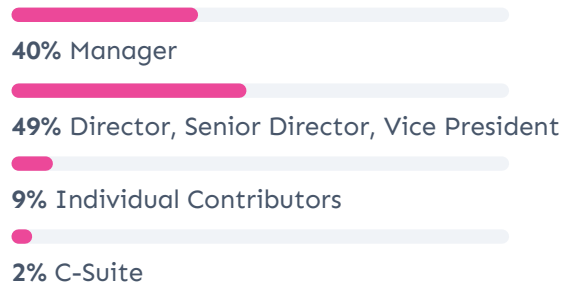
Roughly 42% are actively trialing artificial intelligence and 12% are already using it for production code.

# Demographic Snapshot

## Role



## Level



Several hundred engineering professionals responded to our survey, the majority of whom work in the United States across a wide variety of industries. Almost 57% of survey respondents work in organizations of between 100 and 499 employees, with just over 15% in organizations of between 500 and 999 and almost 15% with a headcount of 1,000 or more. Developers represented roughly 43% of the headcount in companies between 100 and 499 employees. All told, just over 76% of survey takers identified as "working in engineering" compared with just over 20% who said they were employed in "finance."

Nearly 40% of respondents said their job level was manager, and 49% were either directors, senior directors, or vice presidents. Almost 9% identified as individual contributors, and just under 2% said they were part of the C-suite.

**Broadly speaking, how do these individuals view the work they do? A solid majority of just over 60% believe their contributions "both" reduce costs and increase company revenue, a finding that perhaps reflects the high percentage of management-level survey takers. Just 17.51% said they reduced costs, while the same percentage improved revenue.**

## FINANCE VS. ENGINEERING: "PRODUCTIVITY" CAN BE FLUID

It's safe to say finance pros, who represent about 20% of those who took the survey, have a bit of a different perspective when it comes to engineering productivity. Over 39% of finance team responders said engineers were either extremely or somewhat ineffective, much more inefficient than engineers see themselves. And here's why: Engineering can be the most expensive department with the least visibility. Driving more visibility into the value engineering is creating by linking outcomes to higher level business objectives is a quick win towards shifting the perception of engineering in the eyes of finance.

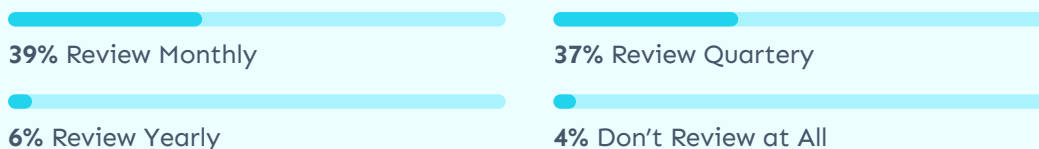
# Engineering Productivity and Effectiveness

Just under 42% of respondents said their engineering organizations were either somewhat or very ineffective, while nearly the same percentage said they were either somewhat or very effective. Almost 17% were neutral.

Engineering teams measure their productivity in a wide variety of ways. Almost 34% track certain metrics, while just under 27% have frameworks in place and close to 12% said their teams have regular meetings.

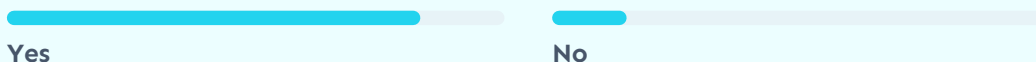
Nearly 23% “pay attention” to engineering metrics but don’t have a formal process in place and just over 4% don’t measure productivity metrics at all.

## HOW OFTEN DO TEAMS ASSESS THEIR PRODUCTIVITY?



The majority of teams assess their engineering productivity either monthly (39%) or quarterly (37%); and just 6% only do it yearly.

## DO DEVELOPERS HAVE A VOICE IN THESE PRODUCTIVITY ASSESSMENTS?

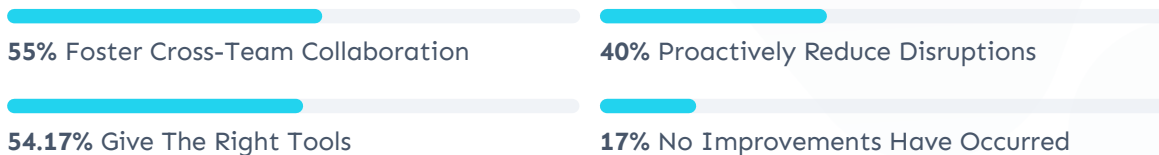


Almost 83% said dev morale and tool feedback is definitely included as part of an engineering assessment, while 15% said their organizations don't incorporate that information.



## WHAT ARE COMPANIES DOING TO HELP?

A majority of respondents (almost 55%) said their companies foster cross-team communication and collaboration with an eye to improving productivity, and nearly the same percentage (54.17%) said they have access to the right tools for the job. (Respondents could choose all that apply.) Just over 40% said their employers proactively minimize disruptions and context switching to make the environment more productive. And 17% said no productivity improvements have occurred.



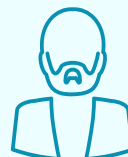
## IMPROVED PRODUCTIVITY OR A DIFFERENT PERSPECTIVE?

In general, individual contributors are more likely to acknowledge productivity improvements than their managers, directors, senior directors, and vice presidents. This finding may seem counterintuitive, as ICs can understandably be focused on changes that impact them rather than the bigger picture.

We asked survey takers to choose all the ways their employers have improved productivity, and only 13% of ICs said there have been no productivity improvements. But their higher-ups took a much less rosy view: 25% of managers, directors, and vice presidents, and 23% of senior directors, said their companies hadn't managed to become more productive.



**15%** of ICs see no productivity improvements



**25%** of managers see no productivity improvements



**23%** of senior directors see no productivity improvements

# The Biggest Productivity Challenges

Engineering teams have lots of things to lose sleep over in today's hyper-competitive and unrelenting market.

We asked respondents what their organization's **biggest productivity challenge** was for 2024, and, perhaps not surprisingly, many were interested in being able to move or change direction more quickly, find and eliminate bottlenecks, and set the clearest expectations between engineering and the rest of the company.

## IN THEIR OWN WORDS:

### Process Optimization

- **Optimizing** decision-making processes for faster resolution of issues
- **Handling** performance issues and bottlenecks in production environments
- **Improving** feedback loops for even faster iteration and improvement
- **Addressing** infrastructure limitation and performance bottlenecks
- **Mitigating** the impact of interruptions on deep work

### Team Management and Structure

- **Optimizing** team composition and structure for maximum productivity
- **Addressing** disparities in workload distribution among team members
- **Aligning** team members' skills with project requirements
- **Managing** expectations around project complexity and feasibility

### Innovation and Stakeholder Management

- **Balancing** the need for experimentation with the need for flexibility
- **Managing** expectation around feature delivery and release schedules
- **Dealing** with unrealistic expectations from stakeholders
- **Overcoming** inertia and resistance to process improvements

# Strategic Steps to Overcoming Productivity Challenges

Several strategies emerged as the most useful steps organizations could take to overcome these productivity challenges. These strategies are grouped into three main categories: Project Management and Prioritization, Process Improvement and Tools, and Culture and Team Dynamics. By focusing on these areas, organizations can better navigate productivity obstacles and drive business success.

## TO MOVE PAST THOSE CHALLENGES, WHAT WOULD BE THE MOST USEFUL STEP YOUR ORGANIZATION COULD TAKE?

### Project Management and Prioritization

- **Prioritize** and focus on high-impact projects that drive business value
- **Implement** project management and tracking tools to improve visibility and accountability
- **Regularly** review and optimize development processes
- **Implement** a system for tracking and managing project timelines

### Process Improvement and Tools

- **Address** performance bottlenecks and inefficiencies in the development process
- **Conduct** regular retrospective meetings to reflect on what went well and what could be improved
- **Identify** and address bottlenecks in the development process

### Culture and Team Dynamics

- **Foster** a culture of resilience and adaptability to navigate challenges and setbacks effectively
- **Encourage** experimentation and innovation in problem-solving
- **Encourage** team members to take ownership of their work and projects
- **Incorporate** user feedback and metrics into the decision-making process
- **Encourage** a culture of feedback and constructive criticism

# Developer Experience or DevEx

Almost 81% of survey takers said their organizations take developer experience into consideration when it comes to engineering productivity. Of organizations who do take devEx into account, 62% see it as equally as important as output metrics, while 20% said it was more important than output and 12% said it was less important. A solid 62% identify devEx as a focus on developer activity and output, and slightly less than 22% said it was a focus on developer satisfaction and sentiment. About 15% of respondents described devEx as a focus on developer collaboration and feedback loops.

## WHAT DOES DEVEX ACTUALLY MEAN IN THE REAL WORLD?

We asked survey takers to tell us what the experience is like in their organization.

- We **measure the impact** of devEx efforts through metrics and KPIs to track progress and success
- We embrace a **culture of experimentation** and learning as we navigate the devEx landscape
- DevEx is a **strategic priority** for us as we aim to create sustainable competitive advantages
- DevEx is about creating a more **connected and collaborative** workforce
- DevEx empowers us to **transform** our business model and create new revenue streams
- Developer experience serves as a **catalyst** for transformation and growth, driving our organization toward a more digital future.

With a number of engineering benchmarks available to help keep the focus on productivity, it's not surprising survey takers were fairly evenly split, with HEART the top choice (27.4%), followed by SAFe (19.49%), SPACE (17.51%), DORA (12.71%), and Flow (9.04%). Just over 8% of participants said their organization created custom metrics, while roughly 5% didn't use any.

## Engineering Benchmarks Used by Organizations

27.4% HEART

19.49% SAFe

17.51% SPACE

12.71% DORA

9.04% Flow

Despite a wealth of benchmarks and support for DevEx, organizations still have substantive barriers to improving engineering productivity. No matter the company size, the top challenges are lack of clear goals and objectives, followed by insufficient leadership buy-in, an absence of effective measurement frameworks, too much effort required for regular measurement, and finally data gaps and/or a lack of data accuracy.

**It's clear we don't have a common definition of devEx: Some identify it as surveys, others say it's output metrics, some focus on collaboration, and many reject productivity as a component of devEx altogether. Reaching alignment on what goals your organization is striving for will be key.**

## MOST POPULAR ENGINEERING BENCHMARKS BY COMPANY SIZE

Engineering benchmarks offer organizations of all sizes a reliable way to evaluate productivity and tweak the processes. But the benchmark of choice varies depending on the size of the company.

Startups of under 100 people liked SPACE the most (27.08%), while enterprises (with over 1,000 employees) skewed heavily toward DIY solutions (25%).

SPACE was also the first choice of companies with between 100 and 499 employees, while one-third of companies between 500 and 1000 opted for DORA.

# Developer Burnout

Roughly three-quarters of survey takers said their organizations tracked developer burnout and 22% said they did not. Companies keep tabs on burnout in a variety of ways, including satisfaction metrics (37.6%), retention metrics (27.4%), internal survey results (16.95%), and productivity/efficiency metrics (11.02%). For a slightly different take on this data, consider that nearly 30% of companies only recognize burnout when an employee leaves (retention metrics). Relying on a “lagging” metric may not be the best choice in this situation.

In fact, developer burnout is pervasive: 43.5% of survey takers said between 25% and 50% of the devs in their organizations were burned out. Although 30% said they thought less than 25% of developers were experiencing burnout, the remaining 20% said their burnout rates were actually over 50%.

**All told, over 63% believe at least 25% of their development teams are burned out, a fact which can have devastating consequences on productivity, morale, employee attraction/retention, innovation, and even digital transformation. Burned-out employees are more likely to leave, more likely to choose “tasks” over creative work, and more likely to get more unengaged over time.**

**63%**

Believe That

**25%**

of Their Teams  
Are Burnt Out



# Strategies to Address and Prevent Developer Burnout

To combat and prevent burnout, organizations are implementing a variety of strategies. These strategies are grouped into three main categories: Policies and Processes, Training and Support, and Meetings and Communication. By adopting these measures, organizations aim to create a healthier work environment, improve employee satisfaction, and enhance overall productivity.

## HOW ARE ORGANIZATIONS TACKLING BURNOUT AND/OR TRYING TO PREVENT IT FROM HAPPENING IN THE FUTURE?

### Policies and Processes

- **Implementing** policies to prevent micromanagement and foster autonomy
- **Establishing** clear processes for workload management and delegation
- **Implementing** policies to prevent overtime and excessive work hours
- **Establishing** clear channels for reporting and addressing workload issues
- **Establishing** clear expectations and realistic goals for tasks

### Training and Support

- **Providing** training on effective time management and prioritization
- **Offering** opportunities for skill diversification and cross training
- **Creating** a culture of collaboration and support to prevent burnout
- **Providing** access to resources for managing workloads and setting boundaries
- **Implementing** peer support programs for sharing experiences and advice

### Meetings and Communication

- **Conducting** regular retrospective meetings to reflect on what went well and what could be improved
- **Conducting** regular team meetings to address workload distribution and support needs
- **Implementing** technology solutions to streamline tasks and reduce workloads
- **Establishing** a culture of trust and autonomy in the workplace

# Leveraging AI

Can AI play a role in improving engineering productivity? Our survey takers had a lot to say on the subject. Just over 42% of survey respondents said their teams are currently “trialing” AI, while almost 12% are actively using it for production code. However, the results are bifurcated, with 28% considering AI but still not using it, 9% only using it on an individual basis, and for the remaining 9% AI isn’t even on the table.

## ACCORDING TO OUR SURVEY TAKERS, AI CAN HELP OR ASSIST WITH:

- **The integration of cloud computing and big data technologies** into engineering processes, enabling engineers to analyze process large amounts of data quickly and efficiently
- **The development of digital transformation strategies** for engineering organizations, enabling them to adapt to changing market conditions and technologies
- **The development of smart manufacturing solutions** for engineering organizations, enabling them to streamline production processes and improve quality
- **The integration of augmented reality and virtual reality technologies** into engineering processes, enabling engineers to visualize and interact with their designs in new ways
- **The development of digital twin solutions** for engineering systems, enabling engineers to monitor and optimize their performance in real time
- **The development of predictive maintenance solutions** for engineering systems, enabling engineers to anticipate and prevent failures before they occur
- **The identification of inefficiencies and bottlenecks** in engineering processes, leading to more streamlined and efficient workflows
- **The development of digital workflows and collaboration tools**, enabling engineers to work together more effectively
- **The optimization of project scheduling and planning**, ensuring that deadlines are met and projects are completed on timey
- **The development of predictive analytics and forecasting models**, enabling engineers to anticipate and plan for future trends and challenges
- **The analysis of cost and resource allocation in engineering projects**, leading to more efficient use of resources
- **The identification of potential risks and hazards in engineering projects**, helping to mitigate them before they become a problem
- **The analysis of market trends and customer feedback**, guiding engineers in the development of products and services

**Folks are absolutely experimenting with AI, but don’t necessarily know how to measure its effectiveness yet.**

## Conclusion

The macroeconomic headwinds are likely to continue, and of course the pace of software innovation isn't going to slow down either.

How can companies be better prepared for what is to come? ↓

### + Start with the work.

Over 60% of respondents told us their work both reduces costs and increases revenue but couldn't pinpoint a particular orientation. In an uncertain macroeconomic climate, businesses turning inward to focus on core strengths and alignment to core strengths is paramount to producing critical outcomes. Communicate how work impacts key business initiatives and measure progress against goals that align to the core strategy to ensure future success.

### + Make the work impactful.

Communicate what motivates the work and help every member of the team see how their work impacts higher-level goals of the business. Drawing the throughline between customer experience and developer effort helps everyone understand the impact of their day-to-day.

### + Maintain the creative flow.

Fully 82% of respondents felt that devEx was equal or more important than the outcomes from the engineering team, both across individual contributors and execs. Software development is a creativity factory, and fostering and maintaining an environment where developers are able to live in creative flow is critical to the success of the business and maintaining a technical edge as a company.

## + Engineering productivity isn't business productivity.

A key disconnect between executive leadership and developer teams' perception of productivity lies in the disconnect between engineering and business outcomes. Close the gap by bringing engineering and the business closer together. Take the time to map balance sheet metrics to engineering productivity goals, and work on shared language around these goals.

## + Do more with less.

Productivity and efficiency remain top-of-mind across the board and formalizing these practices is a focus for organizations. It is crucial to regularly ask, "Are we contributing to the core goals of the business or working around the edges?" Tools can help ensure the core business focus is as present as possible.

## + Deal with burnout.

Employee retention is critical because future headcount may not be available. It's risky to rely on very lagging employee retention metrics to reflect the level of developer satisfaction and engagement. Once your team quits, it's too late. Start having the honest conversations now.

## + Job one is developer success.

In conversations with engineering leaders, predictable completion of key capabilities in a high-quality way continues to be the primary mission. DevEx is a pathway to understanding developer sentiment and their view of that environment that is enabling (or hindering) their success. Starting with devEx can help orient key missing gaps between process and experience.

## + AI belongs in the mix.

Having a viewpoint on AI, and using AI to review and judge results, is going to be an increasingly interesting use case and likely table stakes in the next year. Be open to experimentation.