

The State of DevOps Automation

2022

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Executive Summary

Digital transformation continues to accelerate and be a critical business strategy across the enterprise, resulting in the need to deliver innovation faster. Simultaneously, hybrid work has pushed businesses into an era of hyper digitization and amplified the level of complexity ITOps teams are facing. This shift has highlighted companies' inefficiencies including manual and complex processes as they experience resource strain and increased downtime.

The second annual industry survey of 1,046 IT Operations, DevOps and Site Reliability Engineering (SRE) professionals with the role of VP, Director, Manager and individual contributor at U.S. organizations with over 300 employees was conducted to:

- Provide a better understanding of how ITOps, DevOps and SRE teams are equipped to deal with the increased demands of evolving modern stacks, incidents and issue resolution
- Determine the challenges teams face when solving incidents and barriers to automation
- Assess the opportunities for organizations to implement automation and SRE practices to achieve efficient operations

Findings from the survey underlined the increasing need for automation and SRE practices as organizations continue to adopt hybrid work environments and execute digital transformation initiatives. Burdened by inefficient processes, longer remediation times, and a lack of automation, teams are driven to expand their tech stack. The study also found that better collaboration methods and tools as well as harnessing human judgment are key to successfully enhancing service reliability, resolving incidents faster and expanding automation.

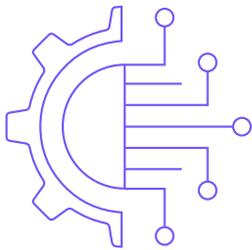
Key Findings

- 1. 62.9%** of respondents reported an increase in the frequency of service incidents that have affected their customers over the course of the last year (March 2021 to now).
- 2.** The top contributing factors to the increase of service incidents are digital transformation (**60.7%**), rolling out of new products or product updates (**55.1%**) and methods and tools for collaboration did not adequately support their team working remotely (**49.3%**).
- 3. 52.3%** reported an increase in the amount of time it takes to resolve incidents over the course of the last year, with **48.6%** saying it takes 15-30 minutes to bring the right team members together to solve an incident.
- 4. 45.7%** of organizations experienced between 6 and 19 major incidents over the course of the last 12 months.
- 5. 39.7%** of respondents reported their organization's cost of downtime has increased during the last year (March 2021 to now).
- 6.** To improve their incident management process over the next 12 months, organizations plan to implement new automation tools or applications (**48.2%**), implement new communications/collaboration tools or applications (**41.5%**) and implement new integration tools or applications (**40.6%**).
- 7. 75.6%** of respondents said there has been an increased focus on site reliability engineering practices in their organization in the past 12 months.
- 8. 83.2%** of respondents said up to 50% of their engineering operations processes are automated.
- 9. 80.4%** of respondents said that automation should let humans use their judgment at critical decision points to be more reliable and effective.
- 10. 90%** of respondents said their organization keeps track of the actions that were taken by humans during the resolution of an incident, however 56.5% of SREs said they manually enter that data into an ITSM system or other system or record.

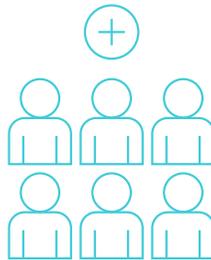
Impact of Digital Transformation and Hybrid Work on the Evolving Tech Stack for Incident Response

Digital transformation continues to be top of mind for businesses, with 90.2% of organizations reporting an increased focus on digital transformation during the last year — just a 3% decrease from the 2021 study. This continued emphasis on digital transformation initiatives coupled with the increase of organizations incorporating a hybrid work model, which jumped to 73.5% from 50.4% in 2021, has driven 73.4% of companies to expand their tech stack.

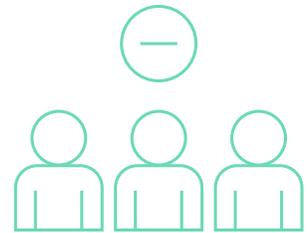
What has your organization done to address the changes brought on by the pandemic as it relates to the workforce?



73.4% have expanded their tech stack with new tools/platforms



55% have hired more team members



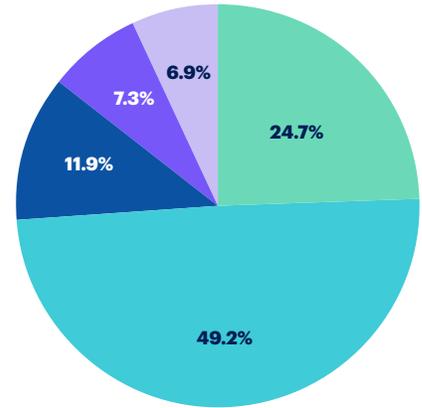
15.8% have reduced headcount

Of those who have expanded their tech stack with new tools and platforms, 98.4% reported they will continue to use them for the foreseeable future.

Despite the addition of new tools, organizations still lack full integration of the platforms and services used during incident response, making it more challenging to resolve incidents.

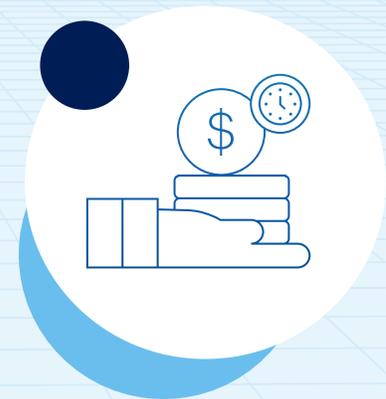
In fact, only 24.7% of respondents said all of their tools are integrated through one tool or platform, which is a 19.1% decrease from the 2021 study.

- All of our tools are integrated through one tool or platform **24.7%**
- Some of our tools are integrated through one tool or platform **49.2%**
- We integrate all of our tools with a chat platform **11.2%**
- We integrate some of our tools with a chat platform **7.3%**
- Our tools are not integrated **6.9%**



Without full integration of the tools used for incident response for 75.3% of organizations, teams run the risk of delaying the remediation process and increasing downtime, which can lead to a decrease in the quality of service reliability, and ultimately, operational impact.

With 58.2% of respondents reporting that downtime (i.e., application outages, service degradation) cost their organization up to \$499,999 per hour on average, companies cannot waste time going between various different tools and taking action manually.



Service Incidents Are Becoming More Complex and Challenging to Solve

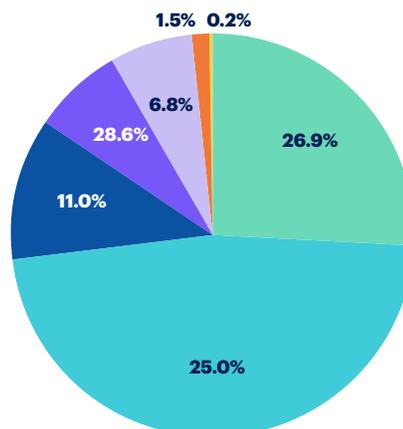
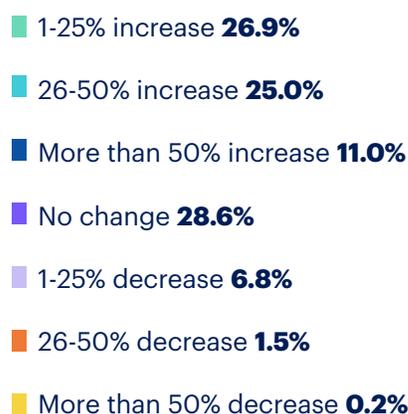
The survey results show that accelerated digital transformation initiatives, hybrid work and an expanding tech stack have increased complexity for technical operations. DevOps, SRE and IT teams are encumbered by the growing frequency of service incidents that are impacting customers and are experiencing challenges while trying to solve incidents.

62.9% of respondents reported an increase in the frequency of service incidents that have affected their customers, and 69.5% of respondents said individuals responsible for reliability engineering are experiencing challenges while trying to solve incidents as they are occurring.

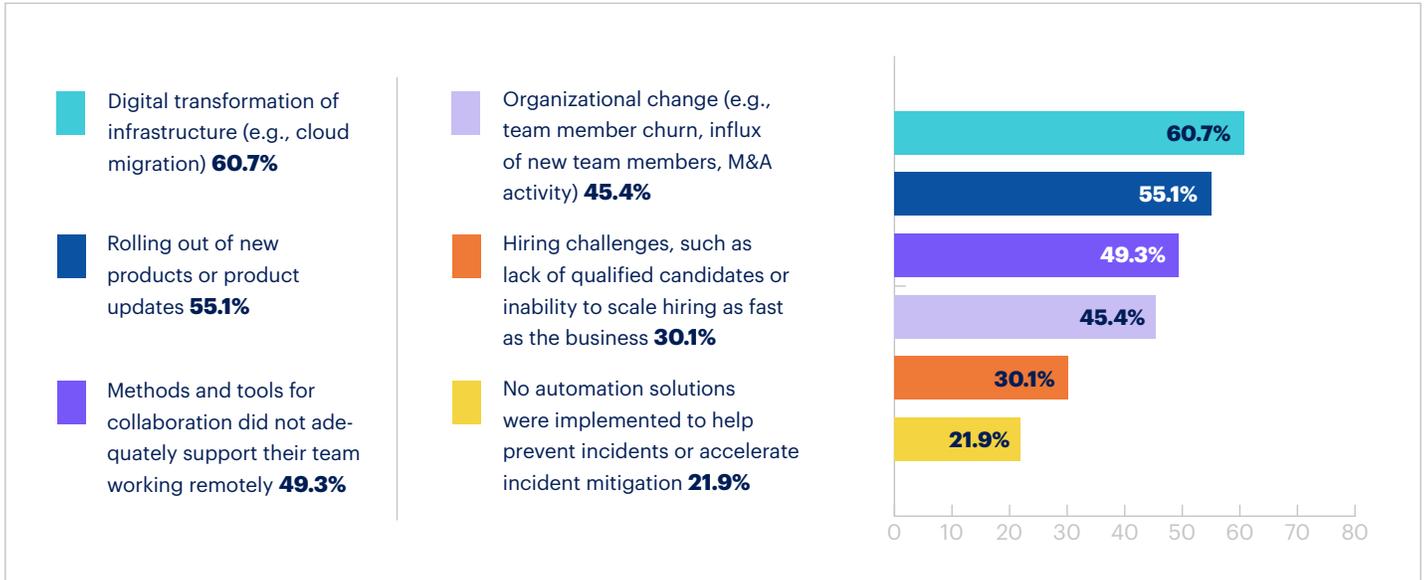


While the total percentage of those who observed an increase in the frequency of service incidents is a 27.5% decrease from last year's study — meaning some organizations have adjusted to massive digital transformation brought about by the pandemic — the majority is still reporting an increase in incidents. This indicates that teams still need more support in reducing incidents and resolving them as they occur.

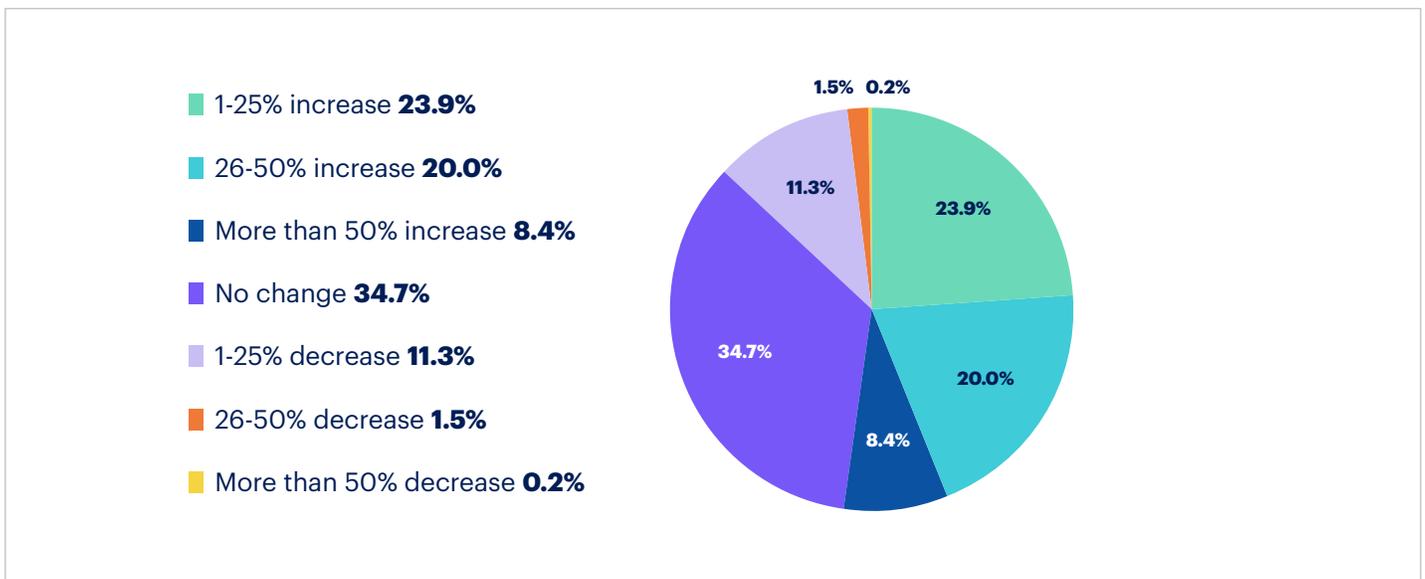
Over the course of the last year (March 2021 to now), have you observed any change in the frequency of service incidents that have affected your customers?



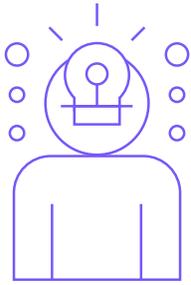
Of those who reported an increase in service incidents, respondents cited the top contributing factors as digital transformation (60.7%), rolling out of new products or product updates (55.1%), and methods and tools for collaboration did not adequately support their team working remotely (49.3%).



With teams having to navigate the complexities of solving incidents remotely using new tools and driving digital transformation initiatives, 52.3% reported an increase in the amount of time it takes to resolve incidents over the course of the last year.



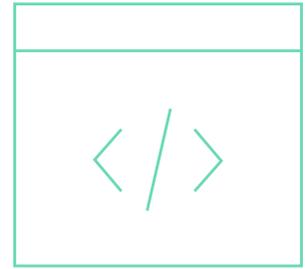
The top three challenges teams face while taking action to resolve an incident are:



Reaching the right people with specialized knowledge is difficult (52.9%)

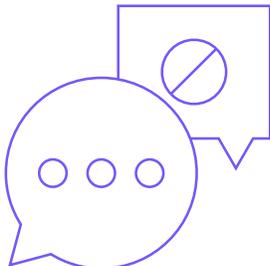


Too many manual processes (lack of automation) (49.3%)

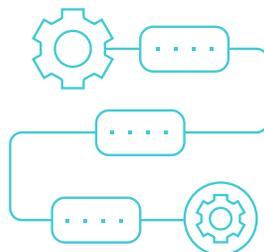


Scripts designed to automate common response actions (such as scaling infrastructure) are too brittle to changes in tool APIs (46.7%)

Of those who reported an increase in the amount of time it takes to resolve incidents, respondents reported the following reasons as the top three contributing factors:



Lack of unified communication with teammates (people are collaborating using disparate on various tools) (45.2%)



Processes have changed or are harder to follow while working remotely (41.5%)



Lack of visibility into dependencies and what teams or people are responsible for code or infrastructure (38.8%)

As the time to resolution has lagged, organizations have experienced more downtime with 39.7% reporting that the cost of downtime has increased during the last year.



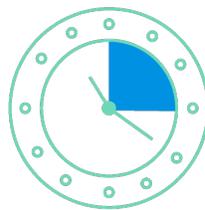
The time it takes to bring the right people together to resolve incidents is contributing to the growing costs of downtime.



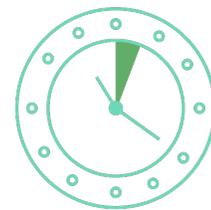
0-14 minutes: 16.1%



15-30 minutes: 48.6%



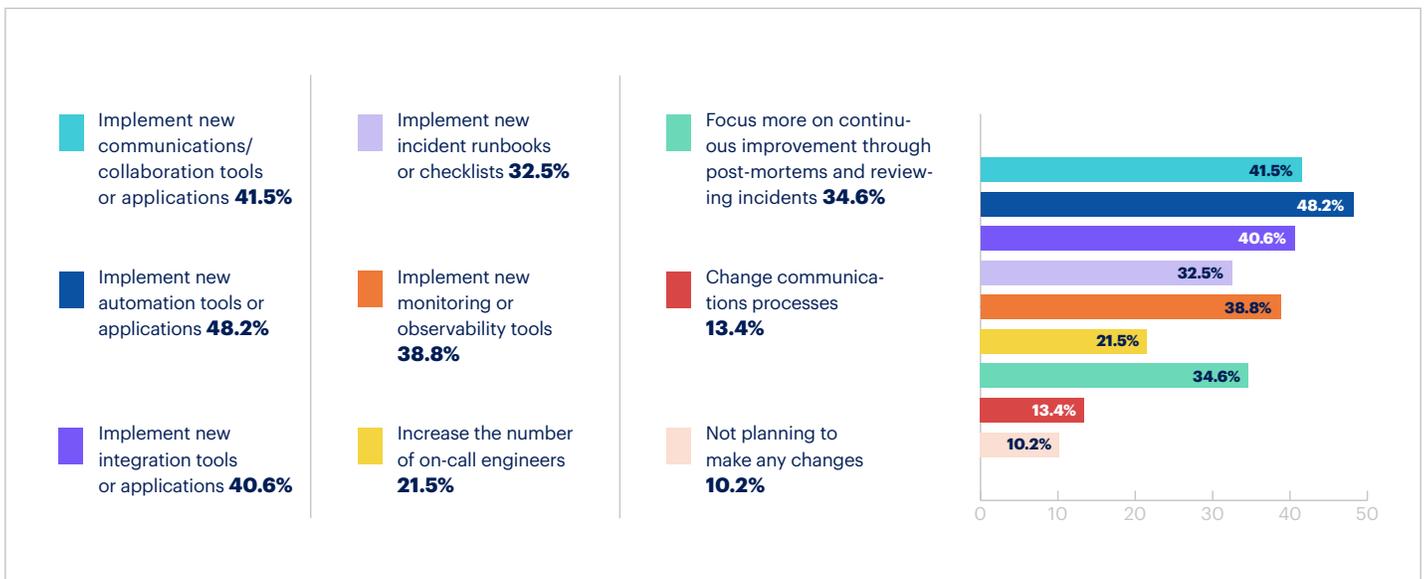
31 minutes-1 hour: 25.9%



Over an hour: 9.4%

48.6% of respondents said it takes 15-30 minutes to bring the right team members together to solve an incident. For respondents in a VP/Director/Manager SRE role, the amount almost doubles with 30% saying it takes 31 minutes to an hour to bring the right team members together to solve an incident.

Similar to the 2021 study, organizations are looking to implement tools to improve their incident management processes and decrease MTTR, prioritizing new automation tools (48.2%), communication/collaboration tools (41.5%) and integration tools (40.6%) in the coming year.



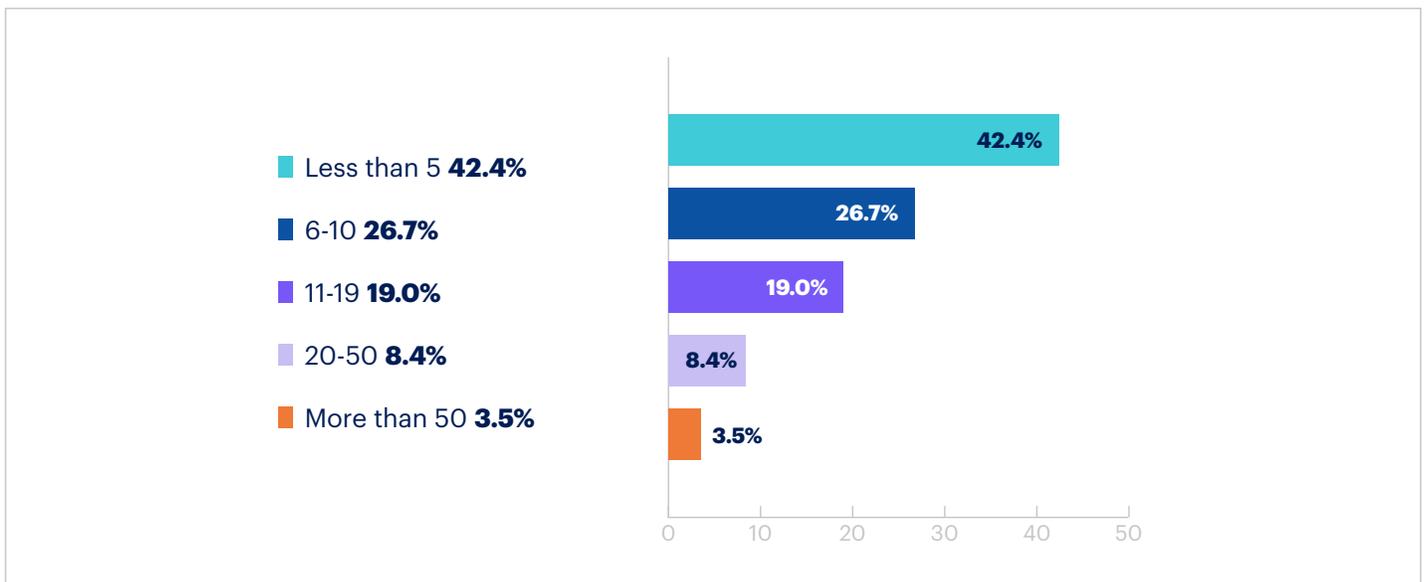
Automation and SRE Practices Alleviate Service Incident Complexity

Over three-quarters (75.6%) of respondents said there has been an increased focus on site reliability engineering practices in their organization in the past 12 months. Of those respondents, 35.1% plan to expand SRE efforts in 2022. Additionally, 65.1% of organizations plan to hire site reliability engineers in the next 12 months.



Interestingly, organizations that have increased their focus on SRE practices experienced less major incidents than those that rely on the Ops team for site reliability. 45.7% of all respondents said their team encountered between six and 19 major incidents over the course of the last 12 months.

How many major incidents has your team encountered over the course of the last 12 months?



Breaking that down further, of organizations that have increased their focus on site reliability engineering practices and plan to expand SRE efforts in 2022, 39.8% said their team encountered less than 5 major incidents over the course of the last year. In contrast, nearly 1 in 3 respondents (29.4%) at organizations that rely on the operations team for site reliability responsibility experienced 20 or more major incidents over the course of the last 12 months.

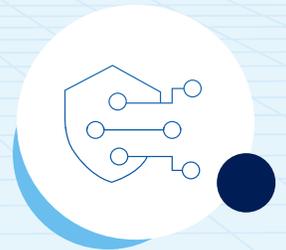
The study shows that organizations are continuing to see the value in implementing SRE practices. Despite this growing demand, SREs are still doing manual, time-consuming tasks.

Over half of SREs (56.5%) said they manually enter data into an ITSM system or other system of record to keep track of actions that were taken by humans during the resolution of an incident.



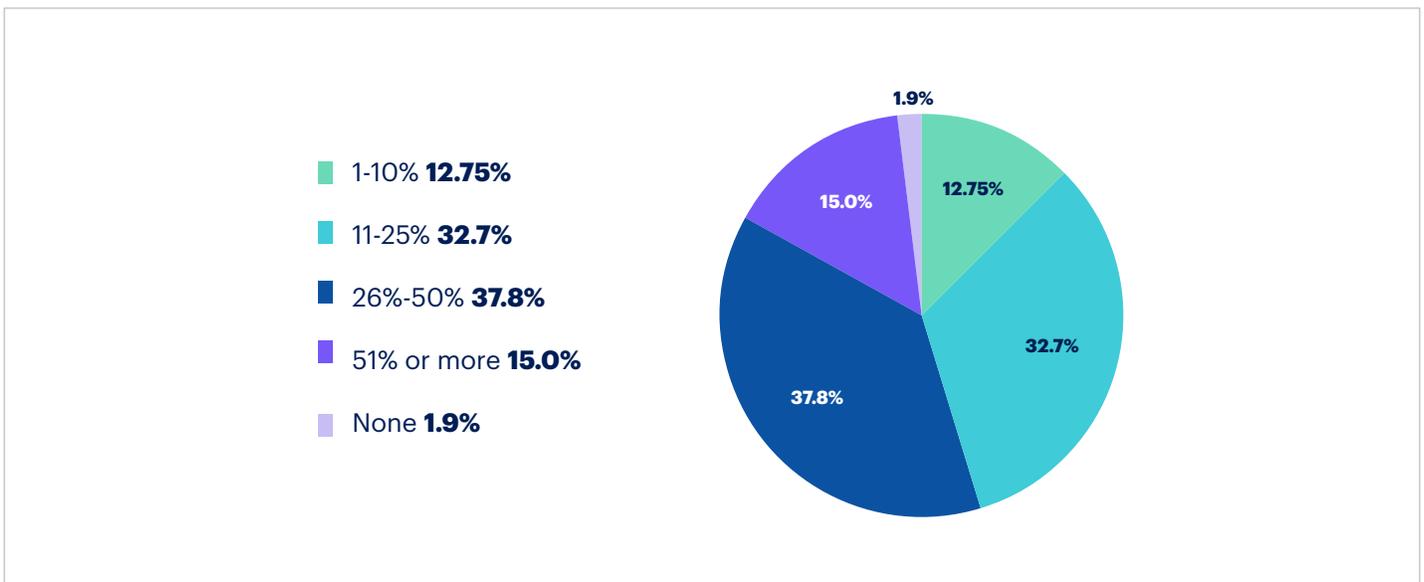
To avoid being hampered by inefficient and complex processes, teams are turning to automation. Automation can help make manual tasks easier and faster by streamlining some parts of the remediation process and reduce the occurrence of service incidents.

In fact, 100% of VP/Director/Manager SREs that cited a decrease or no change in service incidents said it was because their organization implemented automation technology to help reduce the number of service incidents.

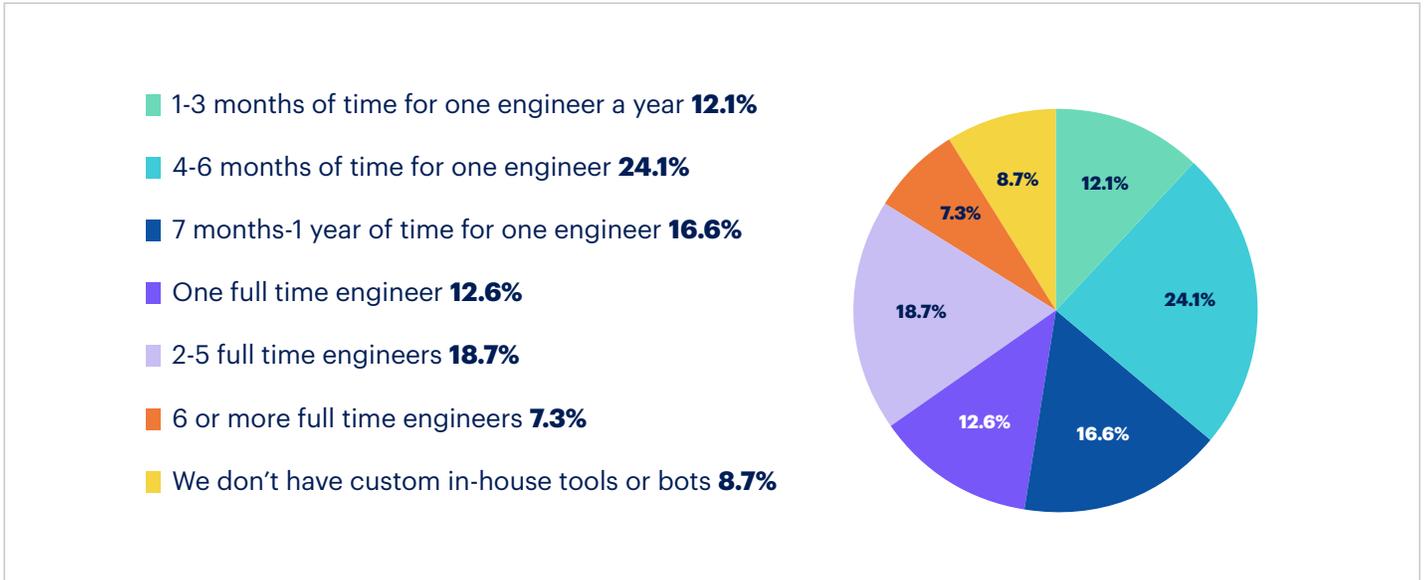


83.2% of respondents said up to 50% of their engineering operations processes are automated.

What percentage of your engineering operations processes are automated?



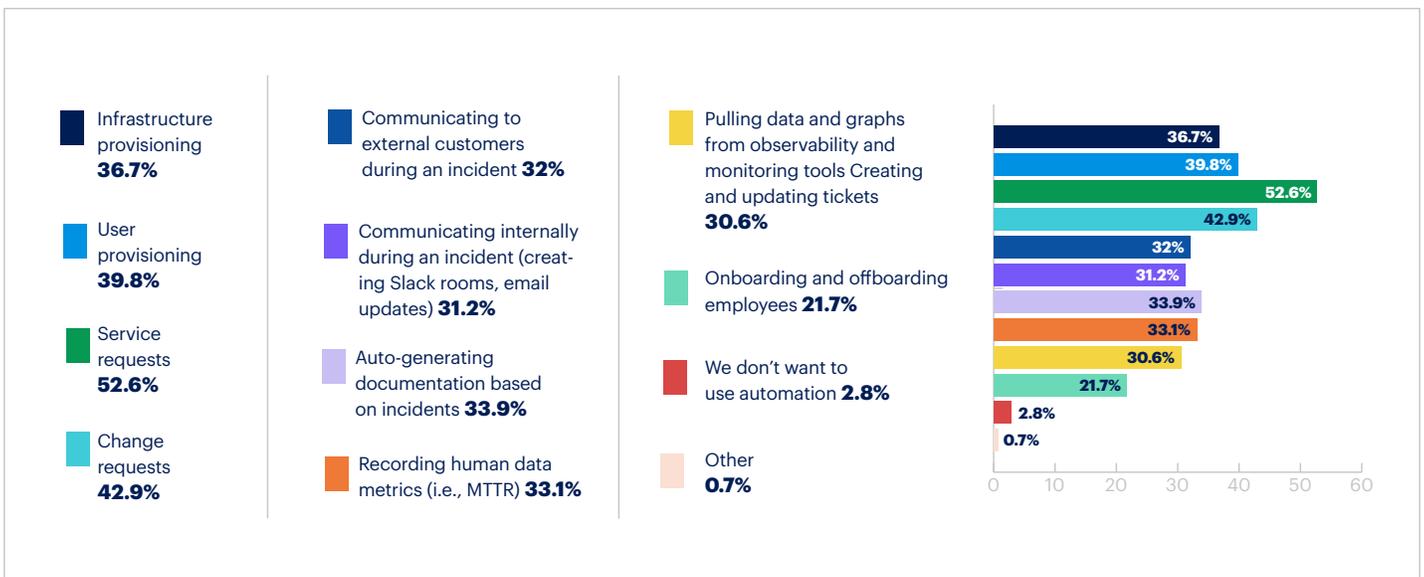
However, organizations are experiencing resource strain when building in-house platforms or tools for automation. When asked how much work is required to maintain custom in-house tools or bots for automating DevOps workflows, 38.6% of organizations said they require one or more full time engineers.



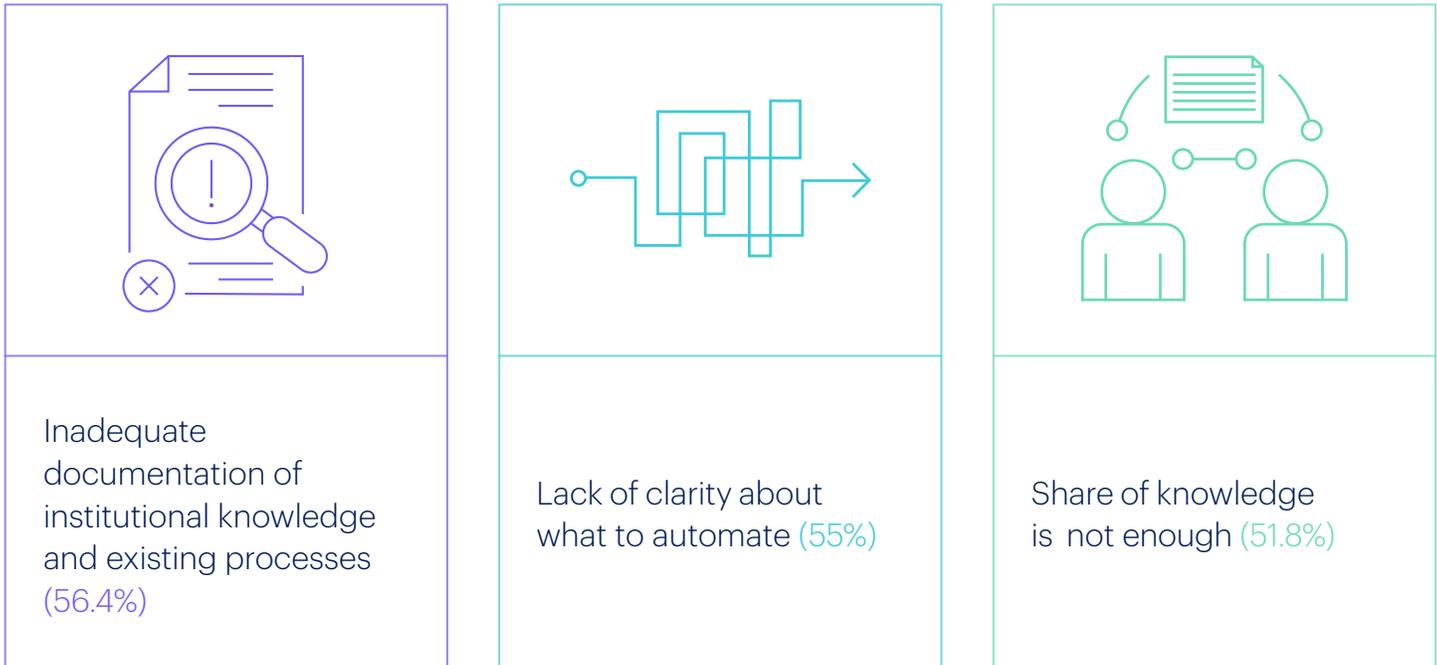
Additionally, 42.3% of SREs said the current level of automation is not meeting their organization's needs and they are actively pursuing a new solution to solve for it.



Teams are looking to automation to reduce manual processes. When asked what they want to automate, respondents said:

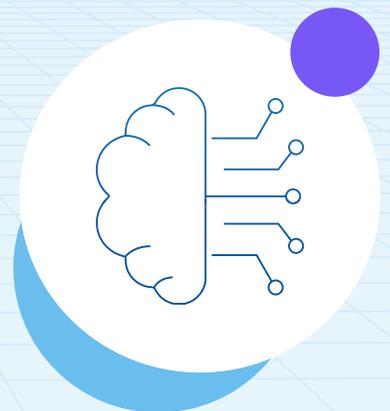


The top three barriers to implementing automation in their organization are:



Organizations need a scalable way to expand automation that doesn't weigh down developers. An automation solution that allows for customization and brings humans in at critical decision points is the most promising way to decrease the manual toil so teams can be more effective and productive.

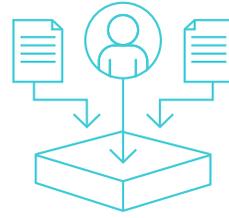
Organizations are continuing to implement human-in-the-loop automation, with 80.4% of respondents citing that automation should let humans use their judgment at critical decision points to be more reliable and effective.



Moreover, documenting human actions as well as mining insights from human data including archived Slack communications, retrospective interviews and group feedback, is critical for effective automation.

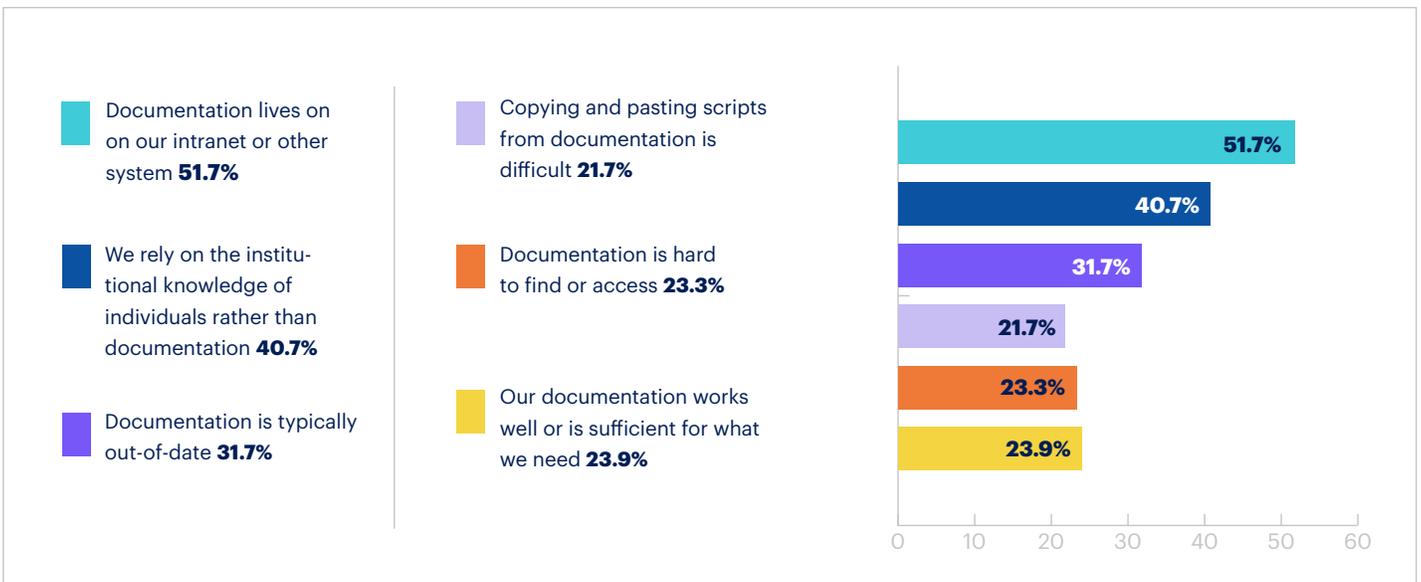


90% of respondents said their organization keeps track of the actions that were taken by humans during the resolution of an incident.



87% believe that systematically mining insights from human data could improve future incident response and improve operational excellence.

However, when it comes to their experience with documentation during an incident, only 23.9% of respondents reported their documentation works well or is sufficient for what they need.



When asked how better documentation, process and availability of data during incidents would impact their business, respondents ranked improved MTTR as #1 (similar to 2021), but new this year as the second and third ranked are lower costs of downtime and enhanced service reliability respectively.

1. Improved MTTR

2. Enhanced service reliability

3. Lower costs of downtime

4. Streamlined operations

5. Fewer errors made by SREs and on-call engineers

6. Less stress on on-call engineers

7. Better able to learn and improve over time

Conclusion

With the increase of hybrid work over the past year, ITOps, DevOps and SRE teams have expanded their tech stack to keep pace with digital transformation initiatives and deliver innovation faster and more efficiently than ever before. Despite the addition of new tools, organizations are encountering more service incidents and experiencing inefficiencies while trying to solve those incidents.

In an effort to streamline incident management processes and engineering operations, organizations turn to automation and SRE practices. Automation that keeps humans in the loop at key decision points can reduce manual processes and improve efficiencies. SRE practices can deliver more value to customers by limiting service disruption.

The benefits of automation are substantial but SREs are spending extensive time building automation in-house and still a majority are manually entering data into ITSM systems. The question then becomes, how can organizations expand automation in a scalable way that doesn't overburden developers? The benefits of automation coupled with the resource commitment it takes to build in-house will lead more organizations to adopt off-the-shelf automation solutions that enable extensibility and deep customization. Moreover, automation platforms must do a better job bringing human data into the fold, without increasing manual toil.

As evidenced across various organizations, there is an opportunity for ITOps, DevOps and SRE professionals to enhance service reliability through automation that harnesses human judgment, SRE practices and better collaboration methods. Together, these advancements will free up resources that can be better spent on delivering innovation and creating business value.

Industry

