

2022

# Software Developer Happiness Report



In 2022, the world runs on software. Competition for top developer talent is at its most challenging, making a company's ability to hire and develop the talent its greatest area of opportunity.

To help you gain insight into what attracts developers to an organization, motivates them to stay, and keeps them engaged on the job so you can avoid fostering a dev culture that leads to 'quiet quitting', we surveyed hundreds of developers globally to find out:

- How developers see their world and what makes them happy and fulfilled at work.
- What developers need and want in terms of technologies, tools, and work environments.
- What drives developers to adopt different development productivity tools.
- The different ways productivity tools help developers enjoy a better, more fulfilling experience at work.

We've captured the results in this report, starting with our key findings and recommendations for leadership and developers.

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# Survey methodology

We surveyed 380 English-speaking developers worldwide in March 2022. All respondents:

- Are experienced with tools that automate developer workflows and projects and improve productivity.
- Work for companies with 500 or fewer employees.

The developers who completed the survey represent a cross-section of software development. They:

- Work in a variety of industries.
- Work for companies ranging from startups to those that have been in business for more than 20 years.
- Have a variety of roles and responsibilities.
- Have experience ranging from a couple of years to more than 20 years.
- Work in teams ranging in size from 1 to more than 50.

*\*The margin of error for the survey results is 5.0% at aggregate.*



**COOL** 

# Who is this

# report for?



If recruiting and retaining software developers is a top priority for your organization, read this report.

For software development leaders, process managers, product managers, startup CTOs, founders, or human resources professionals at software-focused companies, this report offers insights into the drivers, motivations, and priorities of the makers of the software applications that fuel the performance and competitiveness of many organizations.

It includes recommendations for both leaders and developers on how to create and sustain the optimal conditions for developers to do their best work.



# KEY

# findings



- ★ Good work-life balance encourages developers to stay at their current job for longer periods of time and poor work-life balance accelerates the hunt for another job.
- ★ 71% of developers haven't decided how long they'll stay with their current employer.
- ★ 33% of developers have stayed in a job longer than they normally would have due to the pandemic.
- ★ 59% percent of developers received a 2% or greater increase in base pay in the last year.
- ★ North American developers are the most likely to have received a pay increase.
- ★ C# developers are the most likely to have received a pay increase.

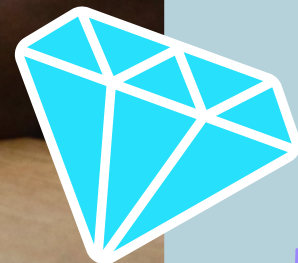


**KEY**

## *findings*



- ✦ Developers are extremely happy with their immediate teams and feel the COVID-19 pandemic strengthened these relationships, however, management is a different story.
- ✦ Developers typically balance multiple projects and say their highest priority is ensuring their software keeps up with business demands.
- ✦ Today, 70% of developers are back to working in-office, even if only part-time, but they still prefer digital interactions to in-person communications.
- ✦ Most developers now spend more time using collaboration tools and email, but spend the same amount of time in meetings and informal discussions.
- ✦ After changes to requirements and delayed feedback, collaboration-related challenges are the top productivity blocker.
- ✦ When developers are delayed receiving feedback, nearly 70% lose at least 3 hours of time.



**KEY**

**findings**

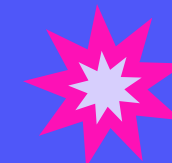
- ✦ Developers spend most of their time designing, coding, and debugging, and would like to spend even more of their time on these tasks, instead of in meetings and on administrative tasks.
- ✦ 93% of developers agree that using a productivity tool improves the quality of their collaboration.
- ✦ When developers consider productivity tools' capabilities, performance is paramount.
- ✦ Outside of work, developers' activities typically involve computers.
- ✦ 75% percent of developers spend at least an hour each week on reporting.





# RECOMMENDATIONS

*for leadership*



# *The big picture*

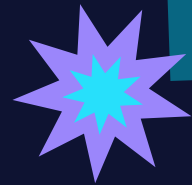
## *for leaders*

The last 2.5 years have been challenging as work-from-home mandates, supply chain delays, stock market instability, natural disasters, and geopolitical conflicts disrupt business around the world.

These, and other factors, contribute to the 'Great Resignation', where employees are leaving their jobs to pursue other opportunities, often without a new job waiting for them.

- During the COVID-19 pandemic, approximately 24% of developers surveyed left a job they otherwise liked without having another job.
- However, 33% of developers stayed in jobs longer than they would have because of the pandemic. This stability and decision to remain in development jobs, which are often lucrative, is likely a practical response to economic upheaval.





# **5 WAYS** to increase developer happiness

Based on our survey results, there are 5 ways that company founders, executives, and senior managers can create a work environment that encourages developers of all experience levels to stick with their company despite current challenges.

To increase developer happiness:

- 1** Let developers focus on coding.
- 2** Let developers showcase their skills.
- 3** Encourage developers to work where they feel most productive.
- 4** Promote work-life balance to prevent burnout.
- 5** Pay competitive rates to encourage developer retention.



# Let developers focus on **coding**

Allowing developers to focus on what they do best – coding - plays a major role in helping them ship great software and feel satisfied with a job well done.

There's a strong correlation between developers who are extremely satisfied with their jobs and developers who spend most of their time working on software design, coding, and debugging:

- 49% of developers prefer to spend most of their time coding and debugging.
- Another 49% prefer to spend most of their time in software design.

Time spent on non-coding tasks can get in the way of developer productivity:

- 44% of developers report spending too much time in formal meetings.



# 2

## Let developers showcase their skills

The quality of development projects is one of the top 3 reasons developers stay with their current employers.

Developers who are extremely satisfied with their current jobs are somewhat more likely than others to stay at their jobs due to the quality of their projects:

- 27% of extremely satisfied developers stay at their jobs due to project quality, compared to 18% of developers who report lower levels of satisfaction.



HELLO  
WORLD



3

# Encourage developers to work where they feel most **productive**

There are significant overlaps between where developers feel most productive and where they typically work:

- 51% of developers typically work where they feel most productive.
- 48% of developers who typically work in the office prefer to work there.
- 44% of developers who primarily work remotely prefer to work that way.
- 47% of developers who work in a hybrid arrangement prefer to work that way.

These developers are also somewhat more likely to be extremely satisfied with their jobs and are more likely to be happy with their professional relationships, especially with their immediate teams and direct management.

However, hybrid work arrangements create mixed feelings:

- Of developers who work in a hybrid arrangement, just 38% feel they're most productive working that way.
- The remaining 62% are split between feeling most productive in remote and in-office arrangements.





# 4

## Promote **WORK-LIFE BALANCE** to attract and retain experienced developers

Work-life balance is a key driver for developers' decisions to stay at a company or look for another job:

- 24% of developers say work-life balance is the biggest reason for staying with their current employer.

Experienced developers tend to be more persuaded by work-life balance:

- 18% of developers with 10 years or less experience place the highest value on work-life balance.
- 35% of developers with more than 10 years of experience place highest value on work-life balance.

Conversely, developers' reasons for looking for another job are more diverse, but work-life balance is still a common culprit:

- 21% of developers feel an unmanageable work-life balance would make them look for another job.



# 5

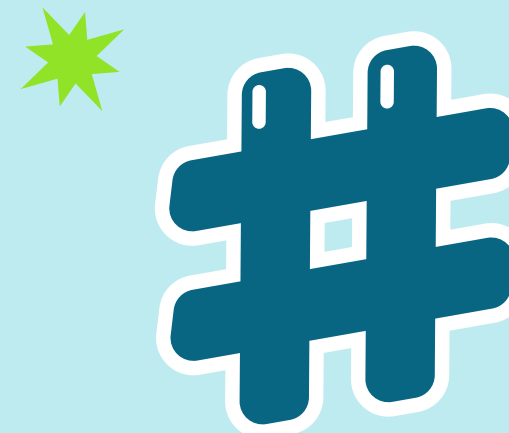
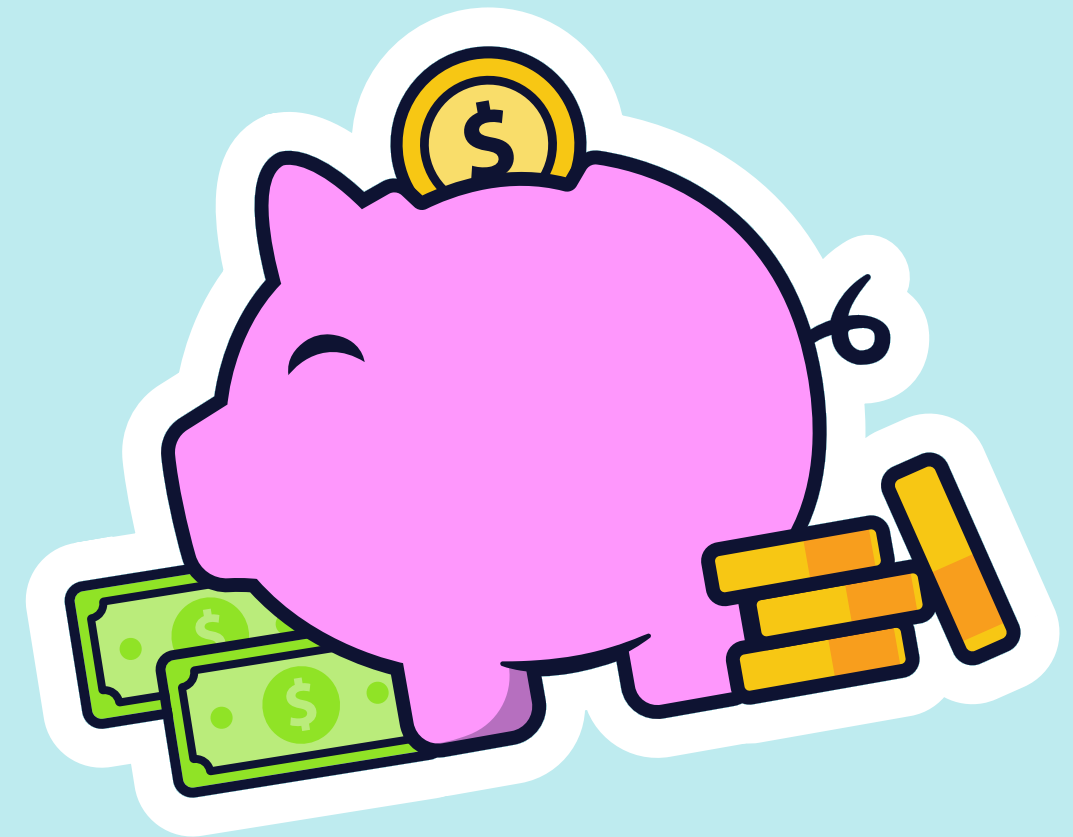
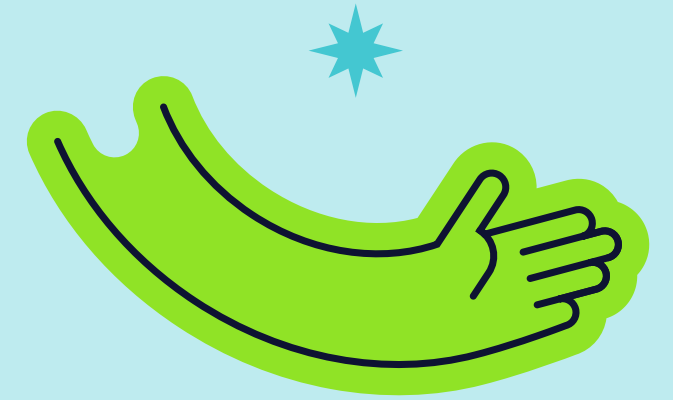
## Pay competitive rates to encourage developer retention

When developers consider their top reasons for staying at their employers:

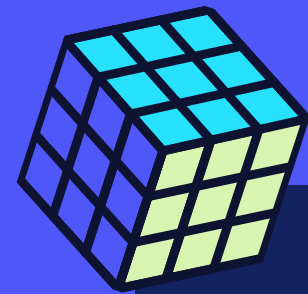
- 21% cite good pay
- 17% cite an excellent total compensation package

Independently, these are not the top reasons developers stay with their current employers. However, it's also important to consider that:

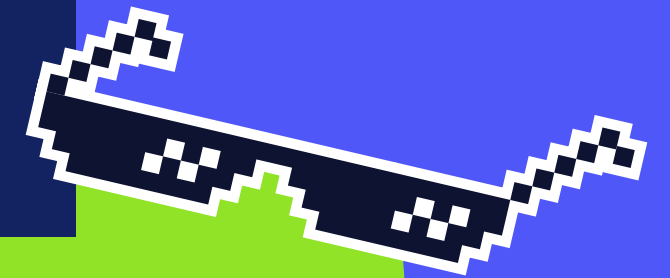
- 73% of developers with the highest job satisfaction have received an appreciable pay increase in the past year.







***Recommendations***

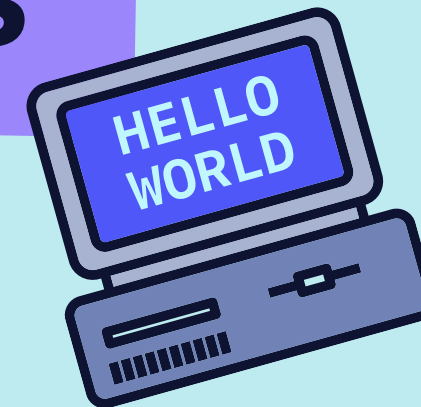


***for developers***

# THE BIG PICTURE

**WOW**

## for developers



While development teams main priorities are keeping up with business goals and objectives, this can be better achieved by prioritizing developers' overall happiness on the job. And shipping great code, faster is part of this.

To determine what contributes to developers' overall happiness and fulfillment, we explored:

- How developers spend their time at work and how they'd like to spend their time.
- The different types of compensation developers receive and appreciate most.
- Developers preferred work environments and methods of communications.
- How developers spend their time outside of work.



# **5 ways** developers can be happier at work



Based on the results of our survey, we identified the top 5 ways developers can set themselves up for success, and be happier and more productive in their work.

We recommend that developers and individual contributors:

- 1** Embrace diverse interests and activities.
- 2** Work in an environment that helps them be their most productive and focused.
- 3** Push to write better, more secure code.
- 4** Use productivity tools to simplify communications and streamline handoffs.
- 5** Look for a stable work environment.



# Balance coding and other enjoyable activities



Developers who are extremely satisfied with their jobs are more likely than others to receive a fitness benefit, such as a gym membership, from their employers. Exercise releases endorphins, which help to reduce anxiety and depression. Developers with higher job satisfaction are more likely than others to spend their spare time playing team sports or doing individual physical activities.

This isn't to say everybody should make a lunchtime run part of their daily routine. Even after-hours coding projects can be fulfilling. Developers who are extremely satisfied with their jobs spend their spare time browsing websites or programming for fun in equal measures. However, extremely satisfied developers are more likely to spend their time away from coding watching television, or bingeing shows on their favorite streaming services. The moral of the story is developers should spend more time doing what relaxes them!

# 2

## Work in the most **productive** environment

Most developers prefer to work where they're most productive:

- 61% indicate some overlap between remote and in-office work.
- But just 33% of developers typically work in the environment where they feel most productive.

This rate doesn't vary significantly between developers with high job satisfaction and everybody else. However, the most satisfied developers are more likely than others to work in the environments where they feel most productive:

- 51% of the most satisfied developers work where they feel most productive, compared to 42% of everybody else.

Productive environments also increase job satisfaction. When given the option to choose their preferred work environment, developers are more likely to be satisfied with their jobs if they typically work where they are most productive:

- 35% of developers who work where they are most productive are extremely satisfied with their jobs.
- 29% of developers who typically work in their preferred environments are extremely satisfied with their jobs.

Working in their own most productive environment can improve developers' happiness with their team and their managers:

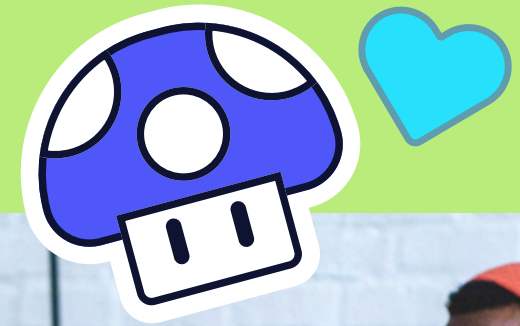
- 79% of developers who typically work in their most productive environments are happy with their relationships with their direct team members, compared to just 64% of everyone else.
- 74% of developers who typically work in their most productive environments are happy with their direct management, compared to 62% of everyone else.



# 2

## Work in the most *productive* environment

[CONTINUED]



Developers are more likely to be happy with direct team members than with management or other developers on other teams. Feeling and being more productive can improve developers' happiness and improve relationships with management.

It can pay for developers to work where their team works:

- 52% of developers who are extremely satisfied with their jobs work entirely in an office.
- Just 32% of developers who are extremely satisfied with their jobs work entirely remotely.

As 41% of developers feel most productive in an office environment, this may seem like a chicken-and-egg argument.

However, developers who state that at least half of their team works in the same building today are:

- Generally more satisfied with their jobs (38% are extremely satisfied).
- Happier with their direct team members (40% are happier).

Even if developers prefer online communications when meeting with their teams, the option to see colleagues face-to-face can help clarify misunderstandings and improve relationships.



3

## Push to write better, more secure code

Did you know that the quality of your team's code can impact your job satisfaction? Developers whose teams place a greater emphasis on creating secure and performant code are more likely to report that they are extremely satisfied with their jobs.

This is likely because creating software that performs well, free from security vulnerabilities leads to products that have greater appeal to end users, a stronger product portfolio, and the potential to avoid years of supporting and fixing buggy or poorly-secured code.

Performance optimization and secure code is easier said than done. Implementing security and tuning software for performance are the 2 top coding challenges developers identified. Tools and technologies will help illuminate weaknesses in the code, but they're often moving targets, so it's important for developers to keep skills and knowledge up to date.

In code  
we trust



# 4

## Use **productivity tools** to simplify communication and streamline handoffs



Productivity tools allow developers to organize tasks and make management aware of blockers. These capabilities are important because:

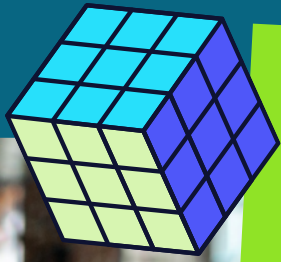
- 74% of developers experience some delay while waiting for feedback from management or stakeholders.
- Of that 74%, nearly 70% spend at least 3 hours a week waiting for feedback, wasting time that could be spent pushing projects to the finish line.

Productivity tools are also considered a good way to improve communications:

- 44% of organizations adopt productivity tools because management wants more communications with development teams.
- 40% of organizations adopt productivity tools so development teams can automate communications with management.







4

# Use **productivity tools** to simplify communication and streamline handoffs

[CONTINUED]

Communicating progress and limiting time waiting for feedback can also increase developers' job satisfaction:

- 36% of developers who sought productivity tools for communications reported they're extremely satisfied with their jobs
- That satisfaction number drops by almost half, to 19%, for developers who did not seek productivity tools

Finding productivity tools that suit specific needs, including integrations with the source code repository and messaging, allows developers to use a tool they selected to contribute to overall job satisfaction. It also shows managers developers are open to different lines of communications and minimizes the feedback delays that stall projects.

Some tools will even reduce the number of meetings developers must attend, but even those that don't will ensure management is aware of project progress so meetings can focus on issues that matter.

LVL UP

# 5

## Look for a stable

### WORK ENVIRONMENT

Job hopping is normal these days:

- About 1/3 third of developers have worked as a professional developer in just one company, but 31% have worked in at least 4 companies.
- 34% of developers who have worked for just 1 or 2 companies say they're extremely satisfied with their jobs, compared to just 24% of everybody else.

This isn't to say developers should remain in a toxic work environment. And given the widespread workforce reductions underway, there may be factors that can't be controlled. However, when considering their current employer or a potential move, developers should look for the factors most important to them. Questions related to work-life balance, project quality, and good pay are common.

These considerations change with experience and are likely to crystallize over time:

- Younger and less experienced developers are more likely to look for a clear structure for pay raises.
- More experienced developers are more likely to value work-life balance and current pay.

If developers can find these items at their current employer, they may be happier binging their favorite show than surfing job boards.





**WORK MODELS AND**

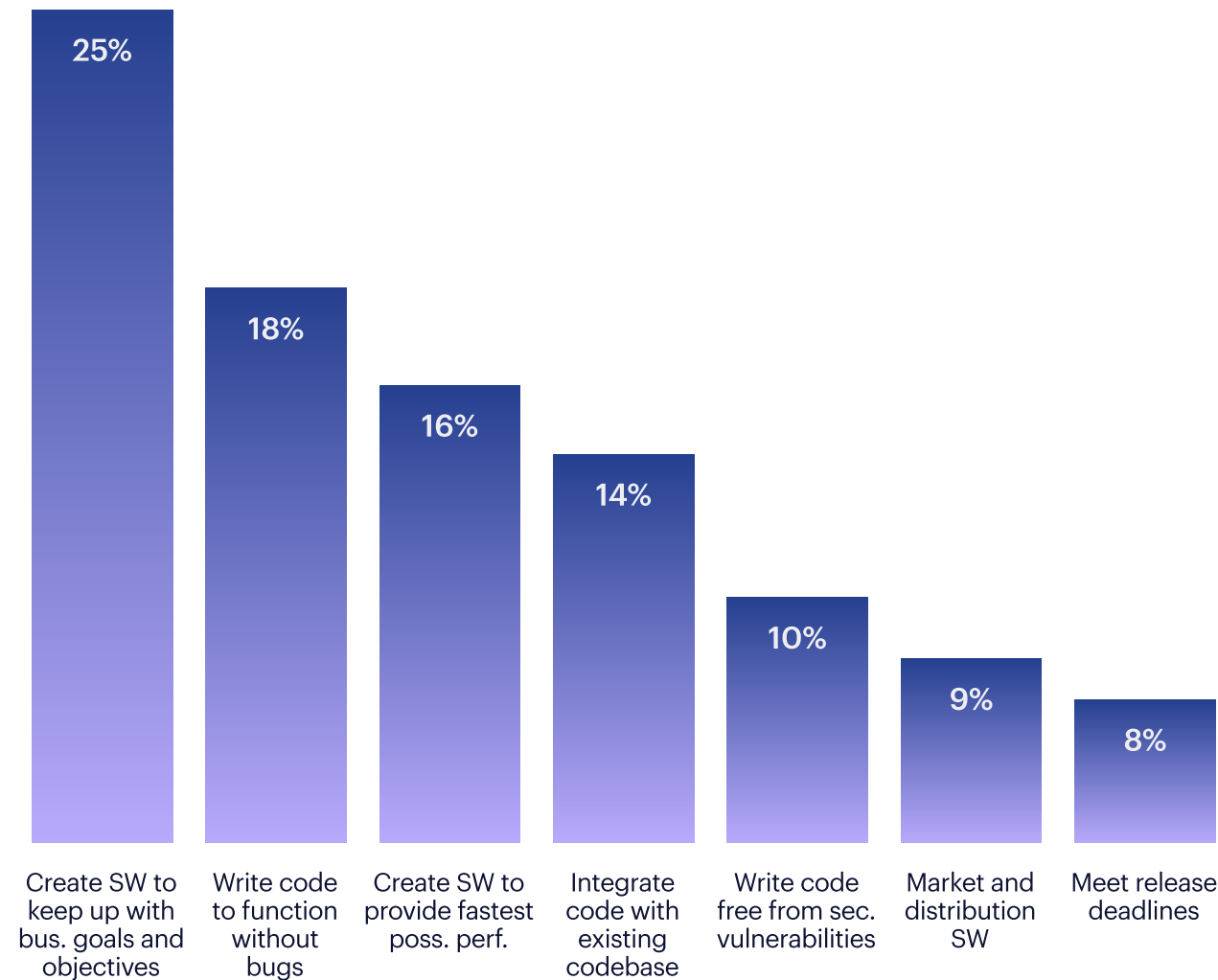
***time allotment***



**COOL**

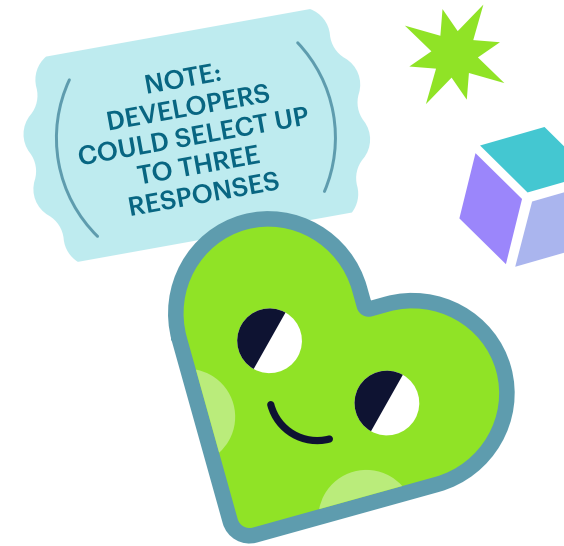
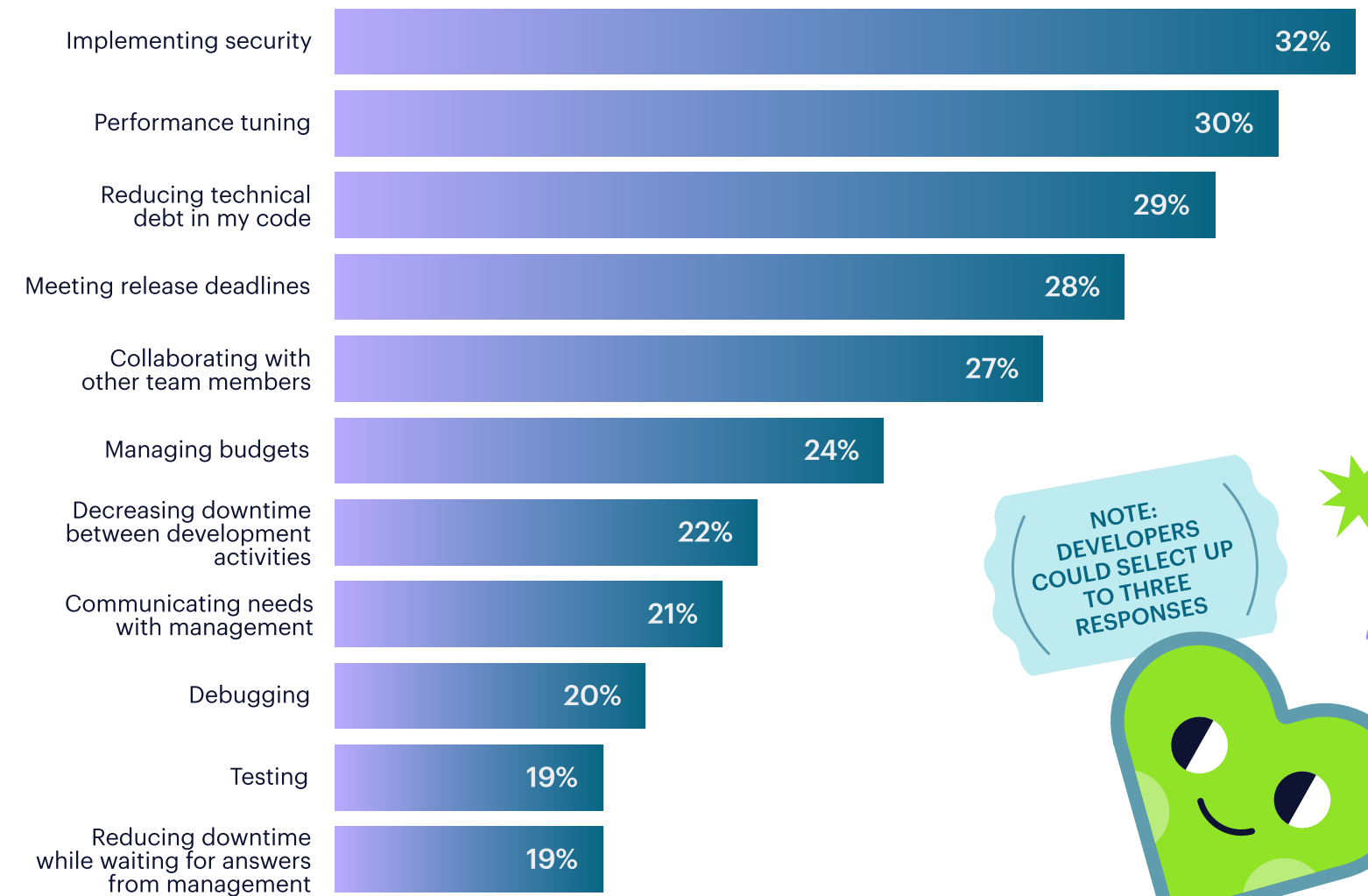
# Developer needs and challenges

Which of the following is your development team's current highest priority need?



★ The highest priority for developers is to keep up with **business goals** and **OBJECTIVES**, which indicates their priorities reflect those of key decision makers.

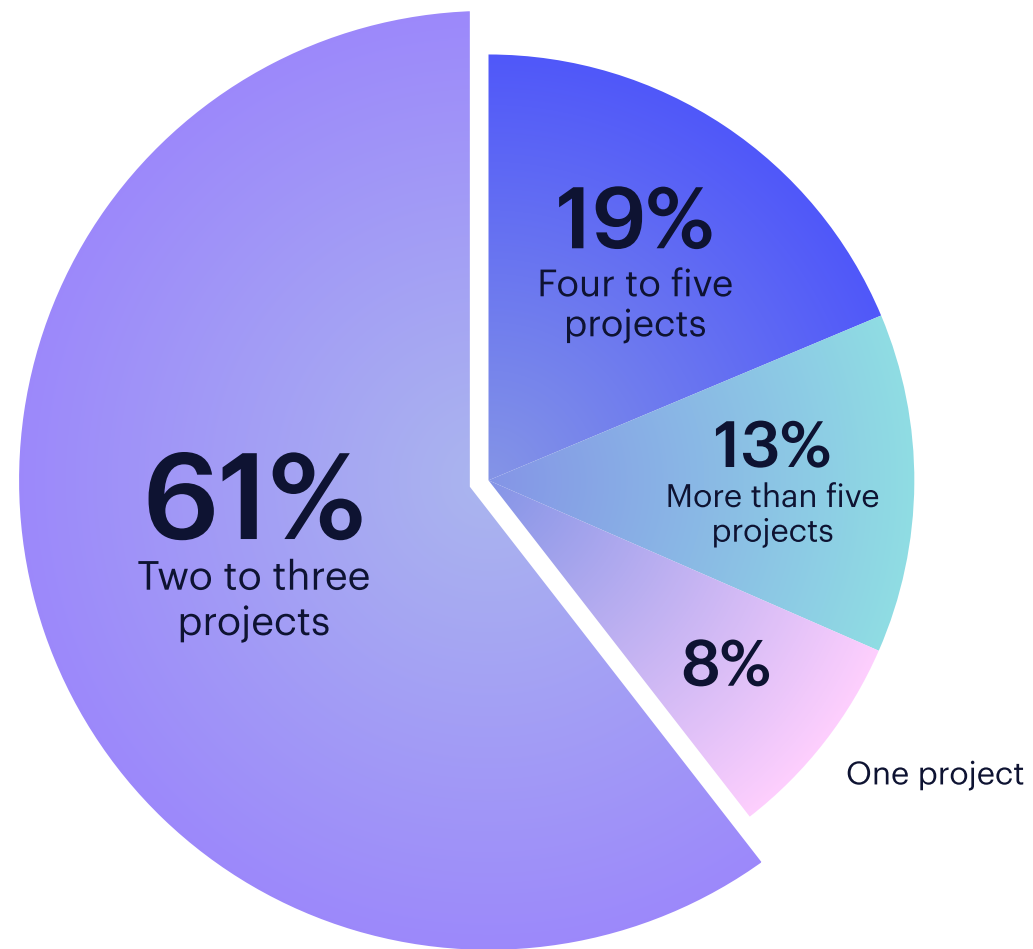
What are the three greatest challenges facing your daily coding efforts?



★ The close results show developers face **multiple challenges**.

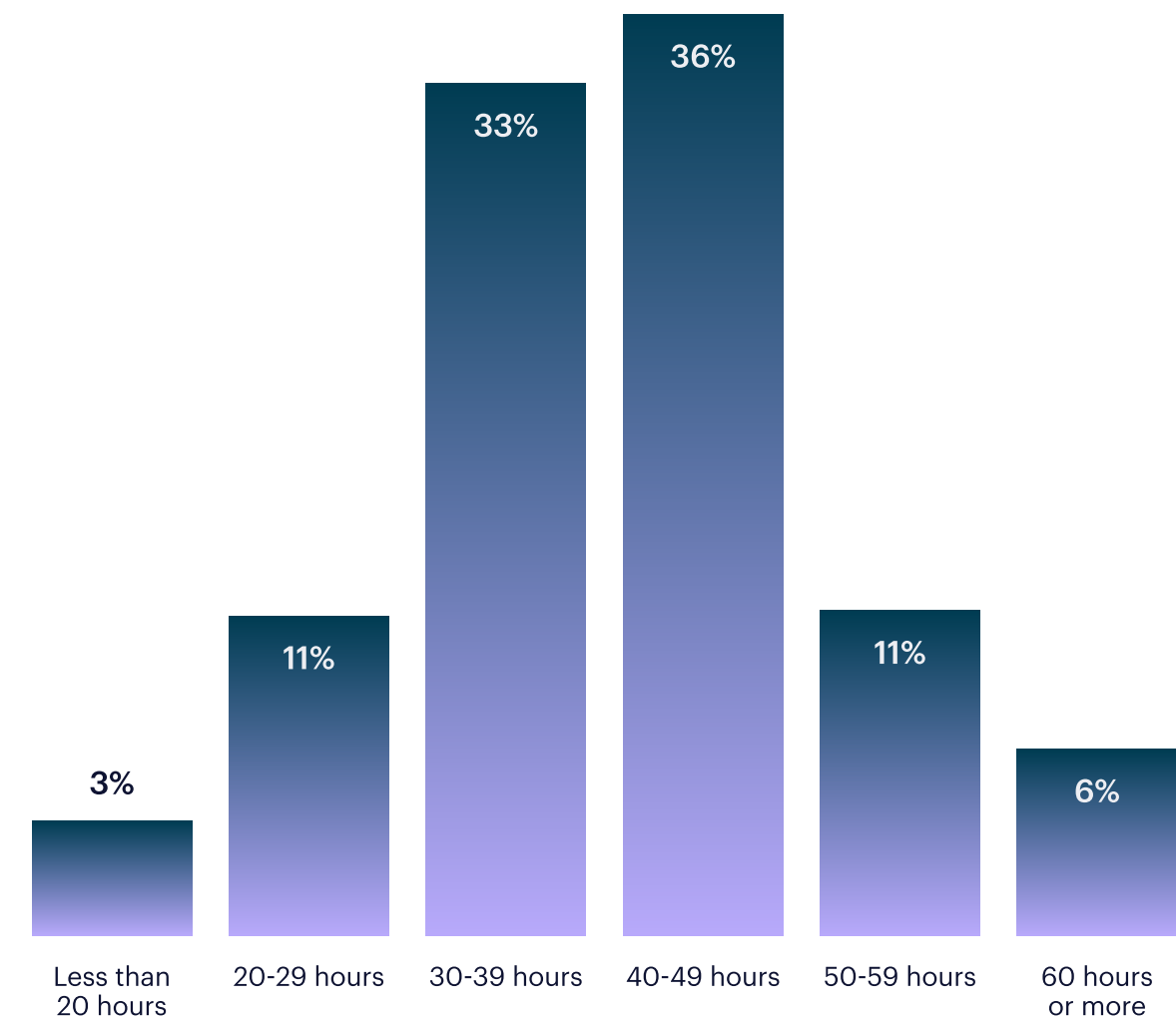
# Developer workloads

How many software development projects do you balance in a typical work week?



✳ 61% of developers are balancing 2 to 3 projects per week.

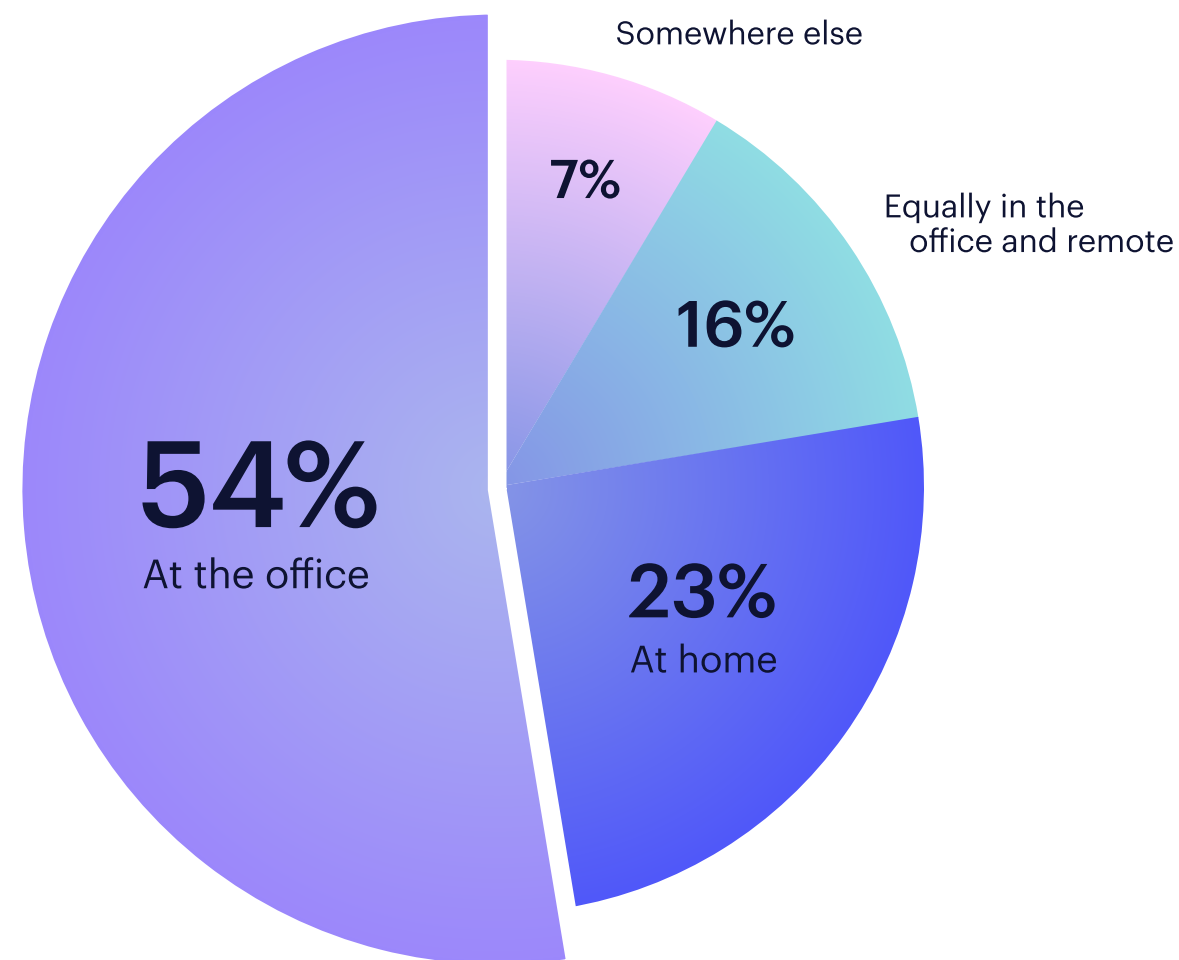
How many hours do you work in a typical work week?



✳ Nearly 70% of developers work between 30 and 49 hours per week.

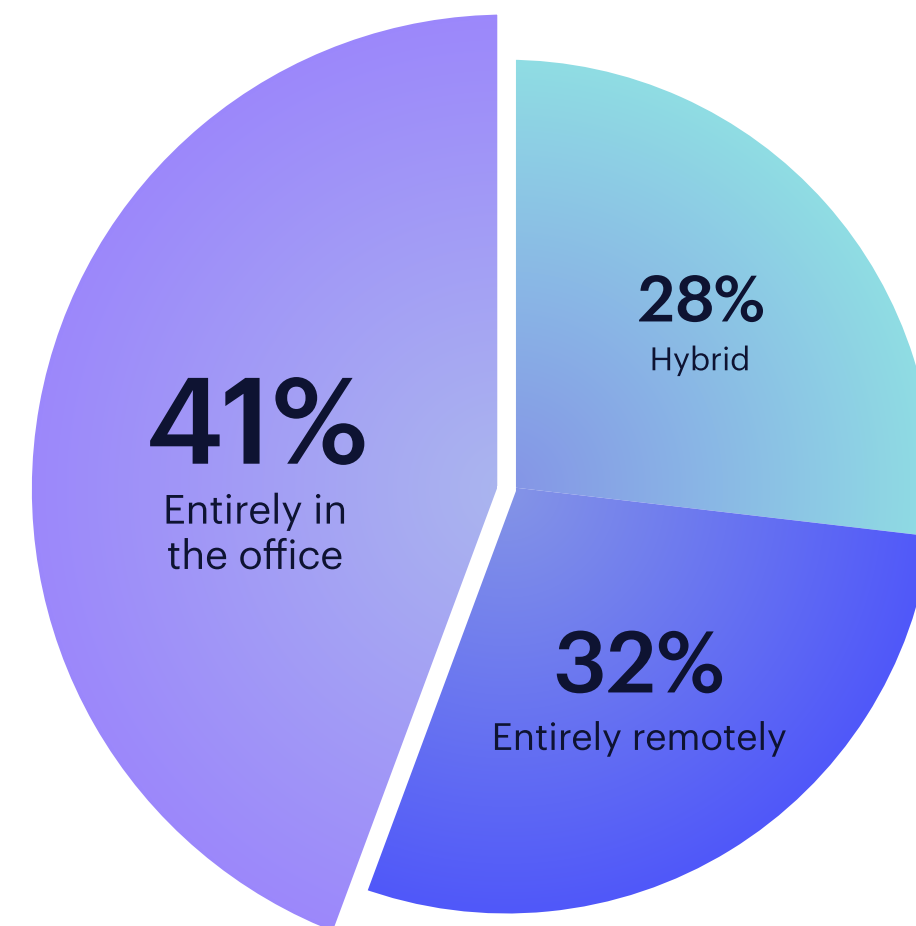
# Work environments and preferences

During your standard work week, do you primarily work:



✦ The majority of developers work in the office, with only 23% working from home.

When working on software development, where do you feel you are the most productive?

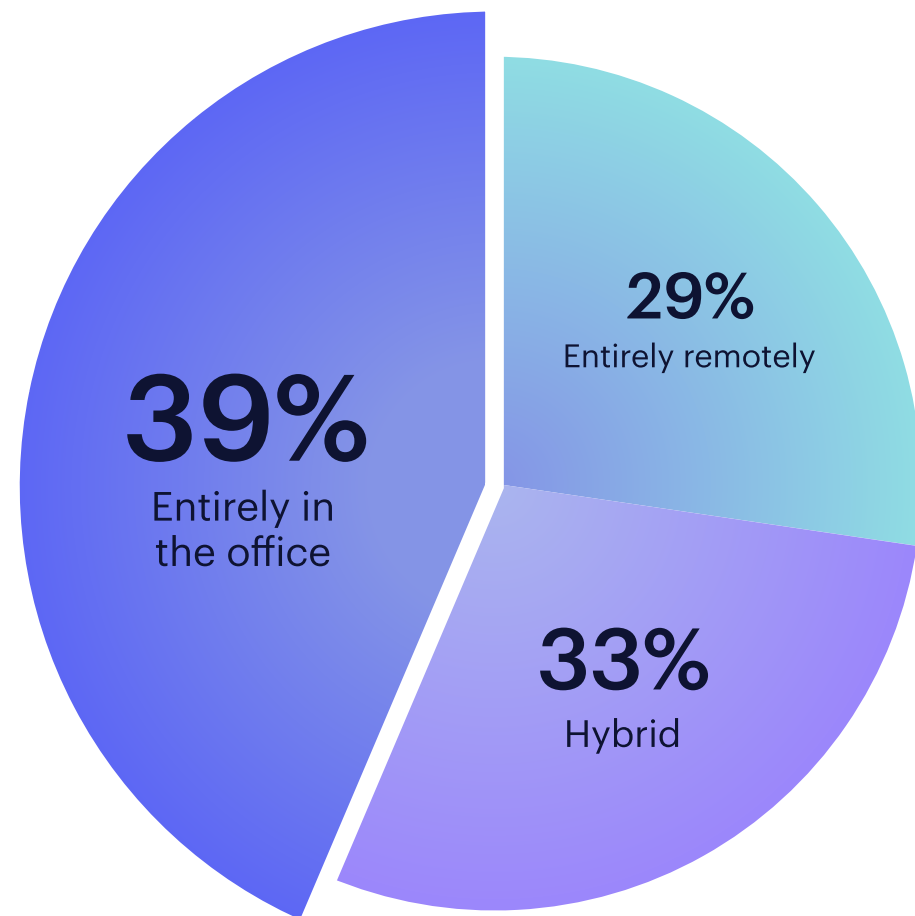


✦ 60% of developers feel most productive when they're able to work remotely part- or full-time.

# Work environments and preferences: hybrid

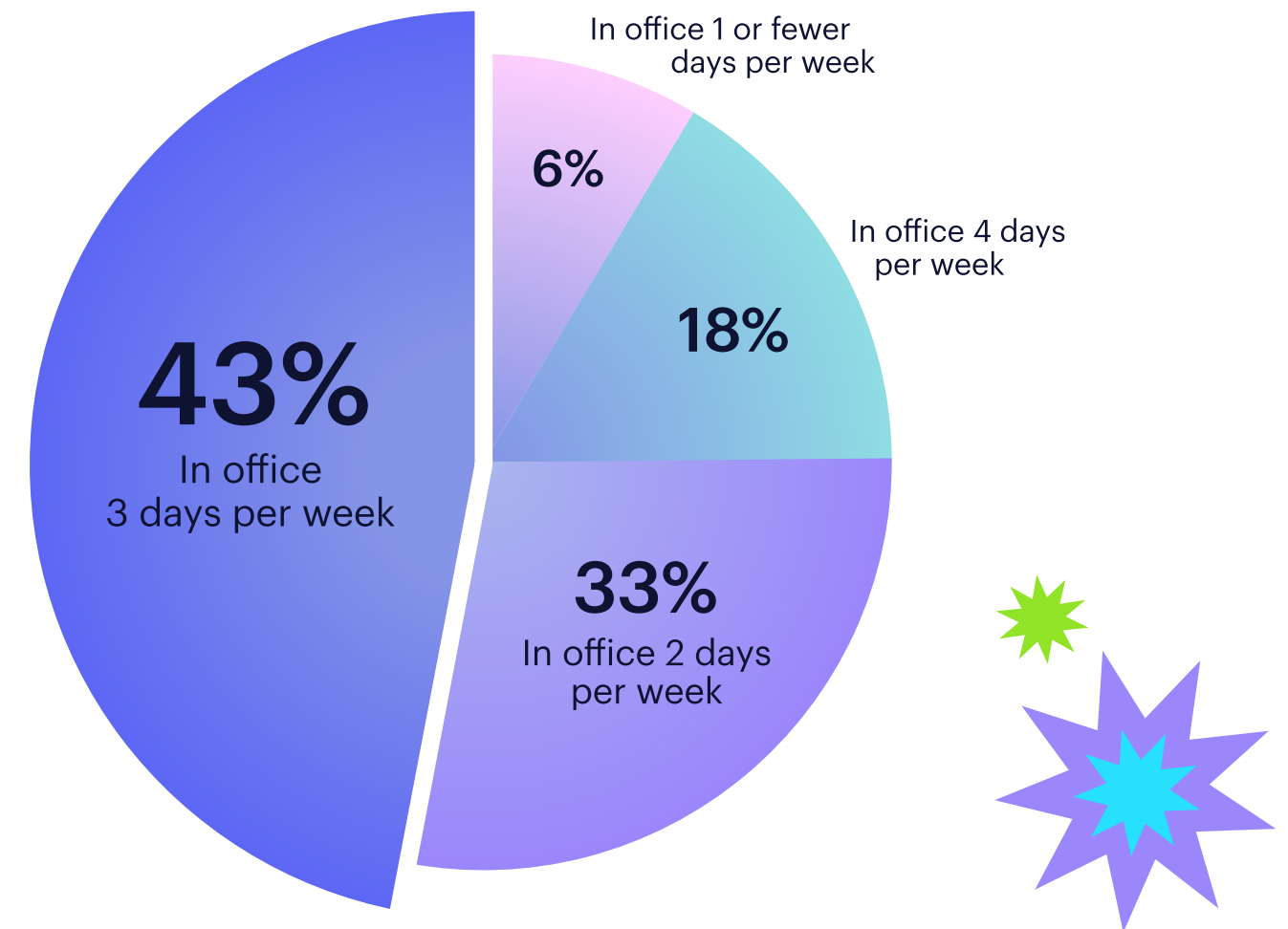


How do you prefer to work?



✦ Just 29% of developers prefer working entirely remotely.

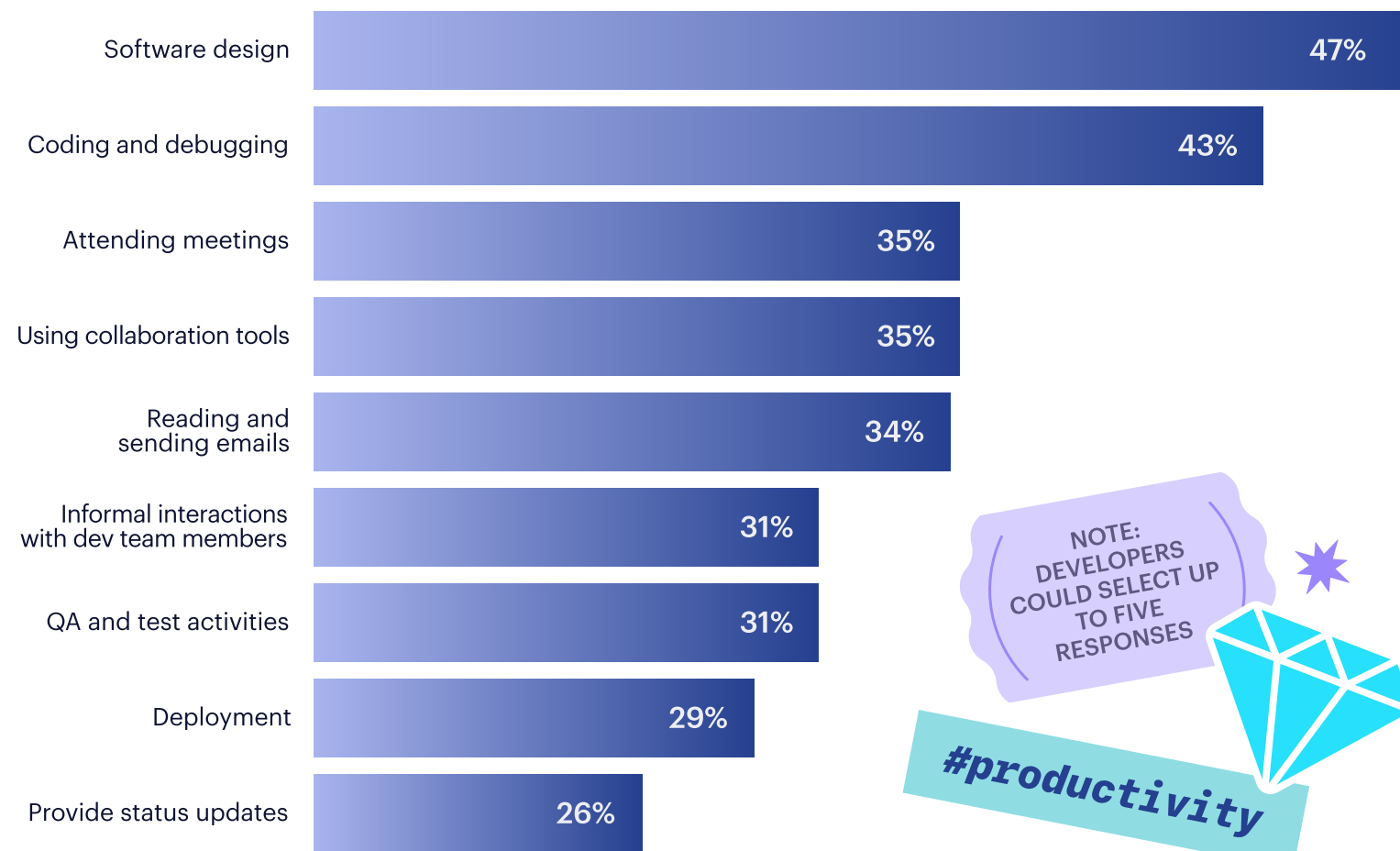
Assuming a 5-day work week, what would be your ideal ratio for hybrid work?



✦ Most developers would prefer to be in the office 2 to 3 days a week.

# How developers spend their time at work

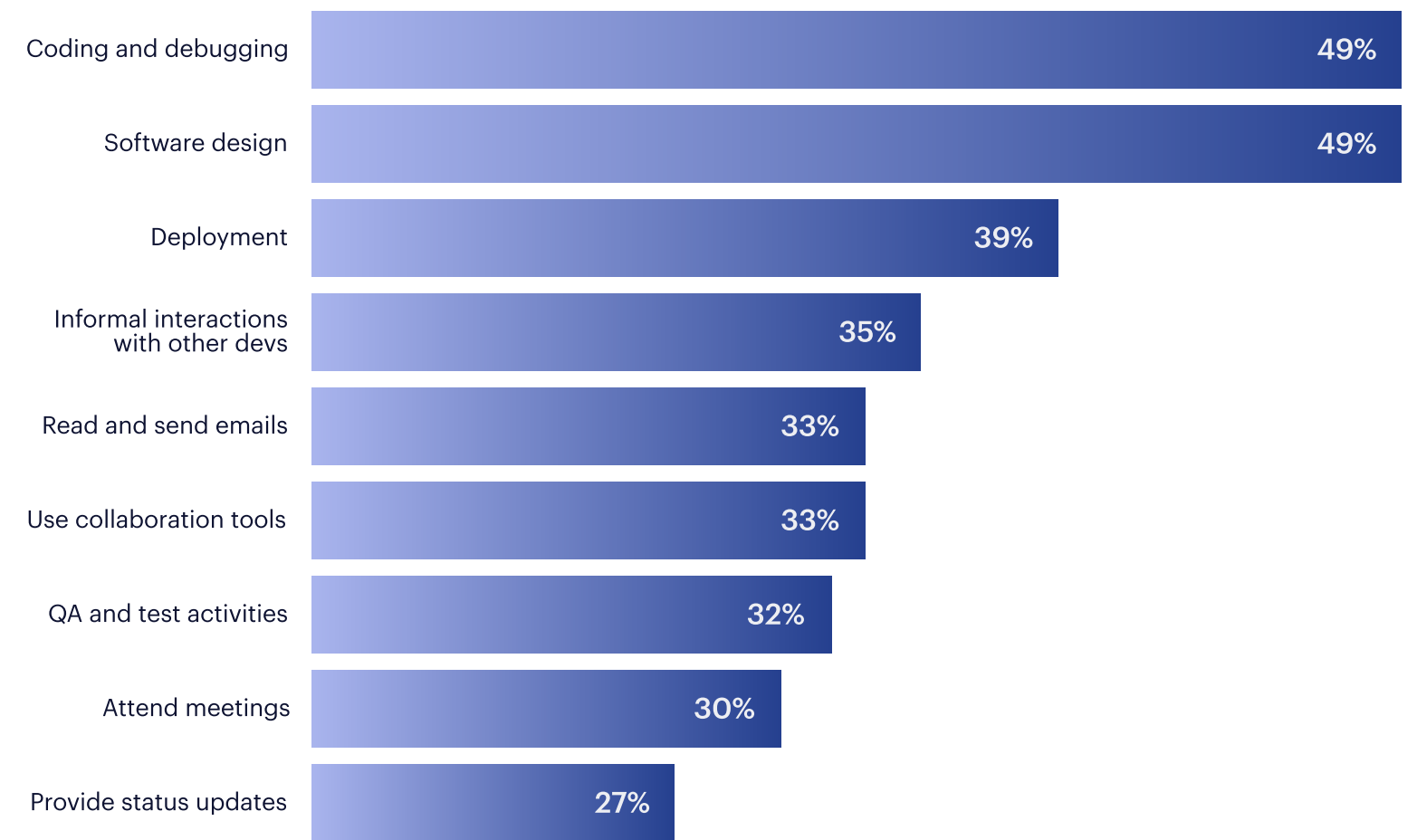
In a typical work week, where do you spend most of your time?



★ The majority of developers spend most of their time on software design, or on coding and debugging.

In an ideal work week, where would you spend most of your time?

Note: developers could select up to five responses

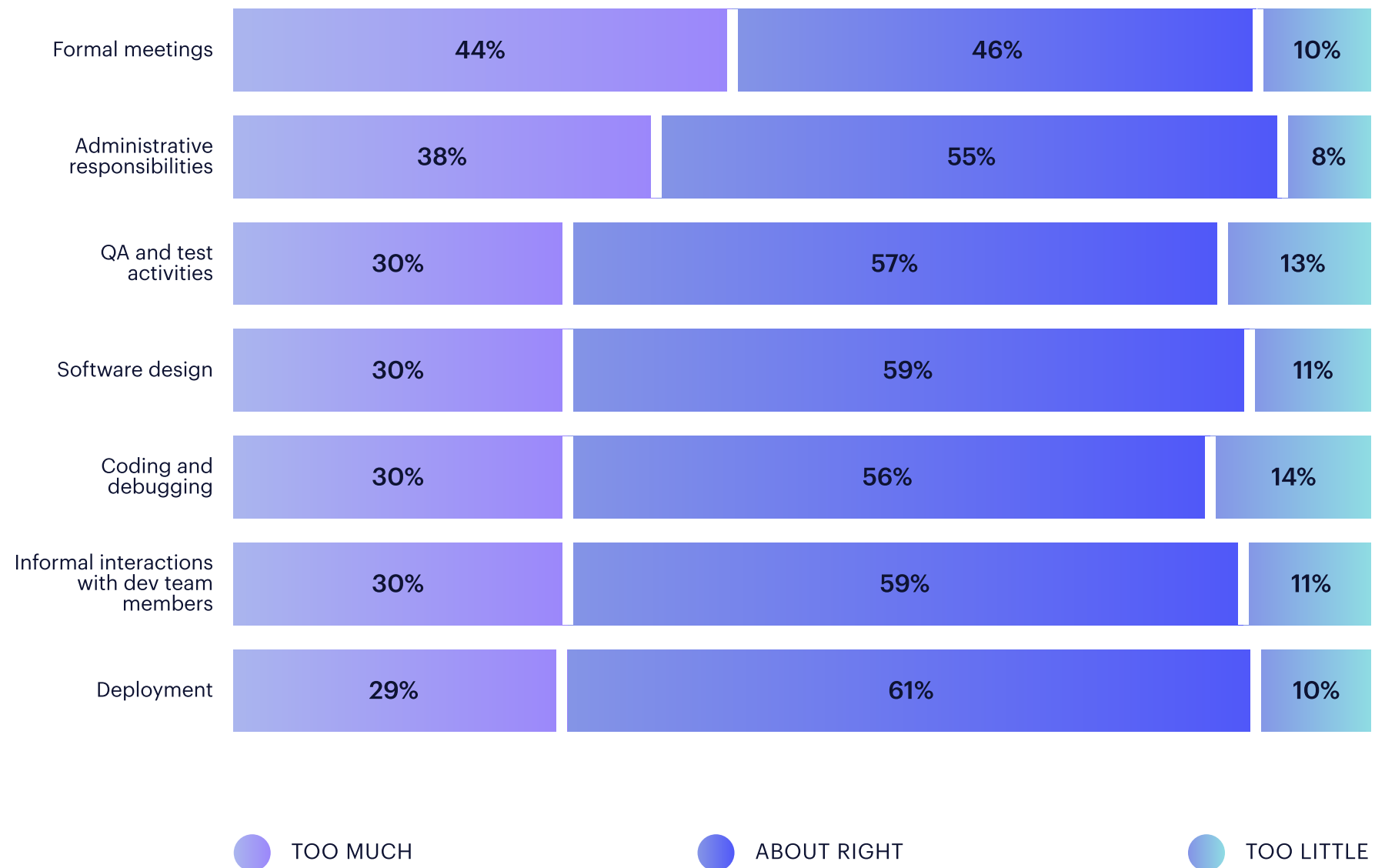


★ For roughly half of developers, an ideal work week involves spending most of their time on development tasks like software design or coding, and debugging.

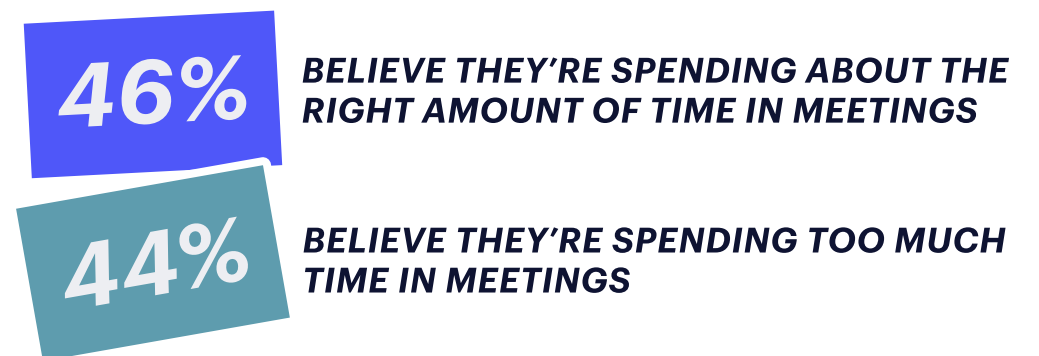


# How developers spend their time at work

With respect to how tasks impact your productivity, is the time you spend doing the following:



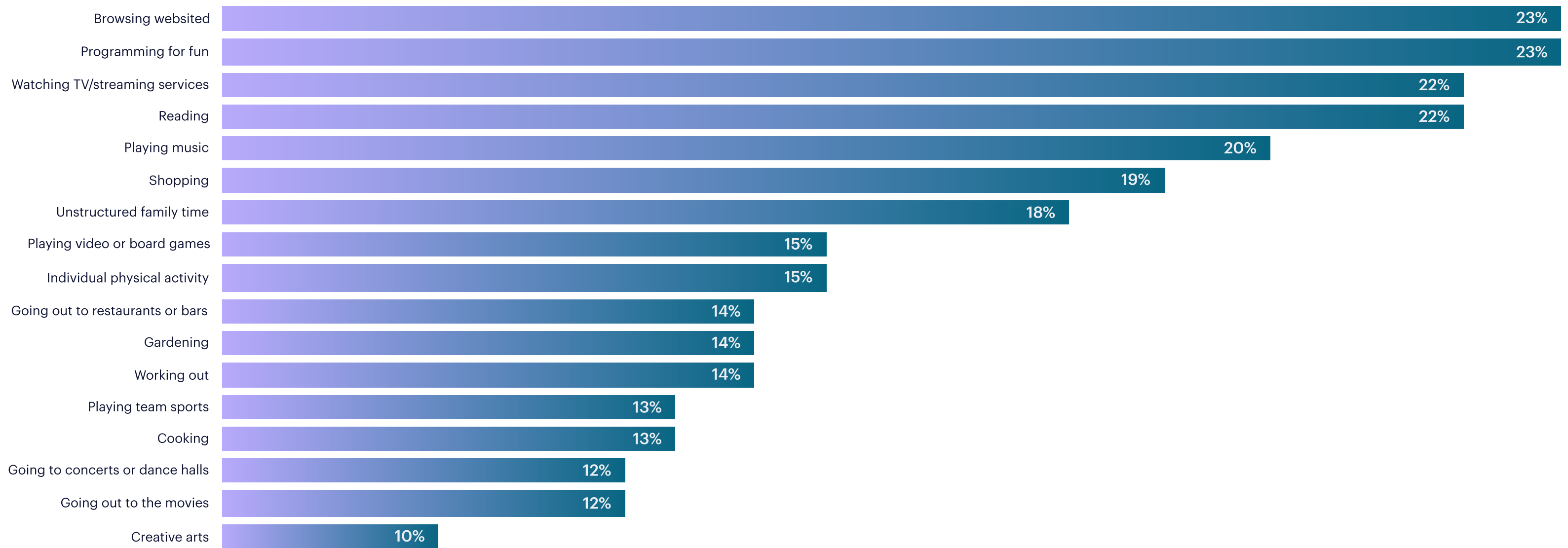
★ Opinions on time spent in meetings varies among developers:



★ Other than meetings, most developers believe they're spending about the right amount of time working on all response options provided.

# What developers do outside work

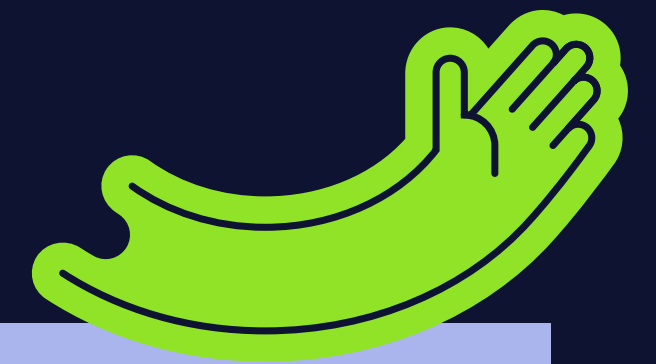
How do you typically spend your time when not at work?  
Note: developers could select up to three responses



✳ Developers don't have a high percentage of commonly shared interests based purely on occupation, other than perhaps an interest in programming for fun and computer-focused activities



**COMMUNICATION**



HELLO  
WORLD

***and collaboration***

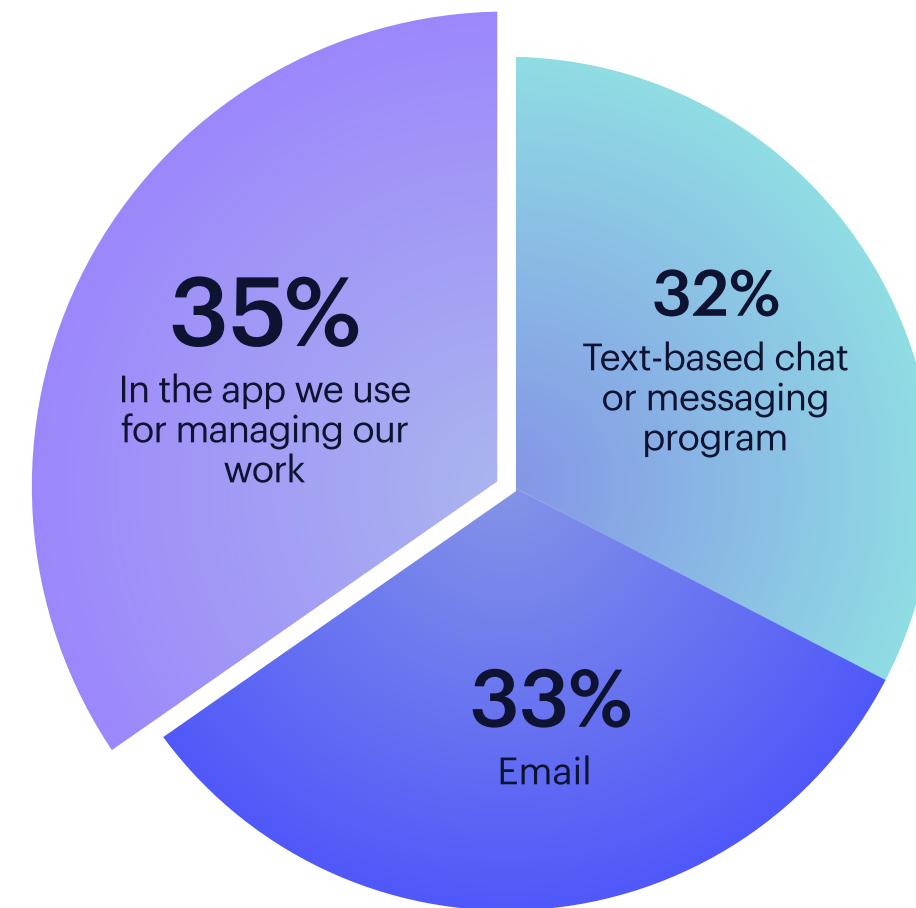
# How developers like to communicate

If you were to receive a message from a coworker regarding an ongoing task or project, which of the following would you prefer?



✦ Developers are generally split on their preferences for messages from coworkers, mainly preferring communications through the apps they use to manage their work.

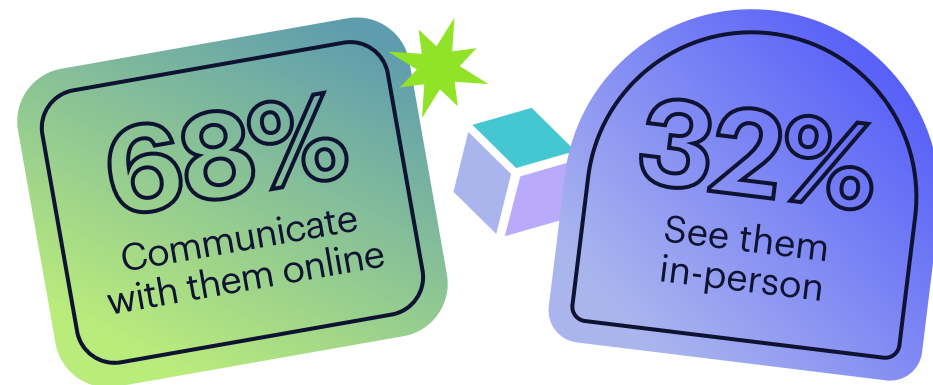
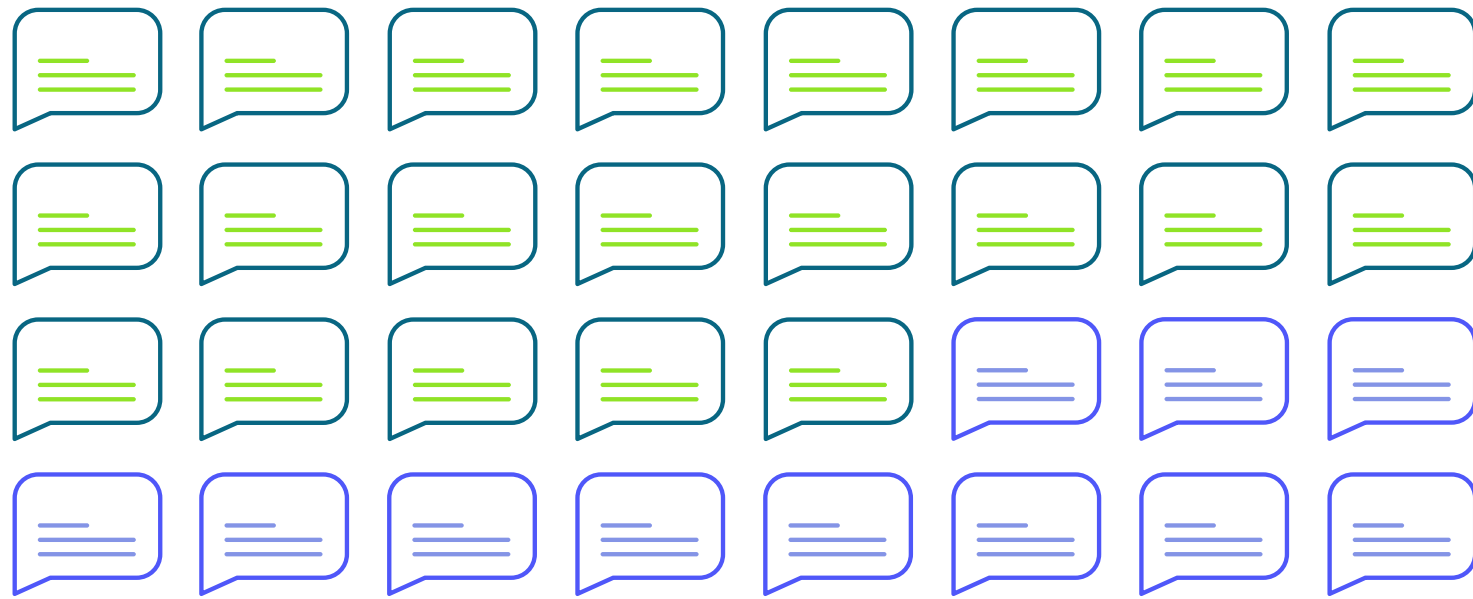
If you were to receive a message from a superior that needs immediate attention, which of the following would you prefer?



✦ Developers are split on their preferences for messages from superiors across the 3 options provided.

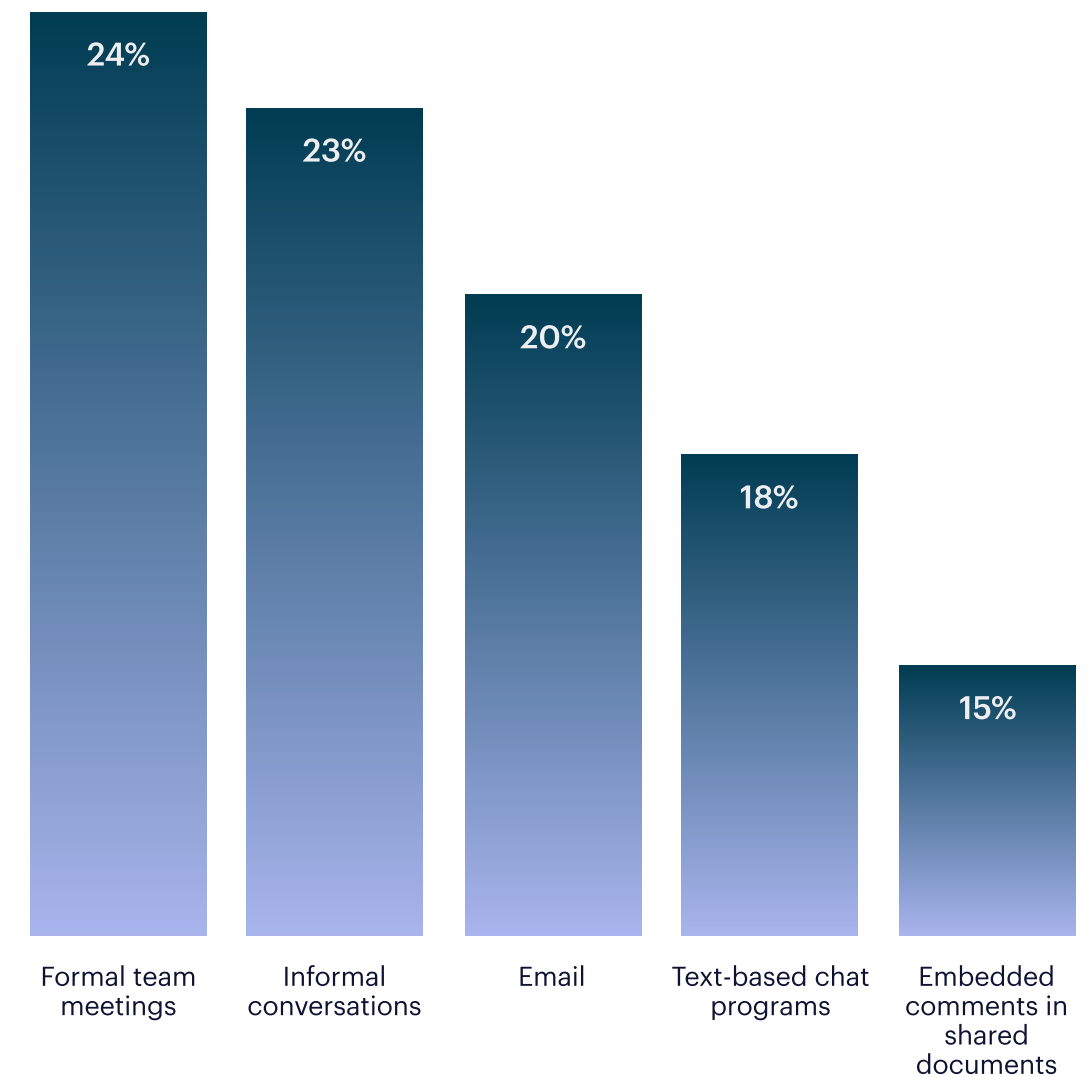
# How teams like to communicate

When meeting with my team, I prefer to...



✦ Most often, developers prefer communicating with their teams online, perhaps due to the digital nature of their work.

How would you prefer to communicate with your team?



✦ Developers' top 2 preferences for team communication are seemingly opposites, which could be because communications needs at work vary.

# Hours spent on reporting

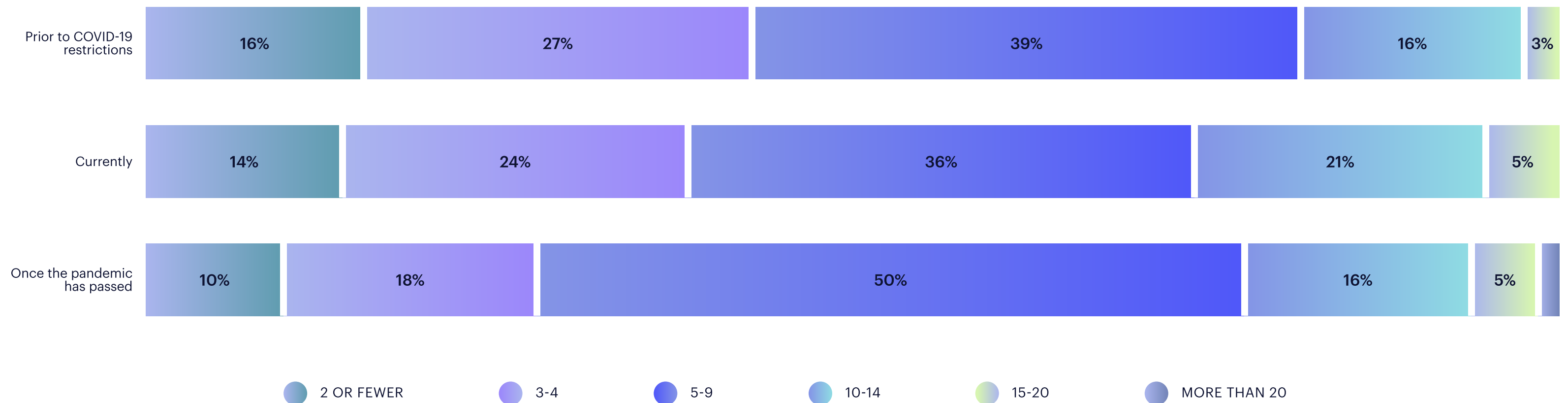
In a typical week, how many hours on average do you or a team member spend creating reports for management/stakeholders?



✳ Overall, developers spend a moderate amount of time creating reports with 75% of developers spending 1 to 4 hours a week on reporting.

# Weekly meeting attendance

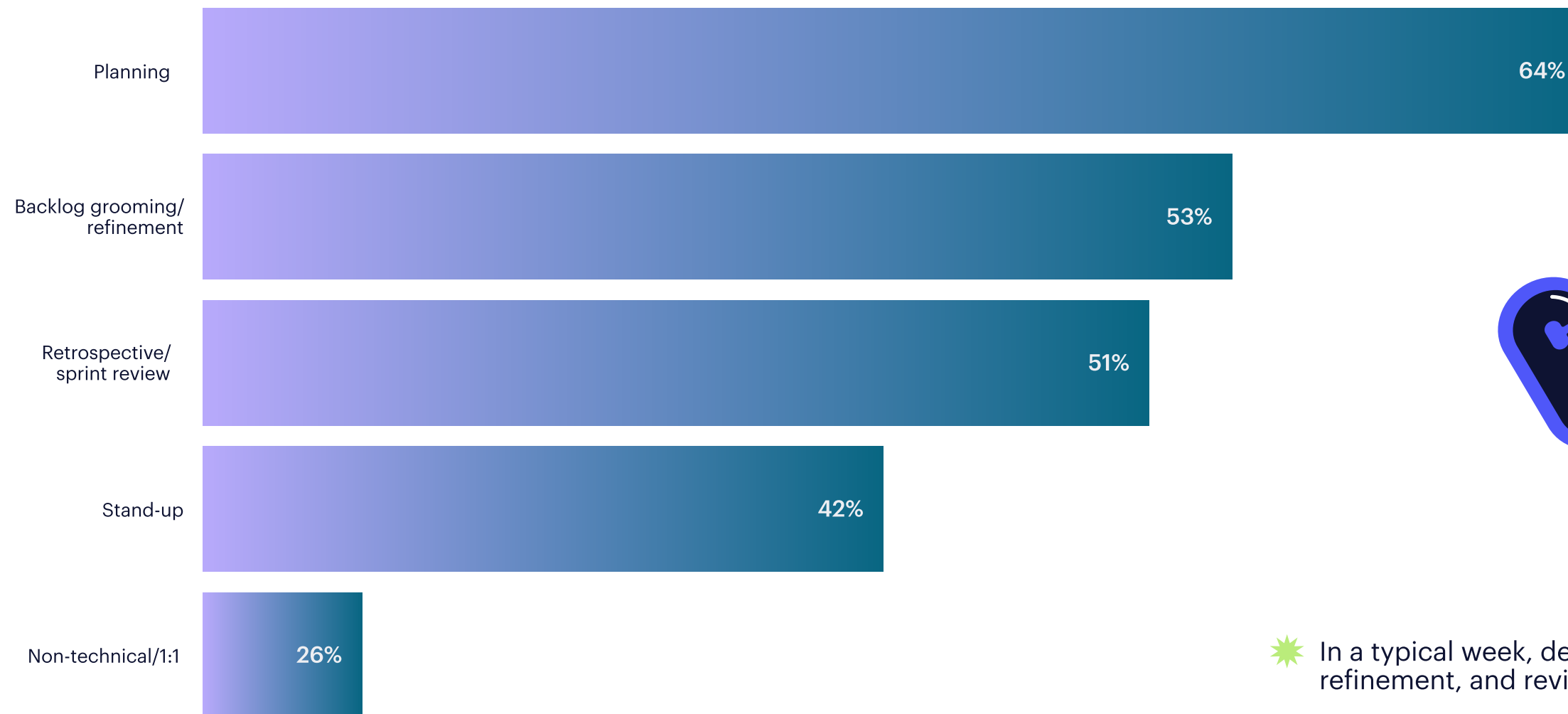
In a typical week, how many meetings do you attend?



★ Developers are more likely to be in 10 or more meetings a week than they were before COVID-19. However, they see this number reverting to pre-pandemic rates in the future.

# Types of meetings

In a typical week, what types of meetings are you attending?

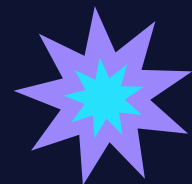
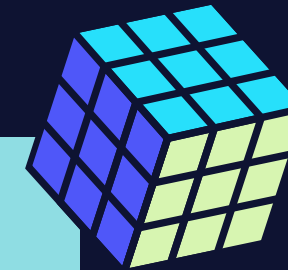


- ✦ In a typical week, developers mostly attend meetings focused on planning, refinement, and review.
- ✦ 42% of developers also attend standups.
- ✦ Of the response options provided, it makes sense that non-technical 1:1s are the least likely for developers to attend.



***Satisfaction and***

***staying power***

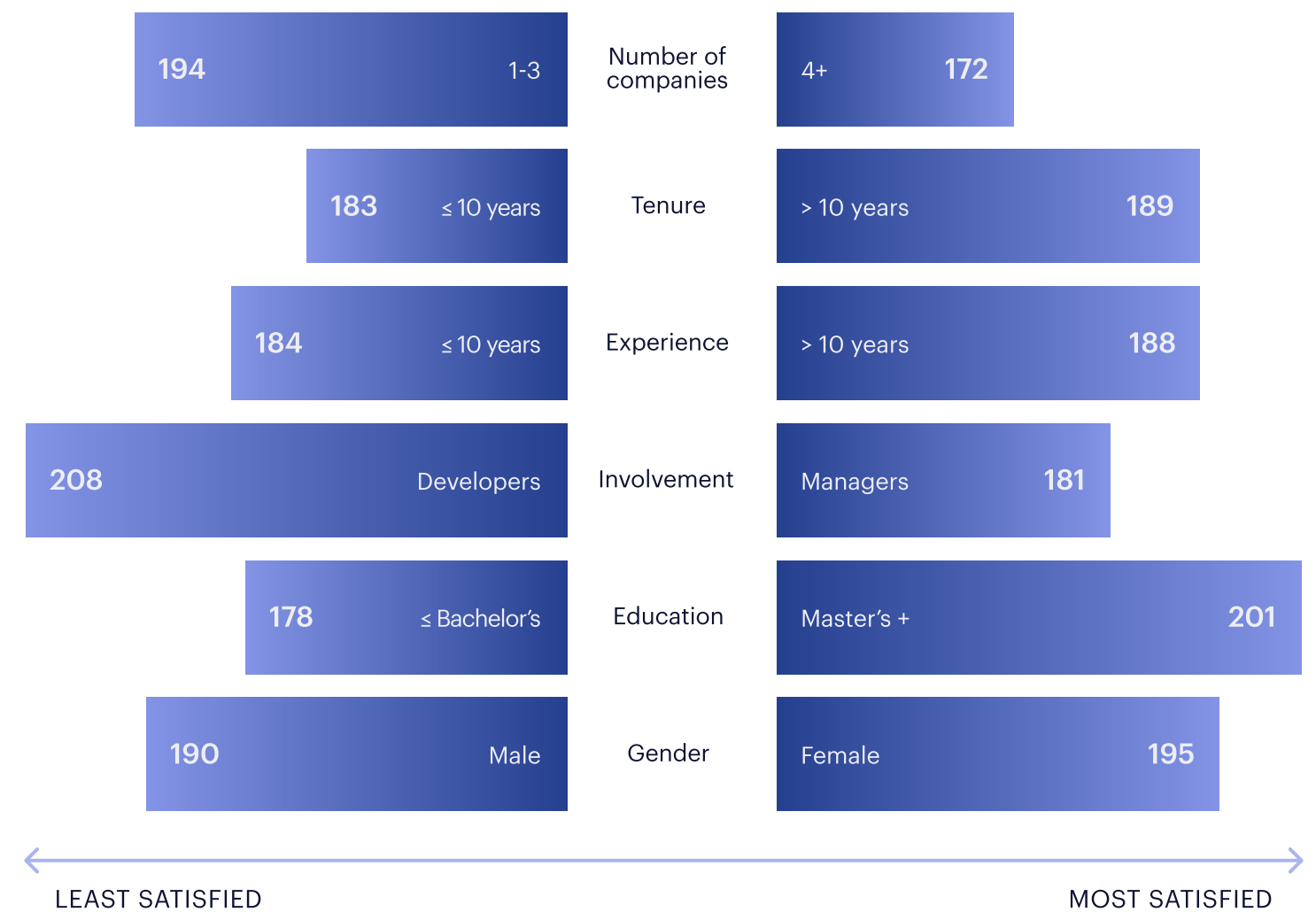


# Developer job satisfaction

Overall, how would you rate your job satisfaction?



Job satisfaction by developer profile

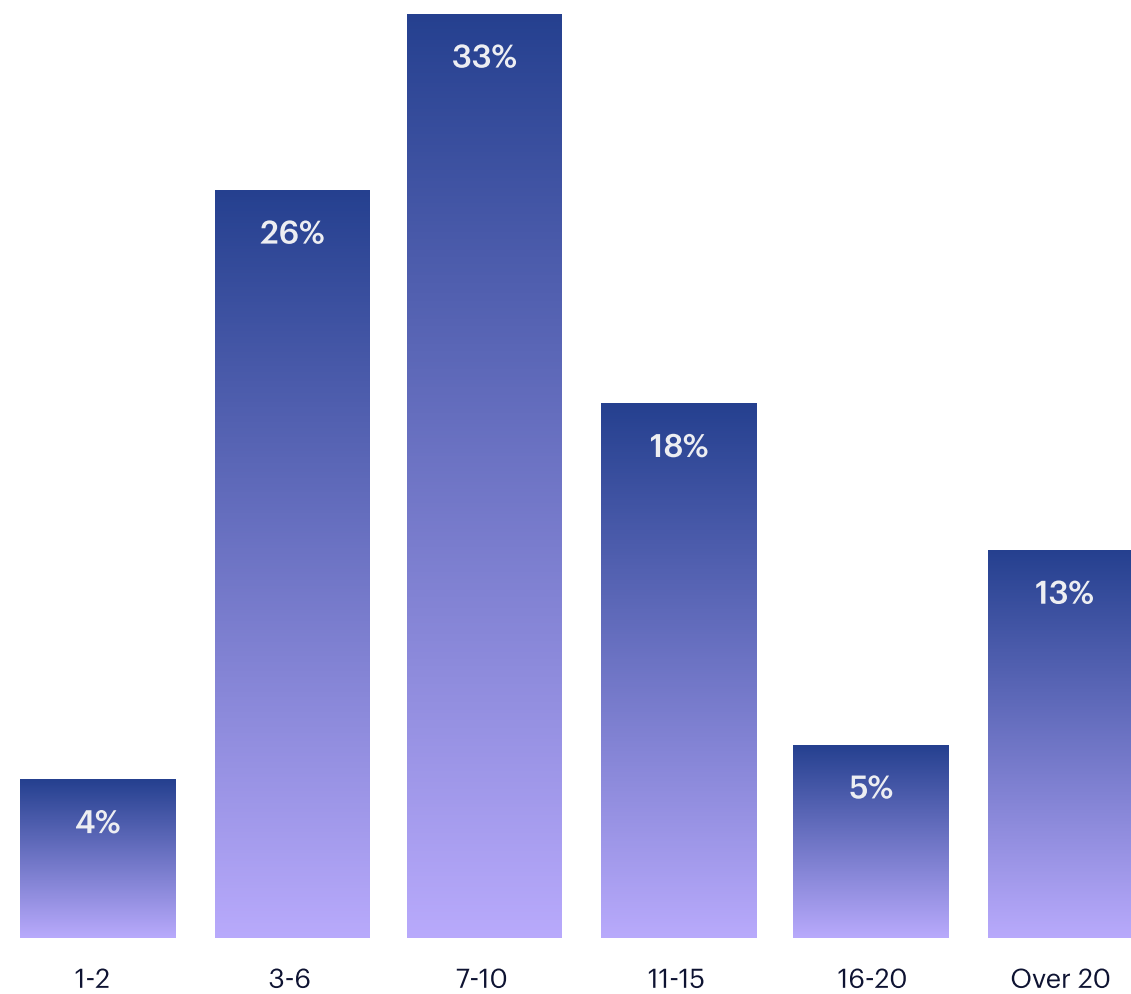


✳ Most developers aren't extremely satisfied or dissatisfied with their jobs.

✳ Developers who have worked for fewer companies, have higher education levels, or no managerial duties tend to be more satisfied in their jobs.

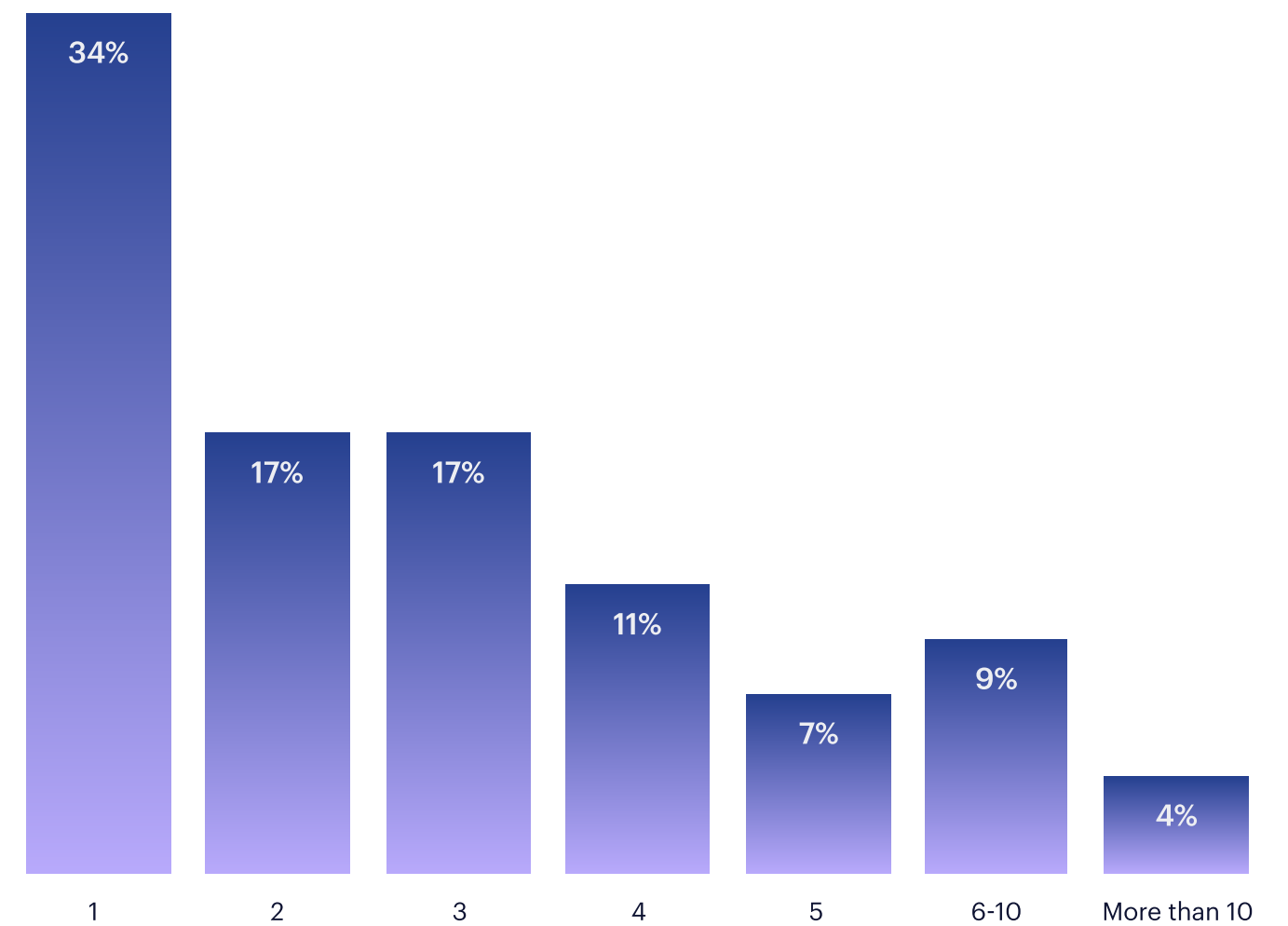
# Developer job experience

How many years have you been professionally involved in software development?



✳ Developers have a median of 10 years of experience.

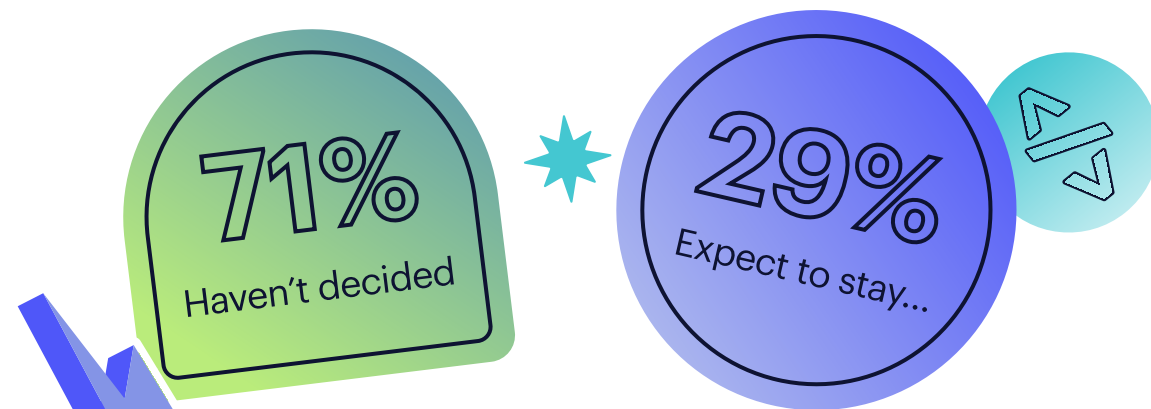
How many companies have you worked for, as an employee, in that time?



✳ The typical developer has had 1 job for every 4 years of experience.

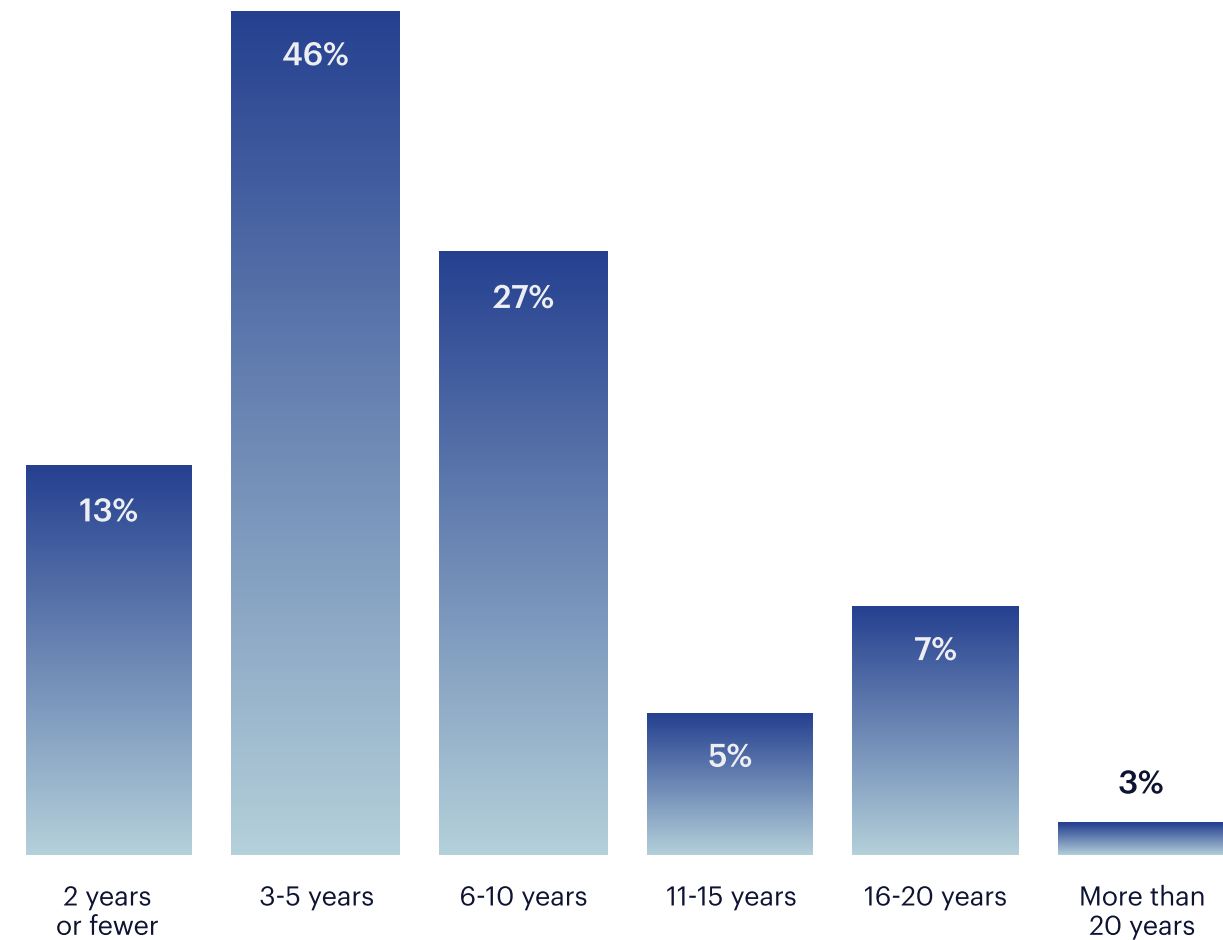
# Developers' plans to stay at current company

How many more years do you expect to stay at your current company?



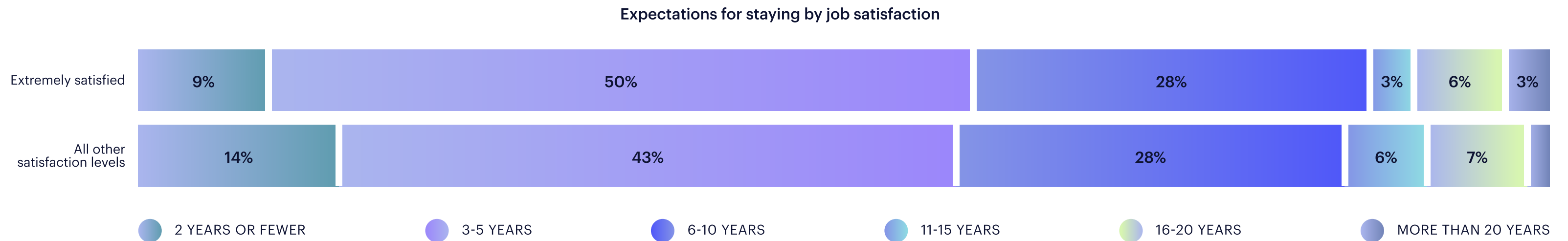
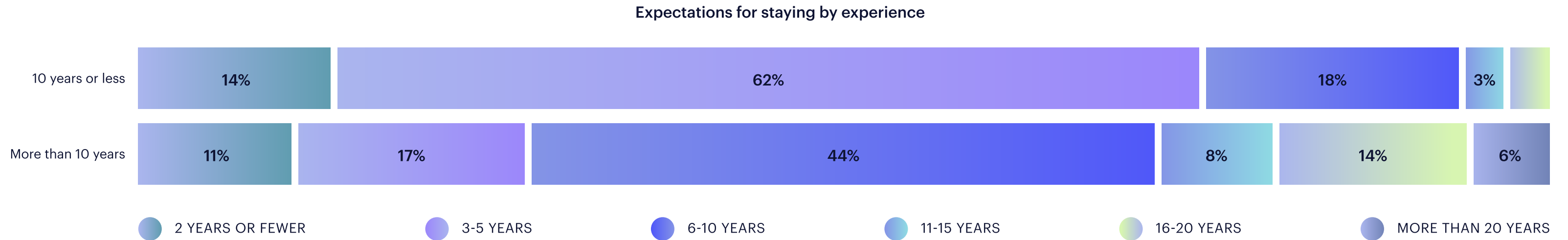
**71% OF DEVELOPERS HAVEN'T DECIDED HOW MUCH LONGER THEY'LL STAY WITH THEIR CURRENT COMPANY.**

How many more years do you expect to stay at your current company?  
(Among developers who have decided)



- More experienced developers tend to be willing to stay longer at a company.
- Higher job satisfaction doesn't necessarily mean developers are more certain about their future with a company.
- Developers who have only worked for one company are not as certain how much longer they will stay.

# Developers' plans to stay at current company

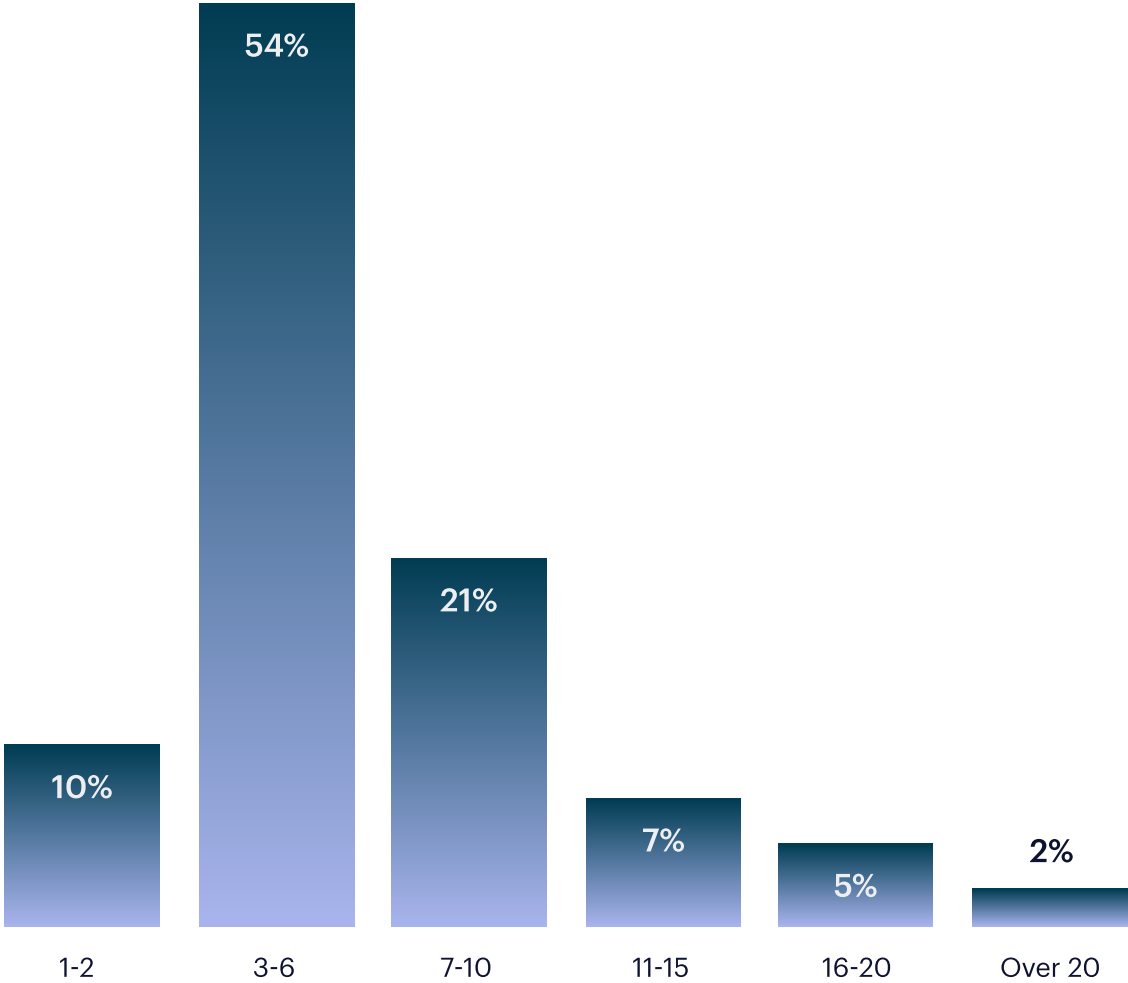


✳ About 71% of developers aren't sure how long they'll stay at their current company.

✳ 67% of developers who are extremely satisfied with their jobs don't know how long they'll stay with their employers. Of those who do, 41% expect to stay for at least 5 more years.

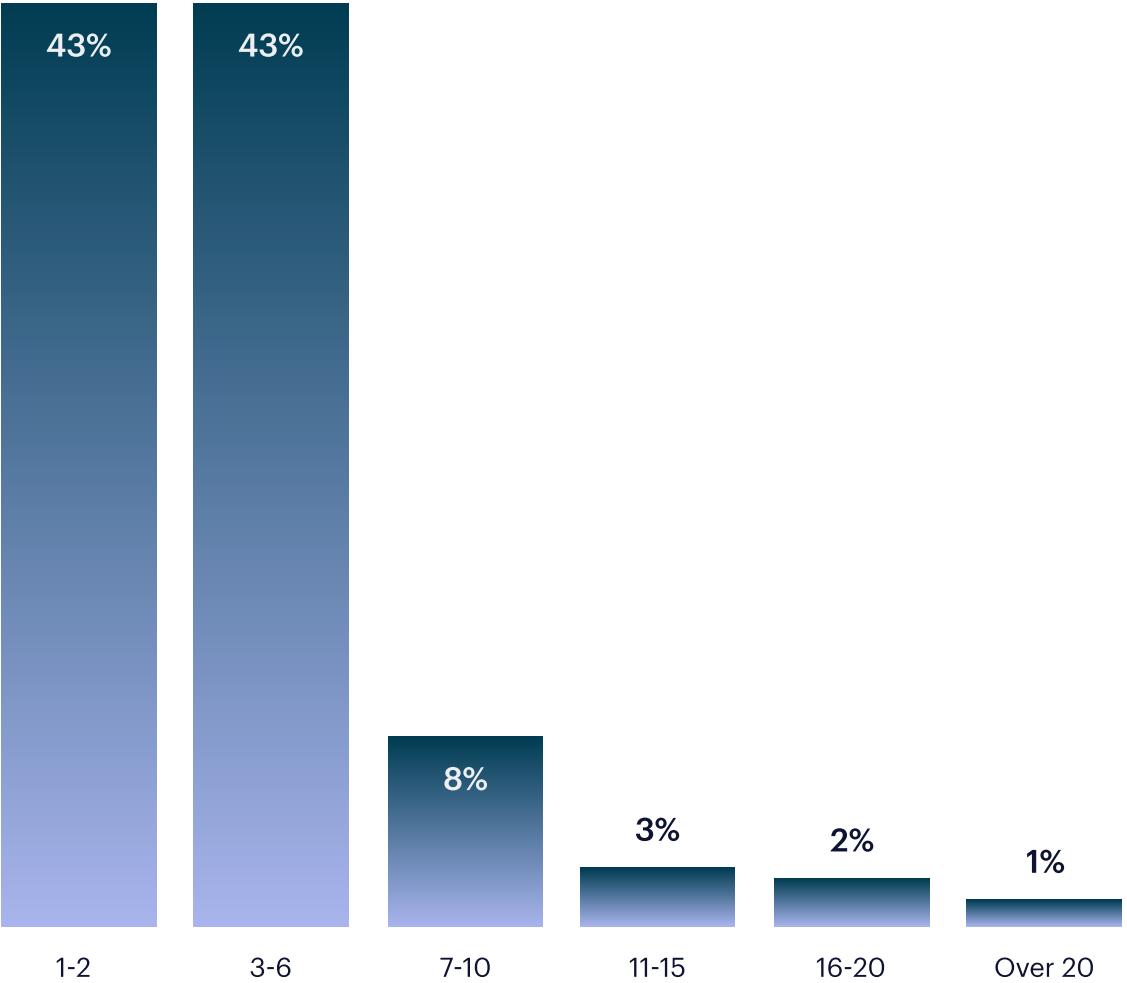
# Developers' length of employment

How many years have you worked at your company?



✳ Developers have worked at their current companies for a median of 5 years.

How many years were you at your previous company?



✳ Developers worked at their previous companies for a median of 3 years.



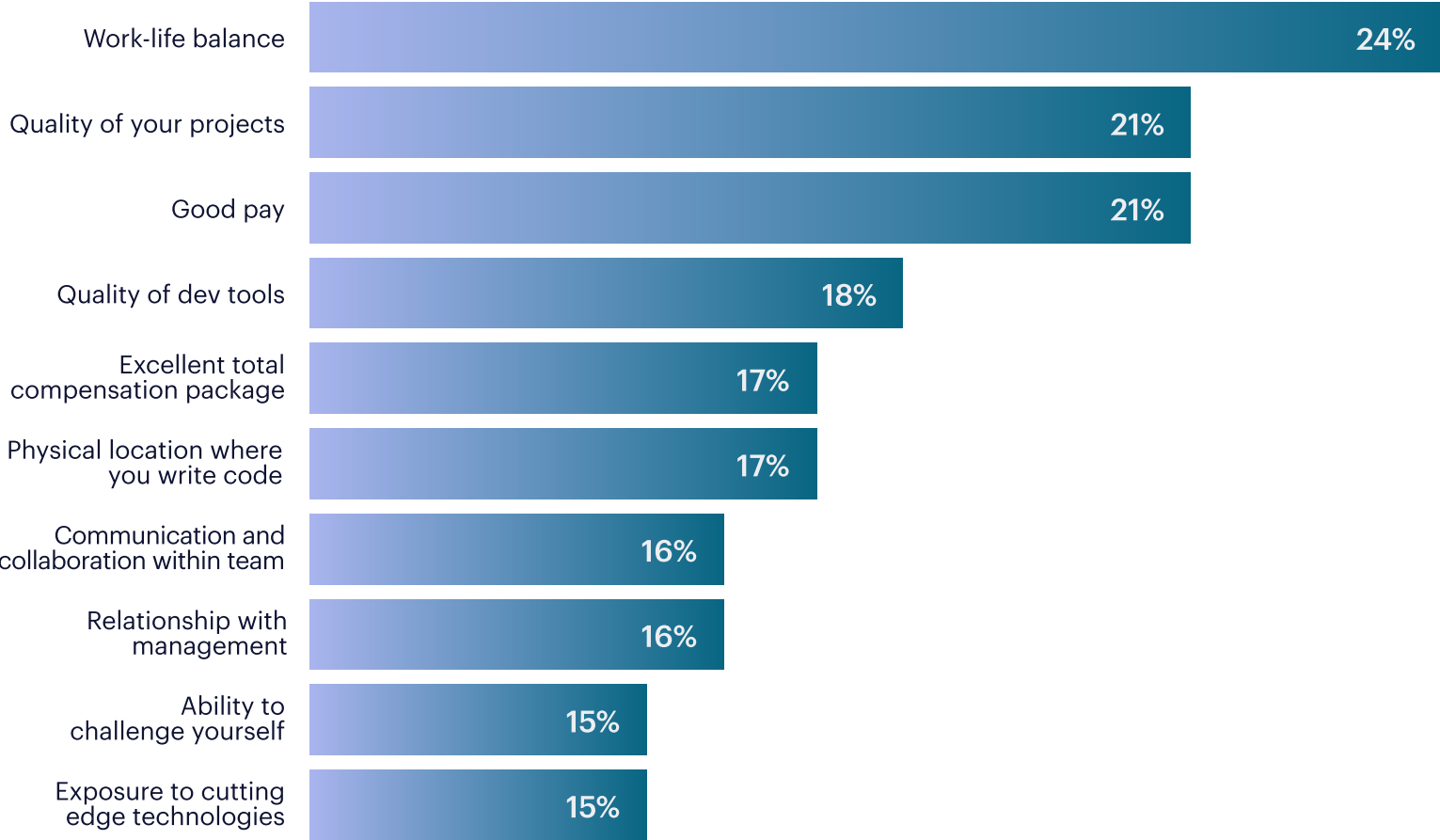
***Compensation and the***

**'GREAT RESIGNATION'**



# Most influential reasons to stay at current employer

What would be most influential in making you stay at your current employer? (Top 10 of 18)  
 Note: developers could select up to three responses



**WORK-LIFE BALANCE** is the top reason developers stay at their current job.

More experienced developers are more influenced by work-life balance.

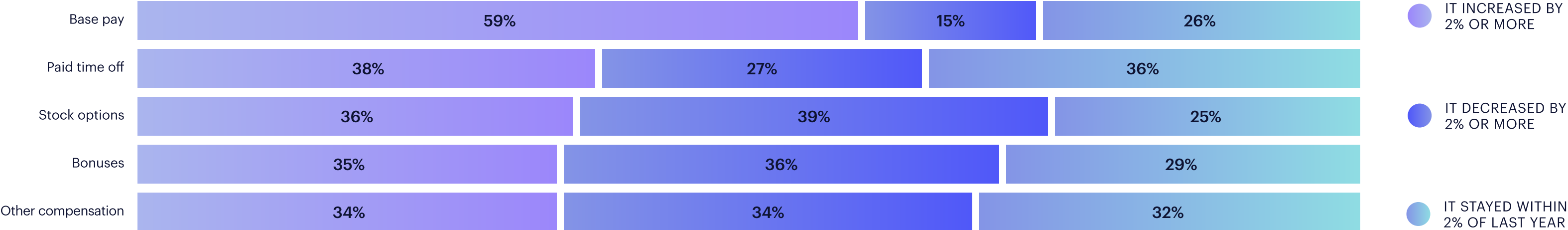
Greatest influence in staying at current employer by experience

	(% within column)	Years spent professionally involved in software development	
		10 years or less	More than 10 years
What would be most influential in making you stay at your current employer?	Good pay	16.4%	29.5%
	Excellent total compensation package	16.0%	18.6%
	Clear raise structure or opportunity for compensation review	18.2%	6.2%
	Clear path for career advancement	12.4%	11.6%
	Recognition for being associated with your company	12.4%	7.8%
	On-job perks	11.6%	8.5%
	Ability to challenge yourself	15.6%	14.7%
	Quality of your projects	19.6%	24.8%
	Quantity of your projects	13.3%	13.2%
	Ability to be recognized for your work	10.2%	14.0%
	Exposure to cutting edge technologies	16.4%	11.6%
	Work-life balance	18.2%	34.9%
	Physical location where you write code	12.4%	20.9%
	Easy or no commute	8.4%	17.8%
	Communication and collaboration within team	17.3%	14.0%
	Quality of development tools	20.0%	14.0%
	Relationship with management	15.1%	17.1%
	Your company's stance on social issues	12.0%	7.0%



# Developer compensation packages

How has your compensation changed from last year?



Does your company offer any of the following types of private insurance for you and your family?

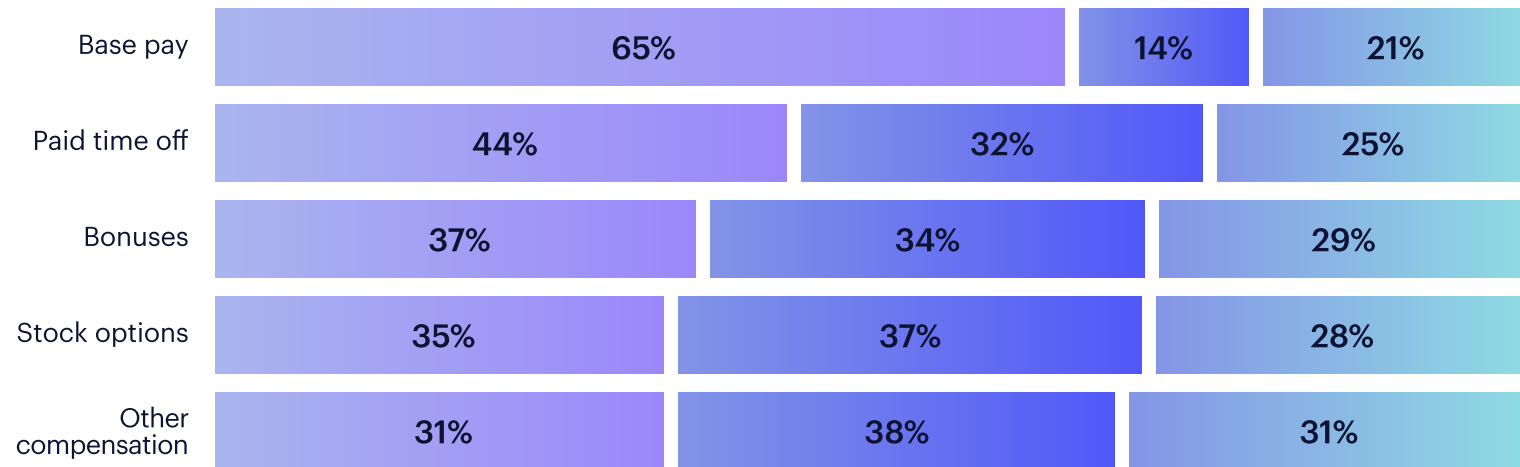


- North American developers are the most likely to have received a pay increase.
- C# developers are the most likely to have received a pay increase.

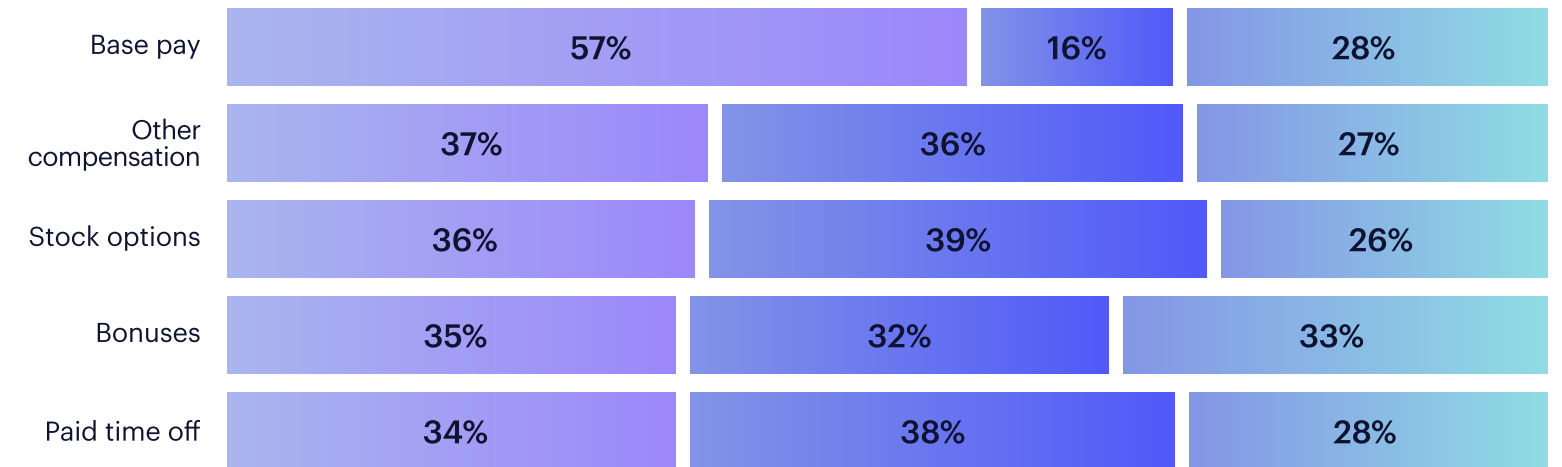
- Medical insurance is standard compensation – most developers have insurance for themselves and their families.
- Dental and vision coverage does not always extend to families.

# Compensation and programming languages

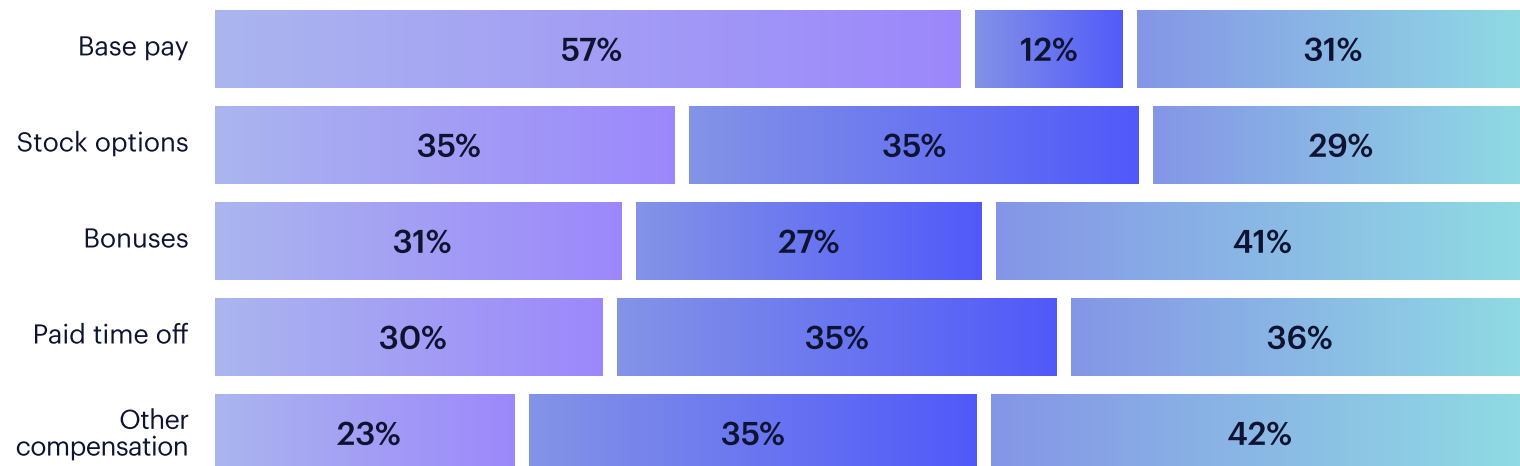
How has your compensation changed from last year? (C# developers)



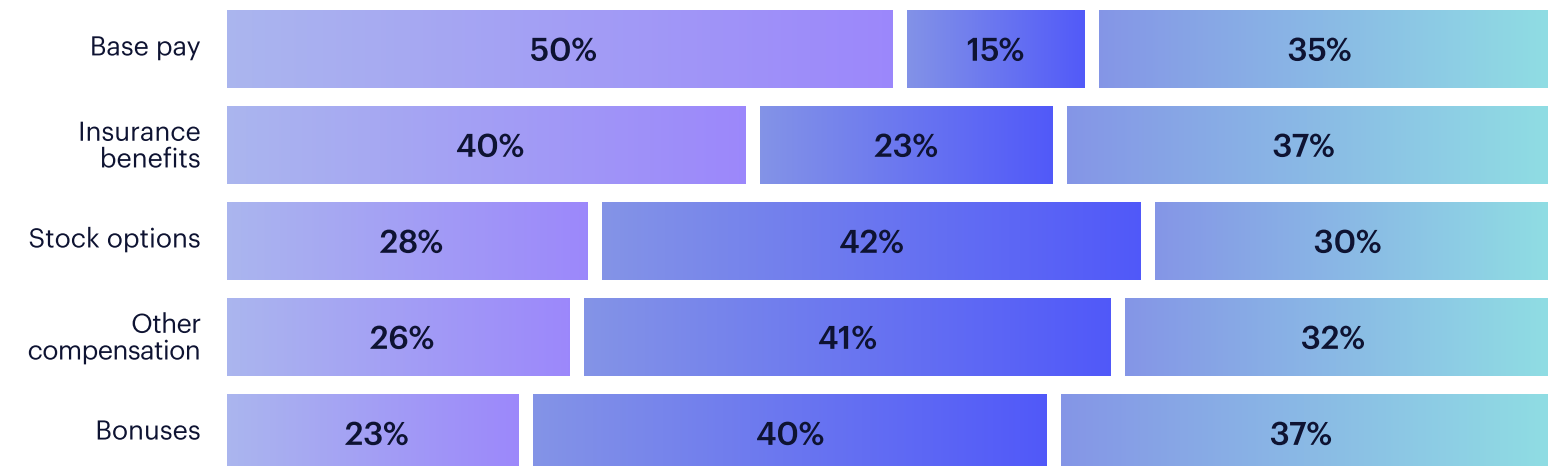
How has your compensation changed from last year? (C/C++ developers)



How has your compensation changed from last year? (JavaScript developers)



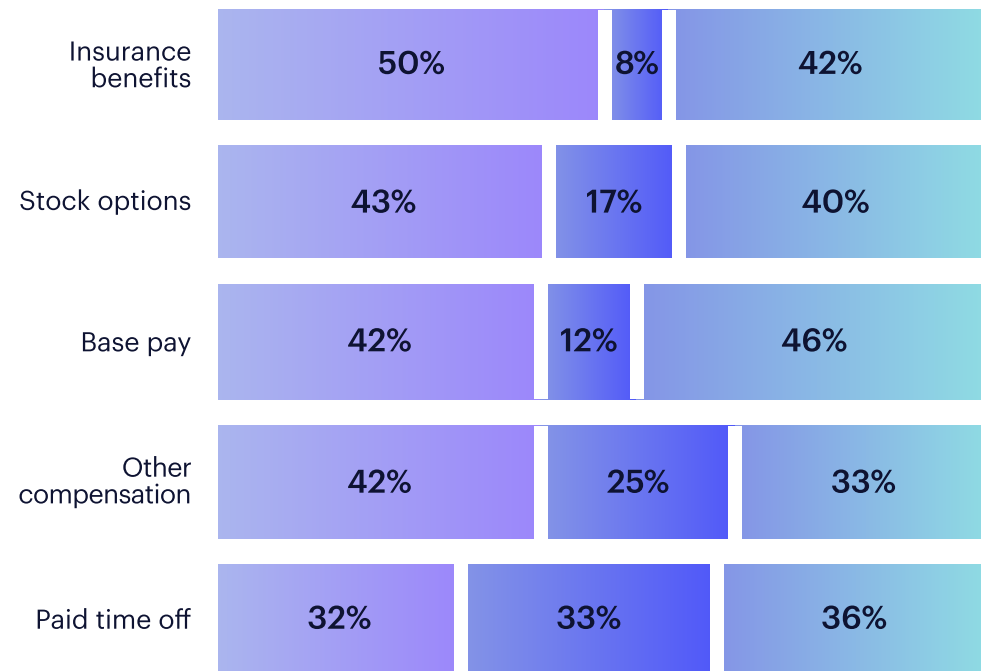
How has your compensation changed from last year? (Java developers)



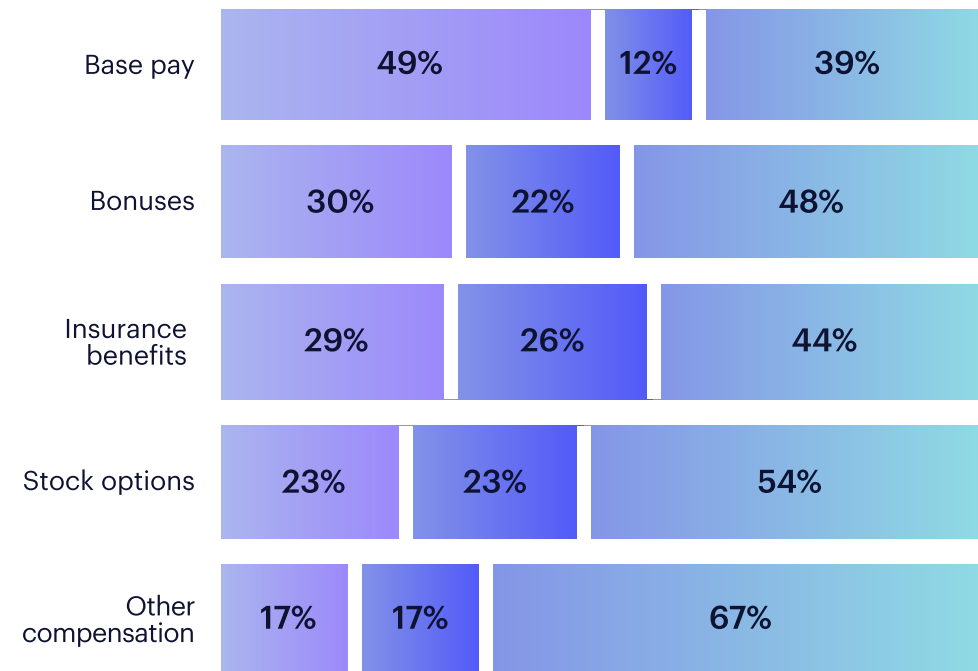
● IT INCREASED BY 2% OR MORE
 ● IT DECREASED BY 2% OR MORE
 ● IT STAYED WITHIN 2% OF LAST YEAR

# Compensation and location

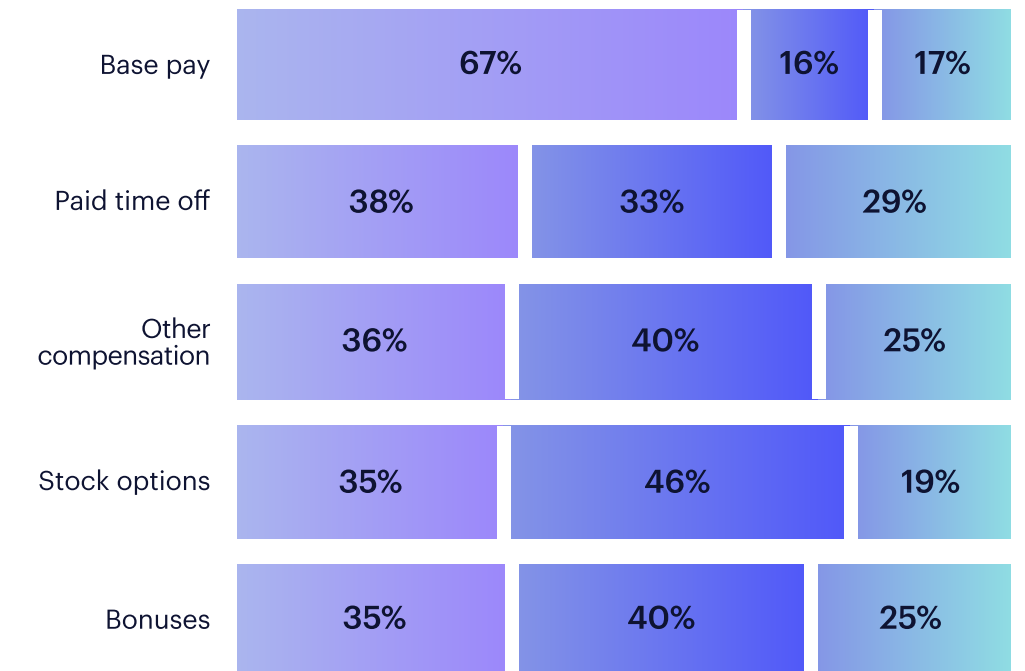
How has your compensation changed from last year? (APAC)



How has your compensation changed from last year? (EMEA)



How has your compensation changed from last year? (North America)



● IT INCREASED BY 2% OR MORE

● IT DECREASED BY 2% OR MORE

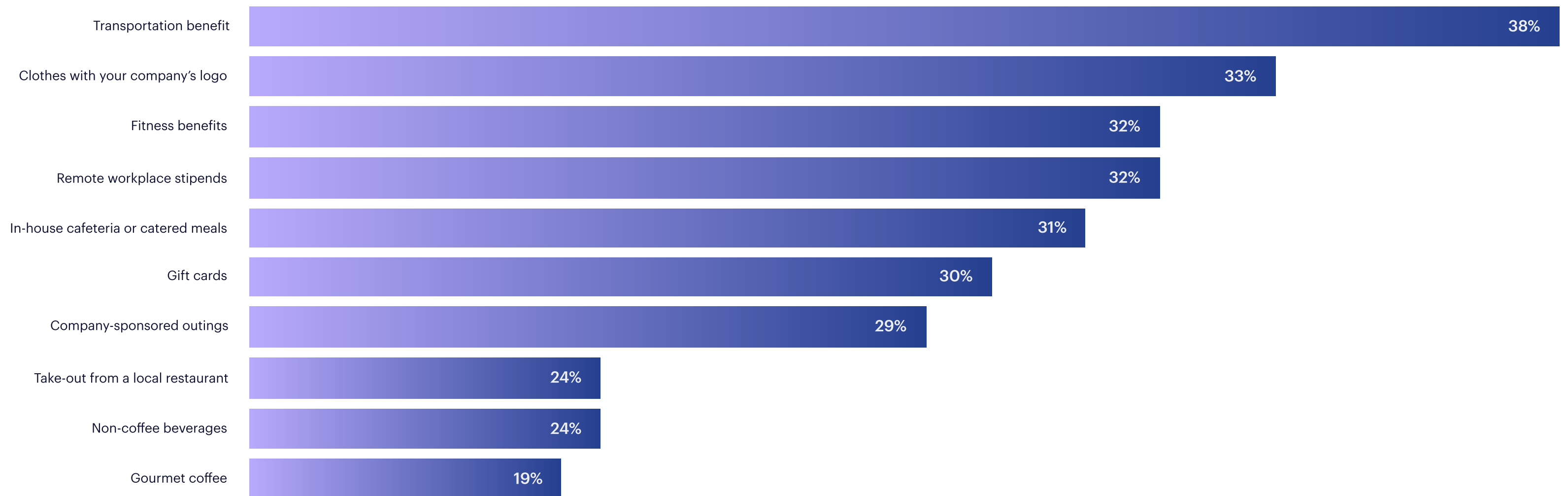
● IT STAYED WITHIN 2% OF LAST YEAR

★ Overall, 59% of developers have received an increase in base pay. 67% of North American developers have received an increase.

★ Developers in Asia Pacific and North America are more likely to have seen other increases to their compensation packages.

# Benefits packages and additional perks

What of the following does your organization regularly provide to you as a perk of being their employee?  
Note: developers could select as many responses as applied



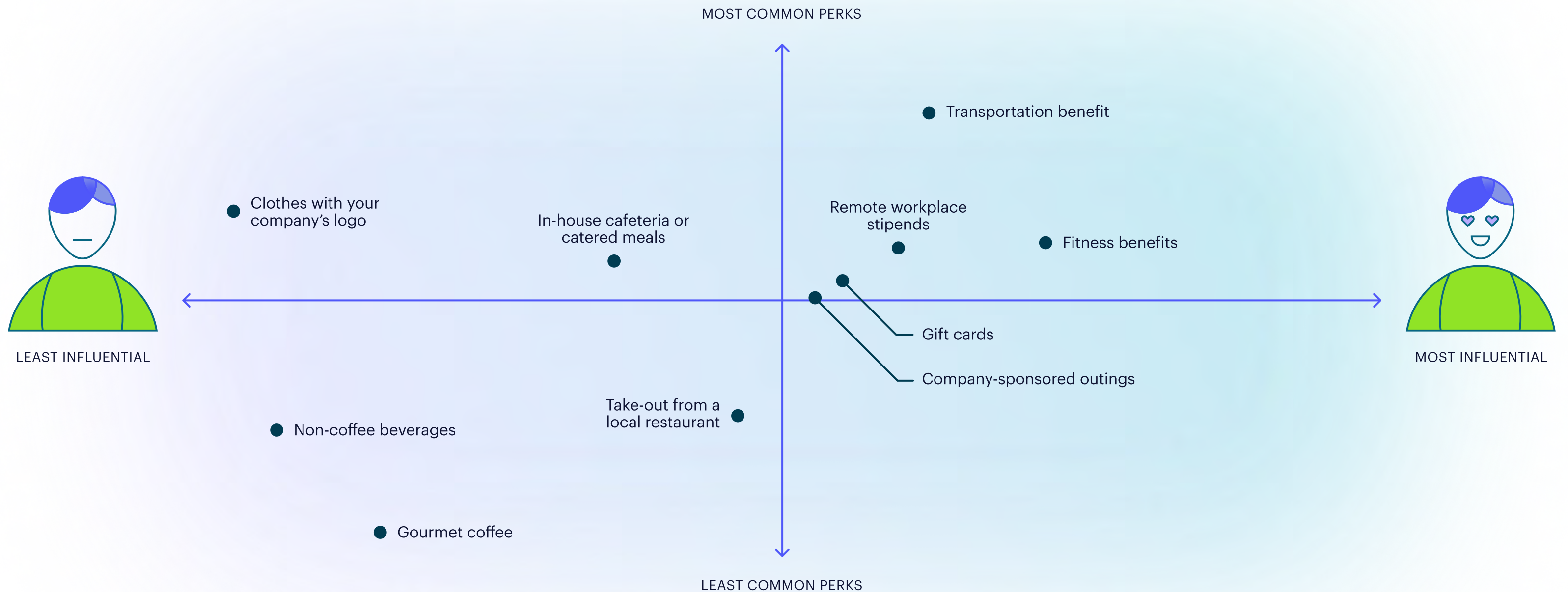
✳ Few developers outside of Asia Pacific have transportation benefits.

✳ Fitness benefits are common in North America.

✳ Logoed apparel is a common perk, but doesn't strongly influence developer happiness.

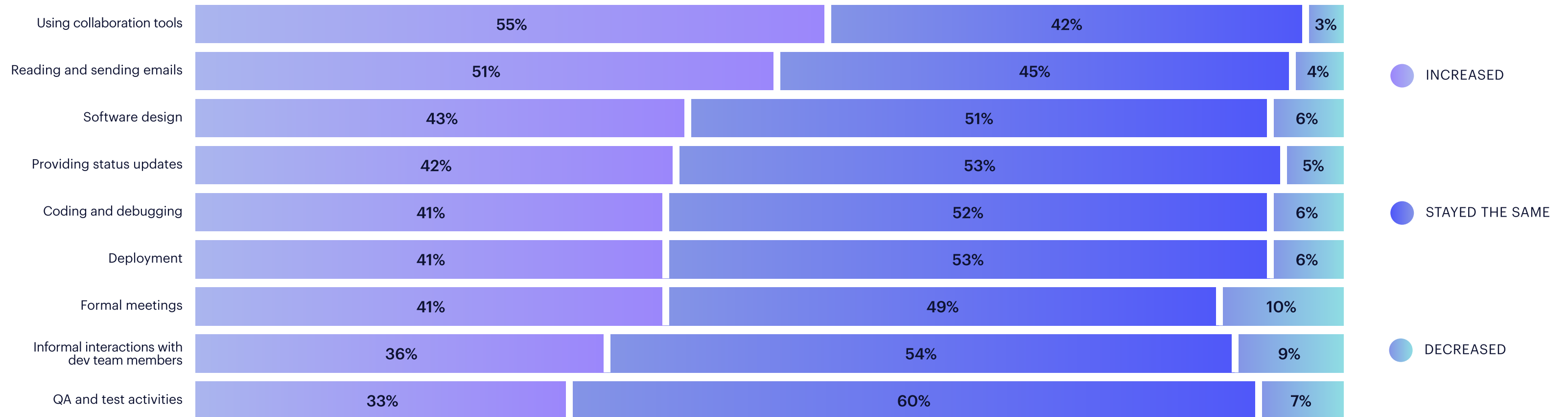
# Benefits packages and additional perks

The influence of employment perks on happiness



# COVID-19 and developer time

How has your time spent doing the following changed since the start of the COVID-19 pandemic?

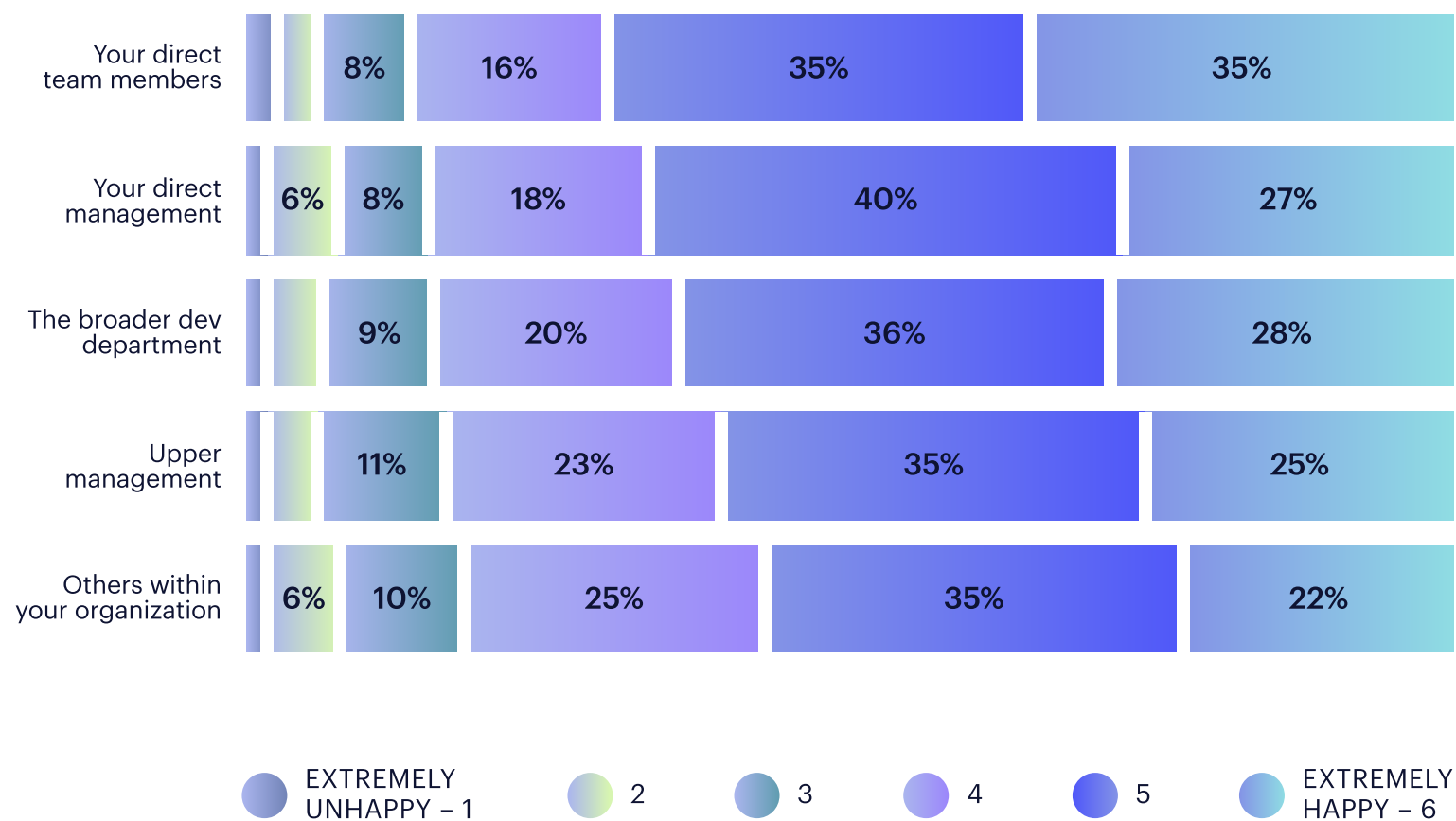


- 55% of developers are more likely to use collaboration tools since the pandemic started. Team size does not significantly influence this number.
- Most developers have spent more time on emails; this is especially true for non-managers.

- Developers in large teams have noticed they're spending more time on most activities other than coding, particularly quality assurance and testing.
- Developers with managerial duties often find not much has changed since the pandemic started. This is particularly true for the development lifecycle.

# COVID-19 and workplace happiness

How happy are you with your relationship with the following?



How has the COVID-19 pandemic changed your relationships with the following?

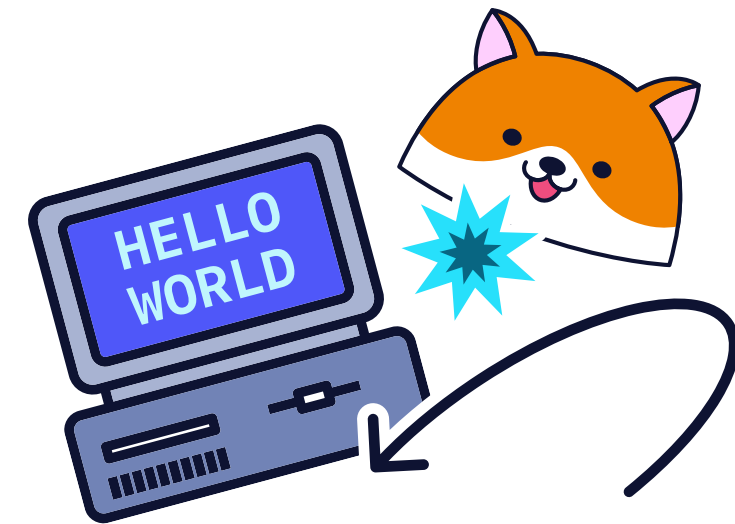


- ★ Developers are happiest when working with their direct teams.
- ★ Those who are happiest with their teams feel their relationships improved during the pandemic.

- ★ Developers commonly feel the pandemic weakened their relationships with direct management.

# COVID-19 and workplace happiness

How has the COVID-19 pandemic changed your relationships with the following? (% within row)	Strengthened these relationships	Weakened these relationships	No impact
<b>Your direct team members</b>			
Moderately to extremely unhappy (1-3)	52.1%	33.3%	14.6%
Generally happy (4-5)	52.2%	24.2%	23.7%
Extremely happy (6)	67.7%	16.2%	16.2%
<b>The broader development department</b>			
Moderately to extremely unhappy (1-3)	25.9%	50.0%	24.1%
Generally happy (4-5)	43.7%	25.7%	30.6%
Extremely happy (6)	54.8%	32.7%	12.5%
<b>Your direct management</b>			
Moderately to extremely unhappy (1-3)	31.5%	59.3%	9.3%
Generally happy (4-5)	36.3%	35.4%	28.3%
Extremely happy (6)	46.5%	31.7%	21.8%
<b>Upper management</b>			
Moderately to extremely unhappy (1-3)	27.1%	50.8%	22.0%
Generally happy (4-5)	33.5%	27.8%	38.7%
Extremely happy (6)	50.5%	25.3%	24.2%
<b>Other within your organization</b>			
Moderately to extremely unhappy (1-3)	26.2%	46.2%	27.7%
Generally happy (4-5)	32.9%	25.2%	41.9%
Extremely happy (6)	50.0%	26.3%	23.8%



- ★ Among the 35% of developers who are extremely happy with their relationships within their direct teams, 68% feel these relationships strengthened during the pandemic.
- ★ Among the 18% of developers who are moderately to extremely unhappy with their relationships with other colleagues, 46% say their relationships have weakened during the pandemic.



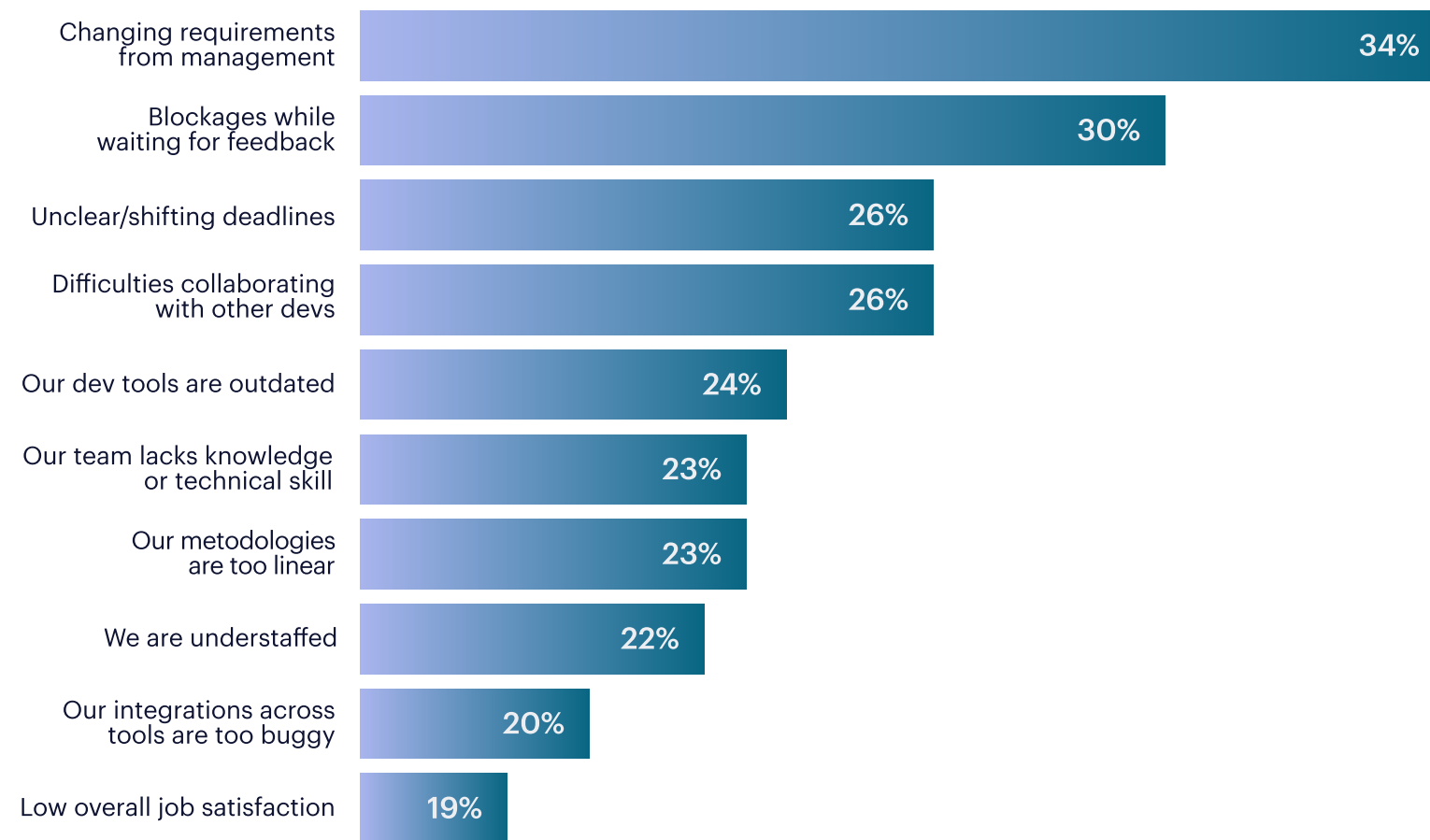
In code  
we trust

# Productivity



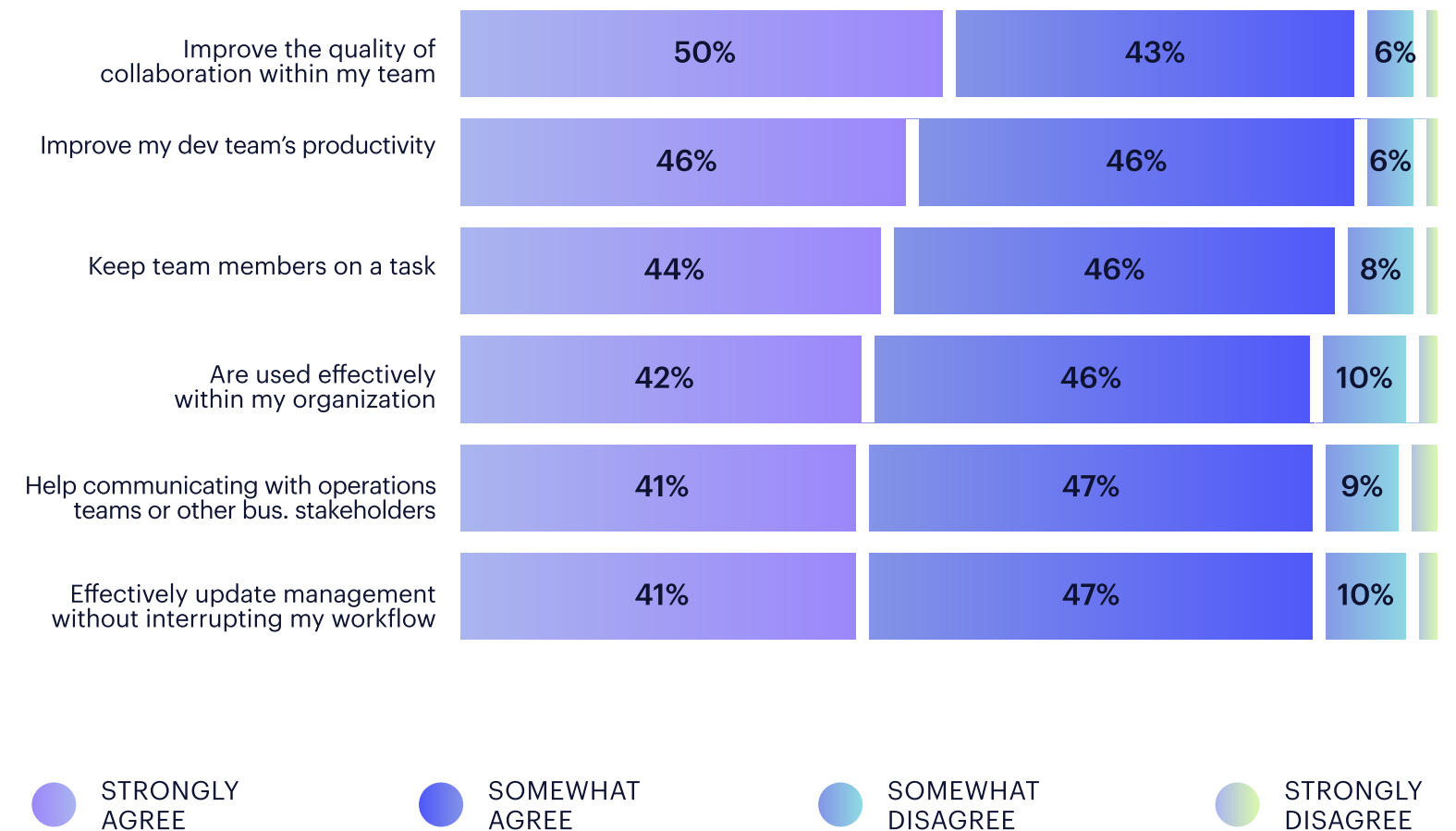
# The case for software team productivity tools

What are the biggest challenges to your overall productivity as a developer?  
Note: developers could select up to three responses



- ★ Regardless of team size, changing requirements is a significant challenge.
- ★ Large teams view buggy integrations as a top challenge.

Please rate your agreement with the following statements about productivity tools. "Productivity tools..."



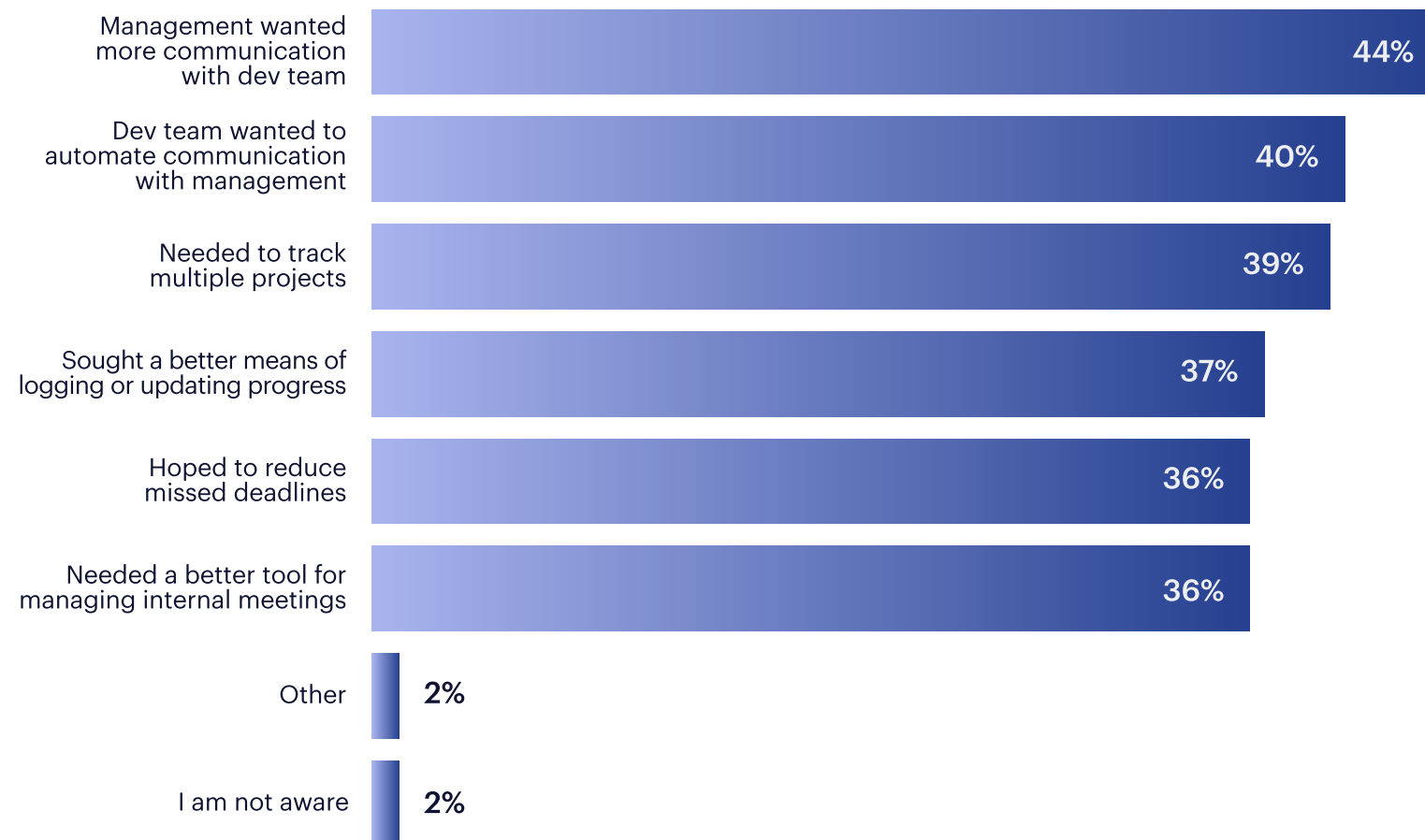
● STRONGLY AGREE    
 ● SOMEWHAT AGREE    
 ● SOMEWHAT DISAGREE    
 ● STRONGLY DISAGREE

- ★ Improving collaboration quality is central to productivity tools.
- ★ Developers in large teams are also likely to emphasize communications with other teams.

# The case for software team productivity tools

Which of the following best describes why you and your organization sought productivity tools?

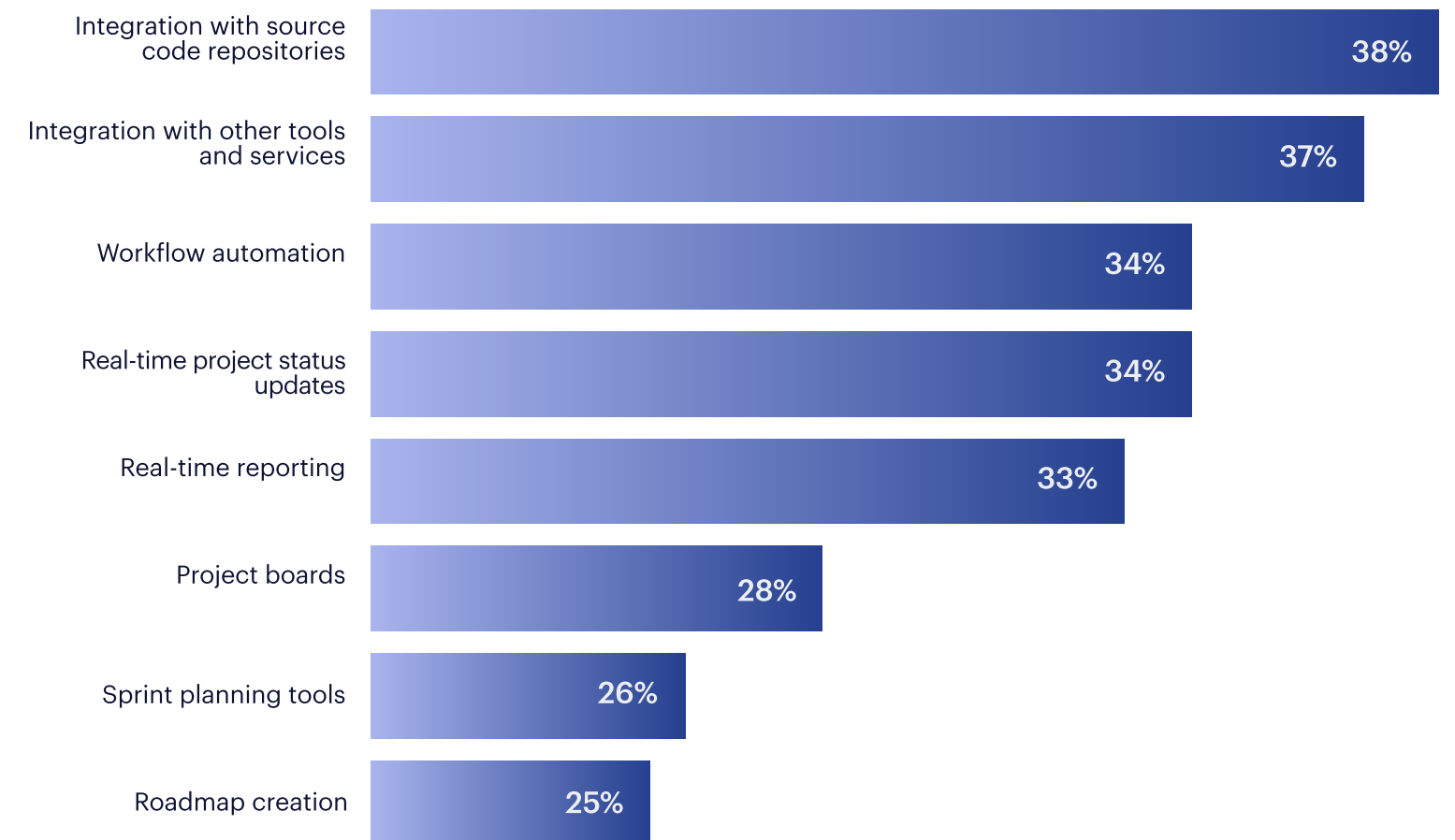
Note: developers could select up to three responses



Management's desire for communications is a top reason to look for productivity tools, especially for larger development teams.

Which of the following are the most compelling features that would lead you to adopt a productivity tool?

Note: developers could select up to three responses

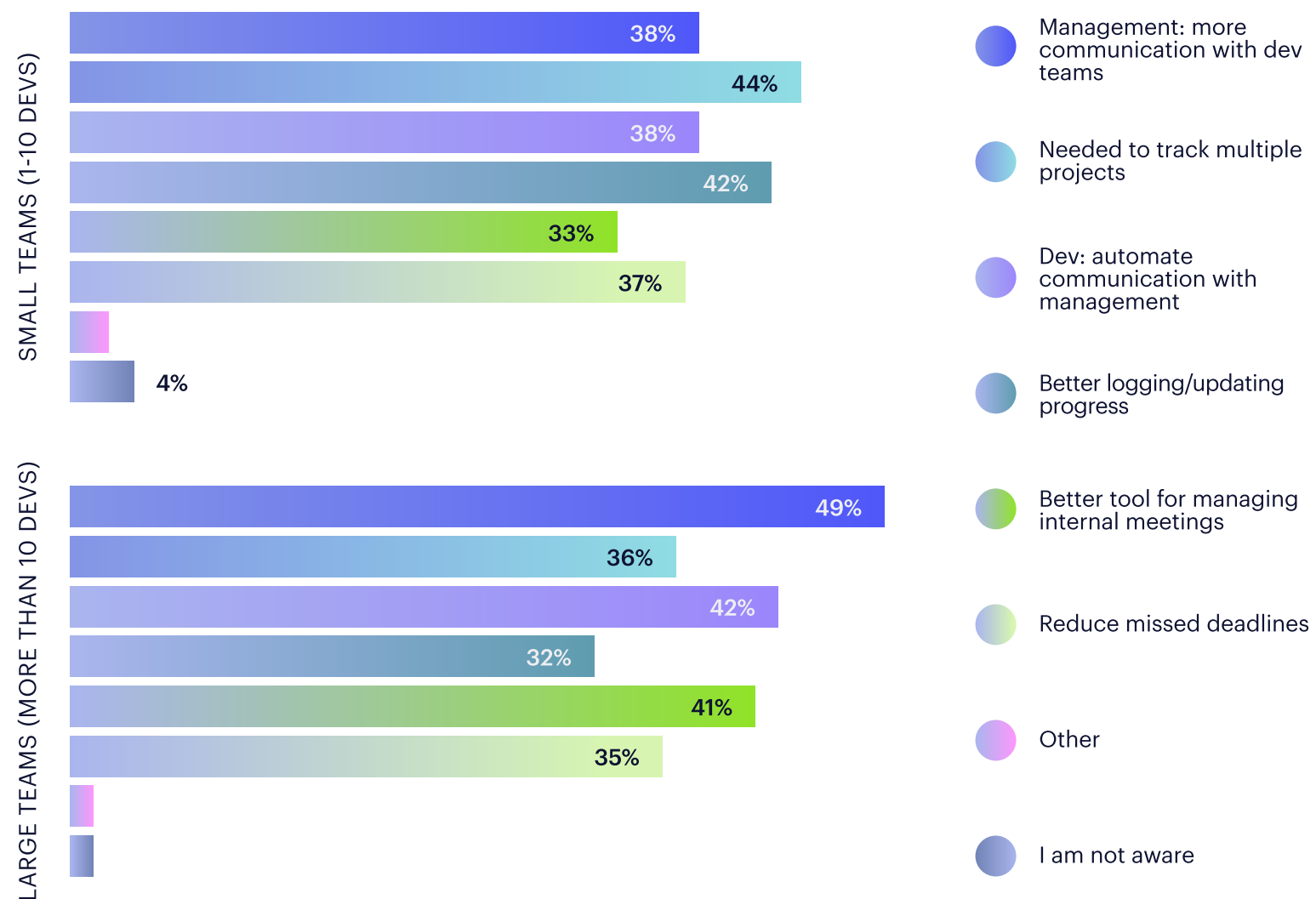


Integration with source code repositories is relevant for developers in all team sizes (see next slide).

Smaller teams find integrations with other tools and services valuable.

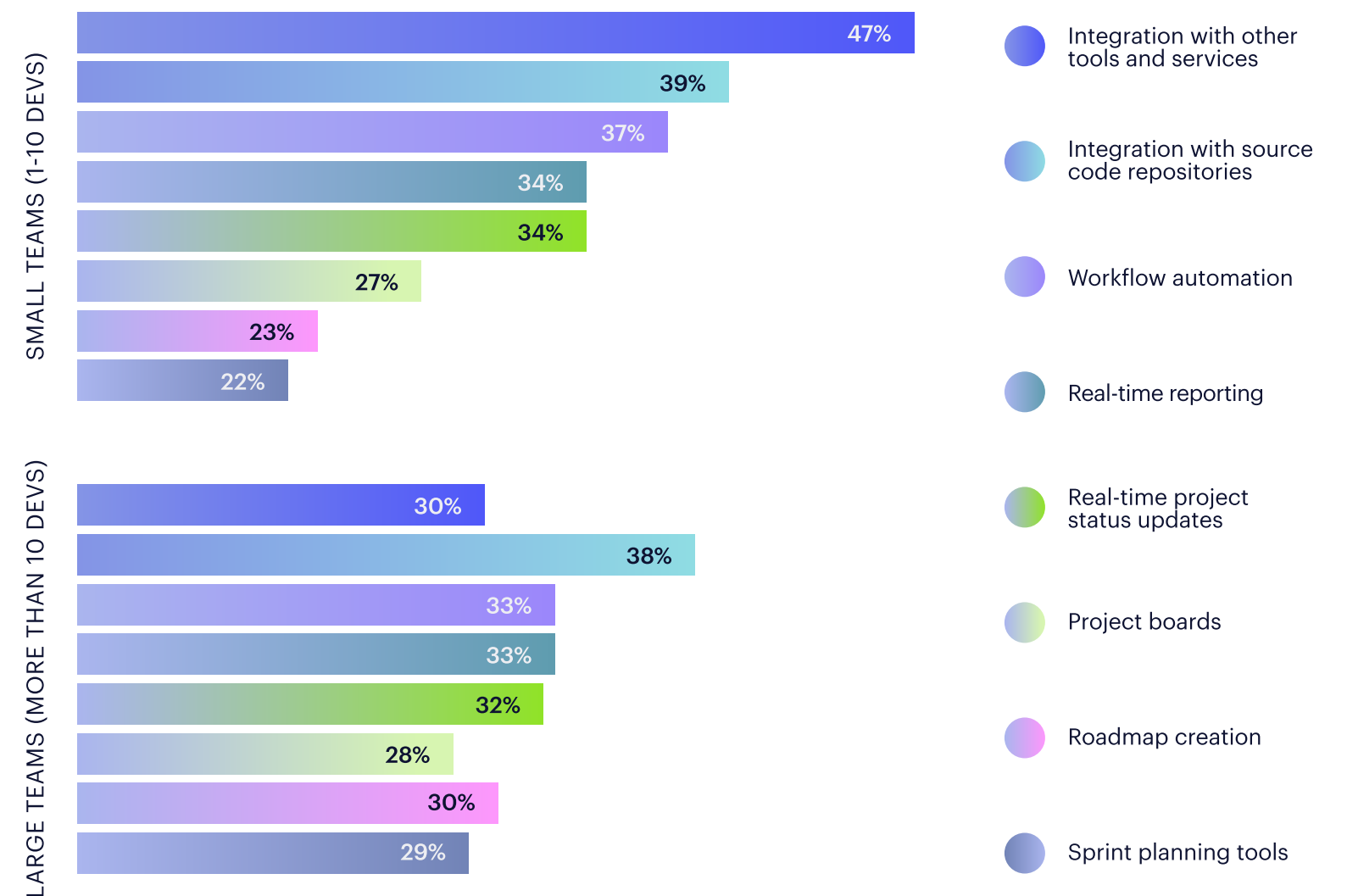
# The case for software team productivity tools

Reasons for seeking productivity tools by team size



★ Combined, 44% say management’s desire for communications and the need for automated communications are key reasons for adopting a productivity tool.

Compelling features in productivity tools by team size



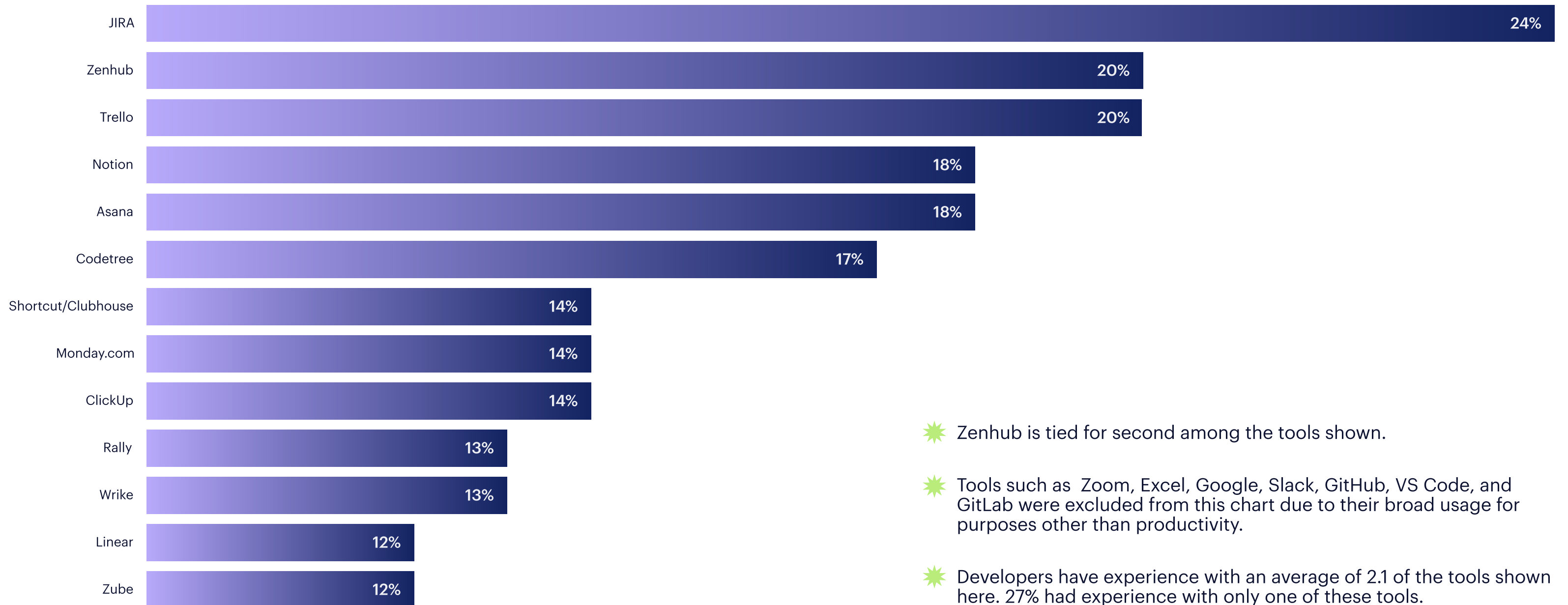
★ The top 5 productivity tool features are all closely ranked.

★ **Integration with repositories** ranks higher than other integrations.

# Developer productivity tool use

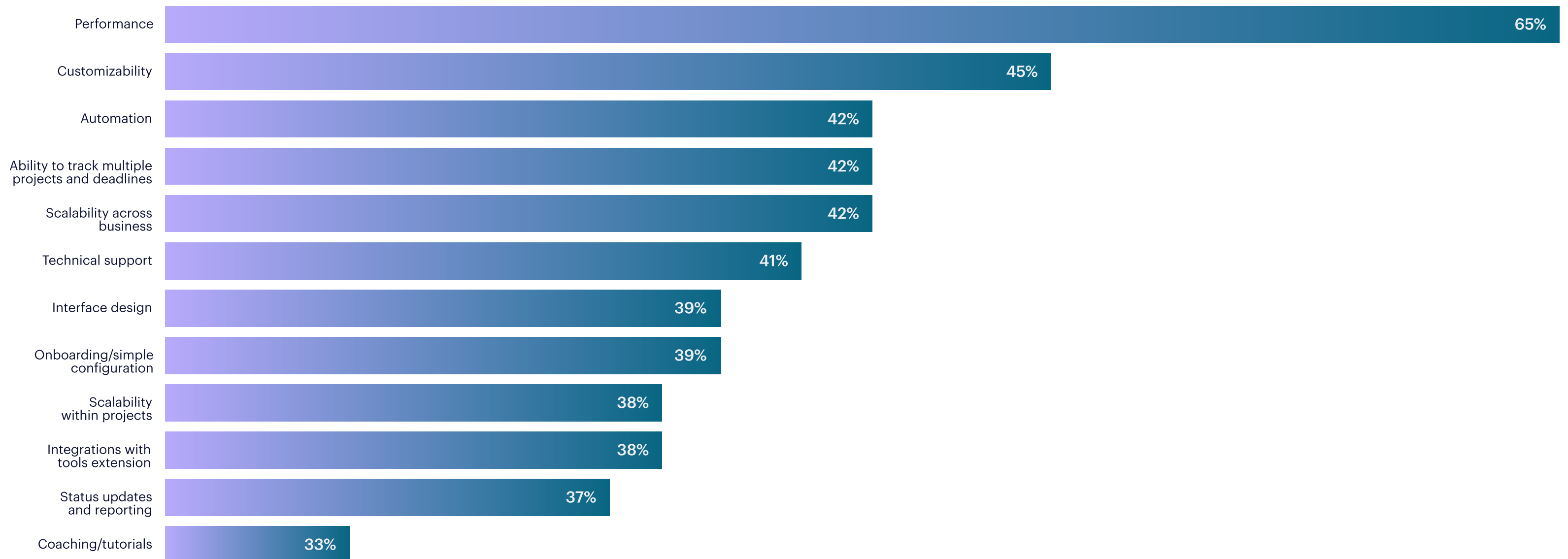
Which of the following development team productivity/project management tools do you have experience with?

Note: developers could select as many responses as applied



# Top productivity tool features

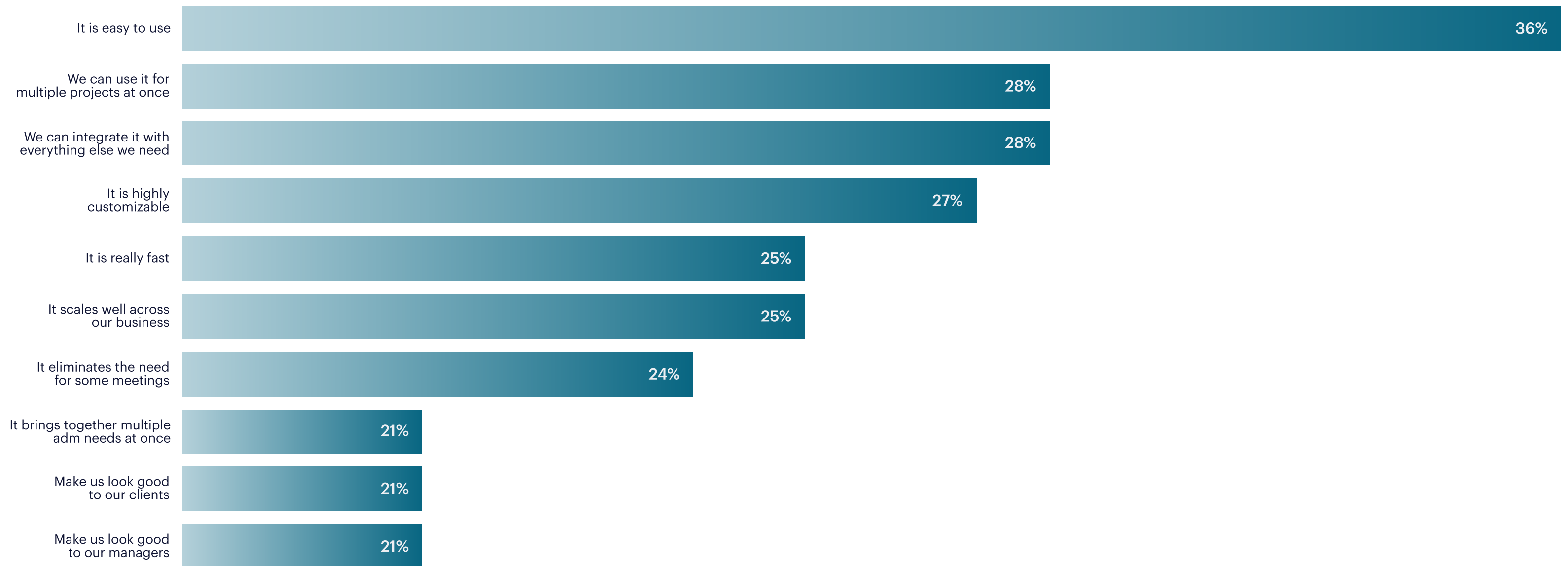
Please rate the importance of the following capabilities when using a productivity tool within your development team. ("Extremely important")



★ Performance is by far the most important capability in productivity tools.  
(This chart summarizes a four-point scale of importance; only the "extremely important" value appears here)

# Productivity tools and developer happiness

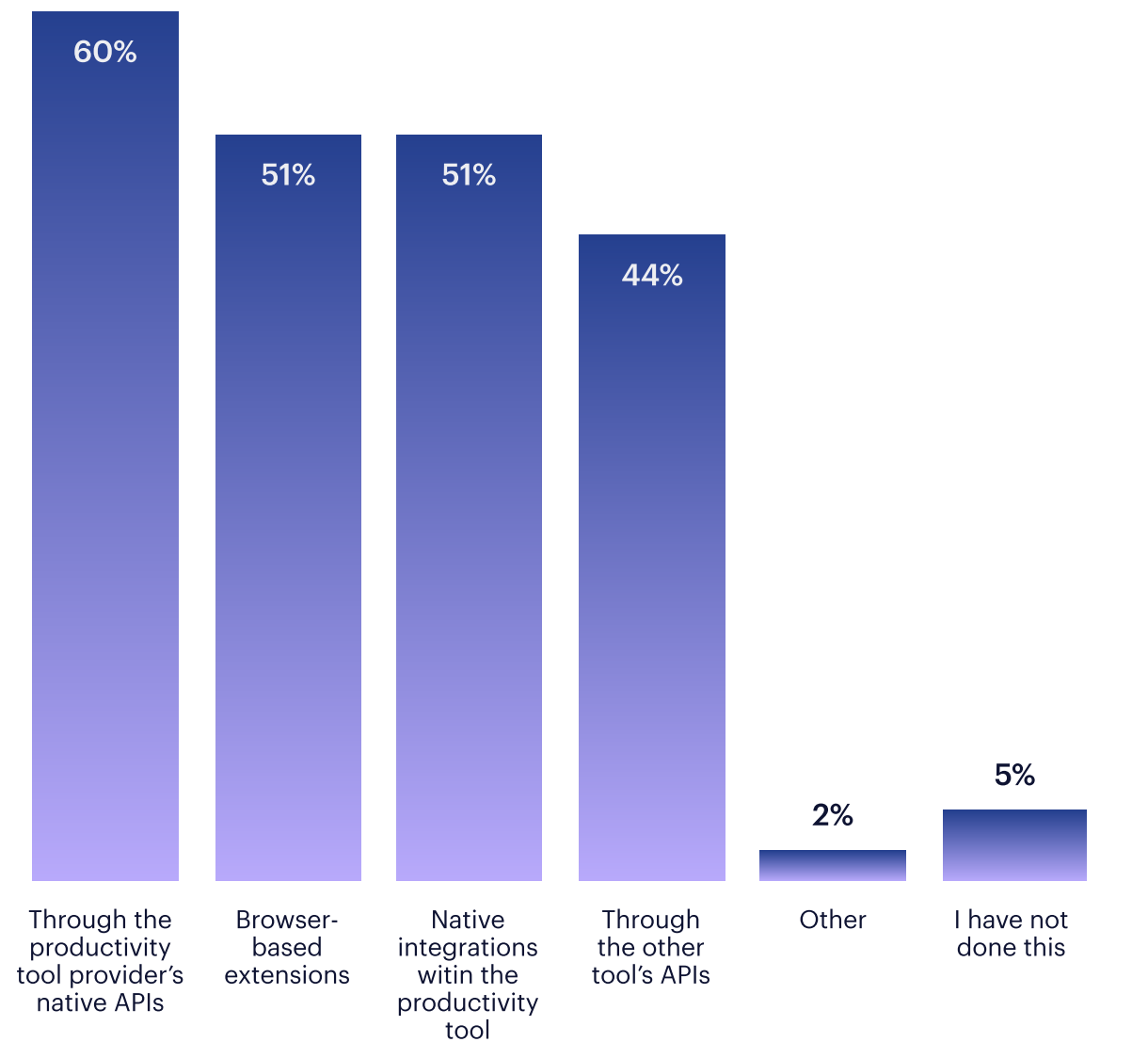
What are the top reasons why this tool makes you happy because of its ability to boost your productivity?  
Note: developers could select up to three responses



★ Ease of use is the top reason good productivity tools make developers happy.

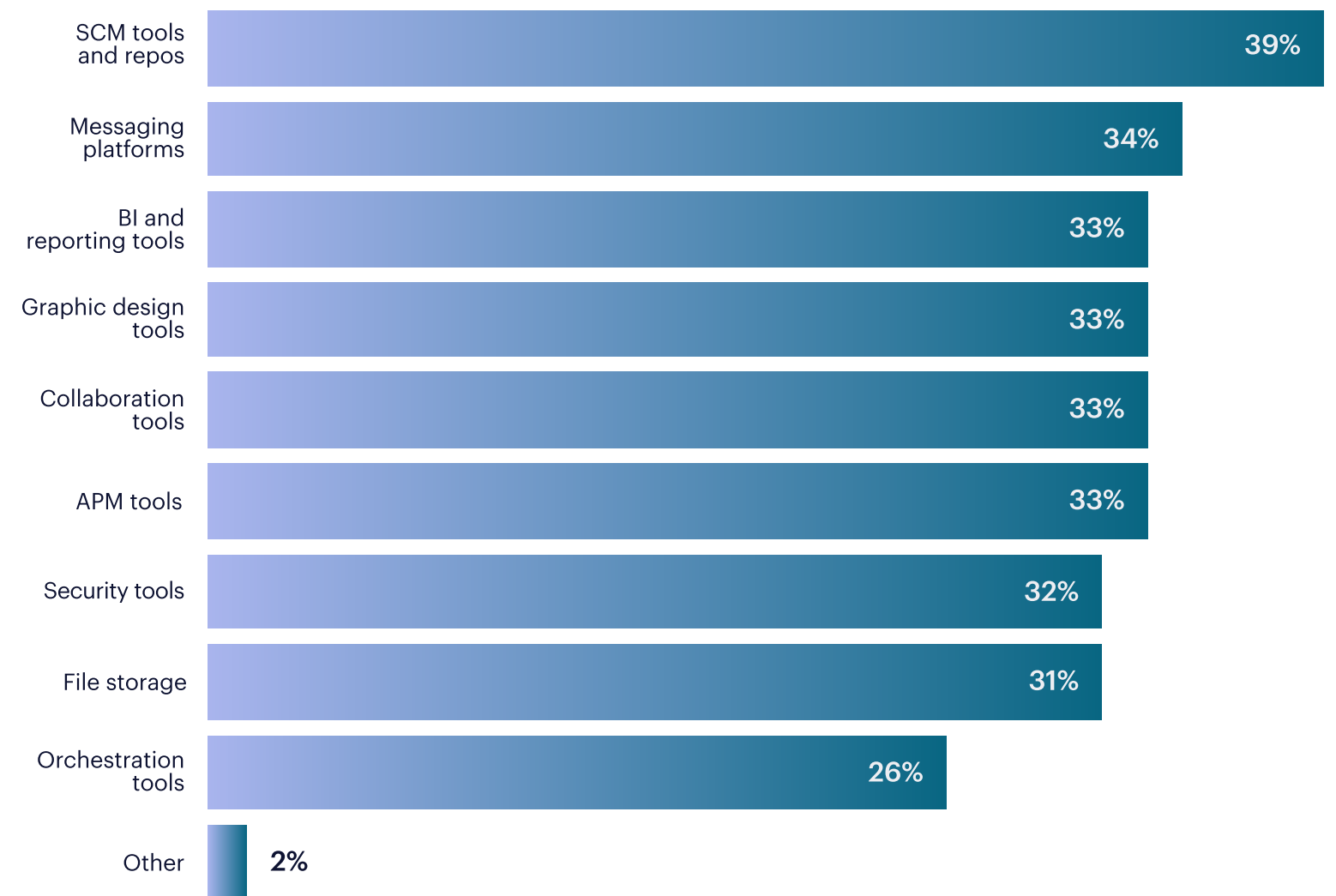
# Productivity tools and integrations

How do you extend or integrate other tools with your productivity tools?  
Note: developers could select as many responses as applied



★ API-driven integrations are the most common – 77% of respondents use some form of API-driven integration.

Which of the following integrations have you used with your productivity tooling?  
Note: developers could select as many responses as applied



★ Developers who use integrated source code management tools and repositories are highly likely to have used a productivity tool API for integration.



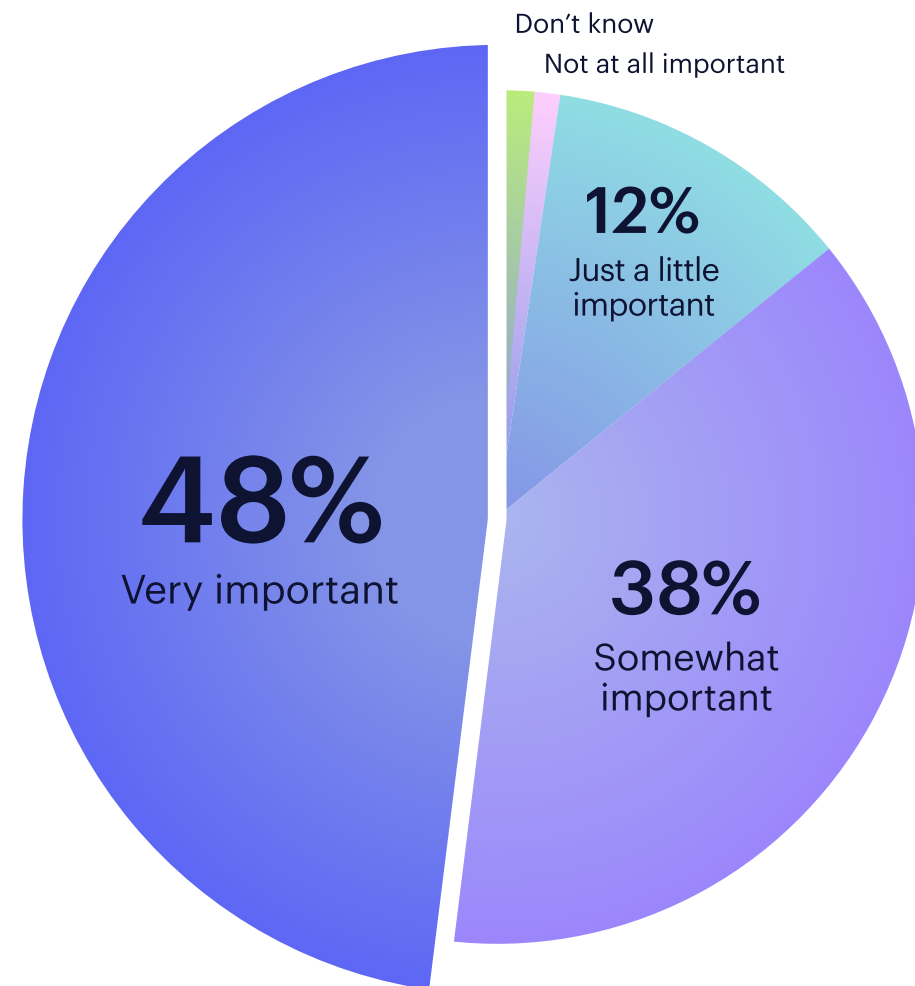
*Open source*

**SOFTWARE**



# Developers and open source software

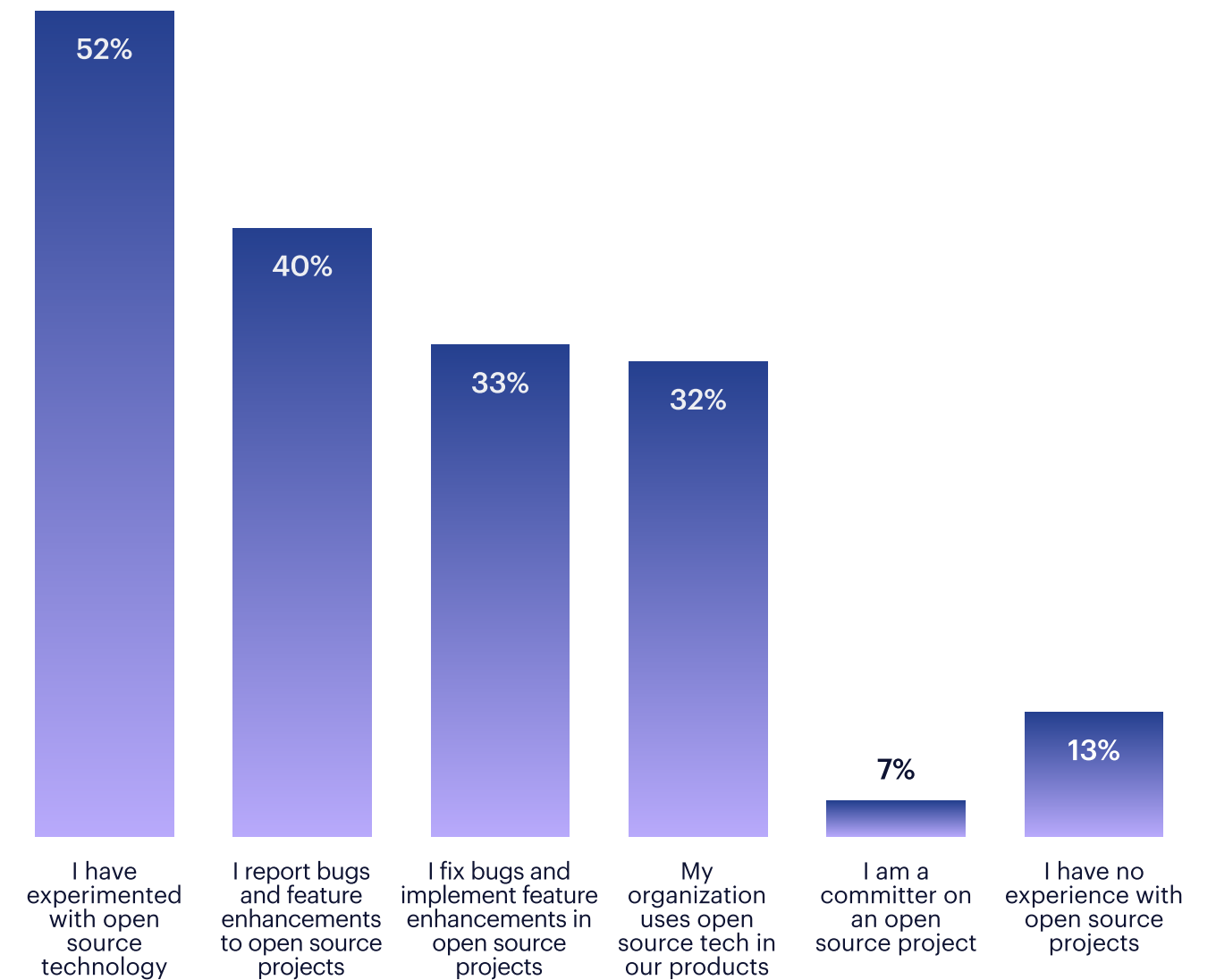
How important is open source to you?



✦ Open source is at least somewhat important to 86% of developers.

Which of the following statement(s) best describes your participation in open source projects/technology?

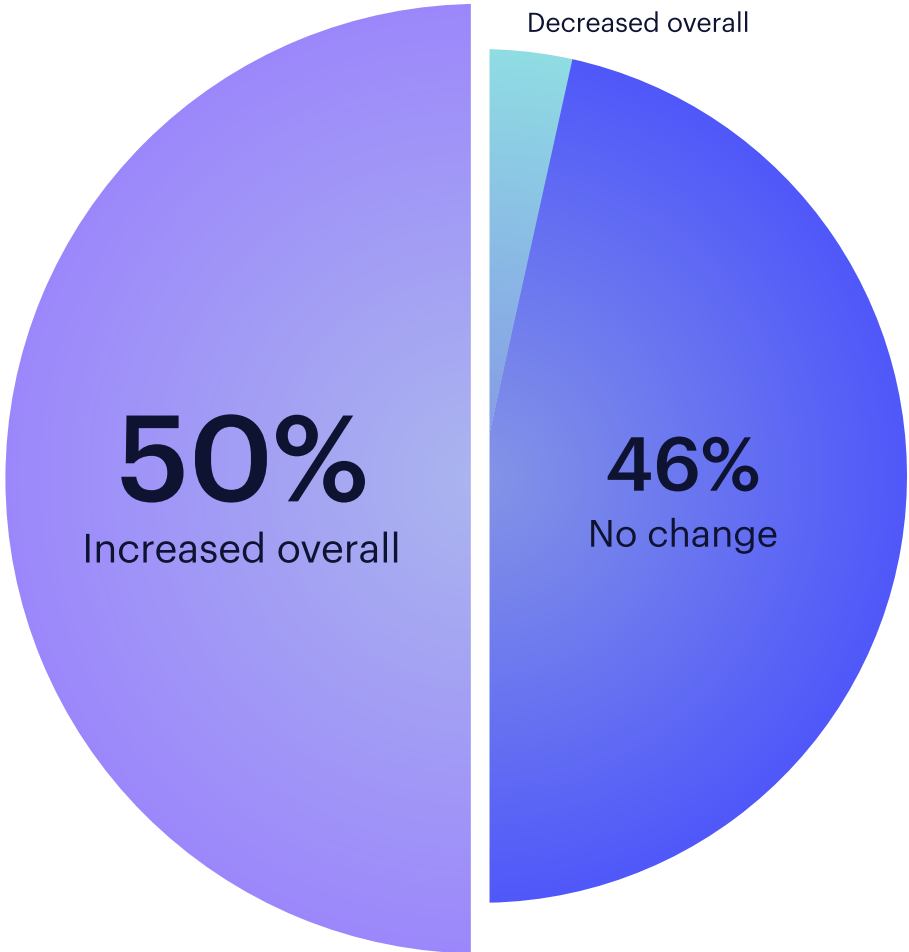
Note: developers could select as many responses as applied



✦ The majority of developers who have experience with open source experimented with it on their own.

# Developers and open source participation

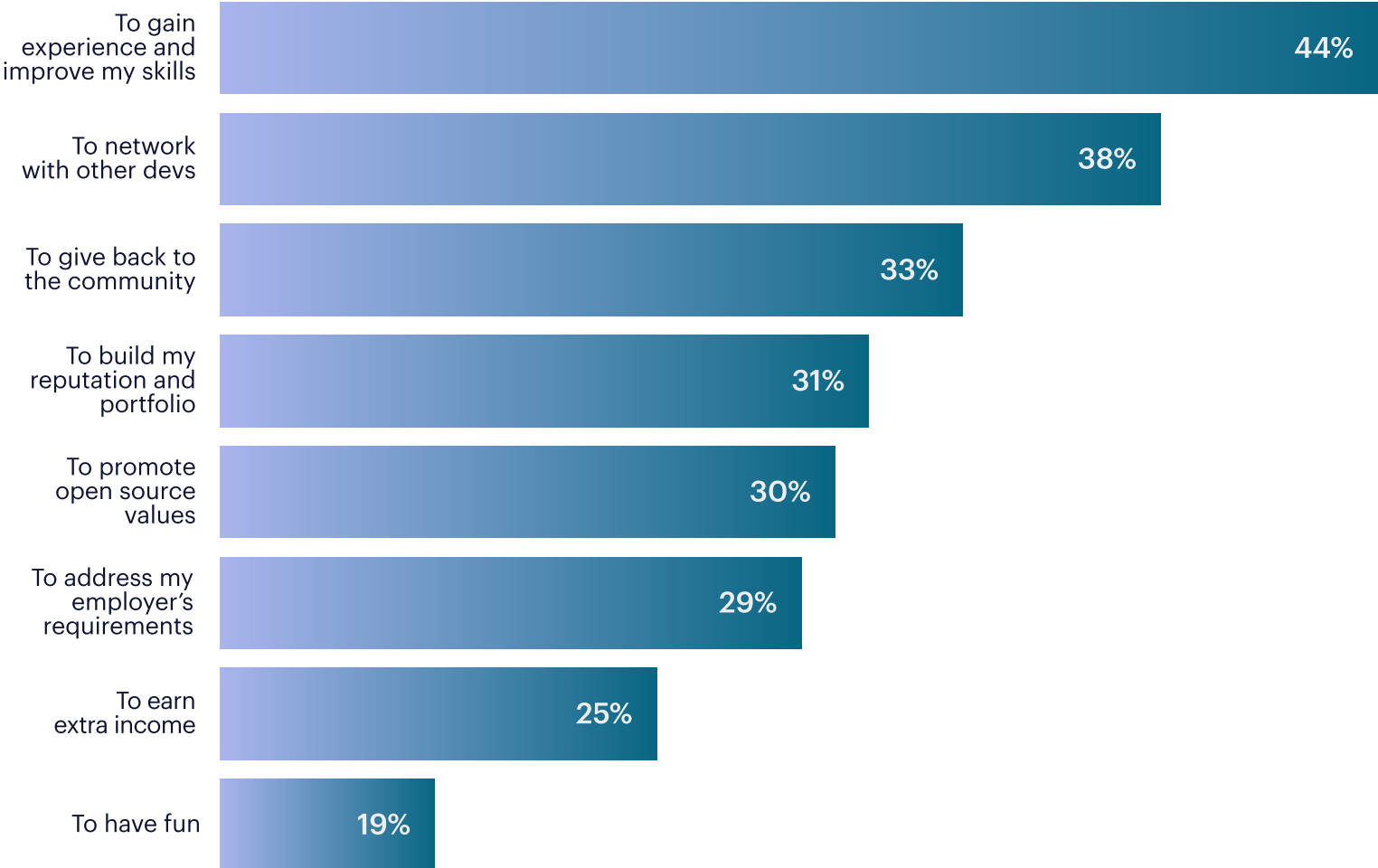
How has your level of participation in open source changed in the last 12 months?



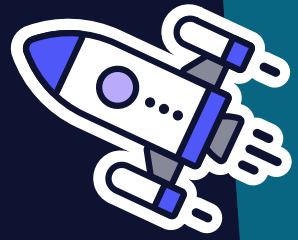
★ Half of developers who participate in open source communities have increased their level of participation over the past year.

Why do you participate in open source projects/communities?

Note: developers could select as many responses as applied



★ Developers' reasons for participating in open source communities vary, although there's a slight preference towards skill development and networking.



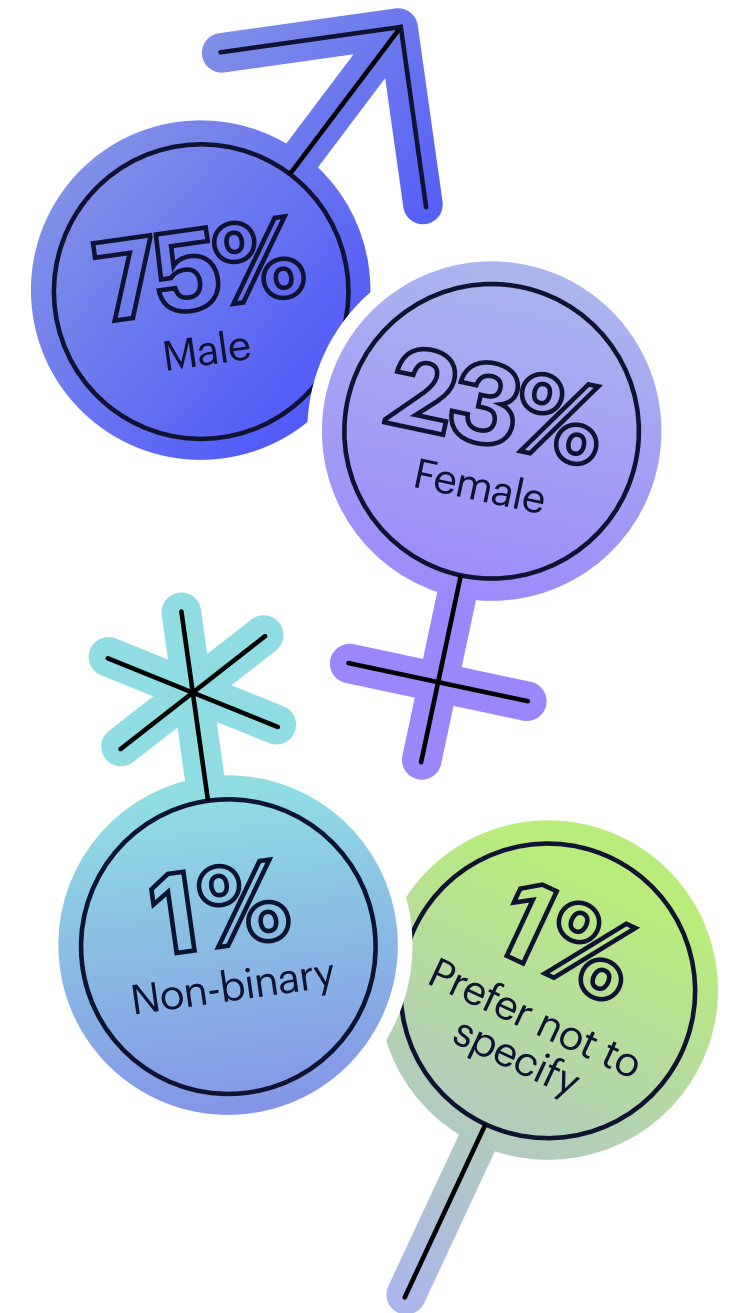
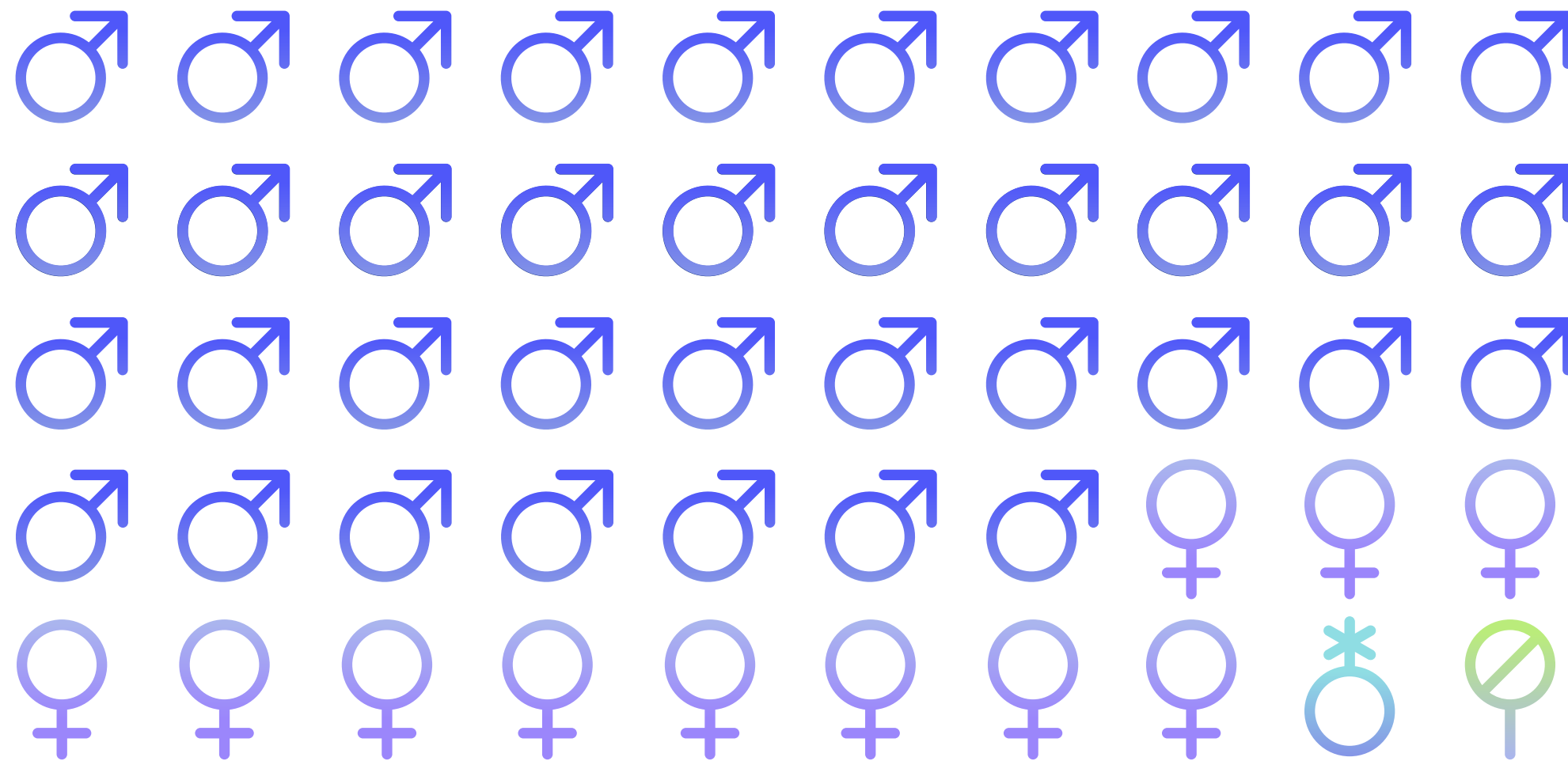
**RESPONDENT**



***profiles***

# Gender

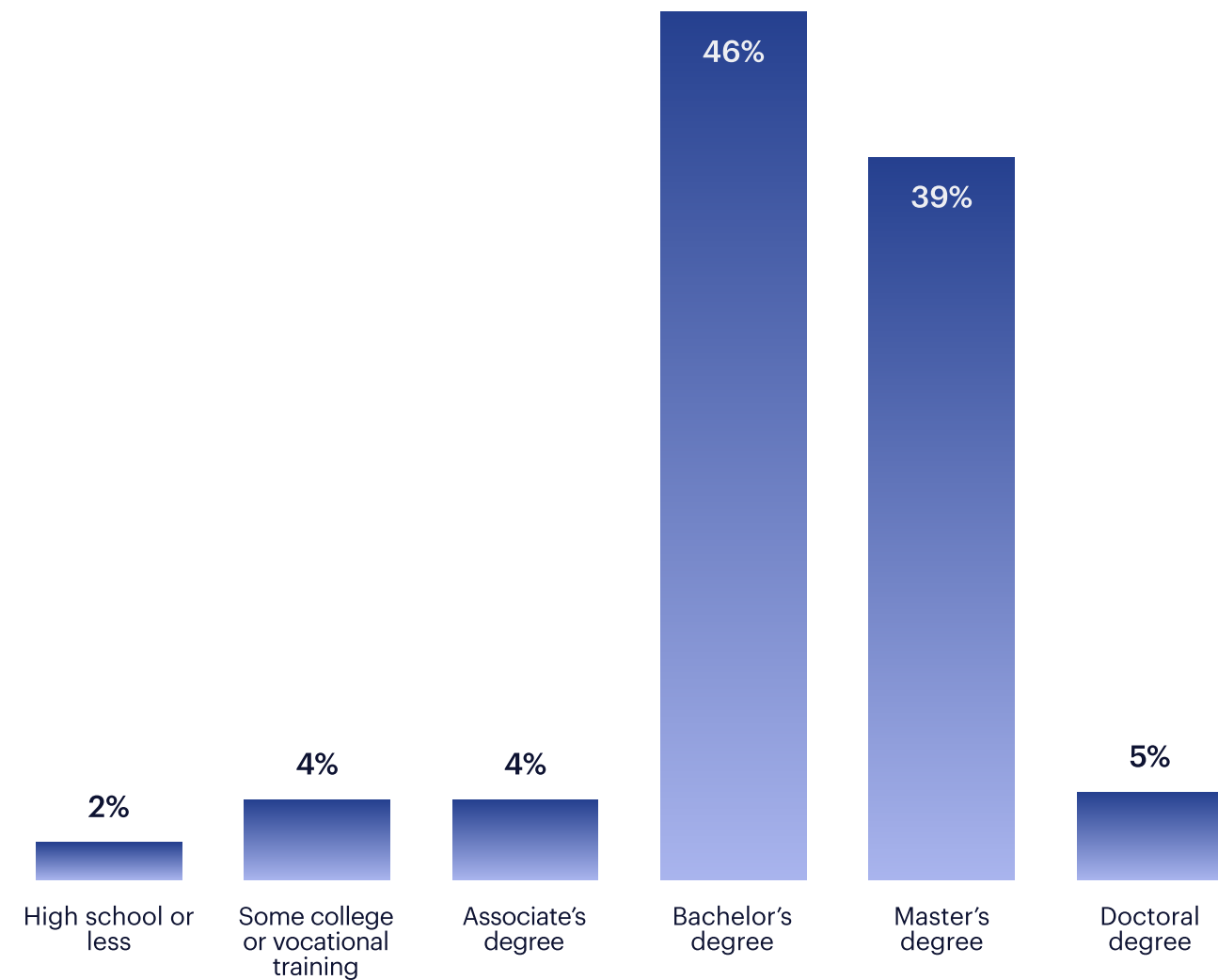
Do you identify as:



★ 75% of developers identify as male, which is consistent with historic data on developer gender.

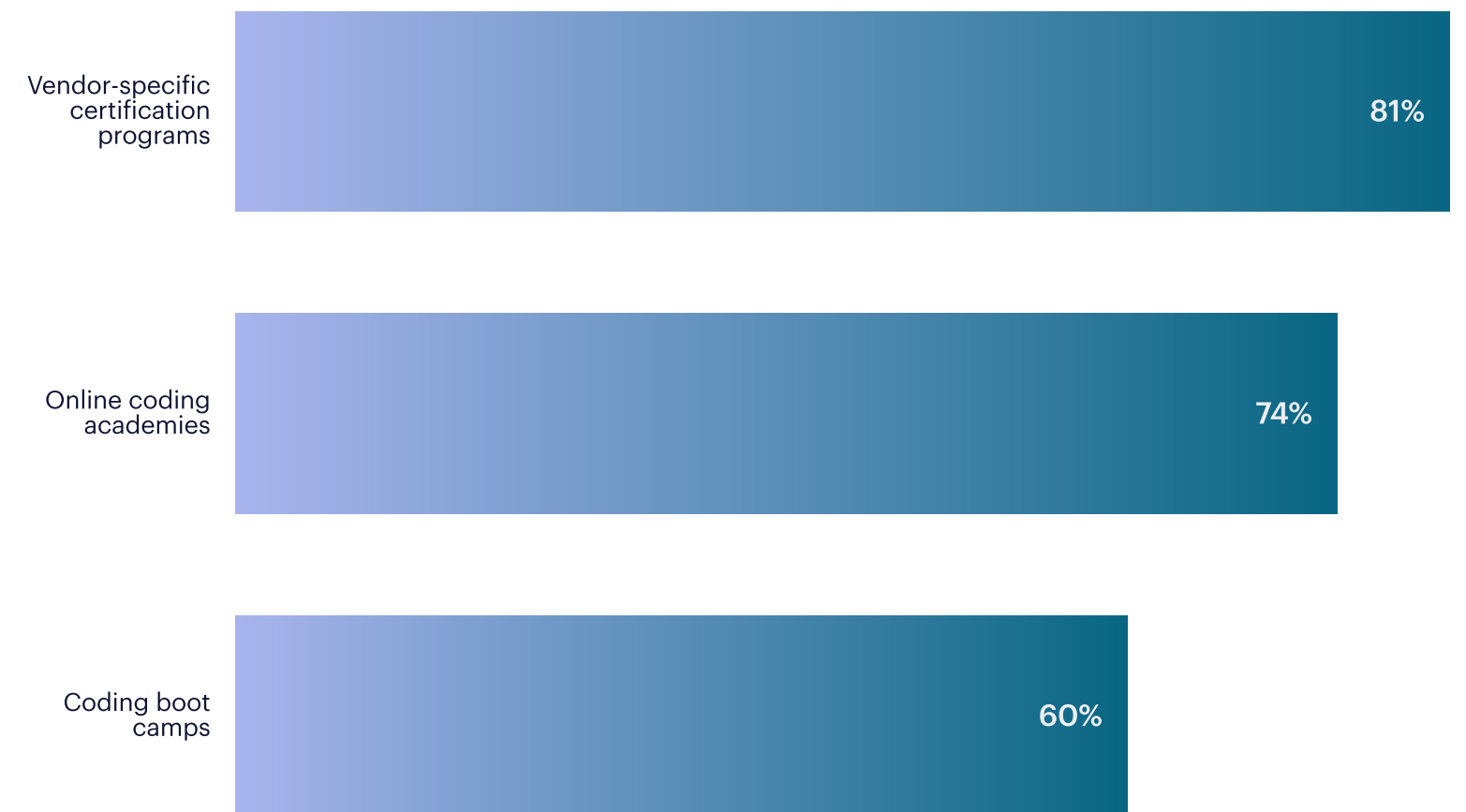
# Education and certification

What is the highest level of education you have completed?



★ 90% of developers have a bachelor's degree or higher.

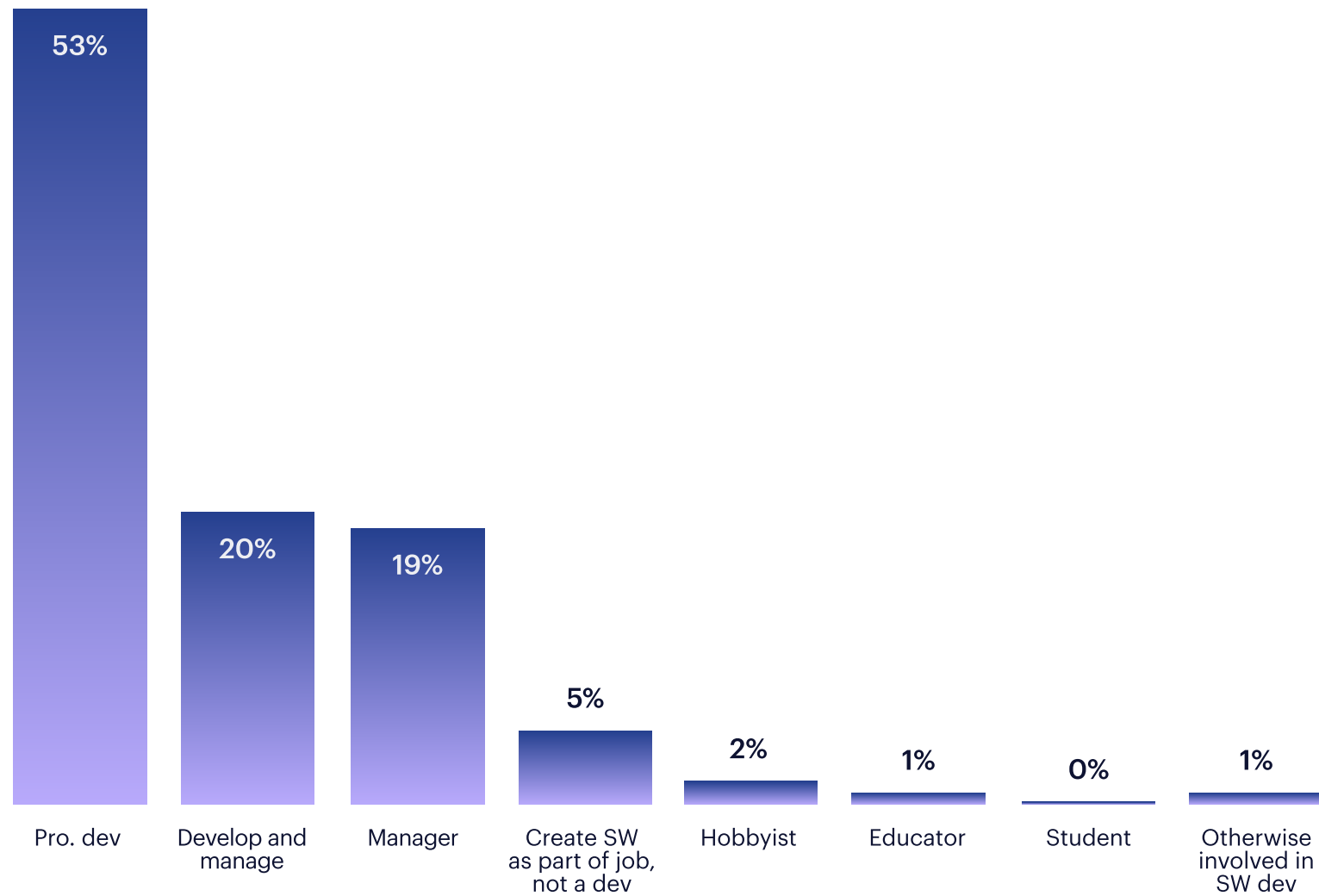
Have you received any diplomas/degrees from the following? ("Yes" responses only)



★ Coding boot camp diplomas are much less common than vendor-specific certification programs and online coding academies.

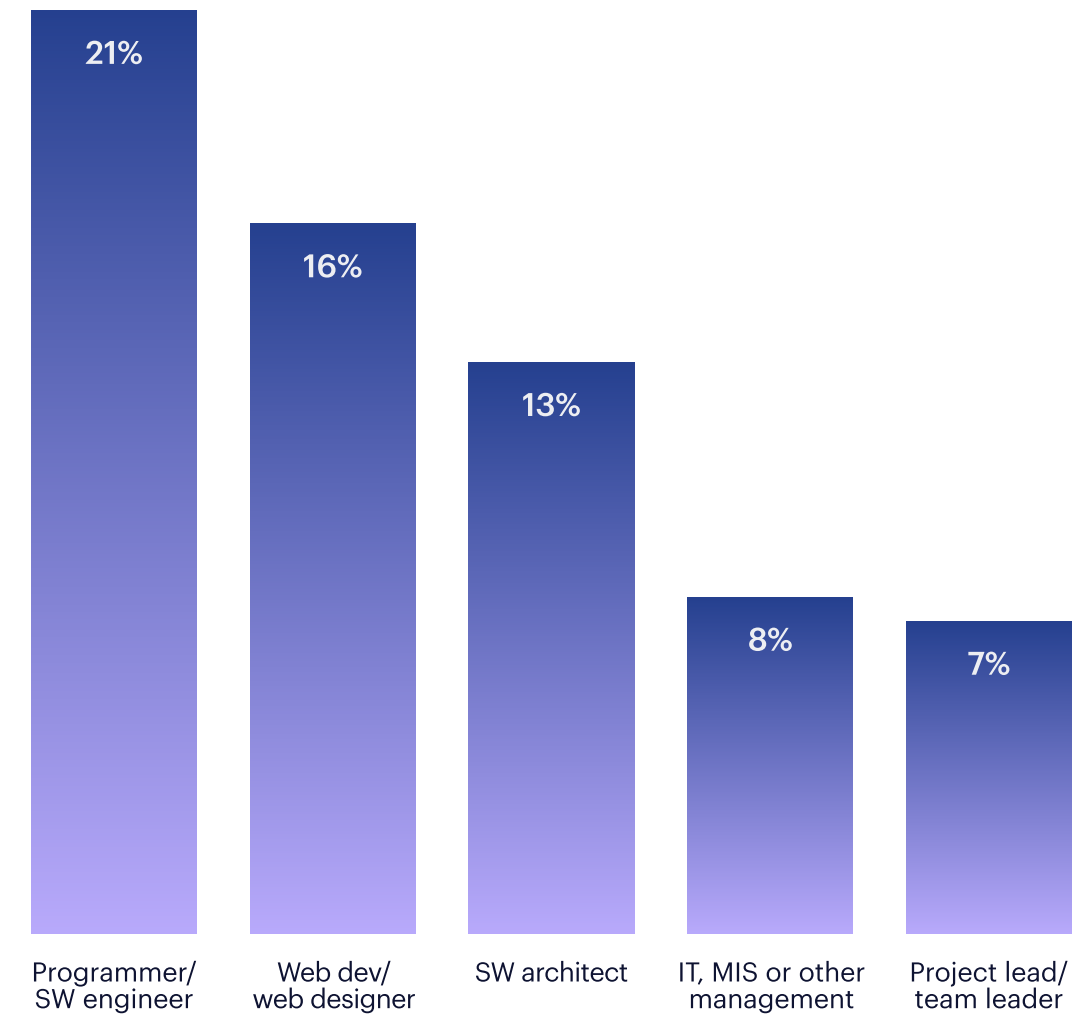
# Development roles

What is your role in the development of software?



✳ The majority of respondents are professional developers.

Which best describes your job? (Top 5 of 16)

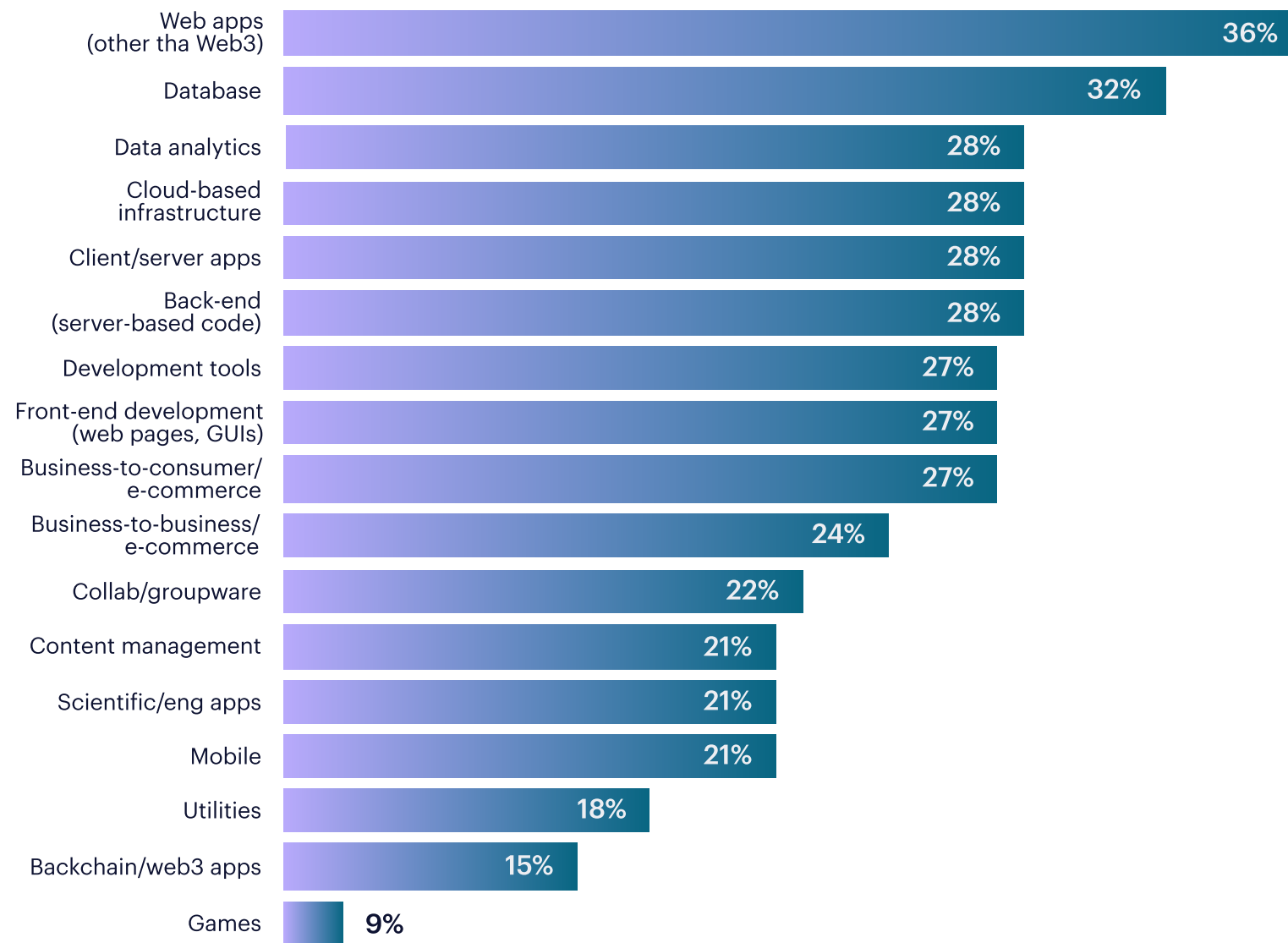


✳ Respondent titles are more varied than their roles.

✳ 21% of developers did not provide a title.

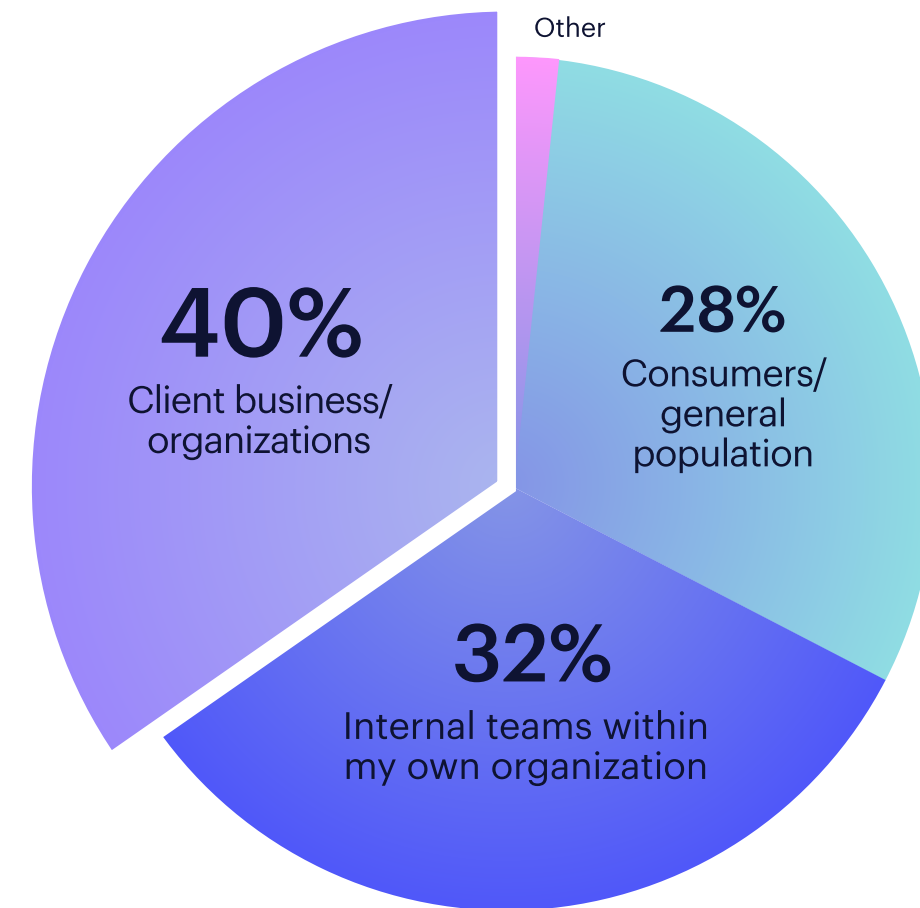
# Technographics

**What types of software are you developing?**  
 Note: developers could select as many responses as applied



★ Developers work on various types of software, but web applications and databases lead the pack by 6%.

**Which of the following best describes the typical end users for your projects?**



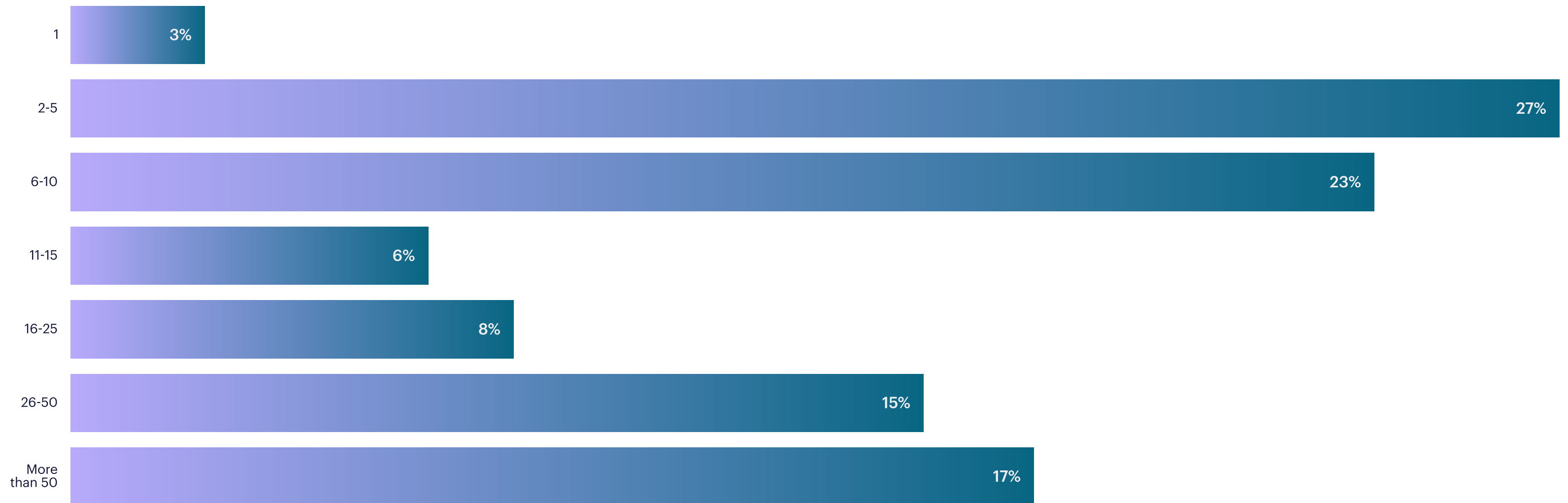
★ The largest percentage of developers said client businesses are their typical end users.

★ Just 28% of developers identified consumers as their end users.



# Team size

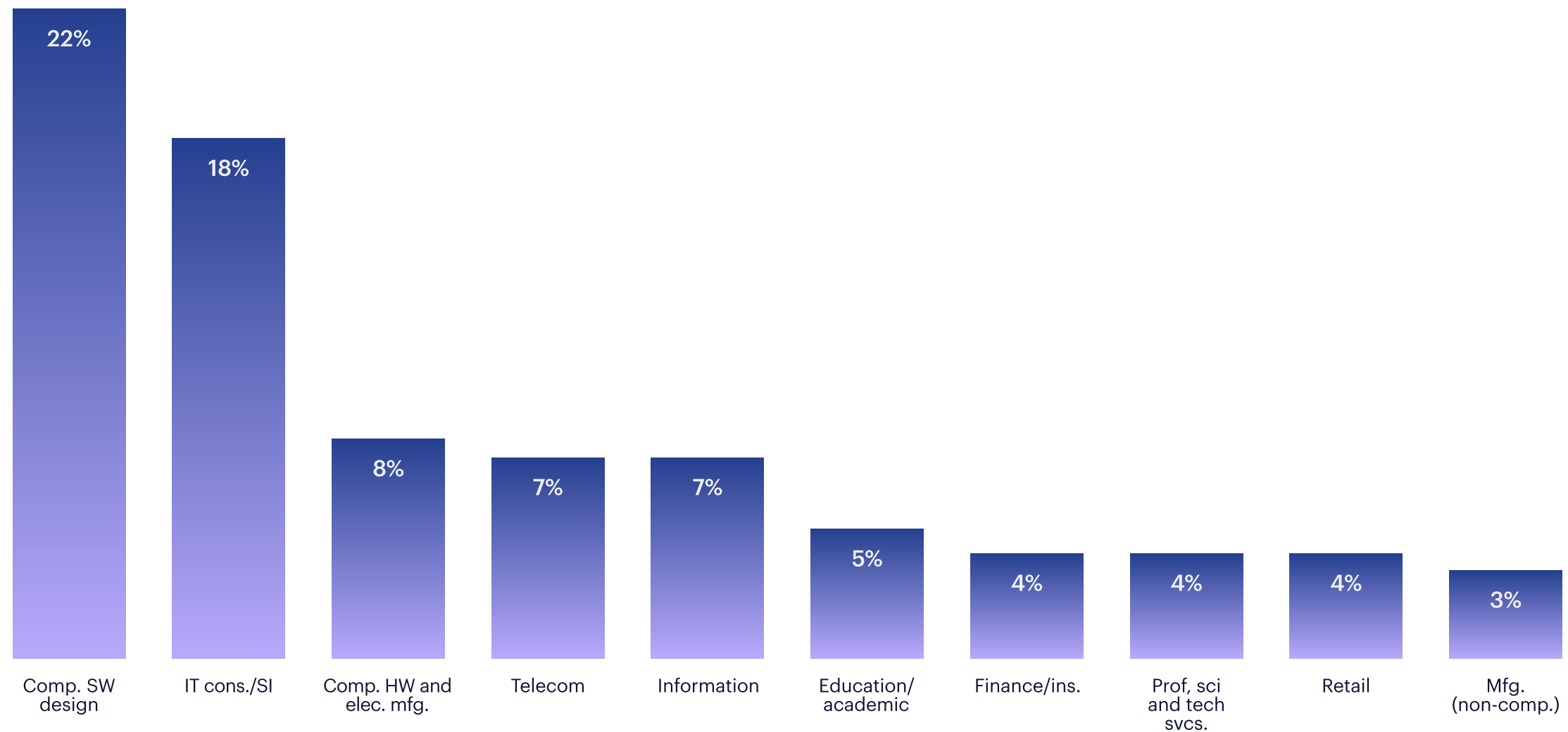
Including yourself, how many developers work on your team?



✳ Developers tend to work in either small teams of less than 10 people or large teams of more than 25 people.

# Industry

Which industry is your company in? (Top 10 of 21)

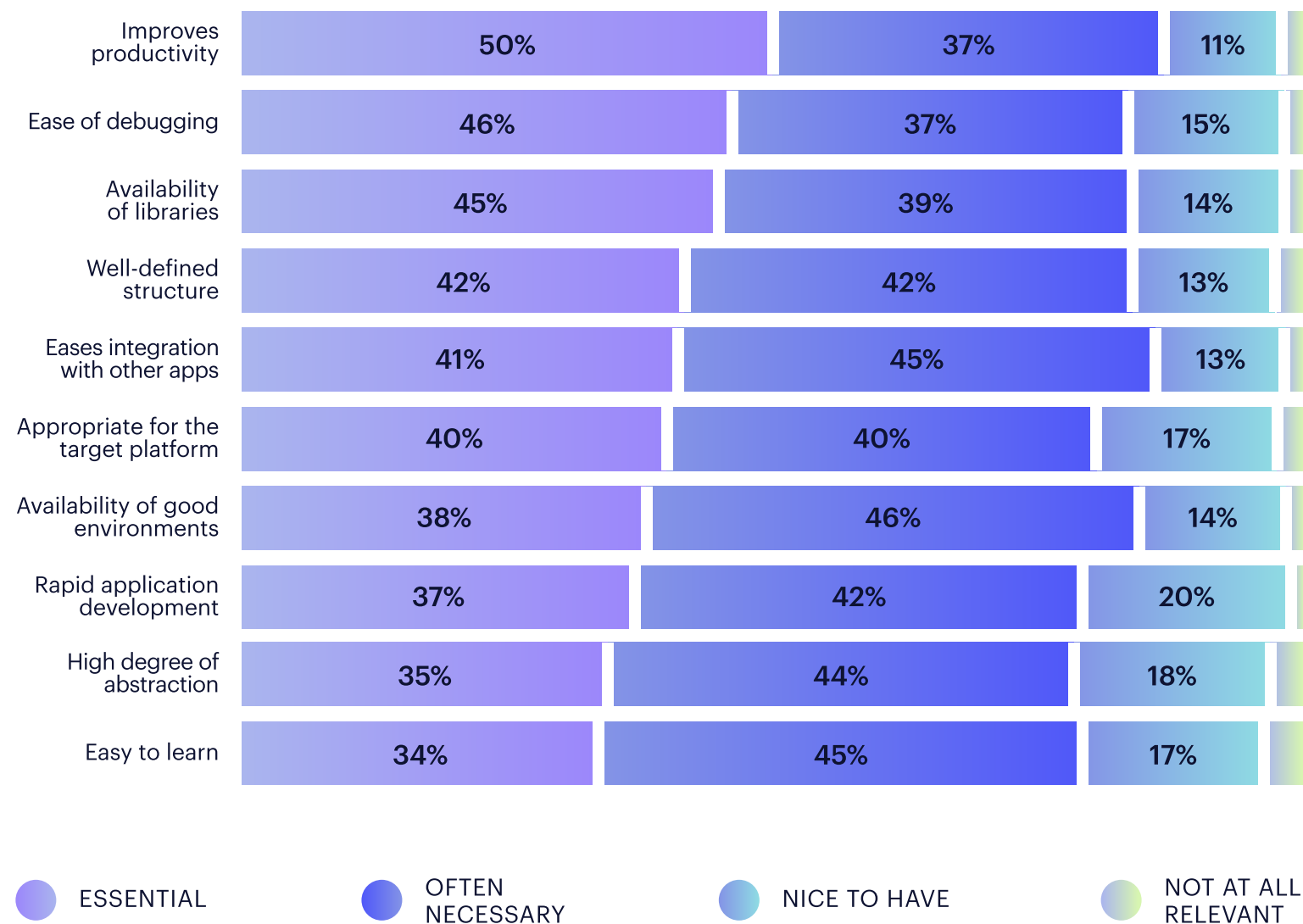


✳ Developers are more likely to work in the software design or IT industries, but overall, industries vary.



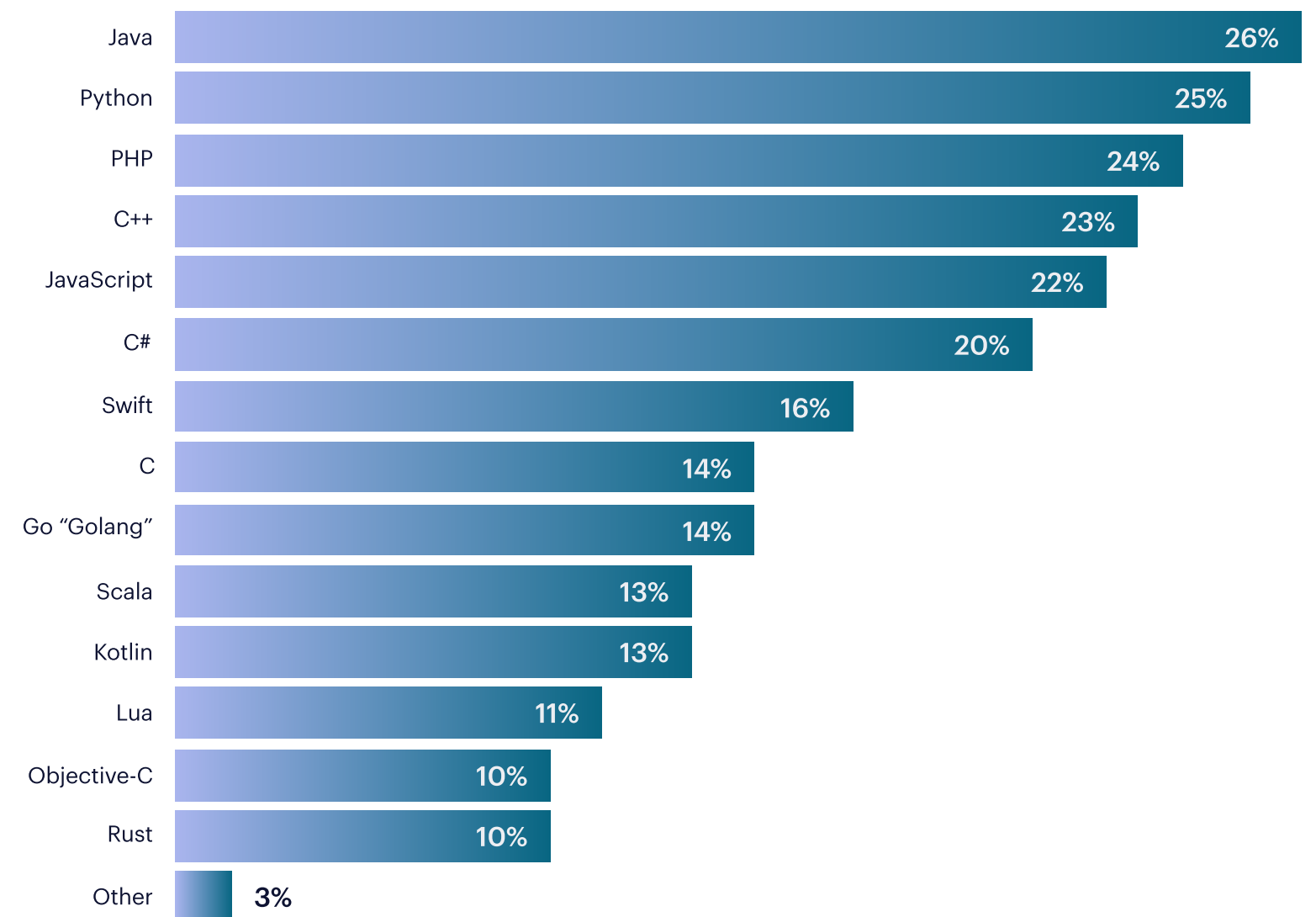
# Factors that influence programming language preferences

How relevant are the following factors in your language preferences?



✳ Productivity ranks slightly higher than debugging ease and library availability.

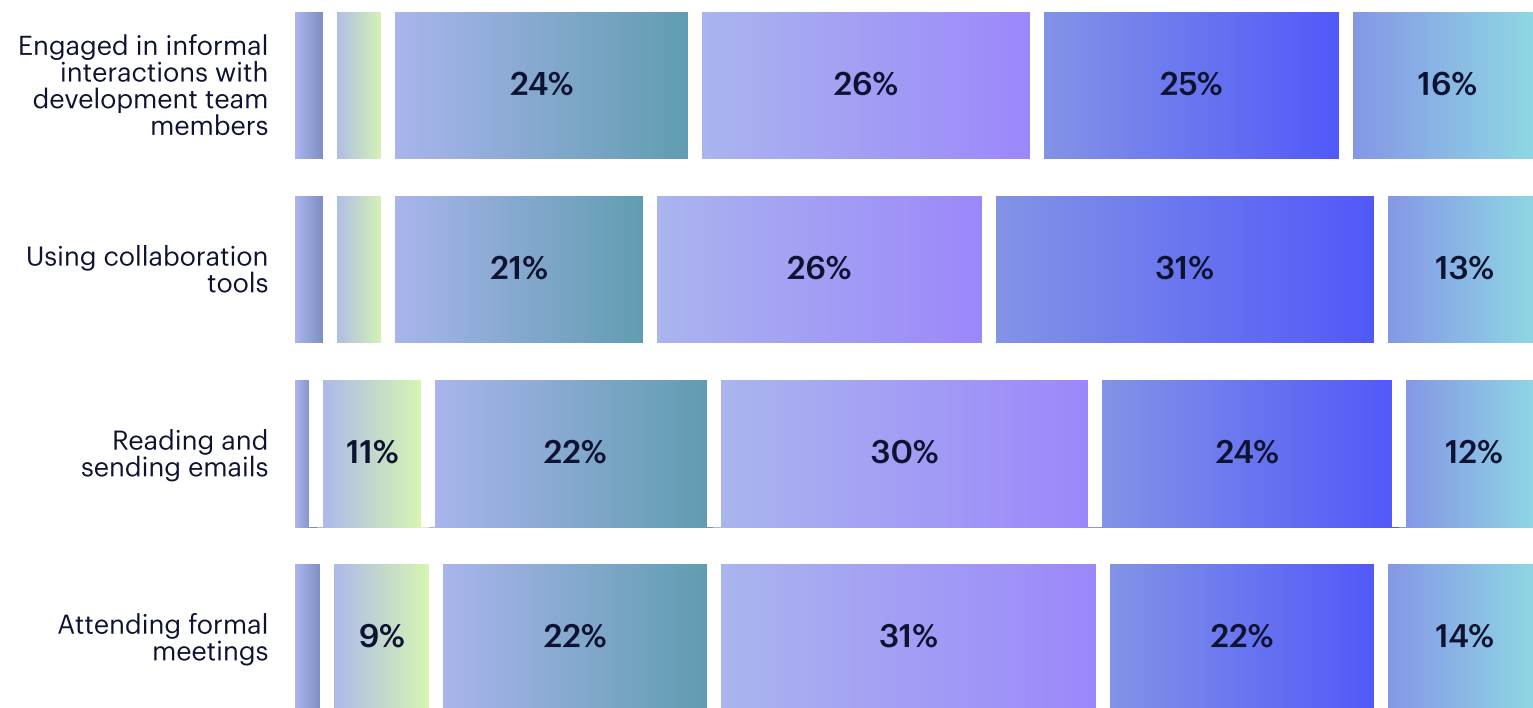
Which of the following programming languages do you prefer to use?



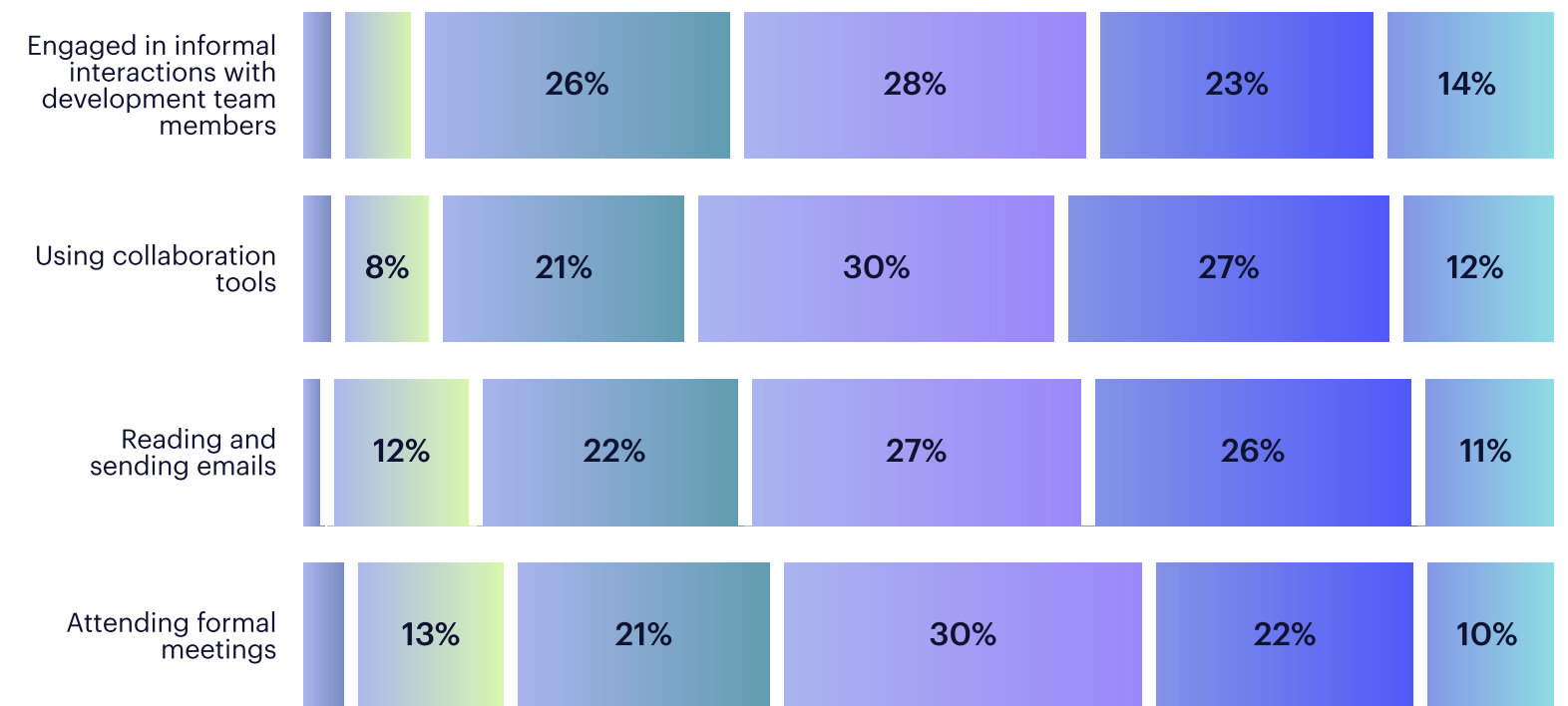
✳ Learning curve is also important, but nuances of the language itself are more important.

# Collaboration time

In a typical work week, how many hours do you spend:



In an ideal work week, how many hours do you spend:



● NOT AT ALL    
 ● LESS THAN AN HOUR    
 ● 1-2 HOURS    
 ● 3-5 HOURS    
 ● 6-10 HOURS    
 ● MORE THAN 10 HOURS

✦ Of the options provided, developers are most likely to spend more than 6 hours using collaboration tools.

✦ Responses for an “ideal work week” are similar to the corresponding responses for a “typical work week”.



# Software Developer Happiness Report

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