2020 DevOps Trends Survey

by Atlassian & CITE Research

Foreword

Over the last 15 years, tens of thousands of organizations have adopted a DevOps way of working with the help of our tools. We've seen how DevOps has grown from a term only familiar to technical teams to becoming part of the C-suite vocabulary. Practices like CI/CD and automation have become the norm in every engineering organization.

In February of this year, we conducted a DevOps trends survey to understand where DevOps is going. We surveyed 500 professionals about their success with DevOps, the barriers they faced, and the impact of tools and culture on their work.

The three major trends we found all speak to one fact. The path to DevOps is a matter of when, not if - but there are still significant obstacles along the way.

The research contained in this report has been completed with the advice and assistance of CITE Research.
This survey was conducted in a pre-pandemic world and may not be reflective of the realities of DevOps today.

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Background & methodology

OBJECTIVE

Explore how companies are managing DevOps:

- What practices companies have in place for DevOps
- How do companies measure DevOps success
- Barriers to DevOps transformation
- Impact of DevOps practices
- Differences in perceptions of DevOps by level, team, etc.

METHODOLOGY

- CITE Research, on behalf of Atlassian, conducted an online survey among 500 Developers & IT Decision Makers in February 2020.

RESPONDENT CRITERIA

- Employed full-time
- Be in Software Development or IT
- Manager-level or above
- At companies with 101+ employees
- Work at an organization that practices DevOps

Executive summary

Executive Summary / **Survey Highlights**

DevOps is now a corporate term.

- More than half of orgs have been practicing DevOps for over three years
- Over 90% said DevOps had a direct impact on business metrics

There are still obstacles.

- 85% of respondents have faced barriers in their DevOps implementation
- Lack of skills, legacy infrastructure, and adjusting corporate culture are top complaints

Executives and practitioners don’t see eye to eye.

- Confidence in measurements of DevOps success vary
- Practitioners emphasize collaboration culture while executives value individual mindset

99%

of respondents say DevOps has had a positive impact on their organization

Impact on career

78% had to learn a new skill
48% of respondents say it helped them get a raise

Better deliverables

61% say it helped them produce higher quality deliverables

Faster deliverables

49% say they see a faster time to market
49% say it improved their deployment frequency

The top factors in **implementing DevOps successfully are the right tools and the right people.**

The top factors in a **DevOps team performing well are collaboration and the ability to problem-solve.**

Executive Summary

However, most face issues with DevOps implementation

Barrier to Implementation of DevOps

Nearly all (85%) of organizations face some type of hurdle when implementing DevOps, with lack of skills in employees, legacy infrastructure, and adjusting corporate culture being the top complaints.

Lack of skills in employees

Legacy infrastructure

Adjusting corporate culture

Executive Summary

While most feel they can effectively measure DevOps success, executives feel much more confident in their measurements than the practitioners.

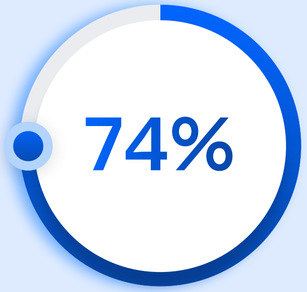
Compared to Executives, the Practitioner is:

More likely to **agree it is difficult to measure the impact of DevOps** progress and success – 62% agree compared to 49% of decision-makers

More likely to **agree my organization has no clear way to measure DevOps** success – 58% agree compared to 47% of decision-makers

More likely to **agree I'm unsure how to improve my organization's DevOps processes** – 47% agree compared to 34% of decision-makers

Most are measuring DevOps success/impact and feel they are doing it effectively...



Have a way to measure DevOps success (most commonly deployment frequency)

Feel they are very or somewhat effective in measuring DevOps success

Detailed findings

Detailed findings

PART 1

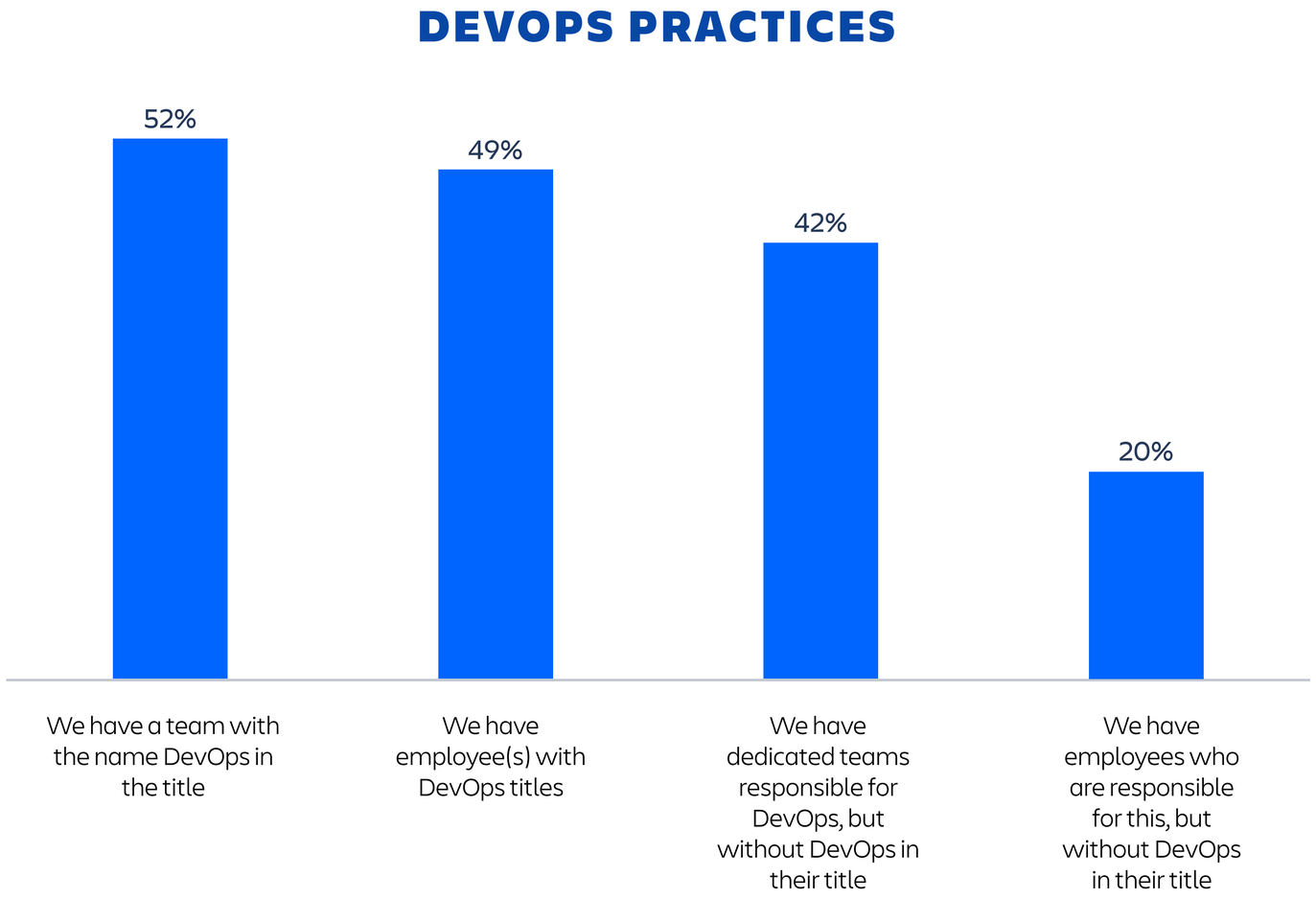
DEVOPS PRACTICES

DevOps titles are the norm...

Organizations use DevOps in titles – **69% have a team with DevOps in the name and/or employees with DevOps in their titles.**

- Larger organizations with 500+ employees are especially likely to have a team with DevOps in the title (57%).
- Organizations that have been using DevOps for 3+ years are also more likely to have a team with DevOps in the name (57%).

Which of the following best describes your organization's management of DevOps? Please select all that apply.

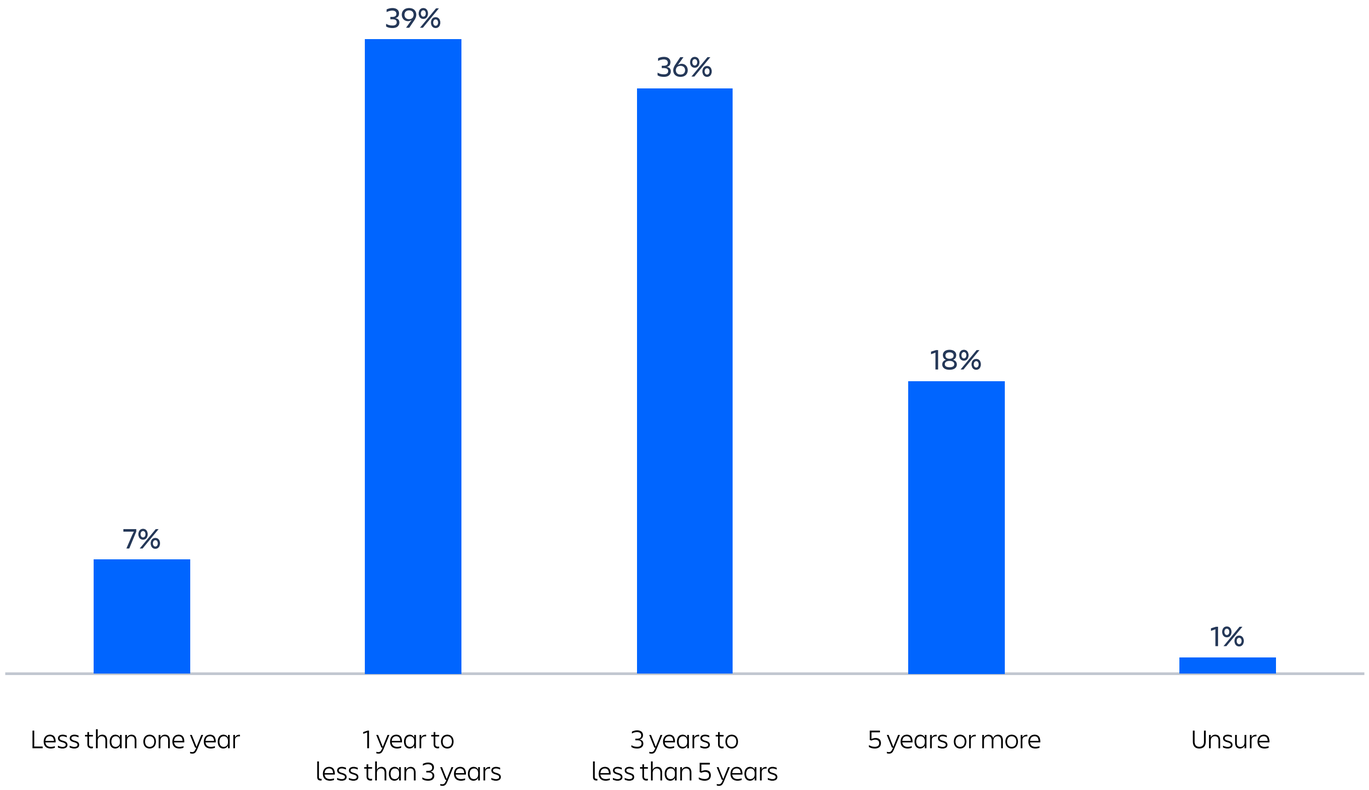


...but almost half of organizations are just starting with DevOps, practicing it for less than 3 years.

- 46% of organizations are relatively new to DevOps with under 3 years of doing it.
- 54% of organizations have been practicing DevOps for 3 years or more.

Approximately how long has your organization used DevOps practices?

LONGEVITY OF DEVOPS PRACTICES

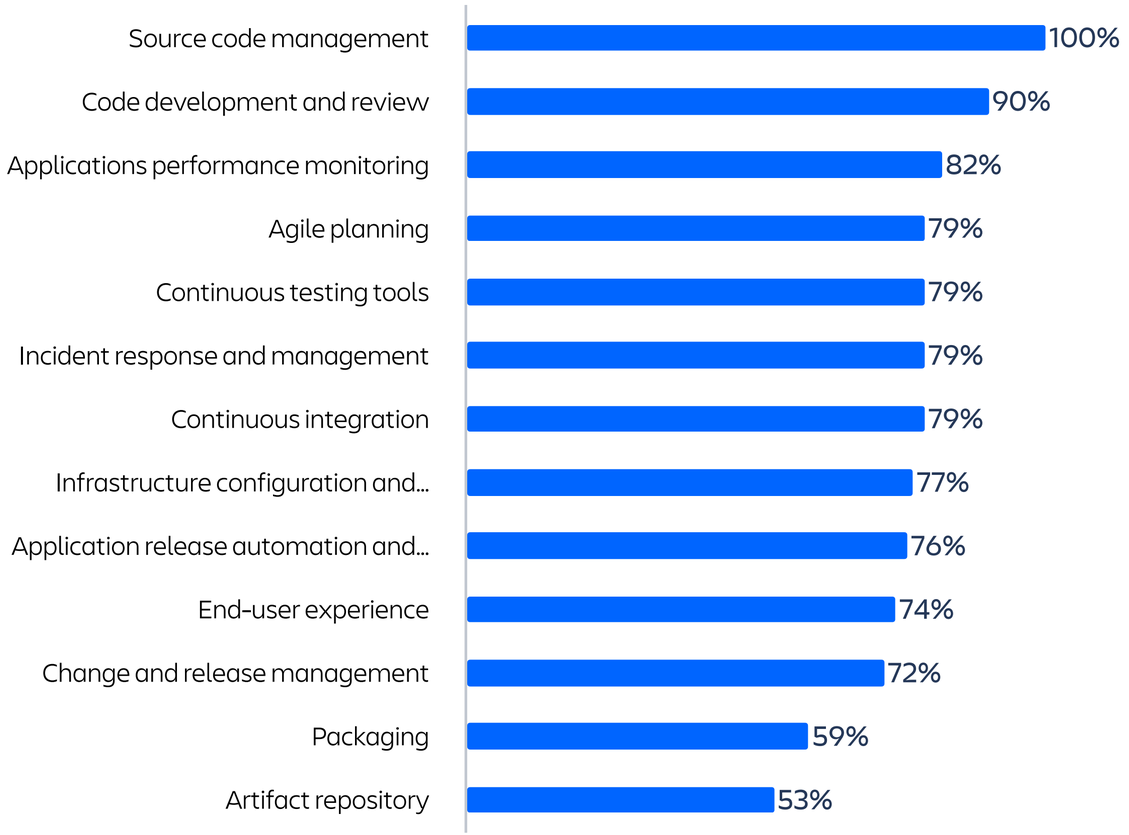


Source code management and code development are the most widespread toolchains used

Respondents are using an average of 10.3 toolchains, with 80%+ using source code management, code development and review and applications performance monitoring. The least common is artifact repository, although almost half are using this toolchain as well.

Which of the following DevOps toolchains does your company currently use? [N=417 who have use source code management toolchain]

TOOLCHAIN USAGE



Detailed findings

PART 2

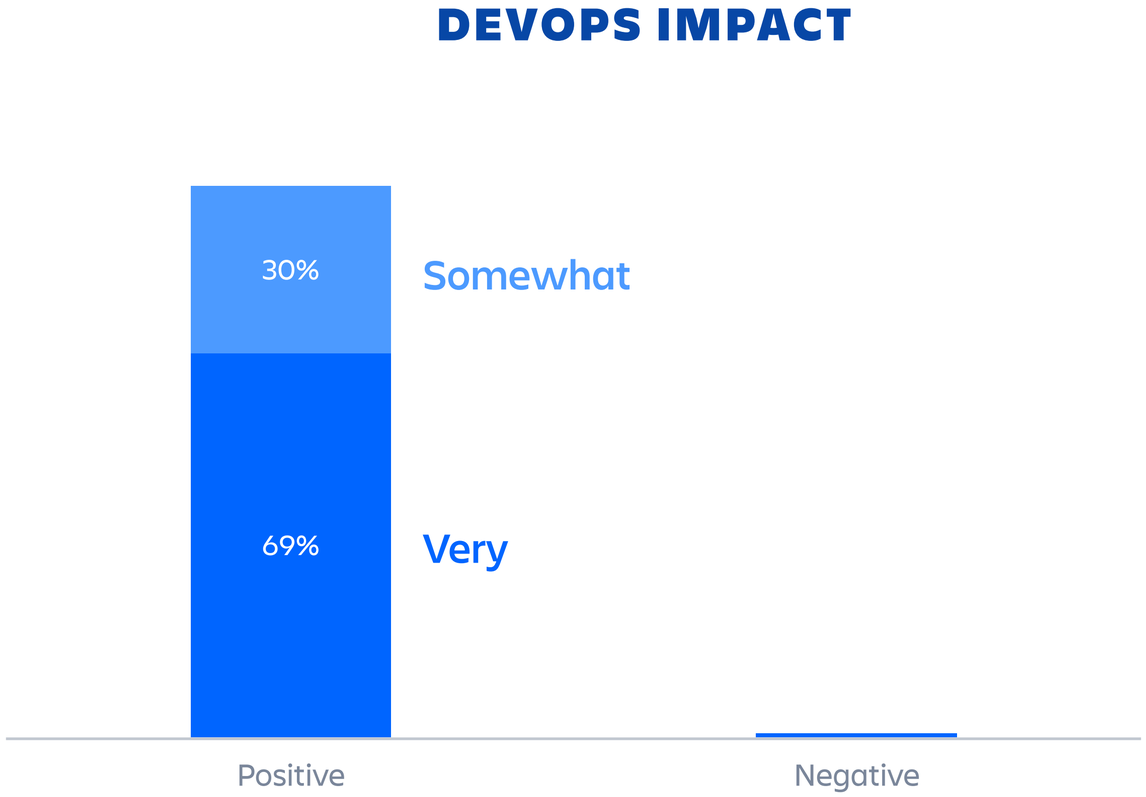
PERCEPTIONS OF DEVOPS – IMPACT & CHALLENGES

DevOps has a resoundingly positive impact on organizations...

Nearly all respondents say the implementation of DevOps will have a positive impact on their organization on the future.

- Interestingly, decision-maker employees are more likely to say very positive (75% compared to only 60% of practitioners).
- Those who measure DevOps success are more likely to say its very positive as well (76%).

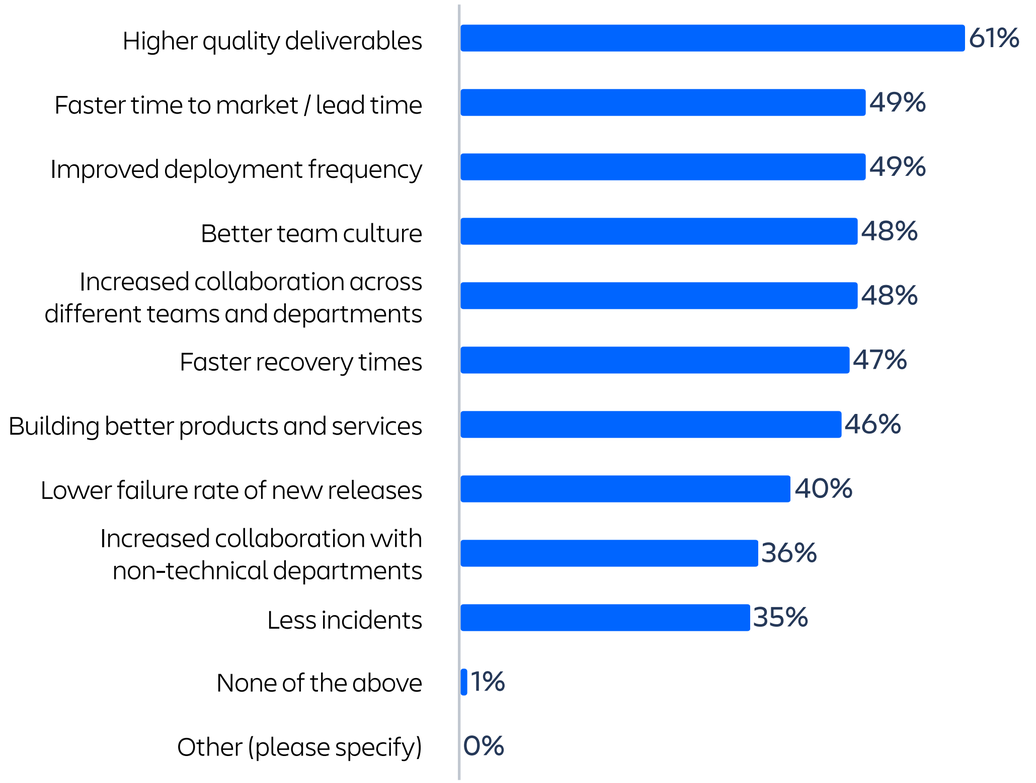
Generally, what impact do you expect implementing DevOps will have on your organization in the future?



...across a variety of metrics...

- Organizations see a multitude of positive results from DevOps implementation, most frequently **higher quality deliverables** (61%).
- About half see **faster time to market/lead time**, improvement deployment frequency, better team culture and increased collaboration across teams/ departments.
- Those who work on **both Developing and Operations are significantly more likely to see various impacts**, such higher quality deliverables (65%), faster recovery times (52%), building better products and services (48%), and lower failure rate of new releases (45%).
- Those who have been **practicing DevOps for longer (3+ years)** are more likely to have seen higher-quality deliverables (66%), lower failure rate of new releases (45%) and less incidents (40%).

IMPACT OF DEVOPS ON ORGANIZATION



Which of the following, if any, have been the impact of implementing DevOps practices on your organization? Please select all that apply.

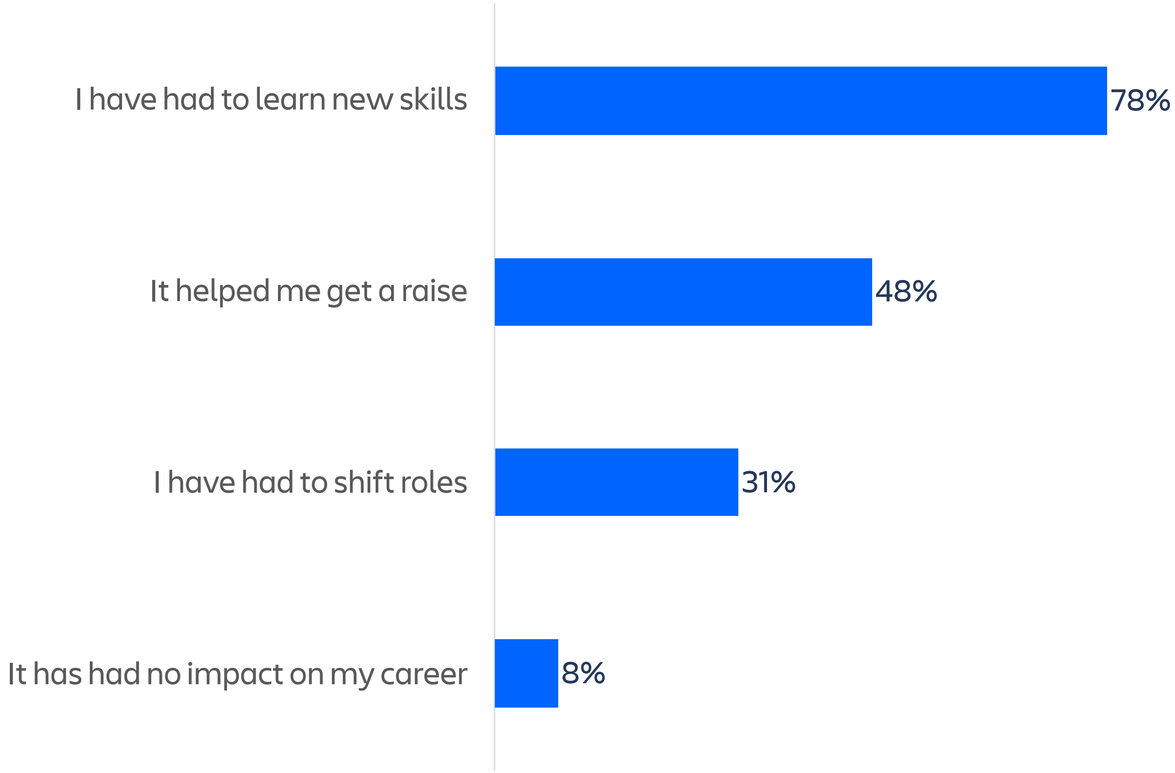
...and it leads to career transformation.

9 out of 10 respondents say DevOps impacted their career

- The majority of respondents say DevOps implementation has required them to **learn new skills**.
- Almost half (48%) say it helped them **get a raise**.
- A third had to **shift roles**.

What impact has DevOps implementation had on your career, personally?

IMPACT OF DEVOPS ON CAREER



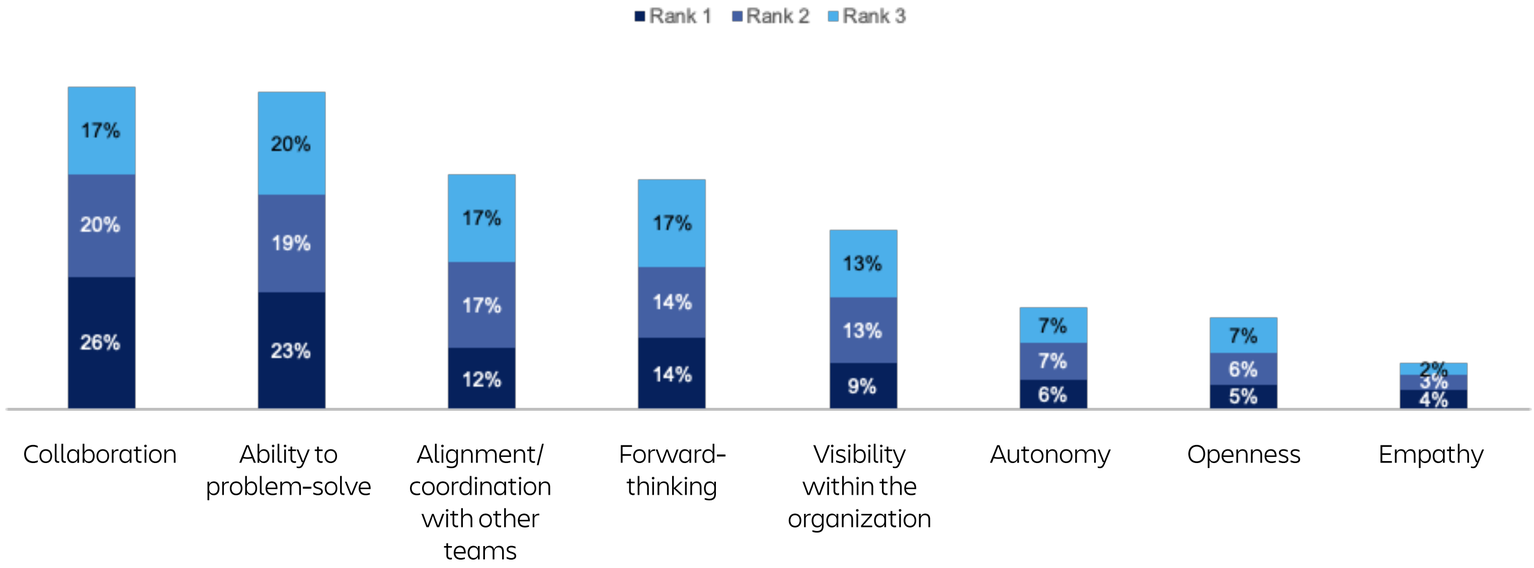
Collaboration is the key for DevOps success...

Overall, **Collaboration** and **Ability to problem solve** are ranked first among traits of a successful DevOps team

- Ops respondents are more likely to rank Ability to problem solve and autonomy #1 at 32%.
- Devs are more likely to rank Collaboration #1 36%.
- Decision-makers are more likely to rate Forward-thinking as #1 at 18%.

Which of the following are the most important traits for a DevOps team/ department to have in order to perform well? Please rate the top 3 traits, with 1 being the most important to a successful DevOps team.

MOST IMPORTANT TRAITS FOR DEVOPS TEAM TO PERFORM WELL

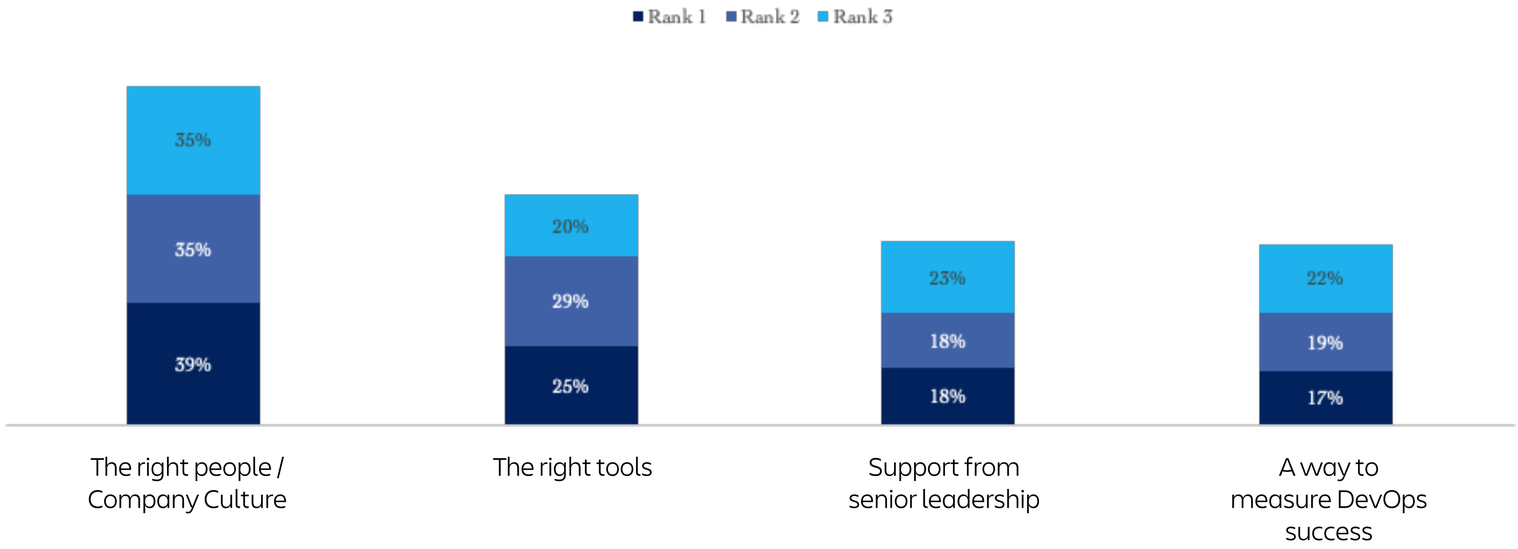


...And the right people and culture lead to successful implementation.

The right people and/or company culture is the top trait for successful DevOps implementation. The right tools and support from senior leadership are also important.

- Devs respondents are especially likely to say A way to measure DevOps success is #1 (19%).
- Software Developers are more likely than IT professionals to feel they need The right tools (38% rank this #1).

MOST IMPORTANT TRAITS FOR SUCCESSFUL DEVOPS IMPLEMENTATION



Which of the following, if any, are the most important factors to a successful DevOps implementation? Please rate the top 3 factors, with 1 being the most important to a successful DevOps team.

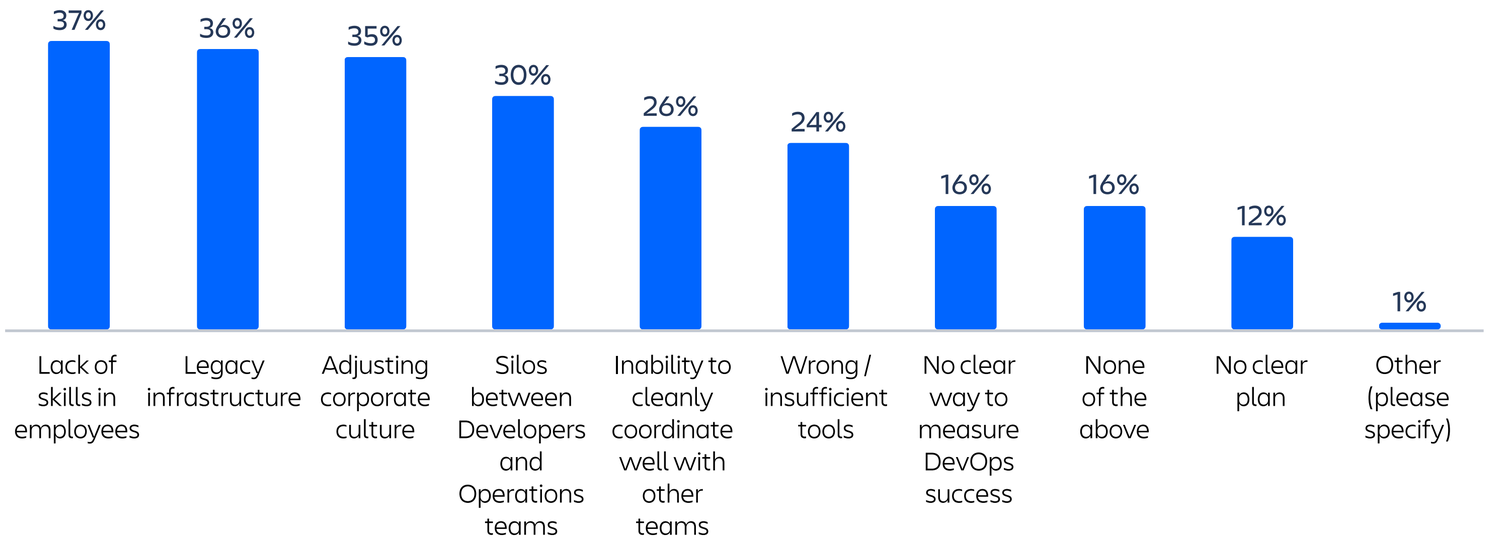
Lack of skills, legacy infrastructure and corporate culture are biggest hurdles to DevOps implementation.

The majority of respondents (84%) have faced barriers to their DevOps implementation. Most common hurdles are lack of skills in employees, legacy infrastructure and adjusting corporate culture.

- C-suite respondents are more likely to see **inability to cleanly coordinate** well with other teams (38%) as a barrier.

Which of the following, if any, have been barriers to implementing DevOps practices into your organization? Please select all that apply.

BARRIERS TO DEVOPS IMPLEMENTATION



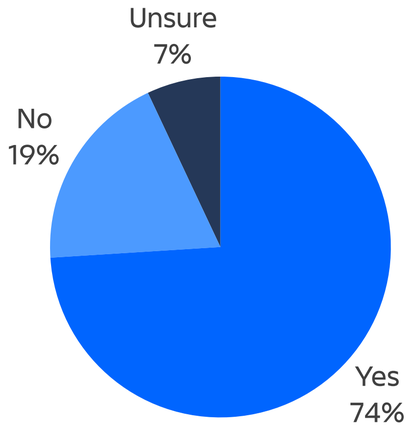
Detailed findings

PART 3

MEASURING TEAM SUCCESS

Three quarters measure DevOps success, most commonly through deployment frequency

- Most measure DevOps success or impact (74%).
- **Deployment frequency** is by far the most common method of DevOps success measurement as companies want to be more agile and move faster.
- Nearly half of respondents leverage the four key DevOps metrics identified by DORA.
- Interestingly, 79% of decision-makers say they measure success compared to only 67% of practitioners. Decision-makers are more likely to say they use MTTR to measure success at 60% vs. 45% of practitioners.



Does your organization have a way to measure DevOps success or impact?

MEASURE DEVOPS SUCCESS / IMPACT

Which of the following does your organization use to measure DevOps success? Please select all that apply. [N=372]

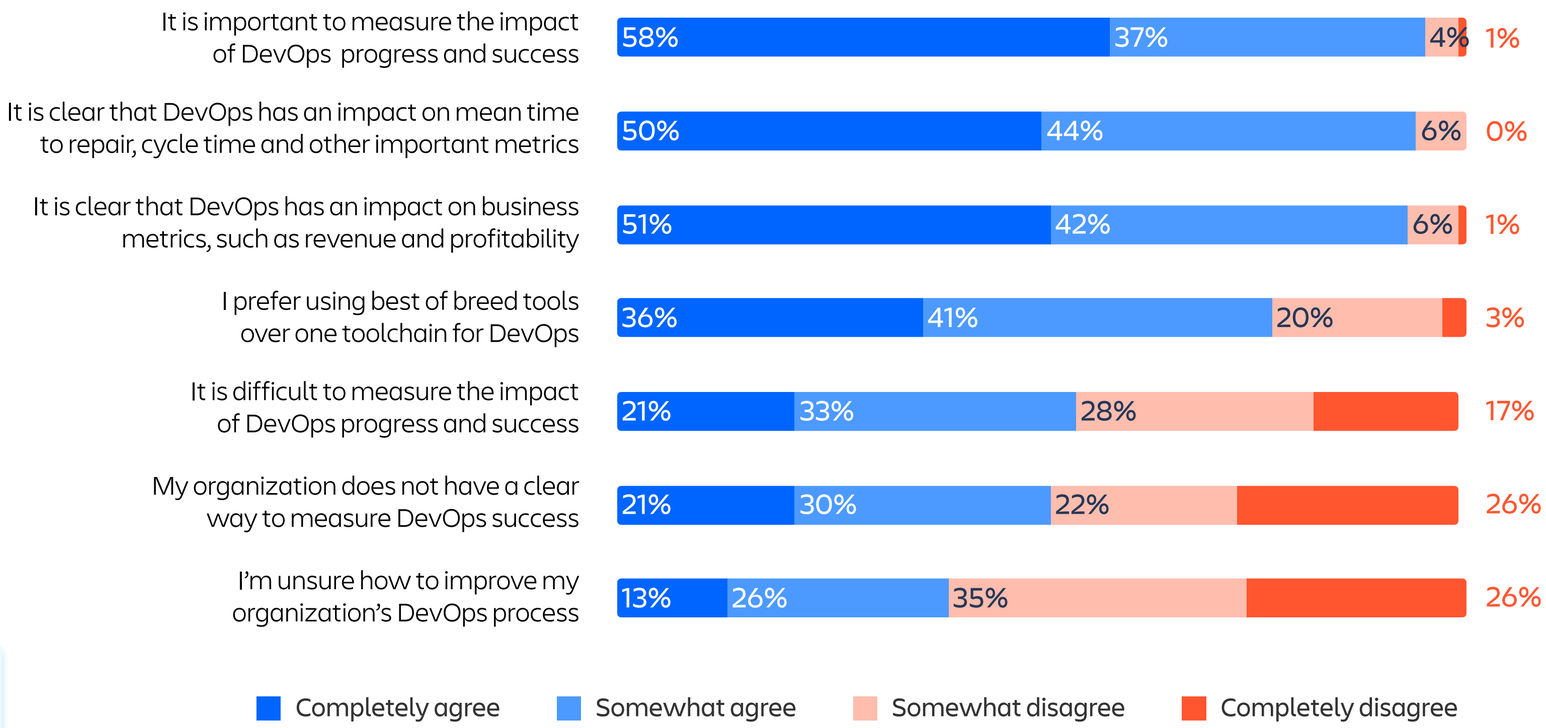
METHODS OF DEVOPS SUCCESS MEASUREMENT

Most agree it is important to measure the impact of DevOps, but don't have a clear way to do so

- Respondents agree it is **important to measure DevOps progress/ success** (95%), DevOps has an impact on important metrics (94%) and has an impact on business metrics (93%).
- Three quarters **prefer to use best of breed tools** versus one toolchain.
- Half of respondents say that it is **difficult to measure the impact** of DevOps progress, and that their organization does not have a clear way to measure success.

How much do you agree or disagree with each of the following statements?

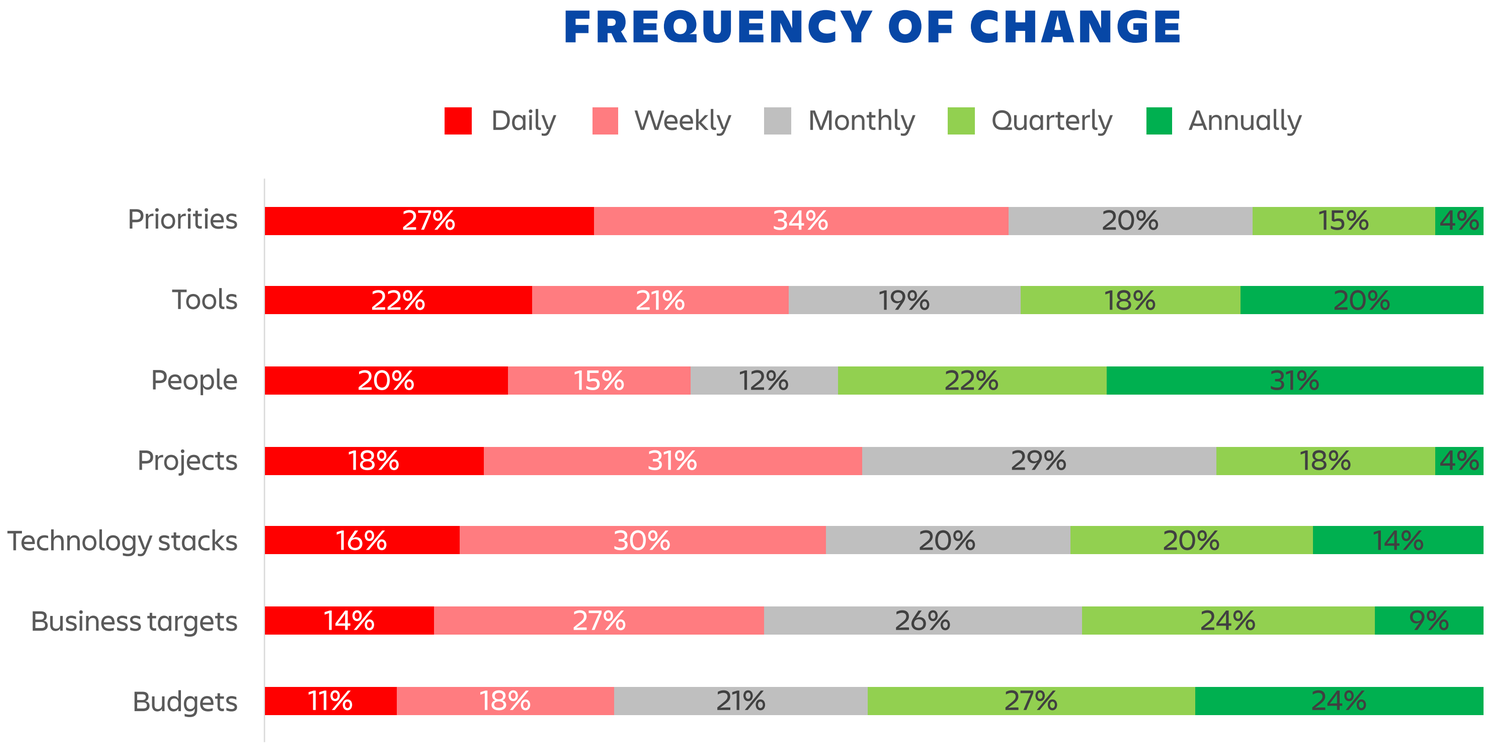
AGREEMENT WITH DEVOPS MEASUREMENT / IMPACT STATEMENTS



Organizations are frequently shifting priorities

- Organizations are **changing priorities (60%) and projects (49%) daily or weekly**. The Decision-maker perceives more change than practitioners – they are more likely to say all of these items change daily or weekly.
- People and Budgets have a much lower frequency of change than priorities and projects.

How often does your development team change each of the following?



Detailed findings

PART 4

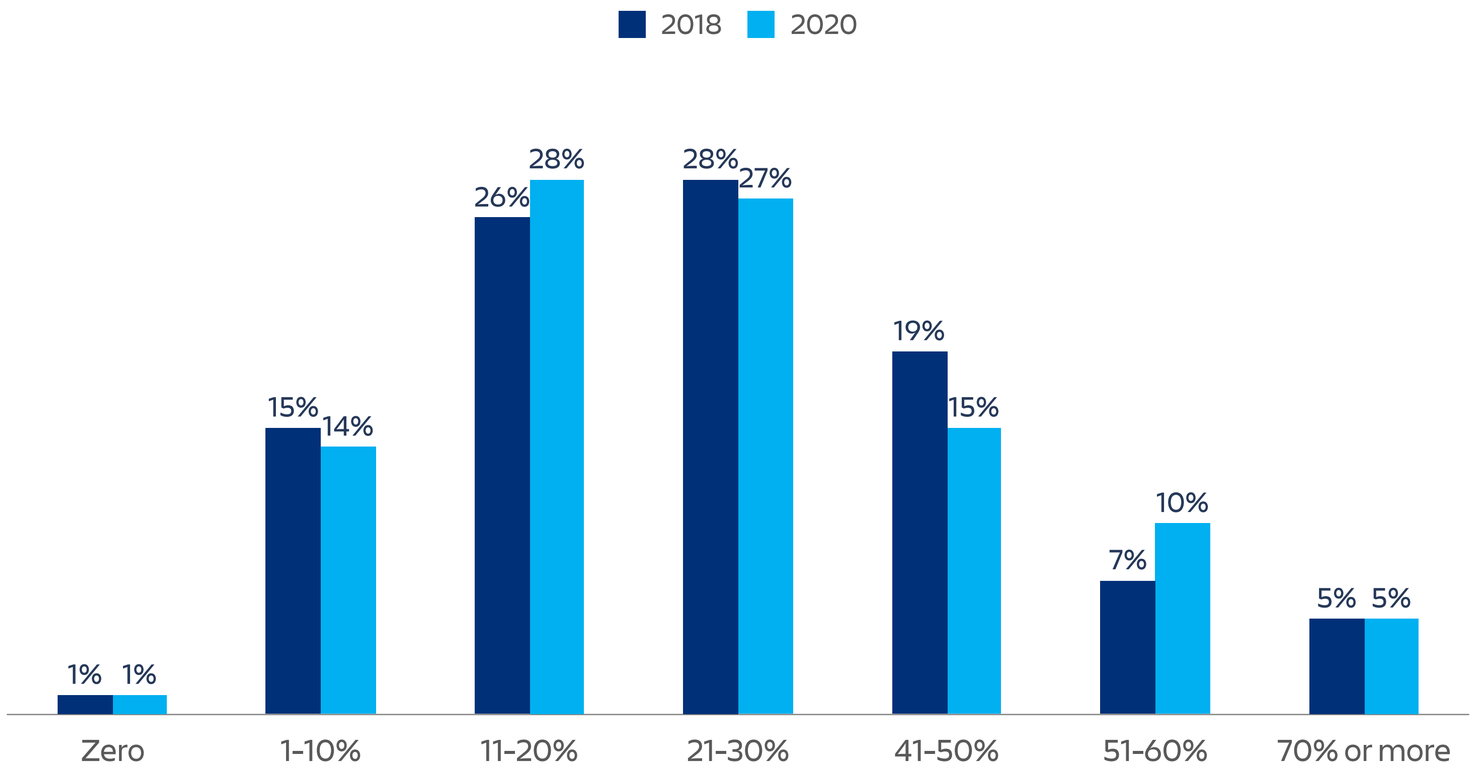
TRACKING MODERN SOFTWARE TRENDS

Most organizations continue to spend up to 30% of their time on updates

- There are no statistically significant changes in the amount of time spent on upgrades and updates since the 2018 report.
- Seven in ten (70%) are spending up to 30% of their time on upgrades and updates.

Approximately what percentage of your team's time each month is spent on updates or upgrades to self-hosted software you use?

TIME SPENT ON UPGRADES/UPDATES

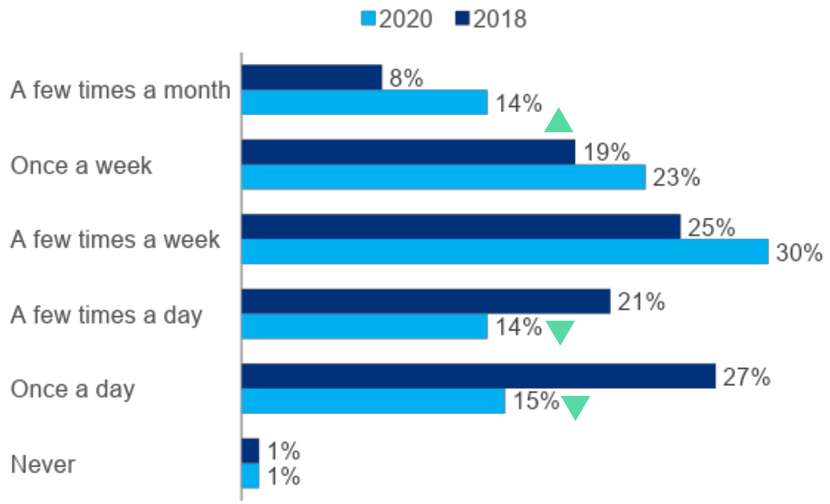


The frequency of being asked status and updating status may be declining...

Since 2018, the frequency respondents are asked status and the frequency they update status in a tool is statistically less often.

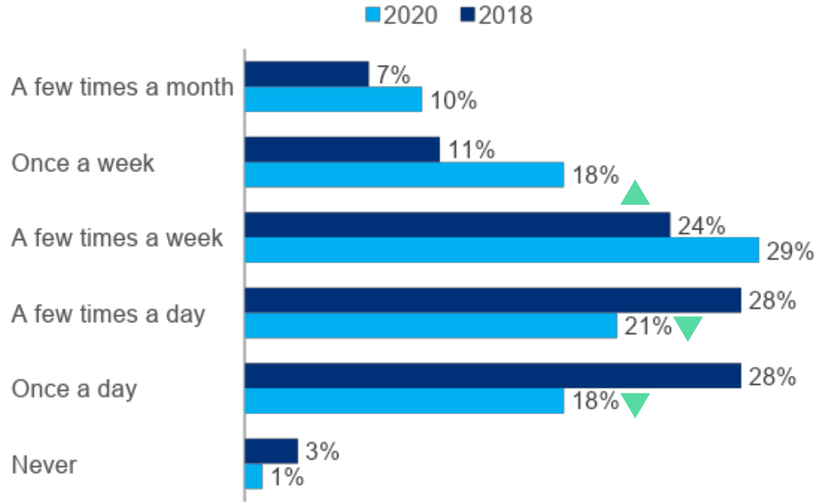
- In 2020, respondents are less likely to say they are asked a few times a day or once a day to provide their work status.
- They are also less likely to stay they need to update status in a tool a few times a day or once a day.

FREQUENCY ASKED STATUS



Approximately how often are you asked by someone to provide the status of your or your team's work?

FREQUENCY UPDATE STATUS IN TOOL



How many times a day do you have to update status in a software development tool?

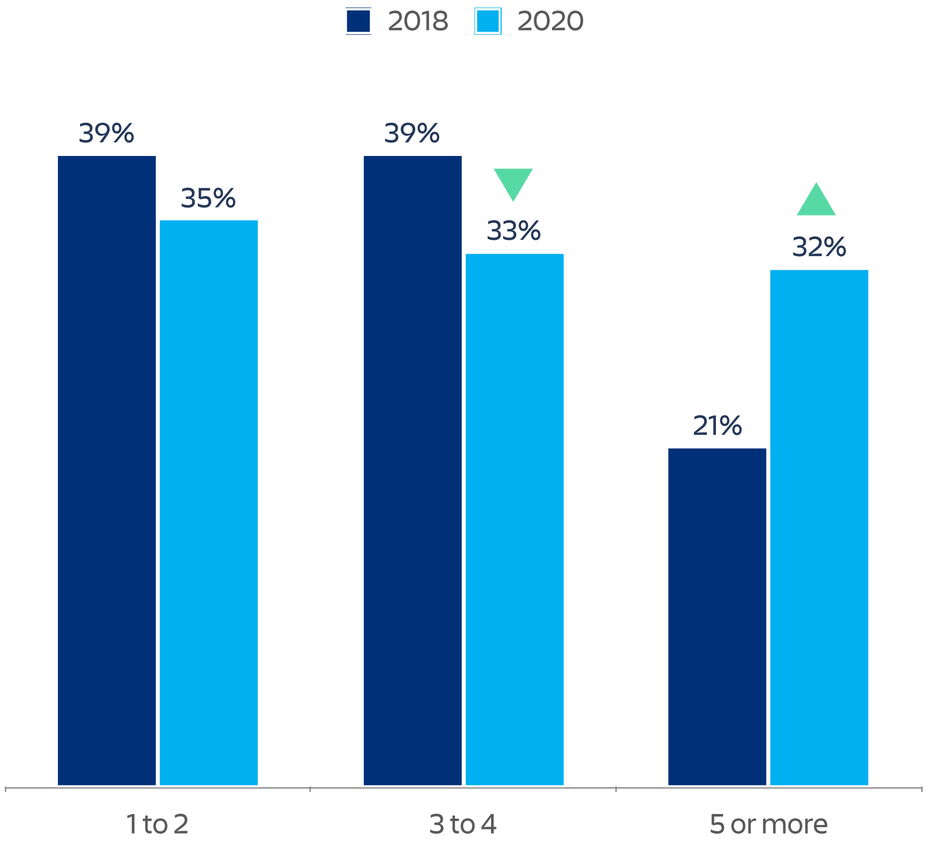
...But the number of tools to understand a project status is on the rise.

The number of tools respondents use to understand the status of their software development projects are on the rise:

- Significantly less say they need 3-4 tools to know their status, while significantly more say they need 5+ tools to understand their status.

How many tools do you need to consult to understand the status of your software development projects?

NUMBER OF TOOLS CONSULTED TO UNDERSTAND PROJECT STATUS



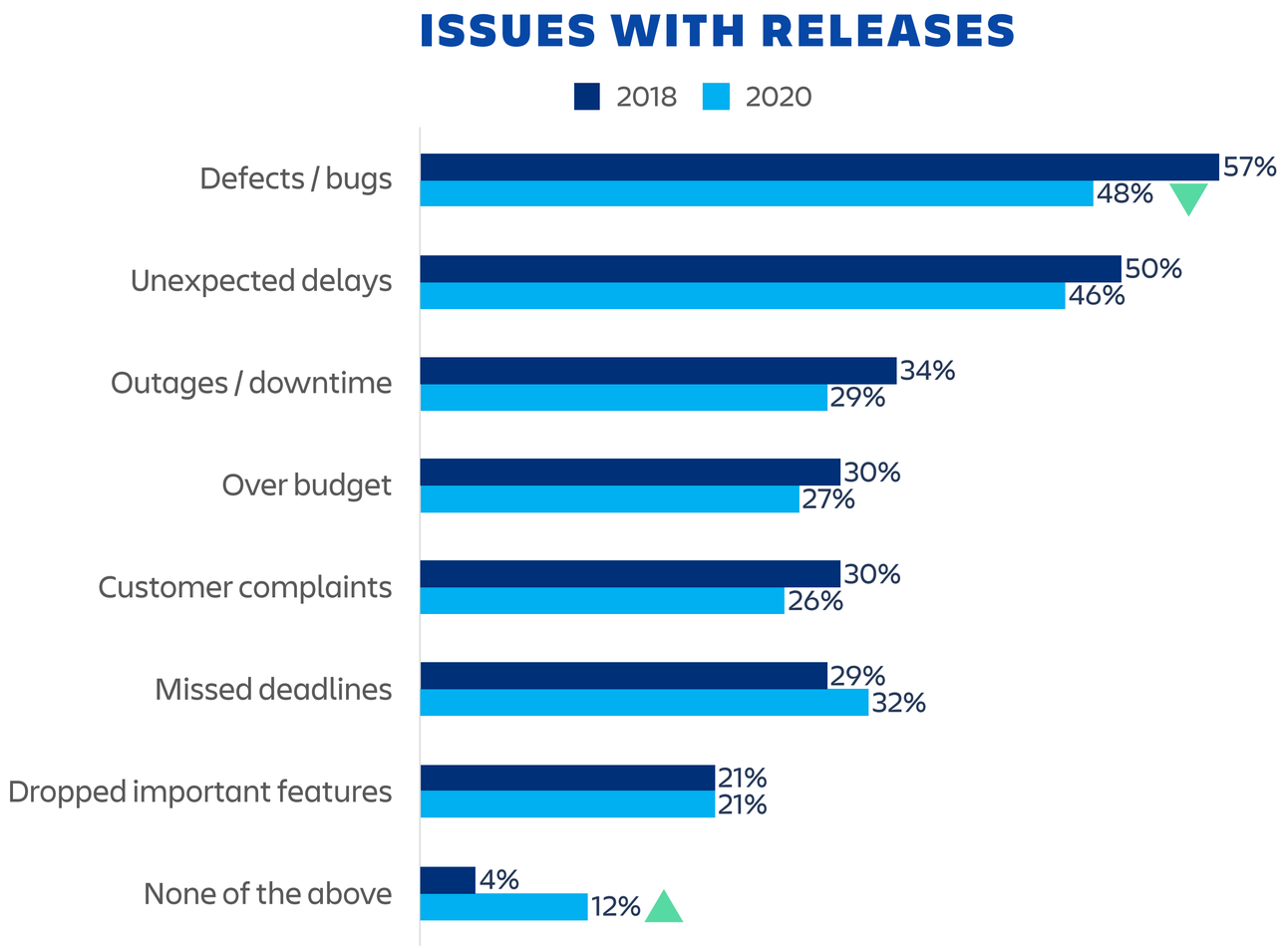
Bugs and delays remain the top issues with releases

Issues with releases are similar to 2018 in that defects / bugs are the most common issue, followed by unexpected delays and outages/downtimes.

- Significantly less say they deal with bugs, but it is still the most common release issue.

Significantly more say they deal with none of the issues listed. Notably, this is still a minority of 12%.

Which of the following issues has your current team faced with a release? Please select all that apply.

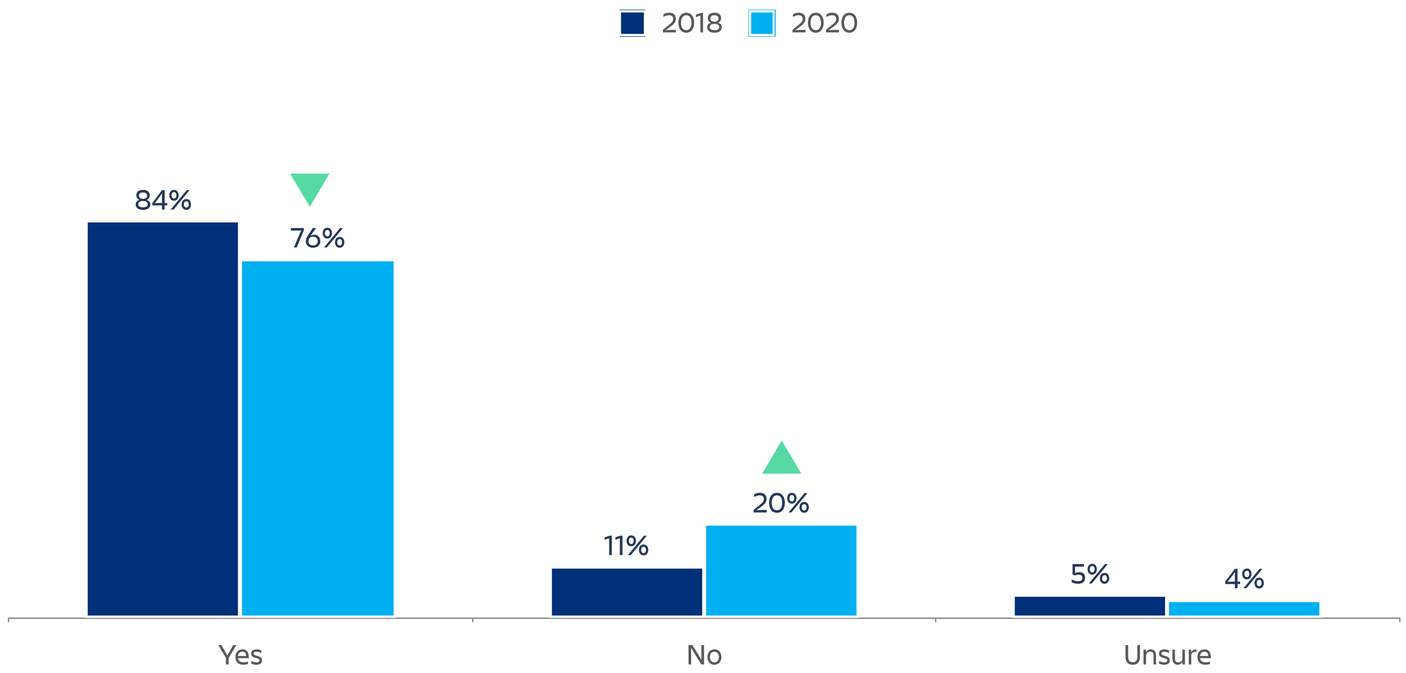


Organizations are measuring customer satisfaction on new releases less often

- Organizations are statistically less likely since 2018 to be measuring customer satisfaction on new releases now. The proportion that say they do measure customer satisfaction has decreased significantly, while the proportion that do not has increased significantly.
- Even so, the majority continue to measure customer satisfaction on new releases.

Does your organization have practices in place to measure customer satisfaction on newly released features?

MEASUREMENT OF CUSTOMER SATISFACTION OF NEW RELEASES

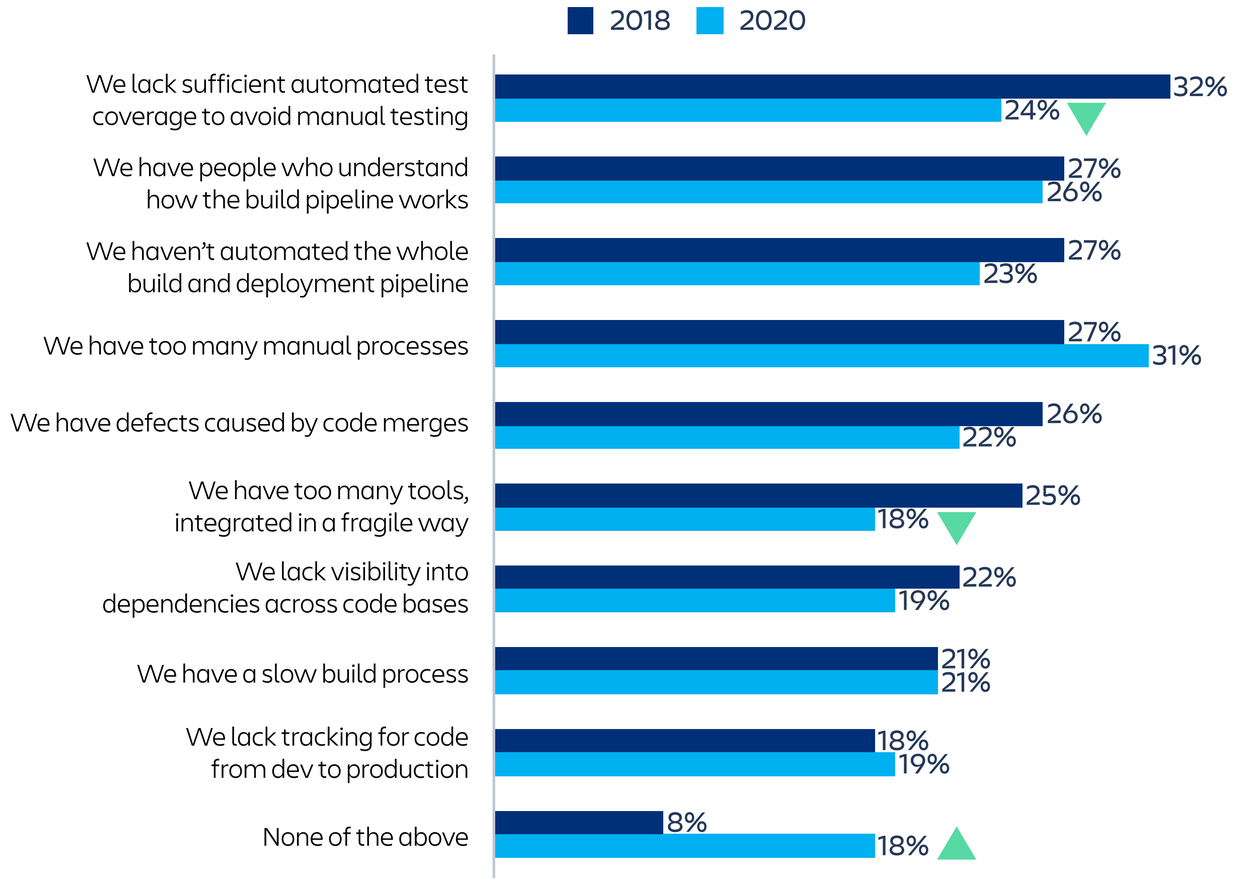


Having too many manual processes is becoming a more pervasive issue

- Respondents are reporting fewer overall issues preventing them from going faster in moving code from development to production since 2018. Significantly more say they experience none of the issues tested.
- The proportion that say they lack sufficient automated test coverage to avoid manual testing and that say we have too many tools has integrated in a fragile way have decreased significantly.
- Meanwhile, the proportion that says we have too many manual processes has increased (although not at a statistically significant level) to become the most common issue.

Which of the following prevent your current team from going faster in moving code from development to production? Please select all that apply.

ISSUES PREVENTING GOING FASTER FROM CODE TO DEVELOPMENT

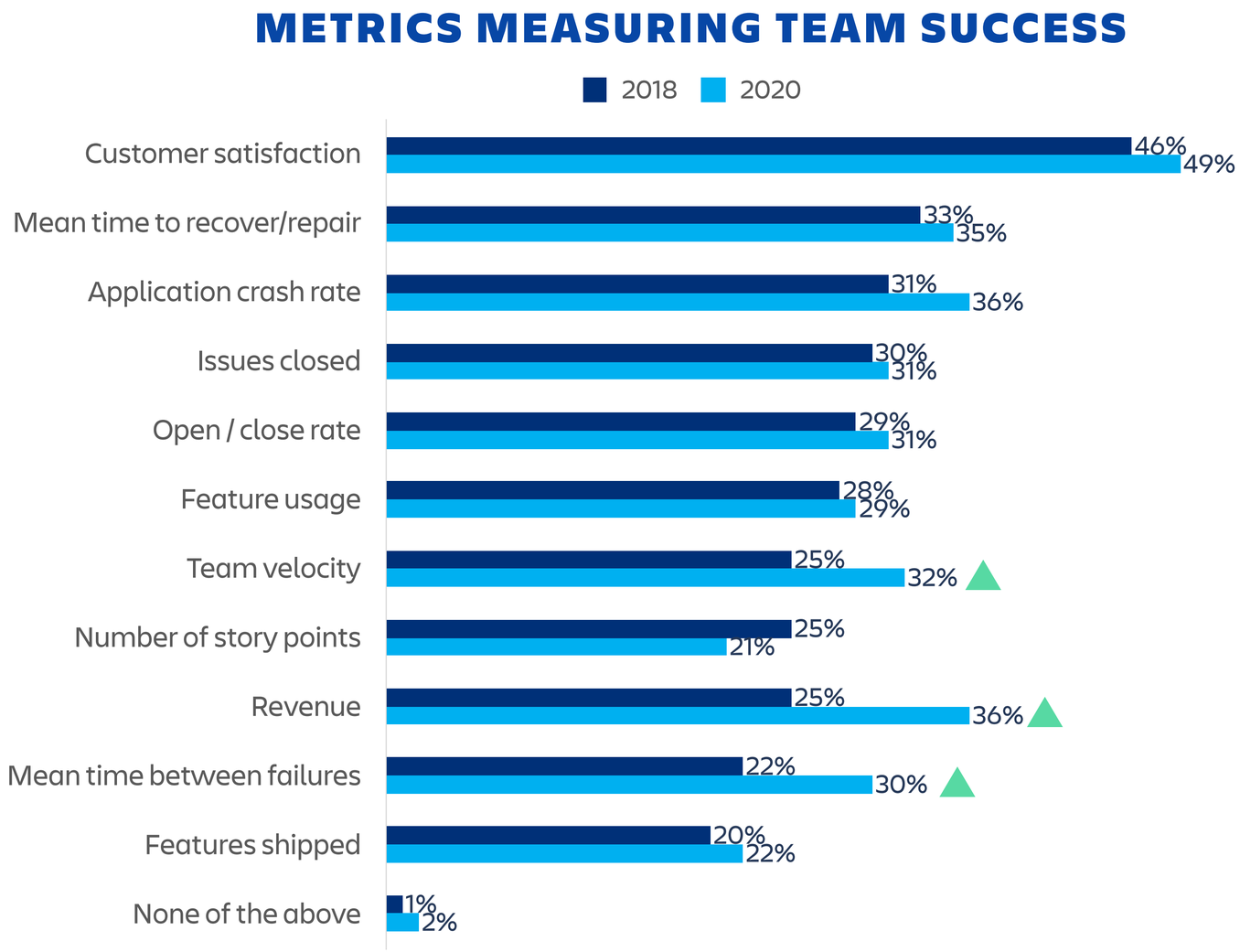


Customer satisfaction remains the chief means of measuring team success

While customer satisfaction remains the most commonly used metric for software teams to evaluate and track success, usage of several metrics have increased:

- Team velocity
- Revenue
- Mean time between failures

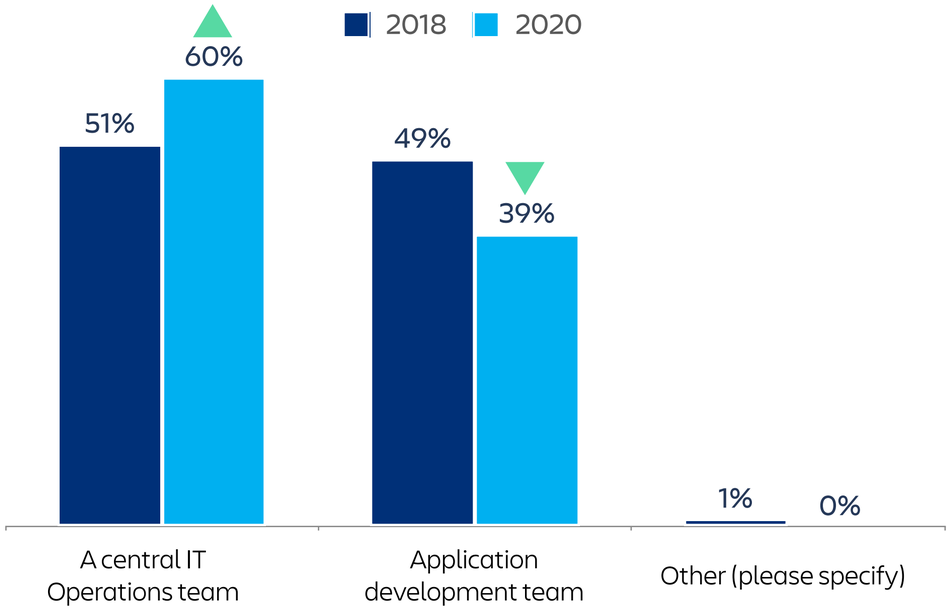
Which of the following metrics does your team use to evaluate and track your team's success? Please think of these measurements specifically related to the software development team, rather than the organization overall. Please select all that apply.



IT may be more responsible for resolving incidents now

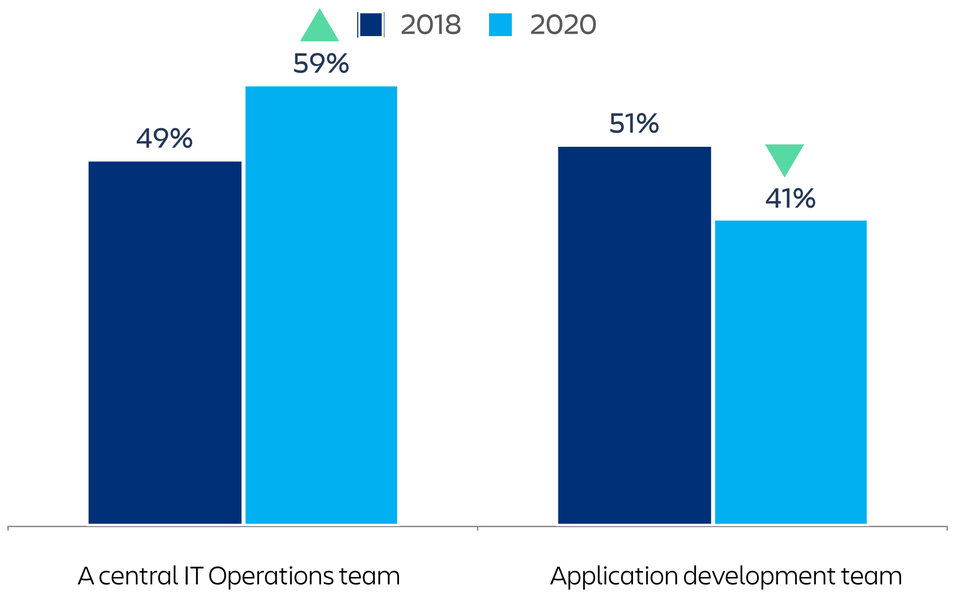
The percentage of respondents who say IT is responsible for resolving major incidents and the percentage that prefer IT to resolve major incidents has increased since 2018. However, this may be due to IT professionals being a larger part of the sample in the 2020 survey.

PRIMARY RESPONSIBILITY FOR RESOLVING MAJOR INCIDENTS



For major incidents, which team is currently primarily responsible for responding and resolving them?

PREFERRED PARTY RESPONSIBLE FOR RESOLVING MAJOR INCIDENTS



For major incidents, which team would you prefer to be primarily responsible for responding and resolving them?

Appendix

DEMOGRAPHICS & FIRMOGRAPHICS

GENDER	
Male	72%
Female	28%

AGE	
18-24	2%
25-34	24%
35-44	47%
45-54	19%
55-64	7%
65 or older	1%

REGION	
Northeast	24%
South	18%
Midwest	33%
West	25%

LEVEL	
Chief Executive Officer	4%
Chief Information Officer	8%
Chief Technology Officer	13%
President	1%
Vice President	3%
Director	31%
Manager / Team Lead	39%

DEVOPS RESPONSIBILITY	
Building apps	15%
Operating apps	17%
Both	66%
Other	1%

DEPARTMENT	
IT	90%
Software Development	10%

TITLE	
DevOps Engineer	1%
Team Leader of Application Engineering	1%
Director of IT	30%
IT manager	40%
IT Ops manager	3%
Manager, Operations and Release	1%
CTO	6%
Infrastructure Engineer	1%
Director of Development	2%
CIO	8%
Architect	1%
Director of DevOps	1%
Senior Software Developer	4%

FIRMOGRAPHICS

REPORTING TO	
DevOps Engineer	2%
Team Leader of Application Engineering	1%
Director of IT	21%
IT manager	23%
IT Ops manager	2%
Manager, Operations and Release	2%
DevOps architect	1%
Lead developer	1%
CTO	16%
Infrastructure Engineer	1%
Director of Development	2%

REPORTING TO, CONTINUED	
Senior Developer	1%
Build/automation manager	1%
Director of Developer Tools	2%
CIO	14%
Architect	1%
DevOps Lead	1%
Director of DevOps	2%
Senior Software Developer	1%
Other	4%
None of the above	2%

ORGANIZATION TENURE	
Less than one year	1%
1 to less than 3 years	6%
3 to less than 5 years	13%
5 to less than 10 years	24%
10 years or more	56%

NUMBER OF EMPLOYEES	
101-249	8%
250-499	12%
500-1,000	24%
1,001-4,999	30%
5,000-9,999	11%
10,000+	14%

ENGINEERING TEAM SIZE	
Less than 10 employees	6%
11-20 employees	16%
21-50 employees	24%
51-100 employees	24%
101+ employees	29%

REVENUE	
$0 - $5 Million	3%
$5.1 Million - $10 Million	7%
$10.1 Million - $25 Million	8%
$25.1 Million - $50 Million	8%
$50.1 Million - $100 Million	11%
$100.1 Million - $250 Million	9%
$250.1 Million - $500 Million	9%
$500.1 Million - $1 Billion	19%
$1.1 Billion - $5 Billion	13%
$5.1 Billion - $10 Billion	5%
$10.1 Billion +	6%
Don’t Know	2%