bmc

2024 BMC MAINFRAME SURVEY REPORT

Modernizing mainframe investment

Artificial intelligence and DevOps drive the future of the platform
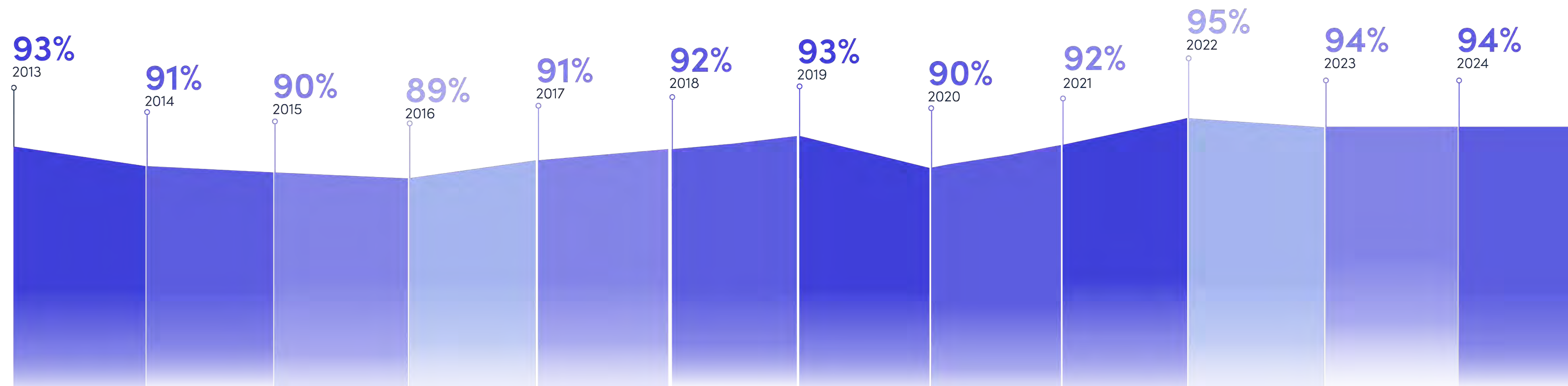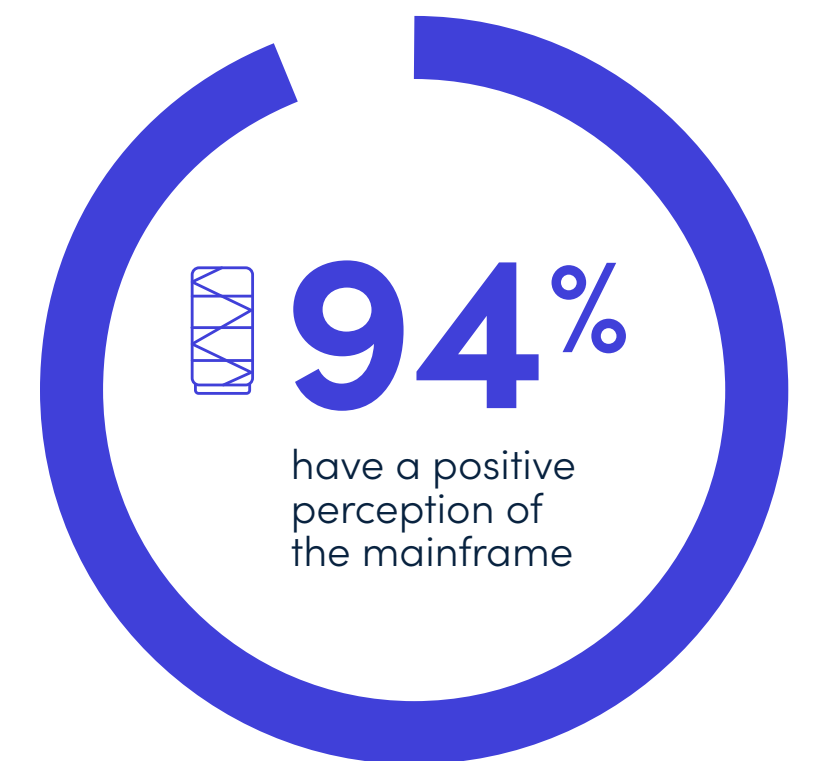
Table of contents

Executive summary

Results of the 19th annual BMC Mainframe Survey show that perception of the mainframe remains strong. Ninety-four percent of respondents see it as a long-term platform or platform for new workloads, and 90 percent of the survey's over 1,000 global respondents report that they are continuing to invest in the mainframe.

Organizations worldwide are maximizing their mainframe investments and exploring new options in application languages and configuration to more accurately fit their needs.

For the fifth consecutive year, compliance and security top the list of priorities, but AIOps and operational analytics have also seen a significant increase in focus.

This e-book will explore the overall results of the 2024 BMC Mainframe Survey, with in-depth looks at how organizations are optimizing their mainframe investments, strengthening their security postures—especially against ransomware—and utilizing artificial intelligence (AI) to address top challenges.

94%
have a positive perception of the mainframe

93%
2013

91%
2014

90%
2015

89%
2016

91%
2017

92%
2018

93%
2019

90%
2020

92%
2021

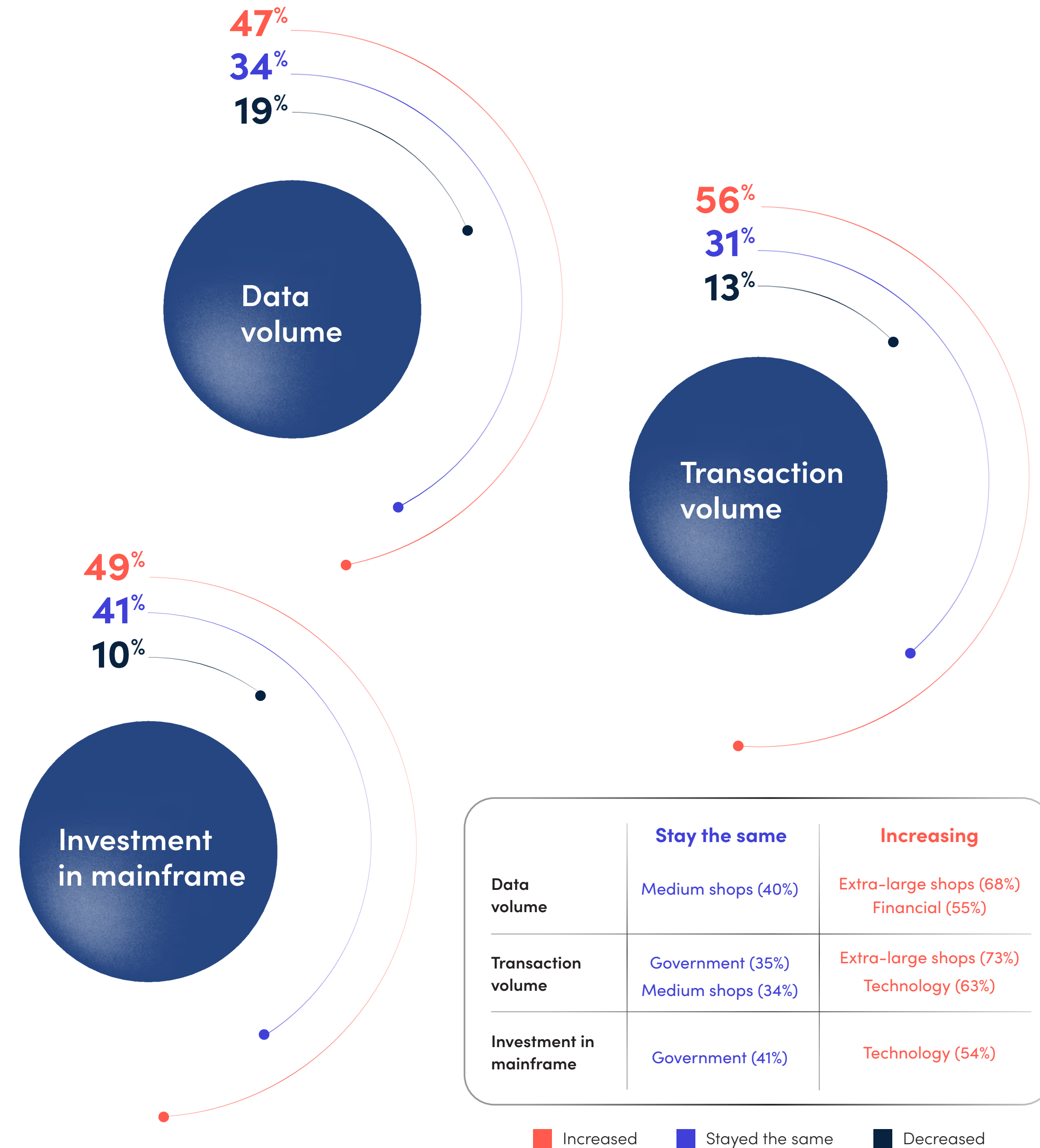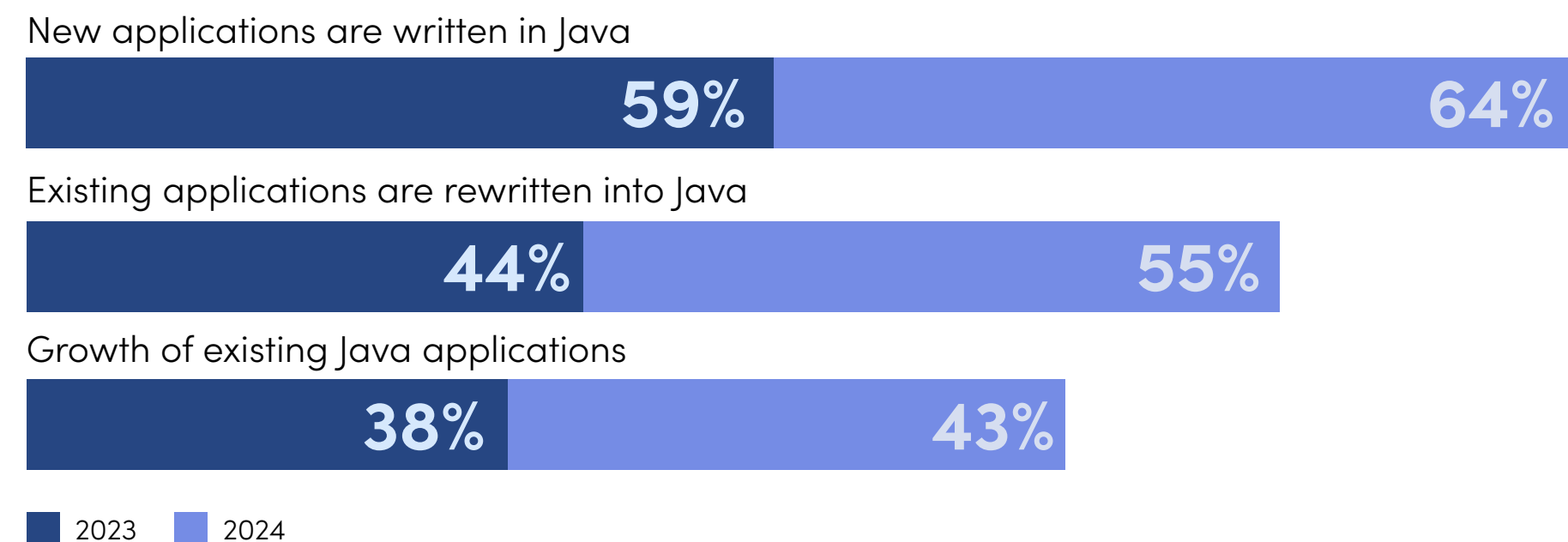**95%**
2022

94%
2023

94%
2024

Continued positive perception of the mainframe platform

Modernizing mainframe investment

The rate of mainframe investment seems to be stabilizing, with organizations seeking to maintain current levels of investment while also maximizing value with increased modernization. Large (10,001–50K MIPS) and extra-large (greater than 50K MIPS) shops continue to increase investment while reporting growing data and transaction volume. The financial industry leads the way in data volume growth, with 55 percent reporting an increase, while the technology sector reports the greatest increases in transaction volume and investment.

As larger shops treat the mainframe like the fourth cloud, smaller shops (under 10K MIPS) are doing more with less, and finding ways to optimize within their current footprint, including using new tech like Java.

Why is Java on the mainframe increasing?

New applications are written in Java
59% | **64%**

Existing applications are rewritten into Java
44% | **55%**

Growth of existing Java applications
38% | **43%**

■ 2023 ■ 2024

Data volume

47% 34% 19%

Transaction volume

56% 31% 13%

Investment in mainframe

49% 41% 10%

	Stay the same	**Increasing**
Data volume	Medium shops (40%)	Extra-large shops (68%) Financial (55%)
Transaction volume	Government (35%) Medium shops (34%)	Extra-large shops (73%) Technology (63%)
Investment in mainframe	Government (41%)	Technology (54%)

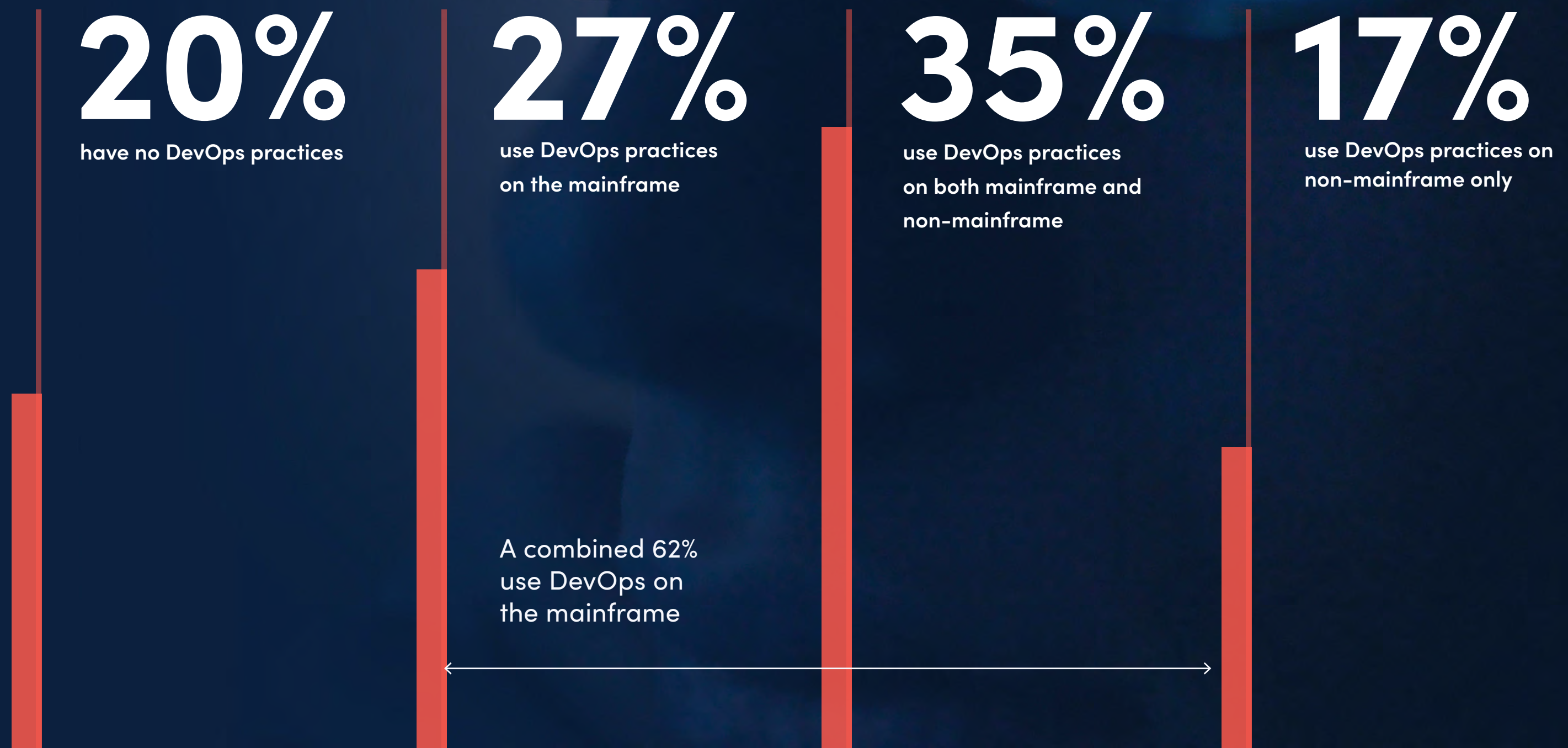■ Increased ■ Stayed the same ■ Decreased

DevOps is now standard, but there is work to be done

DevOps on the mainframe is now a standard approach, with 62 percent of respondents reporting its use, but perception of its value is shifting. While improved IT infrastructure, increased automation, and higher quality of applications remain top benefits, significantly more respondents find value in the security-level improvements enabled by DevOps.

As organizations have realized significant improvements in development speed and agility through the adoption of DevOps practices, many have identified bottlenecks further down the software delivery pipeline. The focus is now shifting to infrastructure and configuration as areas of improvement, since the number of respondents reporting negative impacts from database schema changes has nearly doubled in the past year, with 31 percent saying that they need database schema change capabilities to augment their DevOps journeys (up from 25 percent in 2023).

7% had no plans to adopt DevOps in 2023; only **4% have no plans** to adopt in 2024.

DevOps practices on the mainframe
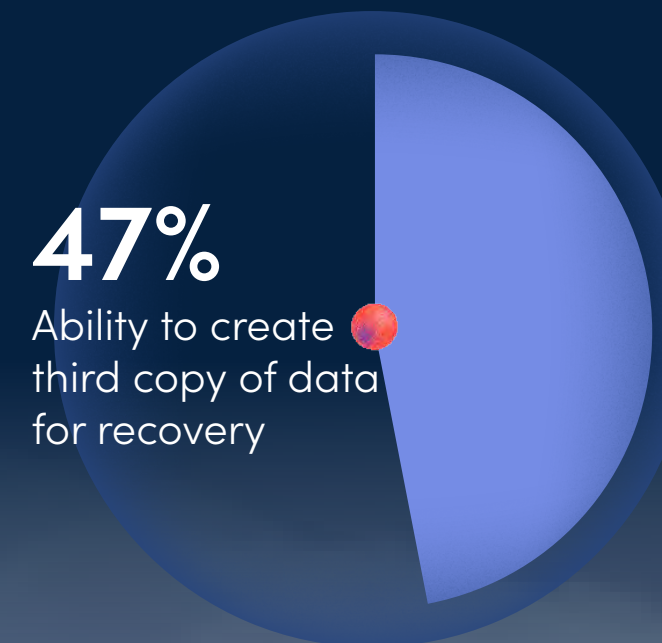
20%
have no DevOps practices

27%
use DevOps practices on the mainframe

35%
use DevOps practices on both mainframe and non-mainframe

17%
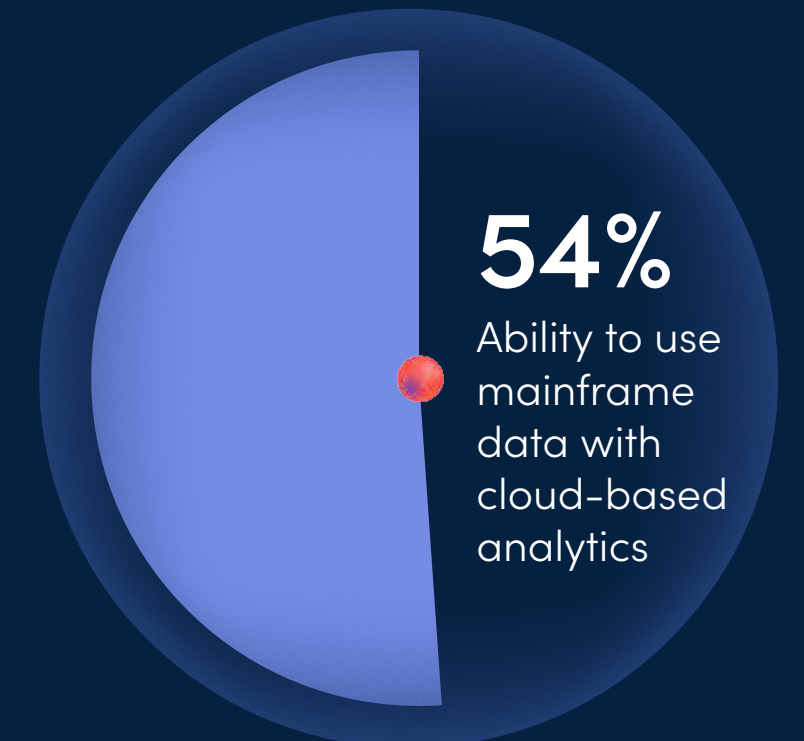use DevOps practices on non-mainframe only

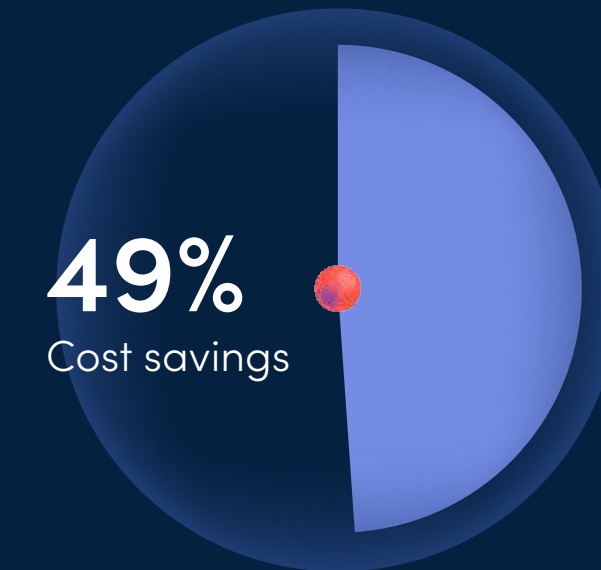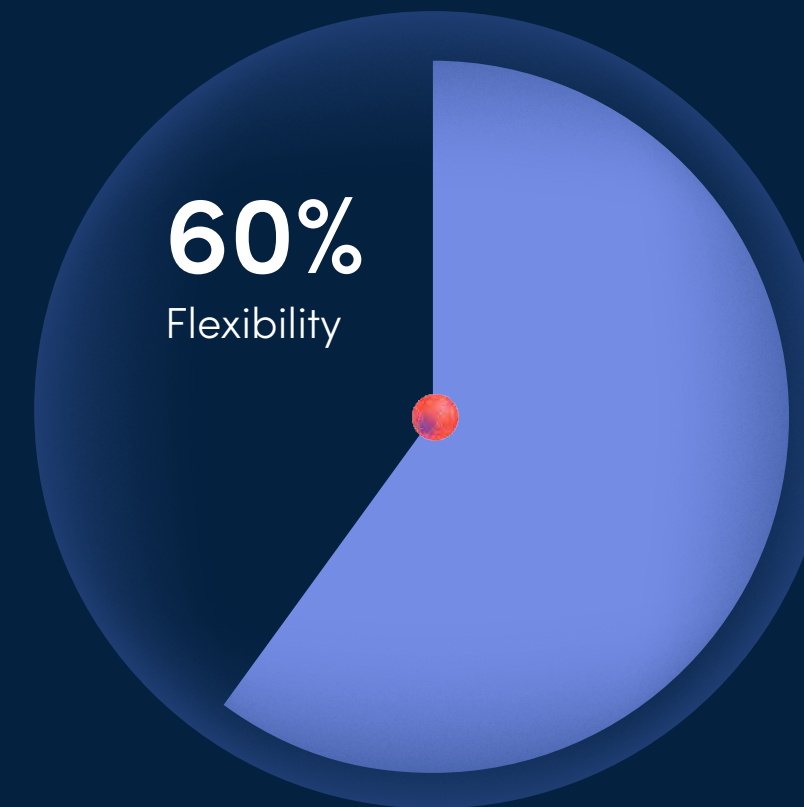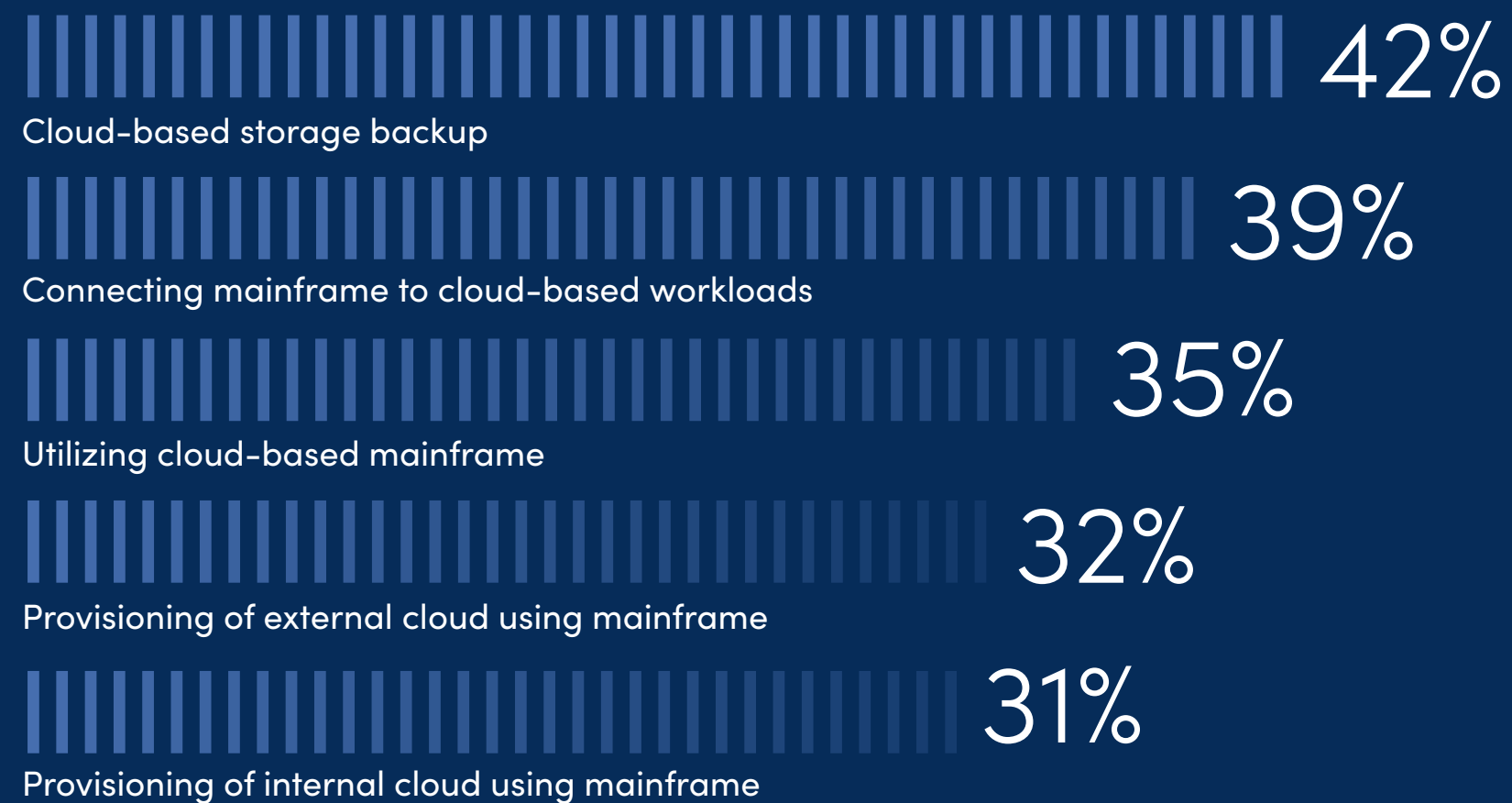A combined 62% use DevOps on the mainframe

Utilizing the cloud

Organizations are also turning to cloud technology to modernize infrastructure. While connecting the mainframe to cloud-based workloads and utilizing a cloud-based mainframe are strong considerations, the use of cloud-based data storage ranked highest among respondents, led by 57 percent of extra-large shops.

Given its greater scalability, lessened infrastructure restraints, and improved data access, the flexibility afforded by cloud-based storage was cited as its number one benefit. Respondents also cited the ability to use mainframe data with cloud-based analytics engines to unlock business insights as a top benefit of cloud-based data storage.

Cloud technologies considered

42%
Cloud-based storage backup

39%
Connecting mainframe to cloud-based workloads

35%
Utilizing cloud-based mainframe

32%
Provisioning of external cloud using mainframe

31%
Provisioning of internal cloud using mainframe

49%
Cost savings

60%
Flexibility

54%
Ability to use mainframe data with cloud-based analytics
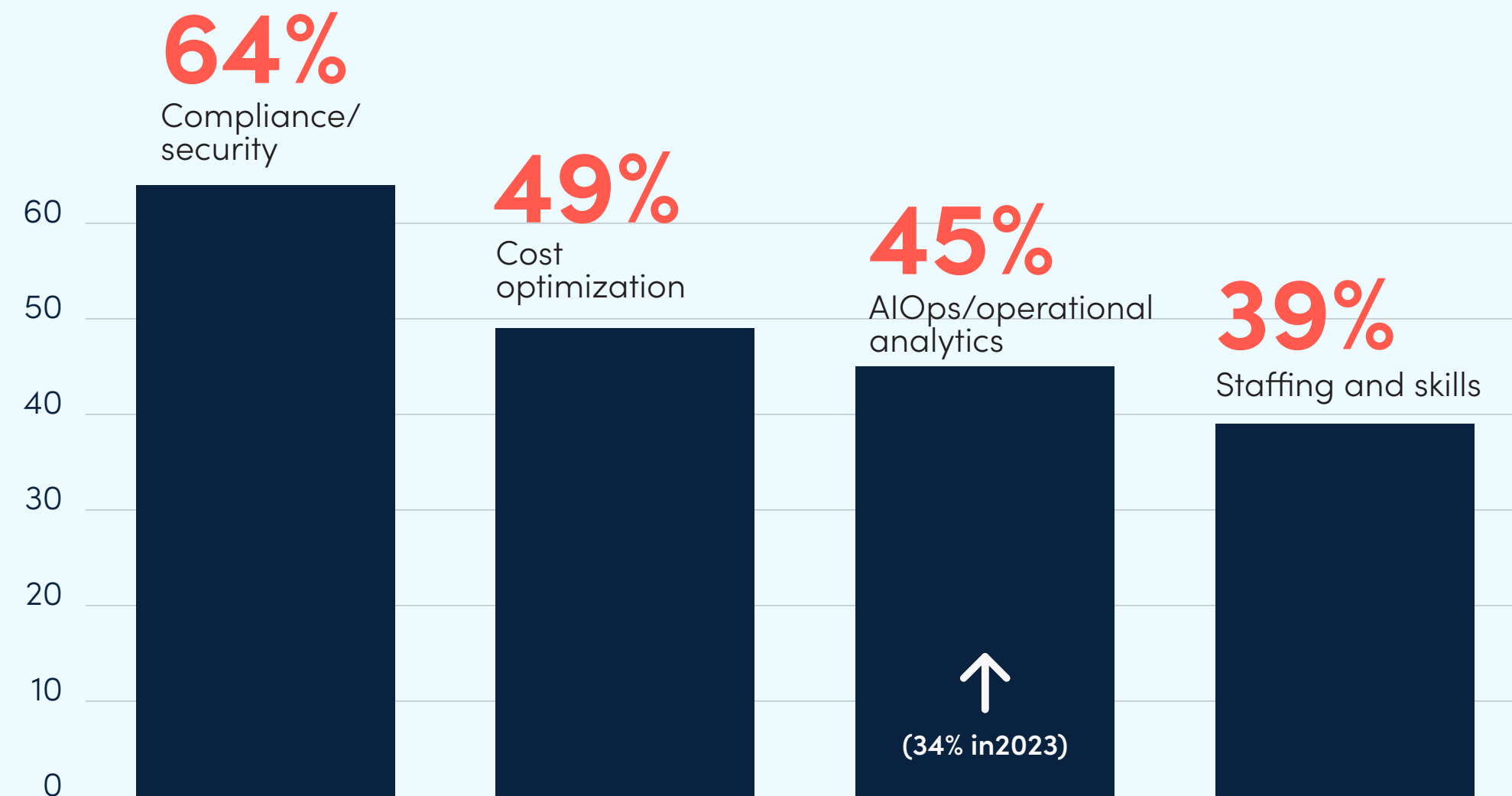
47%
Ability to create third copy of data for recovery

Why cloud-based storage?
(among those considering cloud-based storage n=144)

Compliance and security are again top priorities

For the fifth year in a row, respondents named compliance and security as their top priority. While cost optimization remains near the top of the list, the biggest shift in priorities is the rise of AIOps and operational analytics, cited by 45 percent of respondents (compared with 34 percent in 2023), which moved it into the top three priorities.

Top priorities for the coming year

64%
Compliance/ security

49%
Cost optimization

45%
AIOps/operational analytics

39%
Staffing and skills

↑
(34% in 2023)

62%
Compliance/ security

54%
AIOps

43%
Cost optimization

41%
Implementing cloud tech

Top four mainframe priorities of extra-large shops*

*Shops with more than 50K MIPS

43%

have built dedicated capabilities to protect against ransomware

29%

plan to build capabilities

10%

drop in confidence in Europe

Ransomware is still a top concern

While the increased focus on security is paying off, confidence in ransomware controls is decreasing. The number of respondents viewing their ransomware controls as extremely effective has dropped from 29 percent in 2023 to 21 percent in 2024, and those finding their controls neither effective nor ineffective has increased eight percent in the same period.
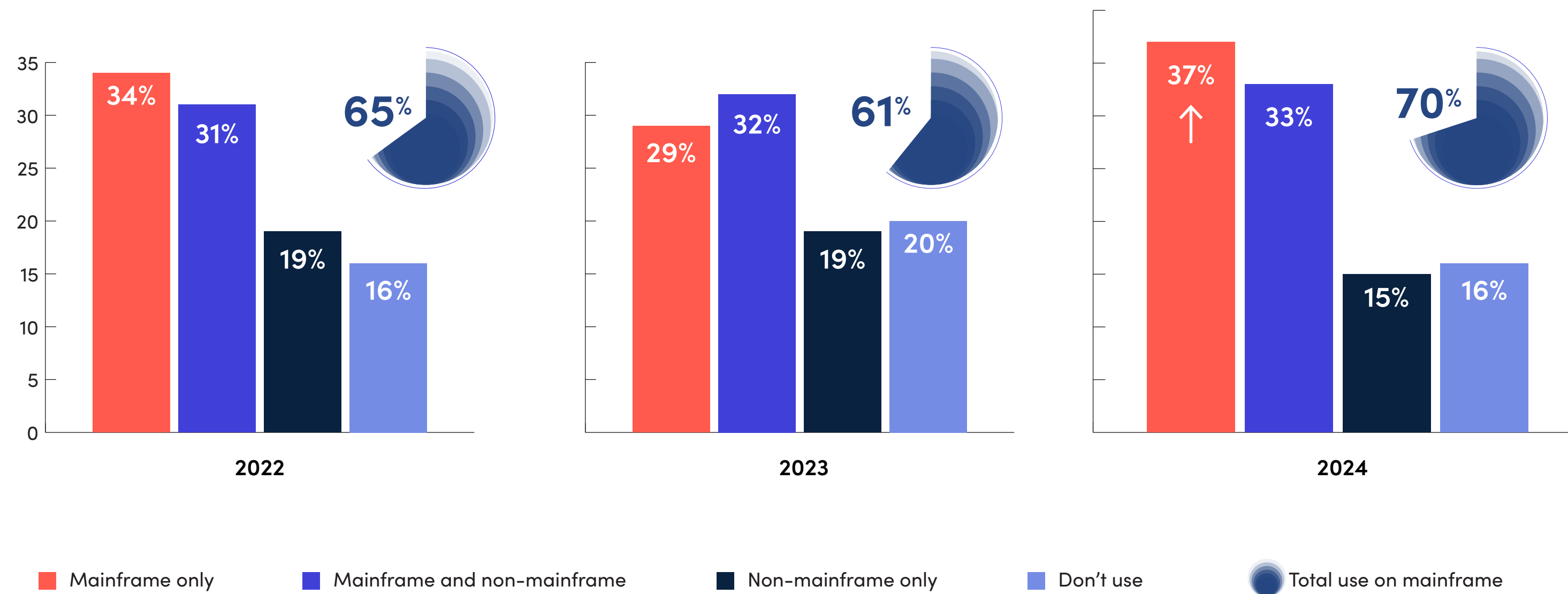
Respondents in Europe have seen a significant drop in confidence, which could be due to increased preparation for and scrutiny of security measures in the run-up to the official application of the European Union's Digital Operational Resilience Act (DORA) in January 2025.

AIOps is a priority

After staying consistent in recent years, the adoption of AIOps, which was a potential trend identified in the 2023 edition of the BMC Mainframe Survey, saw significant growth and new interest in this year's survey, with extra-large shops the most likely to be using AIOps across mainframe and non-mainframe systems.

Adoption of AIOps

Chart: Adoption of AIOps, 2022–2024 (y-axis 0–35)

2022
- Mainframe only: 34%
- Mainframe and non-mainframe: 31%
- Non-mainframe only: 19%
- Don't use: 16%
- Total use on mainframe: 65%

2023
- Mainframe only: 29%
- Mainframe and non-mainframe: 32%
- Non-mainframe only: 19%
- Don't use: 20%
- Total use on mainframe: 61%

2024
- Mainframe only: 37% ↑
- Mainframe and non-mainframe: 33%
- Non-mainframe only: 15%
- Don't use: 16%
- Total use on mainframe: 70%

Legend:
- Mainframe only
- Mainframe and non-mainframe
- Non-mainframe only
- Don't use
- Total use on mainframe

2x
percentage of respondents (vs. 2023 survey) said AIOps had allowed them to reduce the skill level required to work on the mainframe

31%
of mainframe organizations that have implemented AIOps cited complexity as the biggest challenge, up from 24% in 2023

Generative AI is a hot topic— for good reason

The use of generative AI (Gen AI) is widespread, with 76 percent of respondents stating its use in their organizations. Those currently using Gen AI cite automation, risk analysis, critical business insight, and the onboarding and training of new personnel as reasons for its implementation.

Automation

37%

remove repetitive tasks to improve efficiency

Identity issues and risks

36%

analyze code and configuration files to identify problems and vulnerabilities

Gain insights

34%

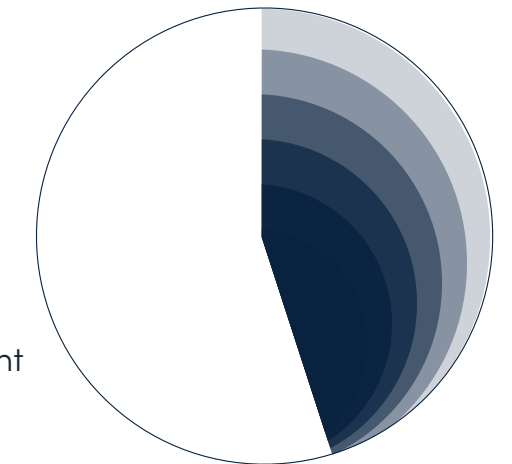augment existing expertise, providing critical business insight
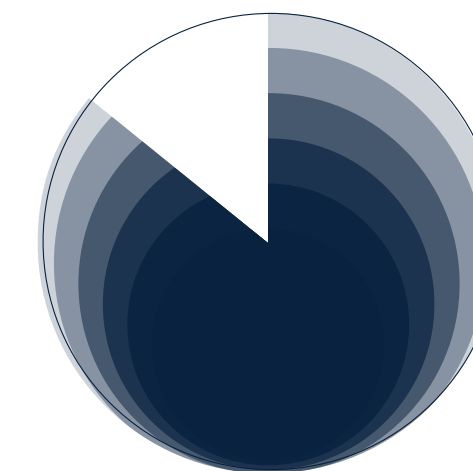
Training

32%

onboarding and training new personnel, bridging the knowledge gap
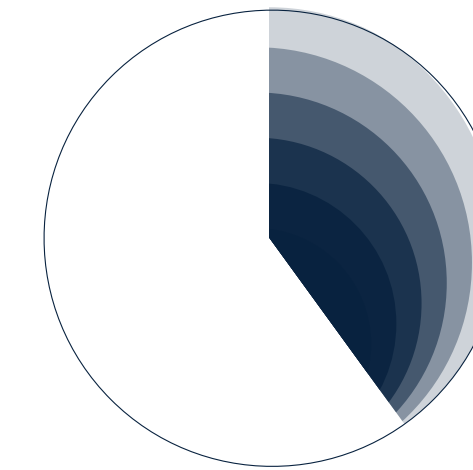
40%
of respondents overall believe Gen AI has delivered great benefits

45%
of respondents that are prioritizing AIOps say that Gen AI is the most important capability to help them achieve their objectives

86%
of respondents increasing their mainframe investment are using Gen AI and are significantly more likely to use Gen AI than those with flat or reduced investments
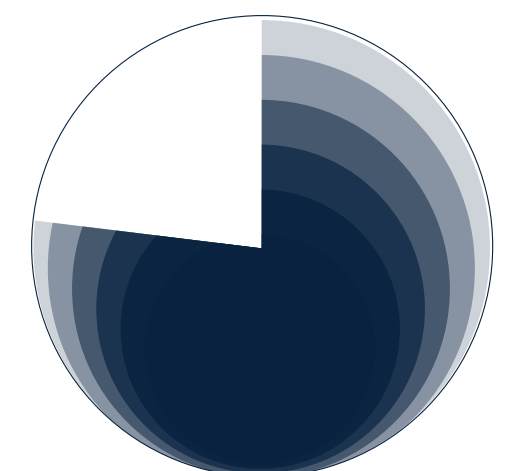
77%
of respondents using Gen AI have a dedicated Gen AI policy in place

Recommendations

Organizations are adopting AI but still developing use cases to find the greatest benefit from this emerging technology. In the coming year, they should focus on getting AI right and finding the best use of the technology on the mainframe and across the enterprise, while also reducing the complexity of AIOps.

With ransomware protections considered less effective than in past years, there should be a renewed focus on how best to protect against malicious actors, especially as the effective date of DORA regulations draws near.

Our 19th annual BMC Mainframe Survey confirms that the use of DevOps practices to increase the quality, velocity, and efficiency of code development has been successful. In the coming year, as we approach our 20th anniversary of the survey, organizations should focus on configuration management to achieve further gains, especially in reducing negative impacts from database schema changes.

To learn more, visit **bmc.com/mainframesurvey**.

About BMC

BMC empowers 86% of the Forbes Global 50 to accelerate business value faster than humanly possible. Our industry-leading portfolio unlocks human and machine potential to drive business growth, innovation, and sustainable success. BMC does this in a simple and optimized way by connecting people, systems, and data that power the world's largest organizations so they can seize a competitive advantage.