



2023 Global DevSecOps Report

Productivity & Efficiency Within Reach



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Executive summary

The results from the 2023 Global DevSecOps Survey show productivity and efficiency are top priorities for many organizations — and several key practices seem to be helping more successful organizations move the needle and gain a competitive advantage.

Productivity and efficiency are driving forces for DevOps



The top two benefits respondents have seen from adopting DevOps and DevSecOps methodologies were improved operational efficiency and developer productivity.



Improving developer productivity was the #1 factor driving DevOps to scale across respondents' organizations.

Organizations have plans to improve efficiency *this year*

41% of respondents said they plan to introduce new analytics tools and dashboards to improve delivery efficiency this year.

46% of all respondents said they are planning DevOps process optimizations this year.

What successful organizations are doing differently

Using CI/CD

Respondents using CI/CD were **2x more likely** to deploy multiple times per day.

Deploying to the cloud

Respondents with at least a quarter of their applications in the cloud were **2.2x more likely** to be releasing software faster than they were a year ago.

Using a DevSecOps platform

Respondents who use a DevOps/DevSecOps platform were **1.7x more likely** to onboard new developers in less than 4 weeks.

Using AI/ML

Respondents using AI/ML were **1.3x less likely** to have difficulties attracting, hiring, and retaining developers.

Who took the survey?

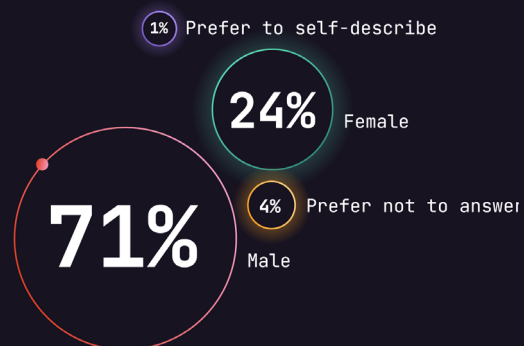
We collected a total of 5,010 survey responses in March 2023 from individual contributors and leaders in development, IT operations, and security across a mix of industries and business sizes worldwide.

We used two sampling methods for the data collection:

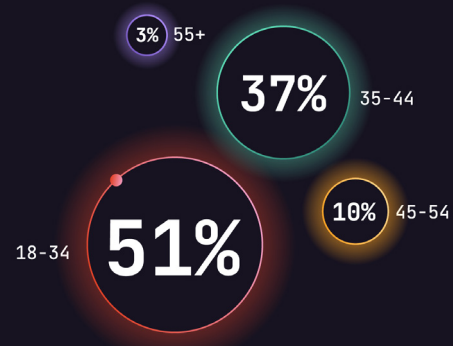
1. We distributed the survey via GitLab's social media channels and email lists.
2. A third-party research partner conducted panel sampling, which reduces bias in the sample. Our research partner used its proprietary access to lists, panels, and databases to gather quality responses and cleaned the data throughout fielding to ensure data quality.

Here's a closer look at the survey respondents:

Gender



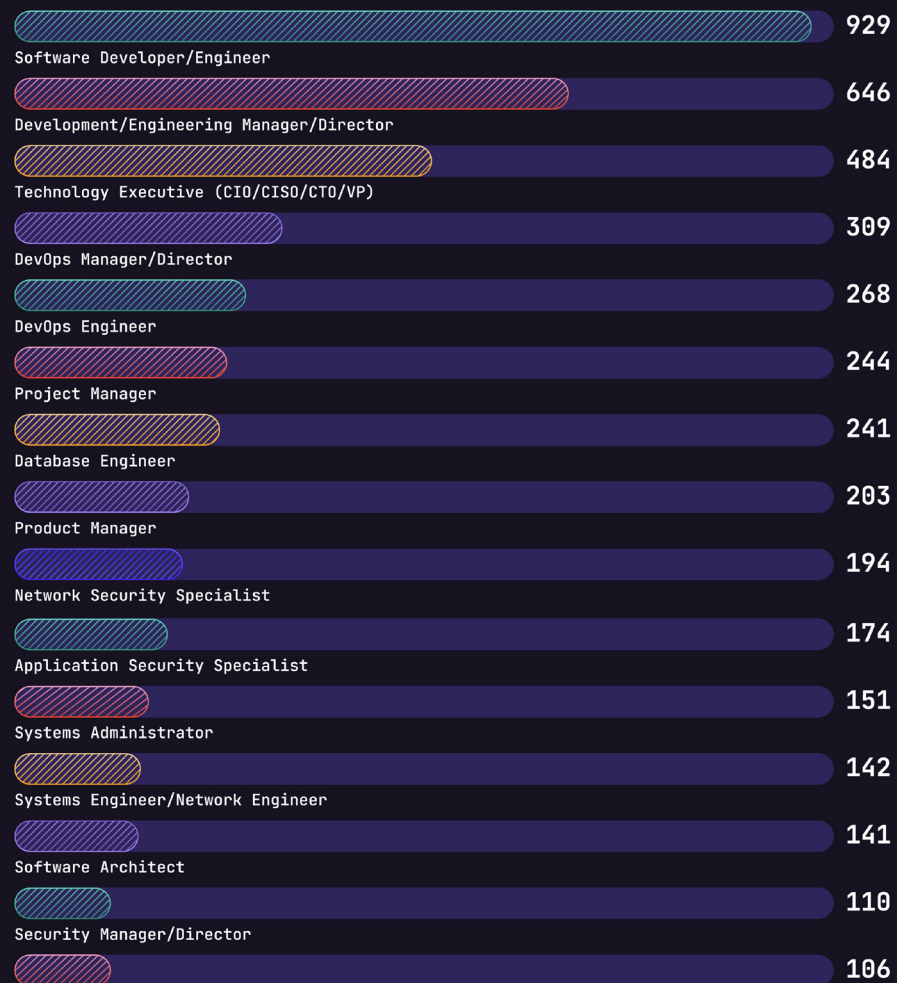
Age



Primary industry

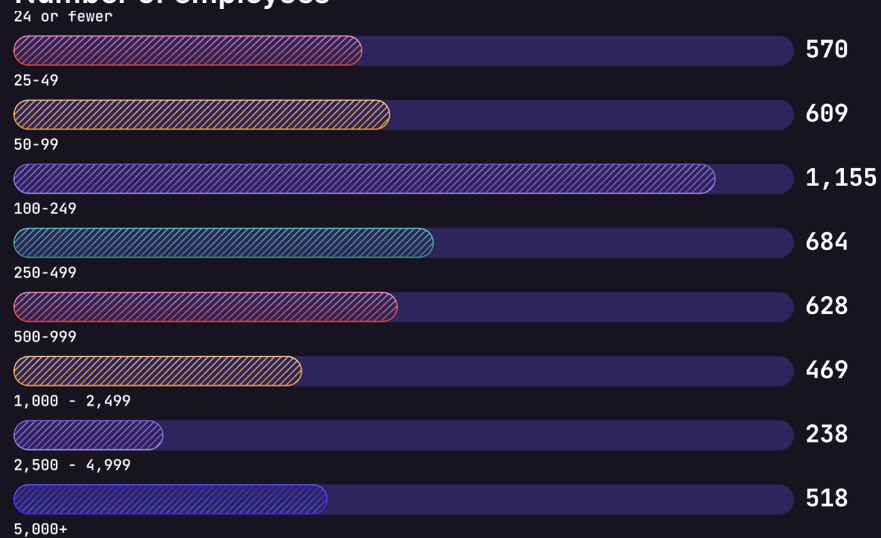


Role within the organization



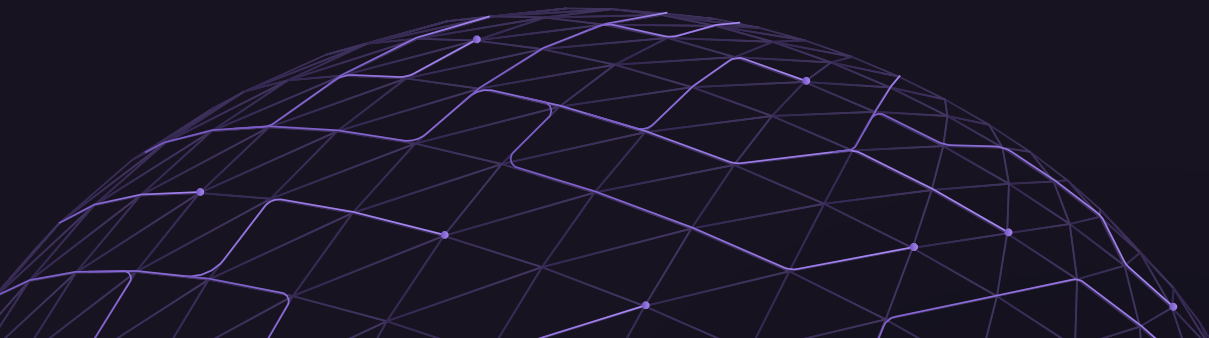
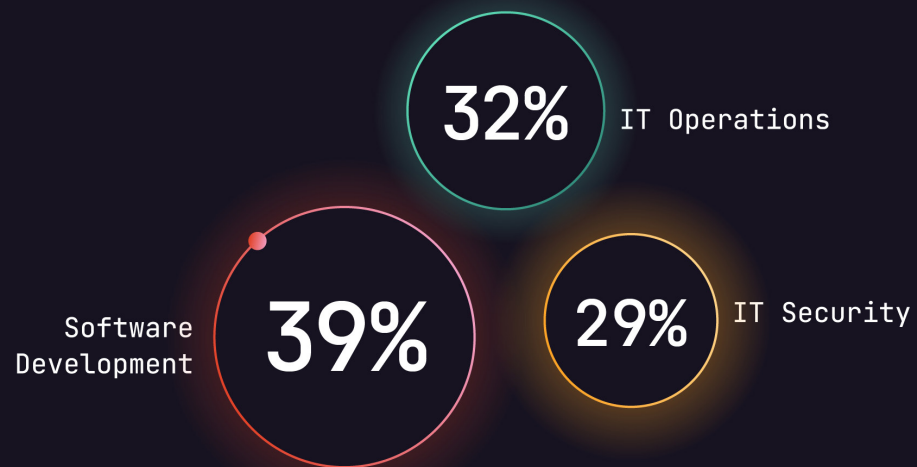
Primary industry

Number of employees

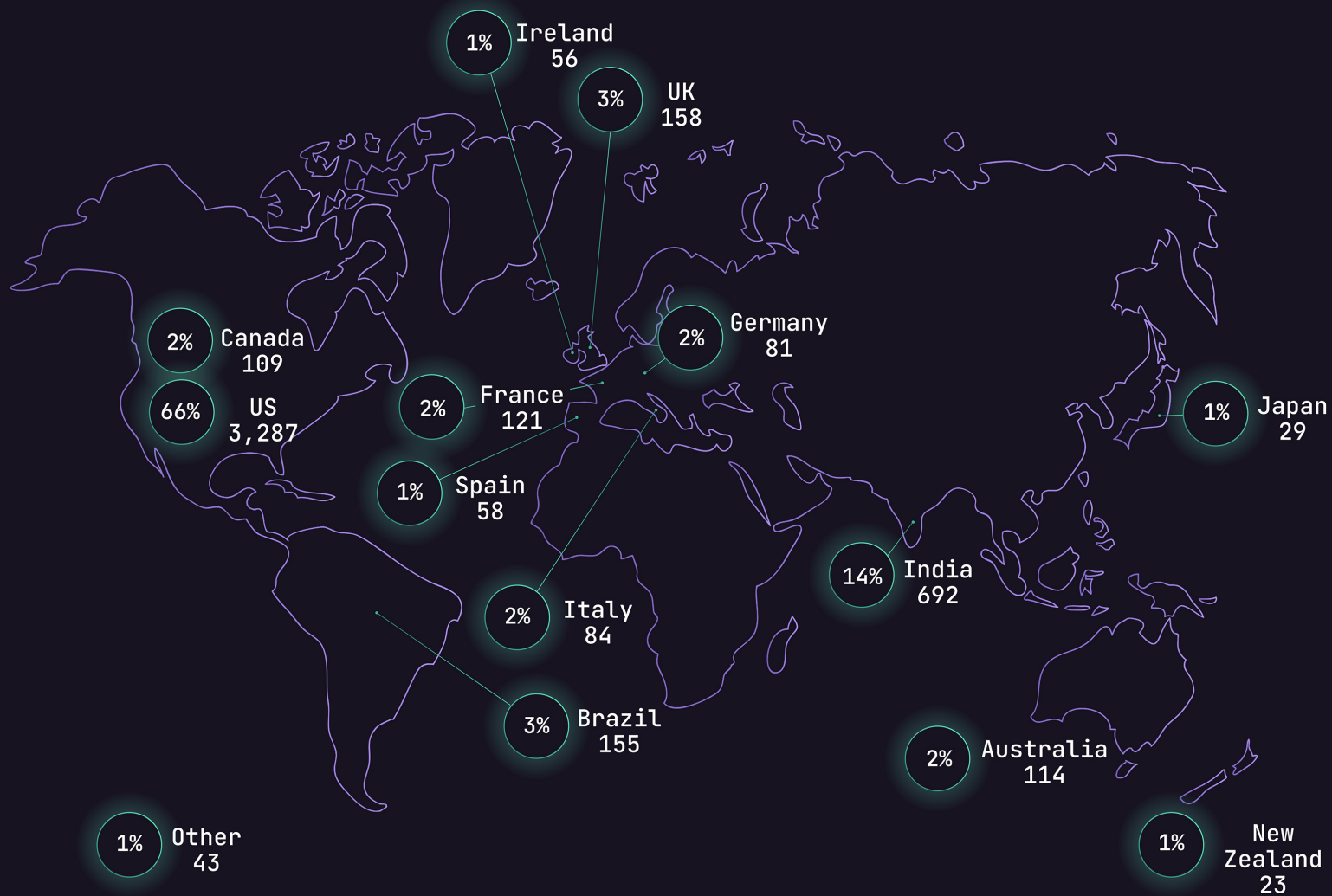


Most important skills for the future, according to security

Functional area



Region



Introduction

For the past seven years, we've sought to help the community learn more about the state of DevSecOps and software development through our annual surveys, including where things are at, what's working, what's not, and what's changing.

This year, more than 5,000 development, security, and operations professionals participated in our Global DevSecOps Survey and told us what their teams are doing and experiencing — everything from their DevSecOps practices to how quickly they're releasing software and onboarding new developers.

The second installment of our 2023 Global DevSecOps Report Series focuses on an area that really stood out in this year's responses: productivity and efficiency. These were top of mind and top priorities for many respondents, which isn't surprising given the current economic climate and pressure many organizations are facing to stay competitive and do more with less.

In this report, we'll dig into the current state of productivity, efficiency, and development velocity for organizations — and what they're doing and planning to do to improve the way their teams and software delivery processes work. And we'll go beyond the individual questions to surface what successful organizations are doing differently that may be helping them do more and gain an advantage over their peers, so you can find more takeaways for your team.

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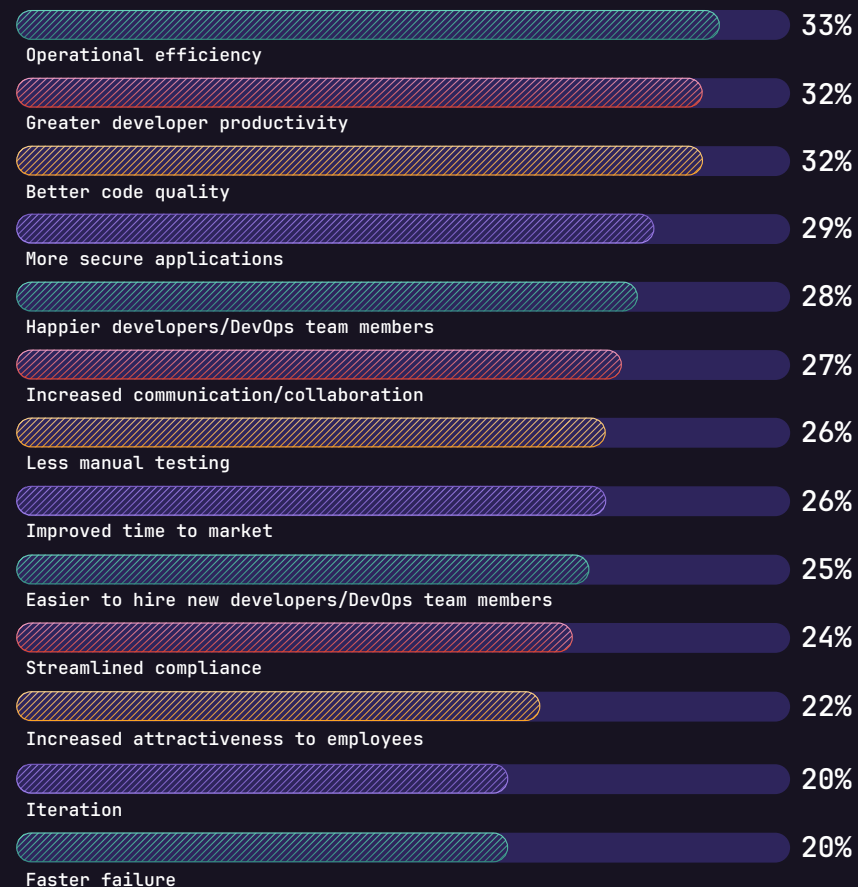


Productivity and efficiency are top of mind in 2023

This year's survey results make it clear that productivity and efficiency are top of mind — and the biggest benefits of adopting DevOps and DevSecOps — for many organizations.

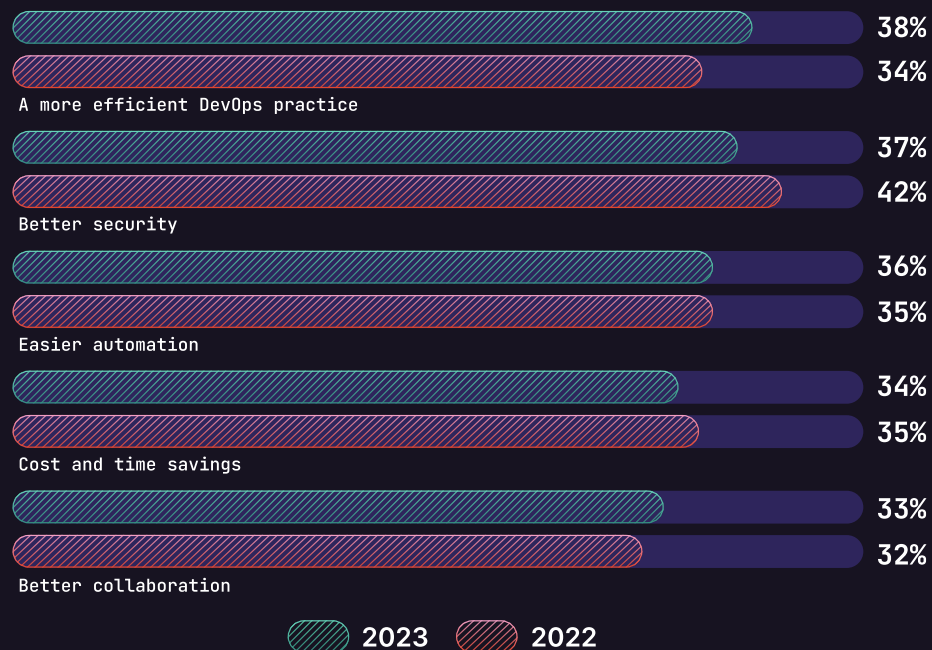
The top two benefits respondents have seen from adopting DevOps and DevSecOps methodologies were improved operational efficiency and developer productivity.

What benefits has DevOps brought to your organization?



This year, the top benefit cited by respondents who use a DevOps/ DevSecOps platform was “a more efficient DevOps practice.” In 2022, this was the second most common response, behind “better security.”

Top benefits of a DevSecOps platform



When asked what is driving DevOps to scale across their organizations, 41% of respondents cited “improved developer productivity,” more than any other answer.

What is driving DevOps to scale across your organization?



Productivity and efficiency initiatives aren't one and done. While many organizations have already seen improvements to their productivity and efficiency, many are looking to continue the trend with plans to improve their productivity and efficiency this year.

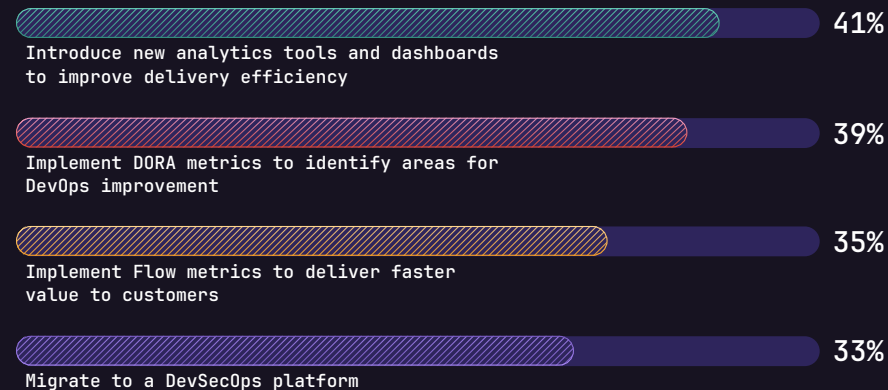
When asked about their plans for the upcoming year:

41% of respondents said they plan to introduce new analytics tools and dashboards to improve delivery efficiency.

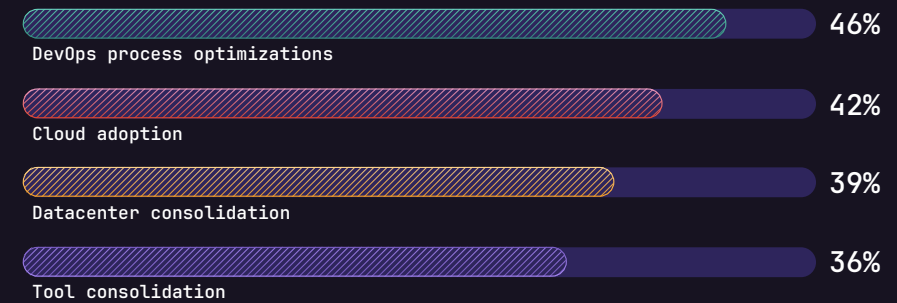
39% of respondents said they plan to implement DORA metrics to identify areas for DevOps improvement.

46% of respondents said they're planning DevOps process optimizations.

What steps do you plan to take to improve operational visibility in the coming year?



What cost optimization initiatives do you have planned for this year?

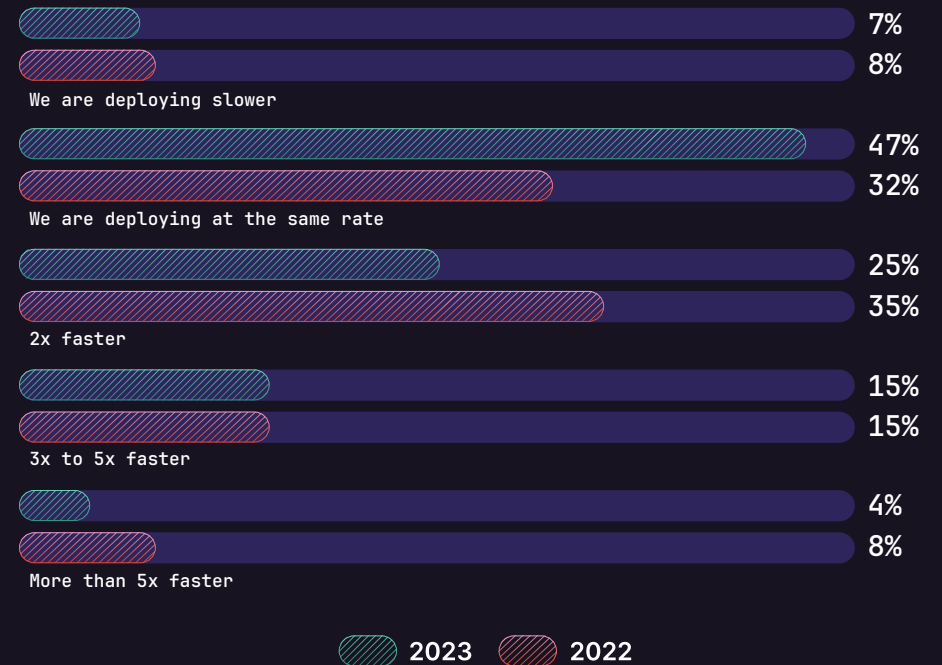


How successful organizations are releasing software faster

This year's survey data suggests that some organizations may be seeing a slowdown in release velocity. In 2022, 59% of developers said they were releasing software at least two times faster than a year earlier. This year, that number fell to 44%. And the percentage of respondents who said they're releasing software at the same rate as a year ago increased from 32% in 2022 to 47% this year.

For many organizations, this deceleration in release velocity is likely due in part to wider macroeconomic conditions. It's not surprising that organizations that have cut budgets or employee headcount — or have many customers that have done so — would focus their time and resources on maintaining current output levels instead of investing in new tools and process improvements.

How fast is your organization releasing software now compared with a year ago?



What are some of the roadblocks making it more difficult for organizations to increase their release velocity? In this year's survey, we asked developers where their team or organization was encountering the most delays in the development process. Code development was the frontrunner, followed by monitoring/observability and deploying to non-production environments, but there were ample responses across many different areas and respondents selected 2.5 answers on average. This suggests delays are happening in multiple stages of the development process, and teams see opportunities for improvement across the entire software development lifecycle.

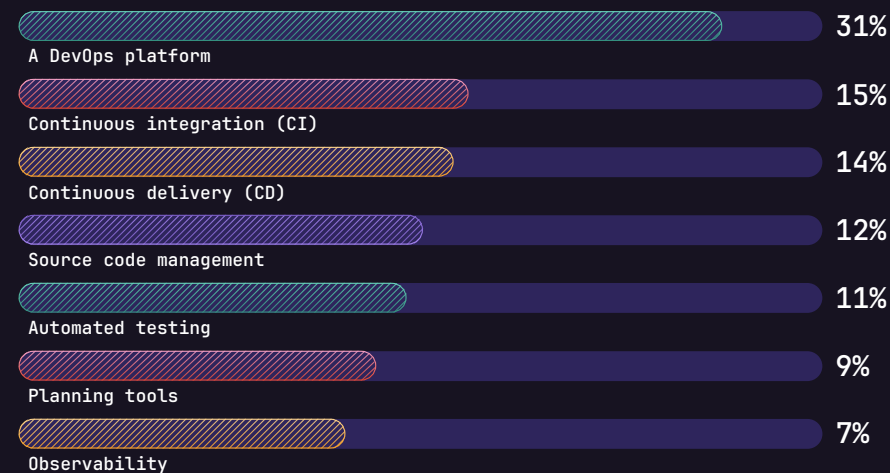
Where in the development process does your team or organization encounter the most delays?



Despite some teams experiencing a deceleration, there are others that say they're releasing software significantly faster than they were a year ago. Let's dig in and see what they're doing differently to fuel that success.

We asked respondents in software development roles whose teams are releasing software twice as fast (or faster) as they were a year ago what technology they're using to speed up software delivery, and their top responses were a DevOps/DevSecOps platform (31%), CI (15%), and CD (14%).

What is your team using to speed up software delivery?



We also looked at the rest of the survey data to see what else these teams are doing that may be giving them an advantage. It turns out that organizations that sped up software delivery in the past year are more likely to be doing a few key things: running applications in the cloud, adopting BizDevOps practices (incorporating business teams into DevSecOps), and using CI/CD.

Practices that increased likelihood of releasing software faster than a year ago



Percentage of respondents who are releasing software faster than a year ago

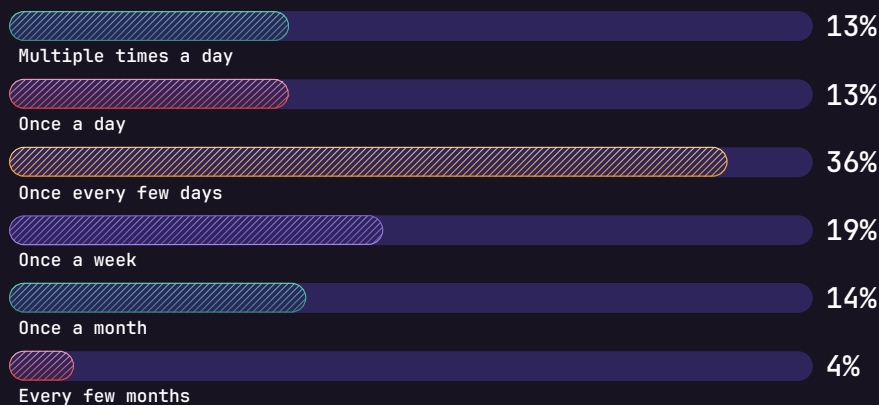
Doing this Not doing this

What's helping organizations deploy more frequently

This year, a majority of developers (62%) reported that their organizations deploy to production at least once every few days, and 13% are deploying multiple times per day. Conversely, 18% of developers reported that their organizations deploy to production once every month or every few months.

More frequent deployments allow teams to get timely feedback and iterate faster on their product, fix issues that made it into production more easily (while the code is more fresh in their mind), and retain happier team members — all of which can have a big impact on the productivity and efficiency of a team.

How often does your organization deploy to production?



So what are organizations that deploy more often doing differently? Respondents who told us they were doing things such as running applications in the cloud, CI/CD, and observability were significantly more likely to be deploying to production multiple times per day.

Practices that increased likelihood of deploying multiple times per day



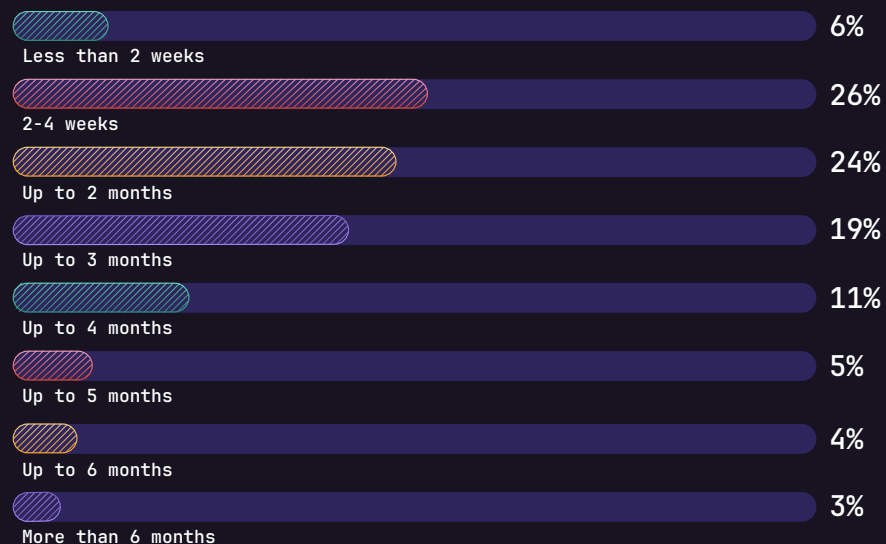
Onboarding sets the tone for productivity

When we think about productivity and efficiency, it can be easy to overlook employee onboarding. But new employees can't really be productive until they're fully onboarded, and the people who are helping to onboard them and answer questions will be less productive during that time.

Onboarding can be a litmus test for a team's overall ability to be productive as well. The longer it takes to onboard new developers and get them up to speed with all an organization's tools and processes, the longer it will likely take for them to do their day-to-day work and get it into production. A painful onboarding experience could lead employees to look for a new job sooner rather than later.

In this year's survey, more than half of respondents (56%) said their organization is able to onboard new developers and get them up to speed on all their tools and processes in less than two months, and 32% said their organizations are able to onboard new developers in less than four weeks.

How long does it take to onboard new developers in your organization and get them up to speed on all your tools and processes?



The difference between onboarding new developers in weeks rather than months can be huge for productivity and efficiency, both for the new employees and the people who are helping to onboard them.

What can we learn from organizations that are onboarding new developers faster than most? We identified a few factors that were significantly more common among respondents who reported faster onboarding times: utilizing a DevOps/DevSecOps platform; using fewer than six tools for software development; incorporating security and governance/compliance as part of DevOps; DORA and other metrics; and CI/CD.

Practices that increased likelihood of onboarding in less than 4 weeks



Percentage of respondents who are onboarding new developers in less than 4 weeks

Doing this Not doing this

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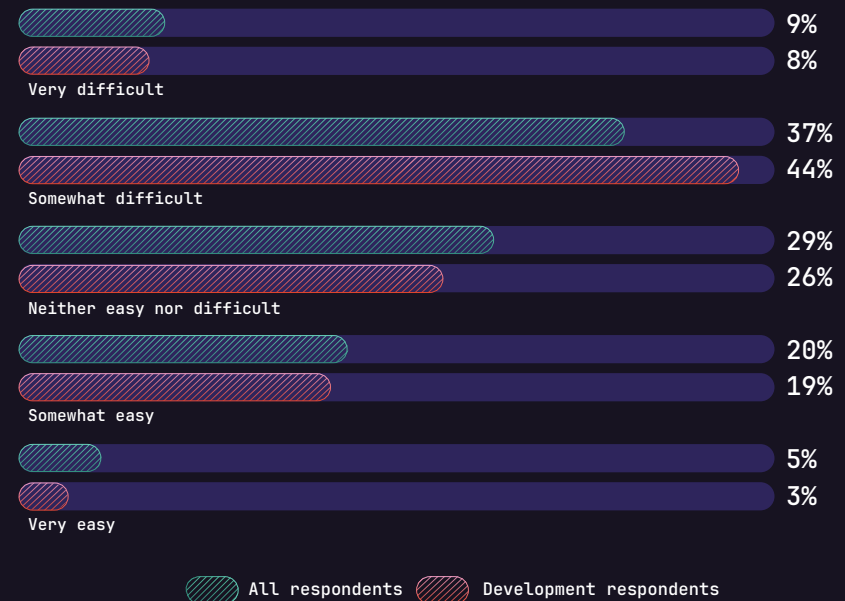
Hiring and retaining developers is difficult: Here's what helps

Any organization will lose employees and need to hire new ones from time to time, but the more difficulty an organization has with hiring and employee retention, the more difficulty it will have making its software development process productive and efficient. There's the time it takes to onboard new developers and interview candidates, not to mention the distraction and hit to morale when another developer quits or a candidate doesn't accept the offer, or the current team feels overwhelmed by their workload.

If you've been struggling to hire and keep good developers, you're not alone. In this year's survey, nearly half of respondents (46%) told us it's somewhat or very difficult for their organization to attract, hire, and retain developers. And only 25% reported it being easy.

When we look at the responses from just respondents in Development, the picture is even less rosy. Over half of them (52%) reported difficulty attracting, hiring, and retaining developers, and only 22% said it was easy.

How easy or difficult is it for your organization to attract, hire, and retain developers?



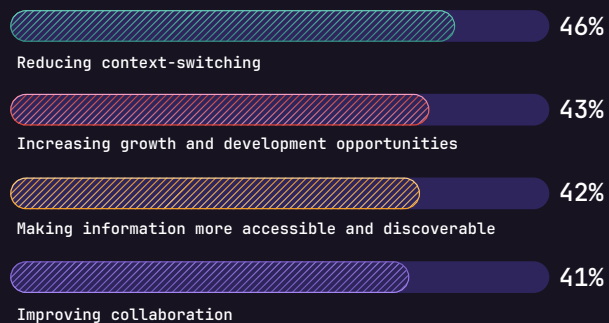
One way to make hiring and retention easier — and increase productivity — is to improve developer satisfaction. We asked respondents what they thought would improve developer satisfaction in their organization. Interestingly, answers varied among respondents in Development, Security, and Operations.

The top choice for development professionals was reducing context switching (at 46%), but that same answer came in last among security professionals (30%) and operations professionals (31%). This highlights the importance of not assuming what will help developers, but asking them and tracking and analyzing your organization's software delivery

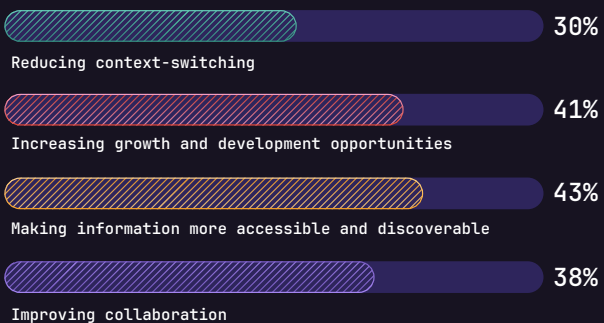
What changes could be made to your organization's DevOps practice to improve developer satisfaction?

According to...

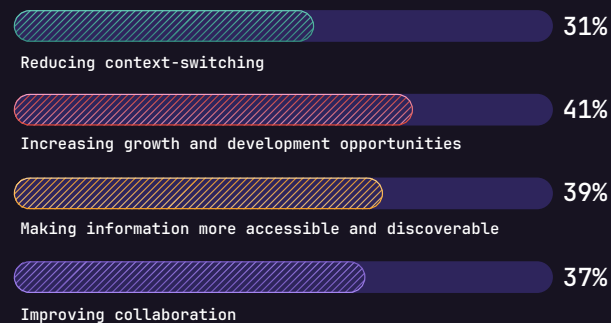
Development



Security

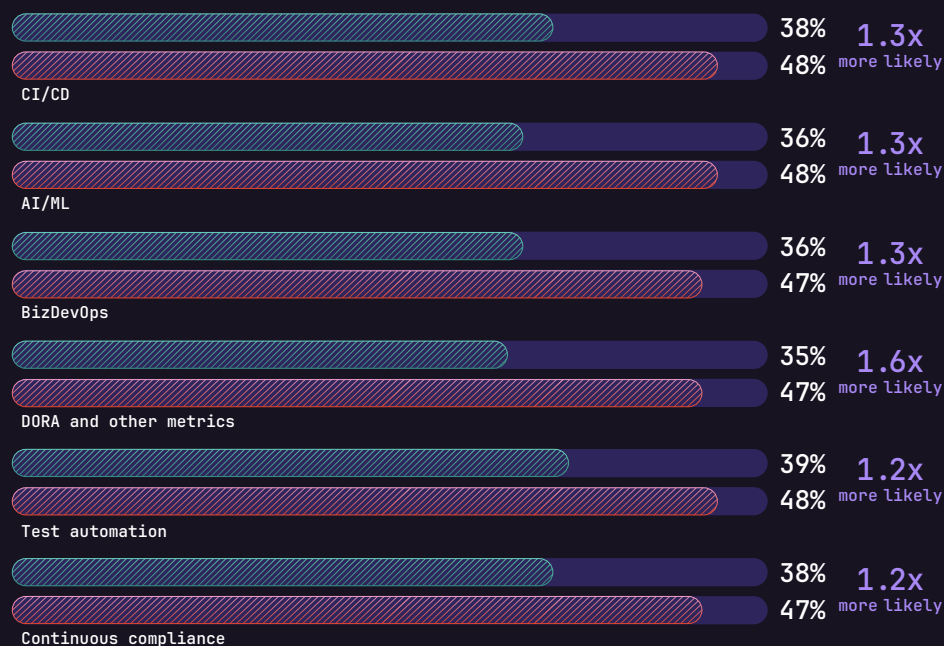


Operations



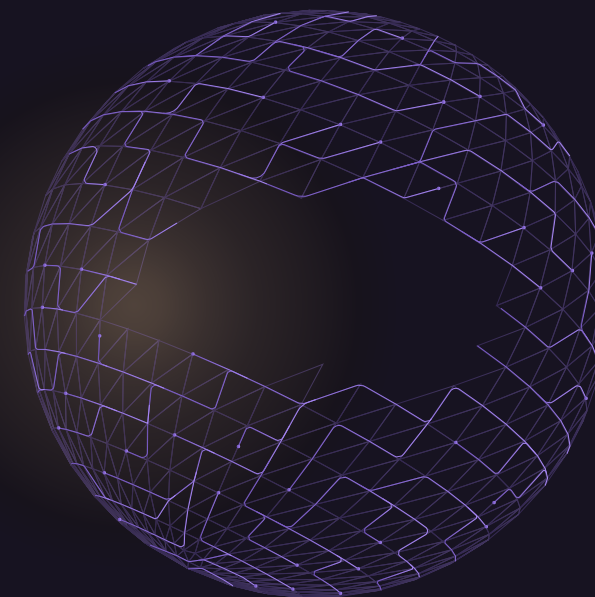
Again, we looked at the things organizations are doing that may help them have less difficulty attracting, hiring, and retaining developers to see what else we could learn. Factors such as CI/CD, tracking DORA or other metrics, test automation, and AI/ML were associated with significantly lower rates of difficulty hiring and retaining developers.

Practices that decreased likelihood of difficulty hiring and retaining developers



Percentage of respondents who have difficulty attracting, hiring, and retaining developers

 Doing this
  Not doing this

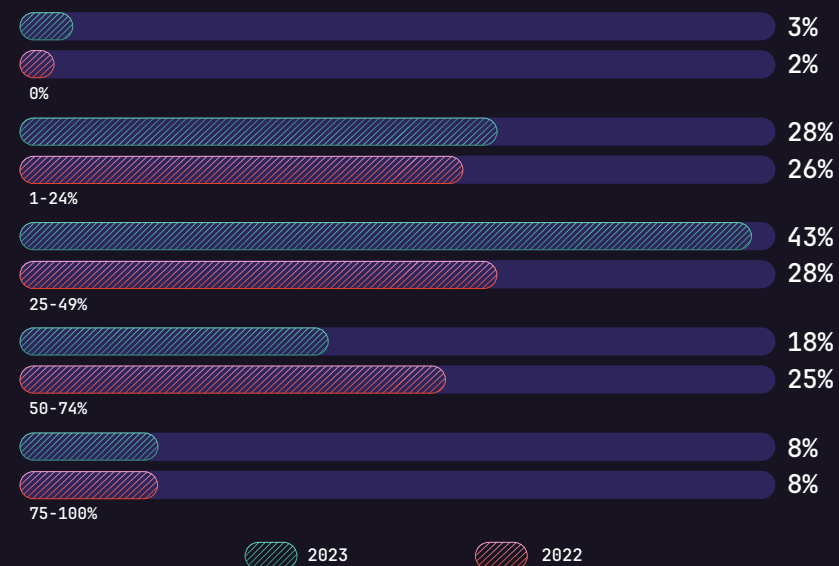


Large toolchains are still a burden, but things are improving

Most organizations are still using several tools for software development, but the numbers are decreasing. The percentage of respondents using one to five tools increased (from 46% in 2022 to 49% in 2023), and the percentage using six or more tools decreased (from 54% to 51%).

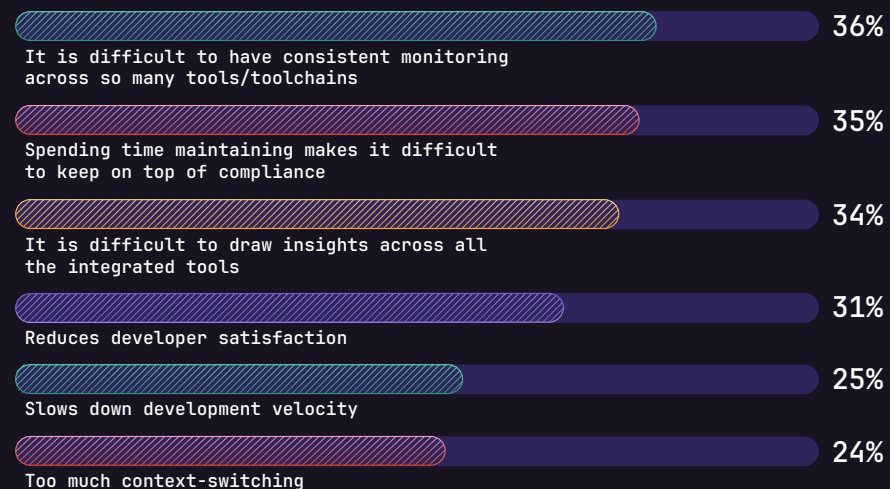
Developers are still spending too much time maintaining DevOps toolchains, although the situation is improving. In 2022, 72% of developers said they spend at least a quarter of their time maintaining and/or integrating their DevOps toolchain; this year, that number fell slightly, to 69%. The largest proportion of developers, 43%, said they are spending between 25% and 49% of their time on toolchain maintenance.

How much of your responsibilities involve maintaining and/or integrating your DevOps toolchain?



Not surprisingly, 66% of survey respondents (and 76% of developers) told us they want to consolidate their toolchain this year. Developers who wanted to consolidate their toolchain cited difficulty having consistent monitoring across tools/toolchains, difficulty staying on top of compliance, and difficulty drawing insights across different tools as negative impacts of having too many tools.

How does having too many toolchains/tools negatively impact your DevOps practice?



Putting it all together

No matter where your team and organization are currently, we hope the data from this year's survey helped give you ideas for ways to improve your productivity and efficiency, new goals you may want to shoot for, or things to measure — or helped confirm the validity of your current plans.

To recap, here are the key things we found in this year's survey that are helping respondents as they strive to make their teams and processes more productive and efficient:

- DevOps/DevSecOps methodologies
- DevOps process optimizations
- BizDevOps
- CI/CD
- AI/ML
- Running applications in the cloud
- Multicloud
- Test automation
- Continuous compliance
- Security and governance/compliance in their DevOps implementation
- Reducing context switching
- New analytics tools and dashboards
- Observability/monitoring
- DORA and other metrics
- Using fewer than six tools for software development
- A DevOps/DevSecOps platform

These practices and technologies are helpful in many ways on their own, but they can be even more powerful when teams consider how they work together. For example, if your team starts using something like AI/ML, but in doing so adds another tool to your toolchain that will need to be managed, take time for new employees to learn during onboarding, and increase day-to-day context switching, you may not see the productivity and efficiency gains you expected.

Improving productivity and efficiency isn't a clearcut task and teams today face many headwinds from economic uncertainty to hiring difficulties and large cumbersome toolchains. Fortunately, a renewed focus on productivity and efficiency in many organizations, new opportunities to incorporate technologies like AI/ML, and platforms that bring many best practices together in one place are giving teams new opportunities to release software faster and more efficiently.

