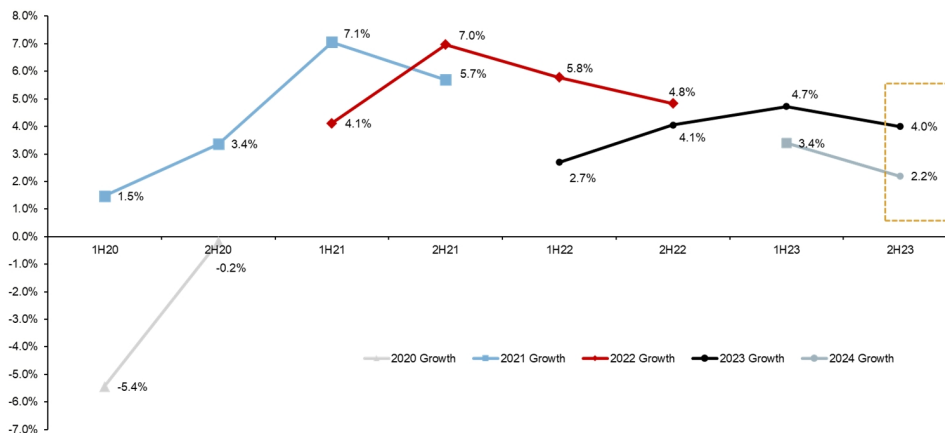


2024 CIO Survey: IT Budgets in Focus – Will Punxsutawney Phil See Six More Weeks (Months?) of Winter?

Our flagship CIO survey backs up a lot of the optimism we saw in last week's 4Q23 VAR survey with one big, hairy, notable eyesore. **Budgets in 2024, according to CIOs, are not expected to accelerate off of 2023.** Sticking with the optical clichés, interpretation here is in the eye of the interpreter. While we recognize that it is arguably the single most important slide in our deck (page 11), we cannot shake the sense that the more pessimistic data defies the more positive sentiment. Our interpretation is that the latter will ultimately overtake the former.

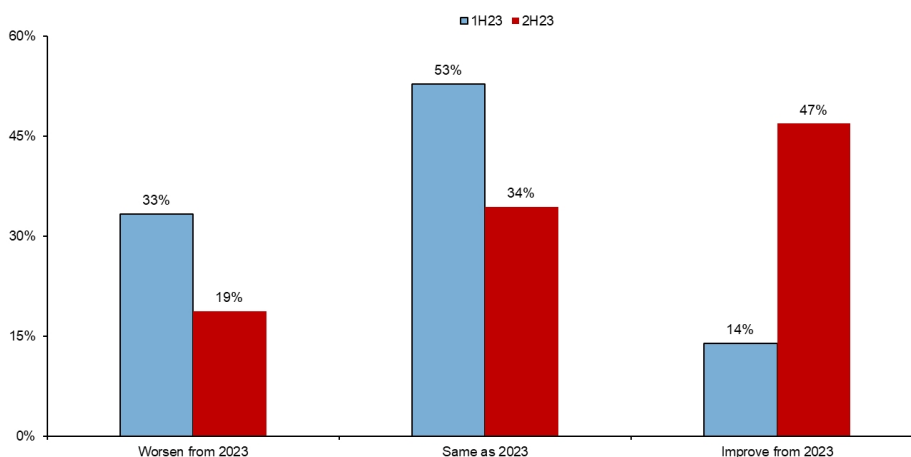
Key Investment Points

IT Budget Growth Expectation



Source: KeyBanc Capital Markets Inc.

Macroeconomic Headwind Expectation for CY24



Source: KeyBanc Capital Markets Inc.

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In conjunction with the survey we are raising our PSTG price target to \$47, up from \$43. Please see page 89 for additional details.

Key Takeaways: Sentiment Improving, AI Tops 2024 Priorities and More Evidence That Cloud Optimization Is Coming to an End

Sentiment improvement defies budget expectations

Through our conversations with CIOs and tech leaders and in much of the softer, qualitative responses in our survey, **we are picking up a discernable improvement in sentiment.** Headcount expectations for IT organizations are looking better, macro pressures are expected to have a lessened impact on 2024 compared to 2023, and not a single respondent expects additional layers of approvals to impact deal cycles: seemingly an unbroken boulevard of green lights. The problem arises when we ask people to bottom-line it in the granddaddy question of the survey (page 11): put a number on 2024 IT budgets relative to 2023. **Not only was 2.2% growth in 2024 worse than initial expectations six months ago, but it's nearly half what people were expecting at this time a year ago** when a pending recession was basically a consensus expectation.

We are, once again, opting for optimism. As one of us put it in our software research chat, "Call me glass-half-full guy, but I think of improving sentiment to be a leading indicator for budgets," and this is broadly a consensus feeling across the team. **We're not willfully ignoring the negative aspects of our survey, but we are mindful of putting too much weight on a single response** to a single question whether it's the headline question or not.

Generative AI getting attention at the highest levels

We have been seeing seeds of this for some time. The highest levels of tech leadership are very focused on generative AI. A full three quarters of respondents (page 34) are either testing generative AI or have already meaningfully deployed it (although this was only one person). **Further, on page 35, 28% of people expect generative AI to have a "transformative positive impact" on their business compared to just 6% that see it as "value destructive," which we defined as the costs outweighing the gains.** We have heard in conversations and from some vendors that AI has been driven from the top down: executives dictating to IT and on down that they need to develop AI or at the very least embrace it, but ultimate adoption of the tools will be dictated by their ease of use and actual value derived from end users. Customer service, marketing, and security use cases saw big jumps in perceived benefits of generative AI, while application development, sales, HCM, and ERP use cases all fell off in a potential sign of where automation has the most to gain. **Overall, we feel the data echoes what our VAR survey had to say, which is that we continue to move along the timeline from planning (1H23) to testing (2H23) to implementation (2024?).**

More signs of cloud optimization easing in a validation of VAR survey results

Check out page 19 of this CIO survey and compare it to page 26 in our 4Q23 VAR survey that we published last week. 91% of respondents in this CIO survey expect either stable or faster cloud spend in 2024, and 90% of VARs surveyed expected the same. This confluence of expectations could certainly be a fleeting bit of noise and coincidence, but it is worth pointing out **as potential validation in the narrative of increasing confidence that cloud budgets and usage are headed higher.** As one astute salesperson pointed out to us last week, cloud acceleration may already be priced in, but the direction continues to improve. **On page 21, 27% of CIO respondents said they are finished¹ optimizing their cloud spend, which is up from 24% in 1H23. It's not a huge improvement, but within the mosaic of our conversations, the VAR survey, and other responses, we feel incrementally positive.** It's an important topic in software and always worth pointing out.

Odds and Ends

Infrastructure software spend holding strong, Microsoft dominating AI mind share, encouraging feedback on hardware refresh, Workday a standout in HCM and the almighty N

- In addition to AI, **security and data analytics once again took home the top three slots in spend priority** for 2024 (page 27), a positive read-through for **MDB, DDOG, and CFLT** on the better optimization trends we mentioned above.
- We asked CIOs which vendors they believed have the strongest generative AI solutions and capabilities (page 39), and Microsoft was the overwhelming favorite. **84% mentioned Microsoft compared to 38% for second place AWS** (we allowed for multiple responses). It is difficult to say how much Microsoft's standalone offerings via its copilots and internally developed models account for this leadership compared to its close association with Open AI, but being this far out in front is notable.
- Hardware refresh/expansion encouraging (ANET, CSCO, JNPR), with **72% of CIOs polled citing same/increased hardware refresh spend in 2024** (+17 points h/h). 2H23 CIO conversations also focused

more on shifts between public cloud and on-prem/hybrid cloud, with focus on hybrid and related cost optimization (NTNX). Unified Data Management spend remained stable, with 93% citing same to more spend in 2024 (94% C1H23), yet we note a downtick in Overweight-rated PSTG in terms of vendors used. Conferencing & CCaaS appear less of a priority in hybrid work, with a focus on Teams possibly highlighting consolidated spend trends (ZM). In CCaaS, intentions to spend on added AI functionality decreased in C2H23 vs. 1H (-9 points) but remained healthy with 24% of CIOs polled interested in augmenting CCaaS with AI and a steep decrease in on-prem CC implementations (-21 points through 2023; FIVN).

- **Average bank IT spend growth estimate fell to the low-single-digit range**, potentially creating a similar setup for bank software names with enterprise exposure whereby large deals are slow to move through the pipeline (NCNO, QTWO).
- **HCM budget priority for CY24 is holding steady** in what hasn't been great feedback for applications. Workday's leadership in HCM remains a nice opportunity for expansions and consolidation in the financials space.

Can't live and die by the N—a note on our process

In the constant effort to make our survey more relevant and more reliable, we engaged a third-party survey vendor to supplement our existing bench of survey respondents and industry contacts. Our feelings, as you can imagine, are that if we could raise the number of high-quality respondents by even a little bit, that would be additive to your (our client's) process, and if we were able to add a *lot* of high-quality respondents, even better.

We iterated on the responses we received from the third-party vendor a number of times, dropping respondents who clearly weren't who they said they were², didn't spend a meaningful amount of time on the survey, and were clearly just clicking as fast as they could or did not rise to the level of management where we felt the response was indicative of company-wide spend. We had a target of 50 useable responses, and we ended up scrapping all the third-party survey participants. Obviously our N suffers—on two fronts, both directly and in the opportunity cost of continuing to develop our organic contacts—but we elected for higher data scrutiny. We may try again with the third-party vendor in the future, but go-around really highlighted the tradeoffs between quantity and quality.

¹*It says "done" in the survey question and in the slides. Cloud optimization, as an object, is allowed to be "done," but we frame it around the subject "we" and so it should read "we are finished optimizing." We are embarrassed and would like to formally apologize to elementary school teachers everywhere.*

²*Who exactly is the audience for a pseudonym joke on a tech-focused survey? Writing in some cartoon character for a national election is stupid and insulting, but at least you may get a chuckle from Nick Daines or a fourth grader. If you're leading a conversation at a bar with "I told this anonymous software survey I was Jeff Bezos," you're probably doing it wrong.*



2024 CIO Survey

IT Budgets in Focus – Will Punxsutawney
Phil See Six More Weeks (Months?) of
Winter?

Enterprise Software

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KBCM's Proprietary CIO Survey

34

Respondents

IT Professionals Highly Vetted by KBCM

- Survey is built on direct one-on-one access to respondents with known roles and responsibilities
- Across multiple verticals in North America, the United Kingdom, and Australia
- Average employee size ~18,000; Healthcare, Finance, Technology as largest verticals
- High retention rates vs. our last CIO Survey
- Conducted in December 2023/January 2024

In-Depth Interviews

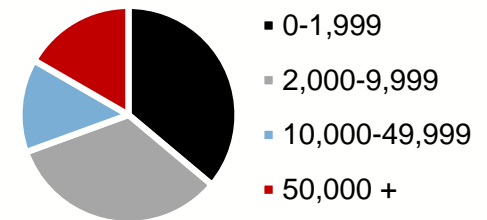
- Nine one-on-one in-depth interviews within broader respondent pool
- Additional context to changes within IT budget spend levels

Integrated KBCM Enterprise Team Approach

- Questions were co-designed across KBCM's Enterprise IT team of five senior analysts
- Integrated model to better contextualize spending impact among teams and vendors

Survey Constituent Demographics

By Employee #



By Vertical

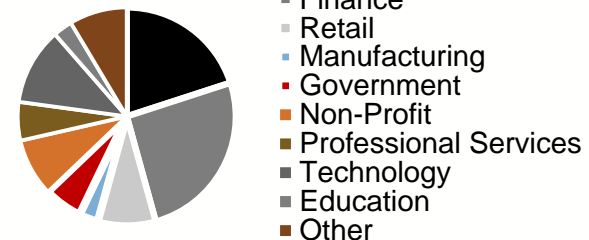


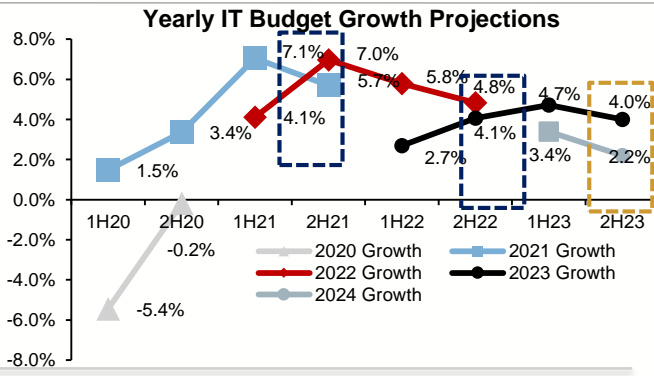
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Key Takeaways	<i>Key takeaways from KBCM's semiannual CIO Survey, including Macro/sector commentary and analyst stock conclusions</i>	7-9
Budgets and Macro	<i>Highlighting CIO results for 1H23 and early 2024 indicators</i>	10-25
Vendor/Category Spend	<i>CIO IT budgets by spend category and vendor</i>	26-32
Generative AI	<i>CIO spend and prioritization of Gen AI</i>	33-40
Infrastructure & Cloud Communications	<i>CIO trends for Infrastructure and Cloud Communications</i>	41-52
Vertical Software	<i>Online training prioritization and budgeting trends</i>	53-65
Vertical/Backoffice SaaS & FinTech	<i>Backoffice software and ERP takeaways</i>	66-72
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2023 & CY24 IT Budgets Improve If Still Some Caution on 2H Recovery

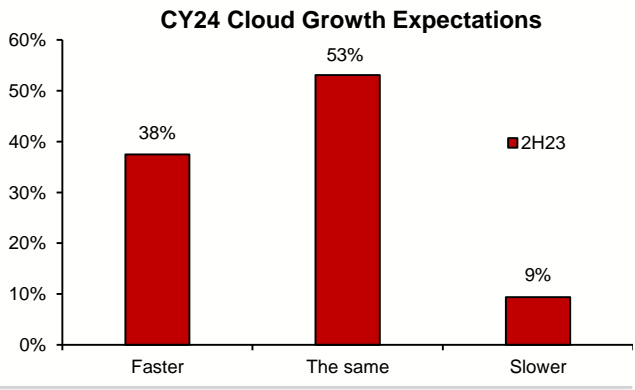
1

'24 IT Outlook downticks to 2.2%, CIOs optimistic but not ready to pull spending trigger yet. CY24 expected IT budget growth **downticked** to 2.2% from the initial 1H23 reading for 3.4%, and directionally a continued decel from 4% to close out CY23. That said, we see signs of optimism as 47% (up 33 pts) of CIOs expect to see an improvement in budgets vs. CY23.



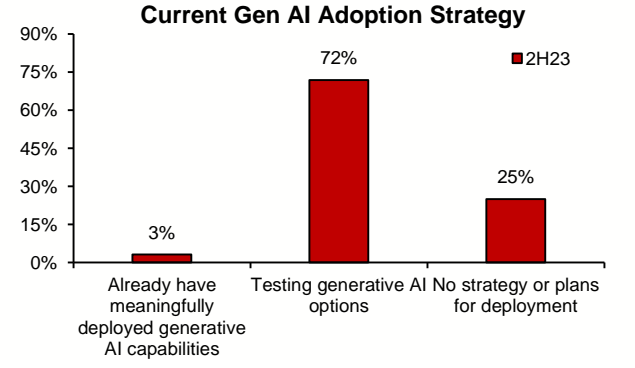
2

NT cloud optimization easing but not over. 91% of CIOs expect stable or accelerated cloud spend in CY24 and supported by our recent [VAR survey](#) results. Optimization trends improved slightly with 27% of CIOs having completed cloud optimization vs 24% previously. We also highlight Microsoft came in as the #1 cloud vendor CIOs expect to spend more with in CY24 and #1 NTM budget beneficiary. Workloads currently migrated into the cloud/SaaS downticked this survey but LT expectations remain strong.



3

CIOs positive on Generative AI value proposition. AI/GenAI Remains the top area of budget spend priority with ~3/4ths of CIOs testing or already implemented generative AI capabilities. CIOs remain positive on gen AI with 28% of CIOs expecting a “transformative positive impact” and only 6% believing cost outweighs the benefits. Top areas of GenAI interest are for the front office (**customer service, marketing**) and security which improved to 3rd overall.



Macro Summary and Sector Takeaways

Our 2024 CIO survey backs up a lot of the optimism we saw in last week's 4Q23 VAR survey with one big, hairy, notable eyesore. **Budgets in 2024, according to CIOs, are not expected to accelerate off of 2023.** Sticking with the optical clichés, interpretation here is in the eye of the interpreter. While we recognize that it is arguably the single most important slide in our deck (page 11), **we cannot shake the sense that the more pessimistic data defies the more positive sentiment. Our interpretation is that the latter will ultimately overtake the former.**

1

Back-office/Fintech (Markgraff): Positive on continuous automation of back-office, which received mentions of increased budget priority over 1H23 (+20%), complemented by better NT ERP/financials cloud migration (+14%). SaaS consideration remains elevated for AP/AR function (**AVDX**). Average bank IT spend growth estimate fell to the LSD range, potentially creating a similar setup for bank software names with enterprise exposure whereby large deals are slow to move through the pipeline (**NCNO, QTWO**).

2

Infrastructure Tech/Software (Blakey): Hardware refresh/expansion encouraging (**ANET, CSCO, JNPR**), with 72% of CIOs polled citing same/increased hardware refresh spend in 2024 (+17 points h/h). 2H23 CIO conversations also focused **more on shifts between public cloud and on-prem/hybrid cloud**, with focus on hybrid and related **cost optimization (NTNX)**. Unified Data Management spend remained stable, with 93% citing same to more spend in 2024 (94% C1H23), yet we note a downtick in Overweight-rated **PSTG** in terms of vendors used. Conferencing & CCaaS appear **less of a priority** in hybrid work with a focus on Teams possibly highlighting consolidated spend trends (**ZM**). In CCaaS, intentions to spend on added **AI functionality** decreased in C2H23 vs. 1H (-9 points) but remains healthy with 24% of CIOs polled interested in augmenting CCaaS with AI, and we note a steep decrease in on-prem CC implementations (-21 points through 2023; **FIVN**).

3

Vertical Software (Celino): HCM budget priority for CY24 holding steady. **Encouraged by HCM leadership and expansion opportunity + consolidation trend for WDAY.** Work Management (**ASAN, MNDY, SMAR**) and Skilling (**COUR, UDMY**) budget priorities downticked toward bottom quartile, after a rebound in the prior period.

4

Security, Data & AI (Heath): **AI/GenAI, security, and analytics top three priorities** for 2024, consistent with last survey. Improved expectations for public cloud growth a positive for consumption names (**MDB, DDOG, CFLT**). GenAI and BI the top priorities in Data/Analytics and Microsoft top strategic data vendor. In security: 1) CNAPP, Data, and Identity the top priorities; 2) Microsoft most strategic vendor and strongest in endpoint; and 3) GenAI adoption timing for security teams uncertain.

2H23 CIO Survey: Key Stock Implications

Large Cap (+\$10B)

Ticker	Market Cap	Survey Impact (+/-)	Survey Findings	Analyst	Rating	PT	Current Price
ANET	\$83B	+	Uptick in prioritization of network spend along with specific call out on increased branch/campus spend last three surveys (p46)	Blakey	OW	\$306	\$267.16
PANW	\$110B	+	Security #2 priority NTM; Spend intentions with Palo net increase of 21%; Palo tied for #2 strategic vendor; Cloud Security #1 priority in security	Heath	OW	\$390	\$345.65
WDAY	\$76B	+	HCM priority holds steady; encouraged by HCM leadership and expansion opportunity from consolidation trend.	Celino	OW	\$310	\$289.88
ZM	\$21B	-	Citing less priority on video conferencing with return to office (-9pts h/h) and soft results on ZM as a deployed vendor (p49)	Blakey	SW	N/A	\$69.04
CRWD	\$73B	-	(-) Endpoint declined as a priority for NTM and LT; Endpoint most cited area where Microsoft is the primary solution; GenAI adoption uncertain. (+) #2 most strategic security vendor.	Heath	OW	\$318	\$298.66
MDB	\$33B	-	(-) 0% selected NoSQL DB as a NTM priority; Mongo ranked low as a strategic data vendor (+) Database/Data warehouse increased to #6 from #8 overall IT budget priority.	Heath	OW	\$500	\$413.42

S-MID Cap (<\$10B)

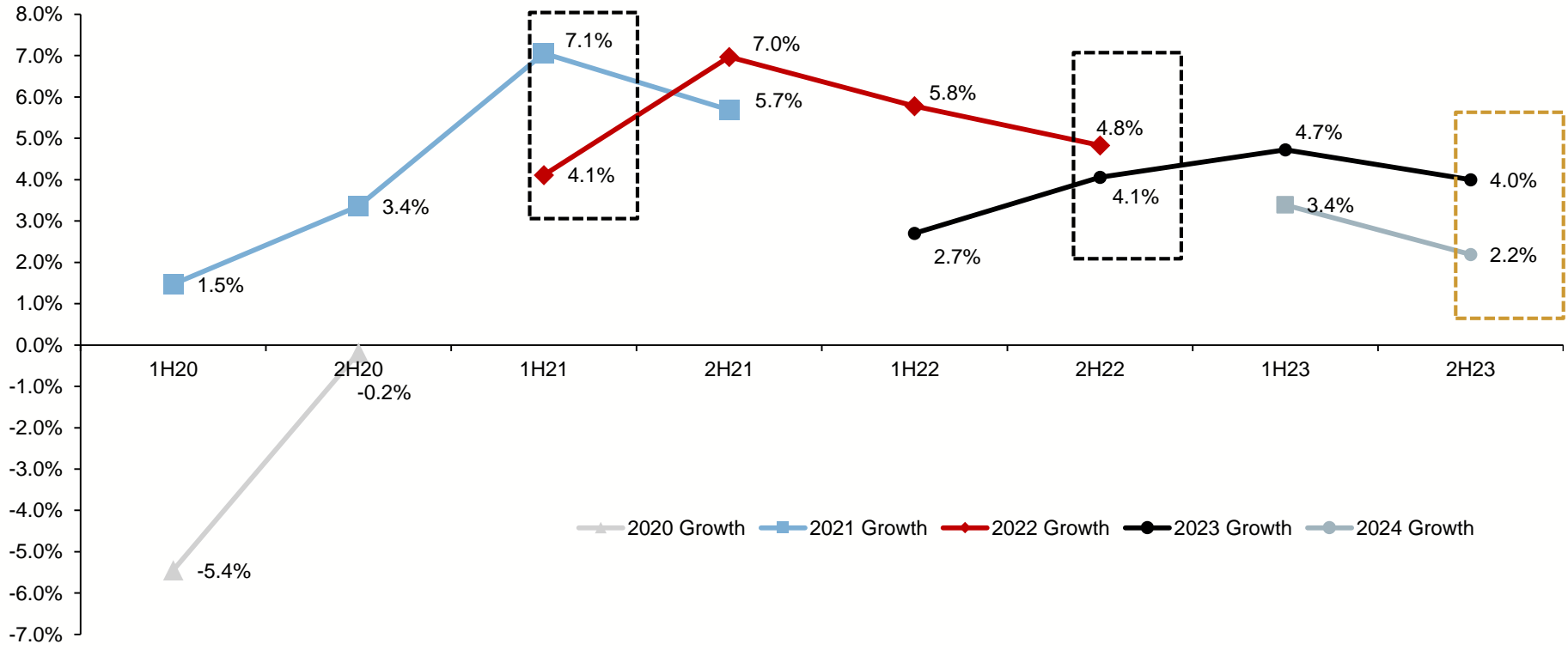
Ticker	Market Cap	Survey Impact (+/-)	Survey Findings	Analyst	Rating	PT	Current Price
FIVN	\$5.7b	+	Downtick in on-prem CC implementations with stable CCaaS and related AI intentions (p47)	Blakey	OW	\$93	\$78.94
AVDX	\$2.2B	+	AP/AR prioritization in back-office	Markgraff	OW	\$15	\$11.02

2H23 CIO SURVEY

BUDGETS AND MACRO

Initial CY24 Expectations Remain Conservative; Remaining Steady

IT Budget Growth Expectation History

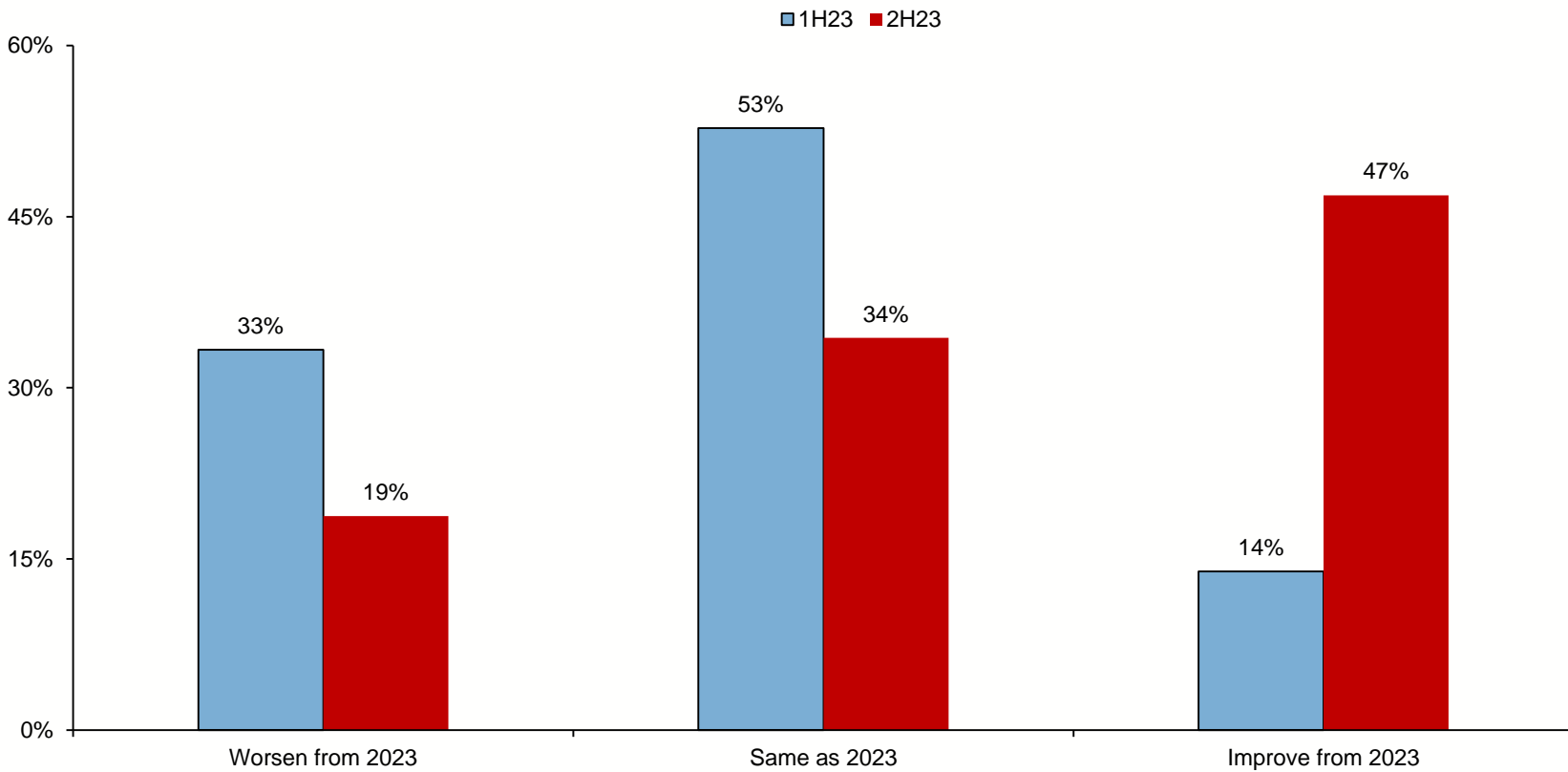


- Ending CY23 budget growth slowed to 4.0%.** 2023 budget growth came in at 4.0%, vs. 4.7% in our prior survey. Our [4Q IT VAR survey](#) increased slightly to 2.3% up from 1.7% in 3Q23 for 2023. The number of CIOs who saw an IT budget increase rose vs. 1H23.
- Expected CY24 budget growth slower than CY23 at 2.2%.** 2024 budget growth expectations of 2.2% are ~1.8 points below CY23 and slowed 1.2 points from our [1H23 CIO survey](#). In contrast, our [4Q IT VAR survey](#) showed a slight pickup in spending growth into CY24.

We remain cautious on slower 2023 budget growth and lowered CY24 budget growth expectations, but CIO feedback suggests easing inflation, deal approval layers, and macro headwinds in CY24.

Signs of Optimism for Improving Macro

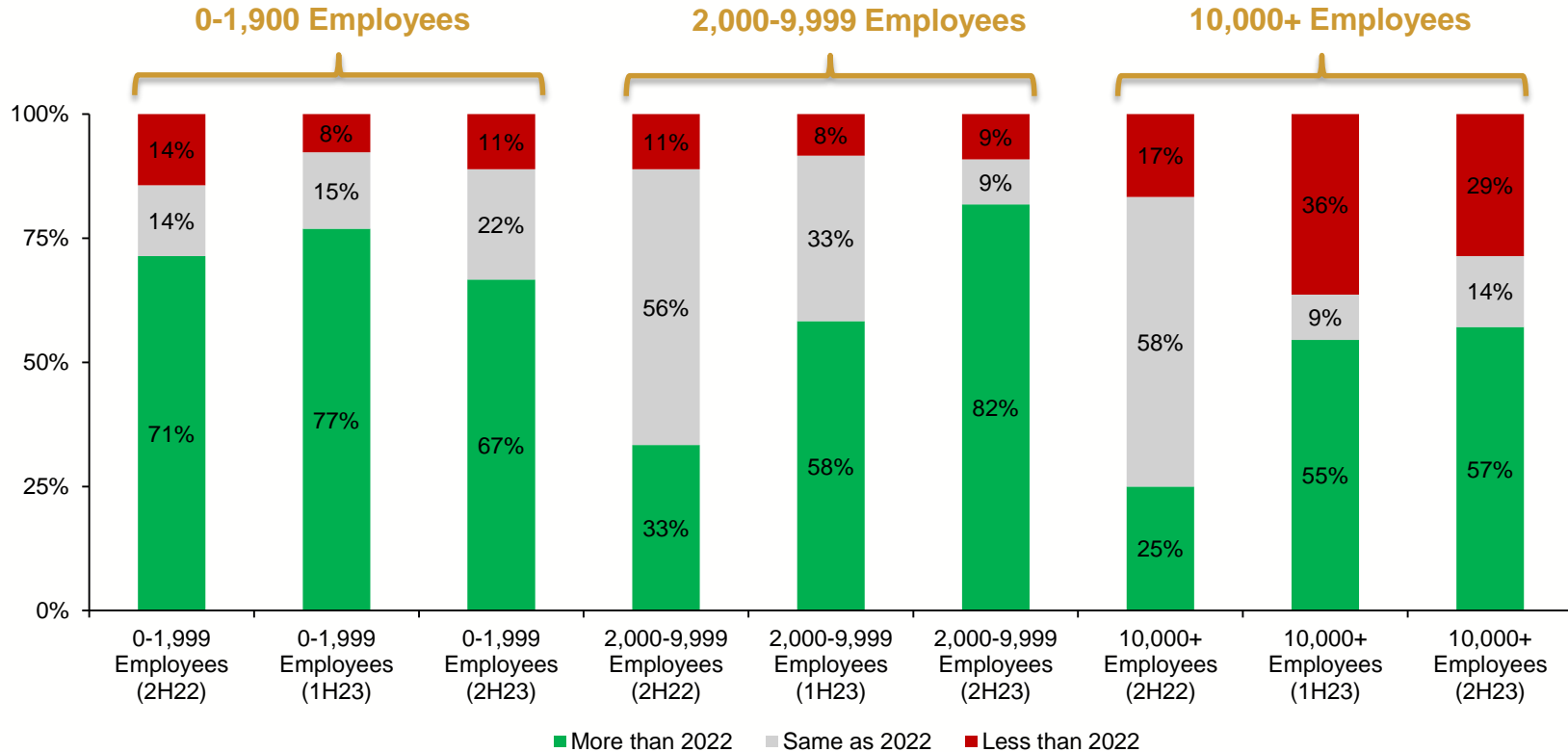
What are you anticipating in terms of the macroeconomic impact on your budget in 2024 vs. 2023?



*1H23 referring to CY23, 2H23 referring to CY24
N=32
Source: KeyBanc Capital Markets Inc.

Enterprise More Cautious Than SMB and Mid-Market

At the end of the year, how did your CY23 total IT budget end relative to your CY22 IT budget?

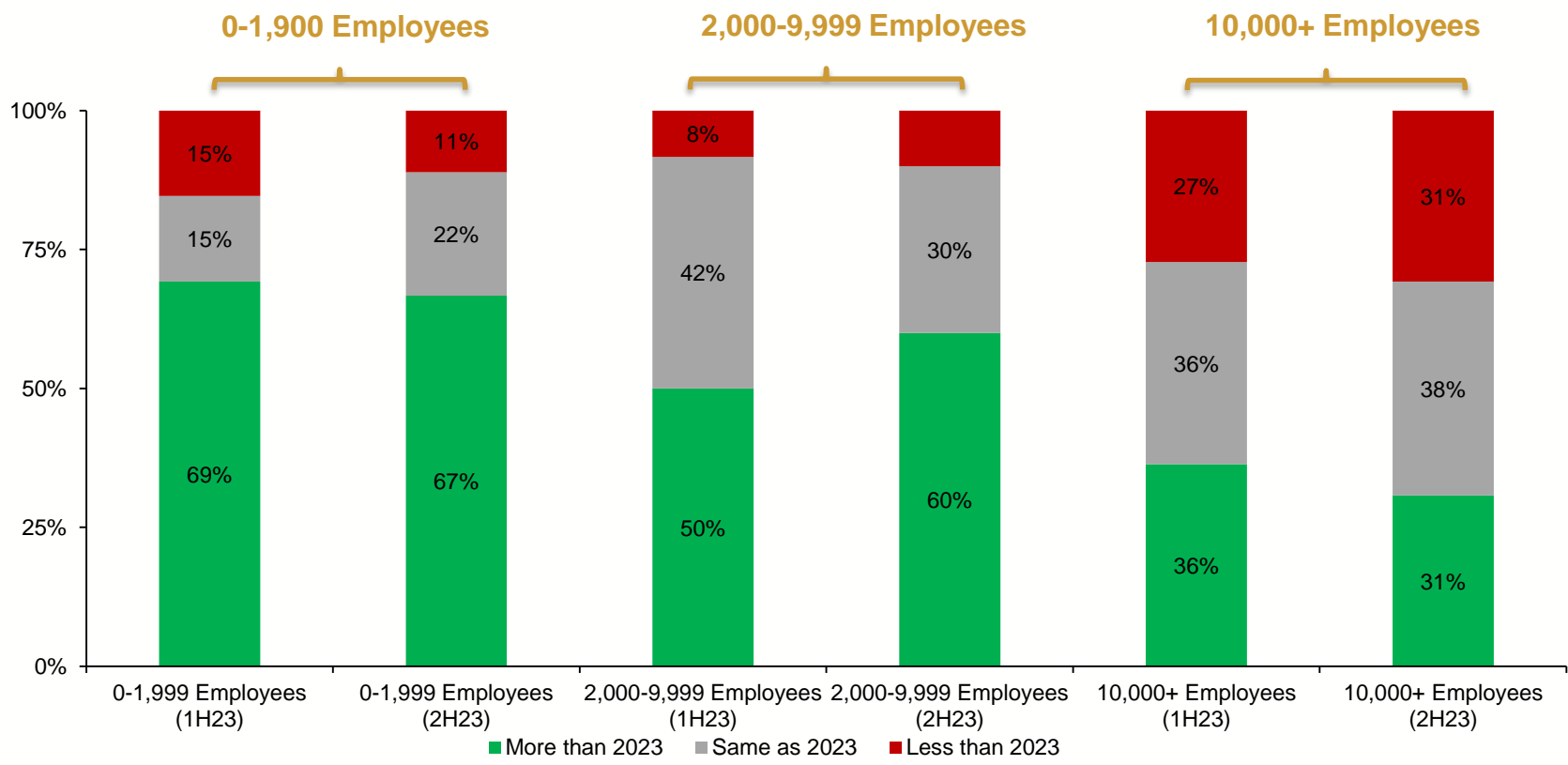


1. 29% of large company respondents reported a decline this year, vs. 36% expecting a decline in our midyear survey.
2. 82% of mid-market respondents reported an increase this year, vs. 58% expecting an increase in our midyear survey.

N=34
Source: KeyBanc Capital Markets Inc.

Enterprise Also the Most Cautious for Next Year

What are you forecasting for your CY24 total IT budget relative to your CY23 IT budget?

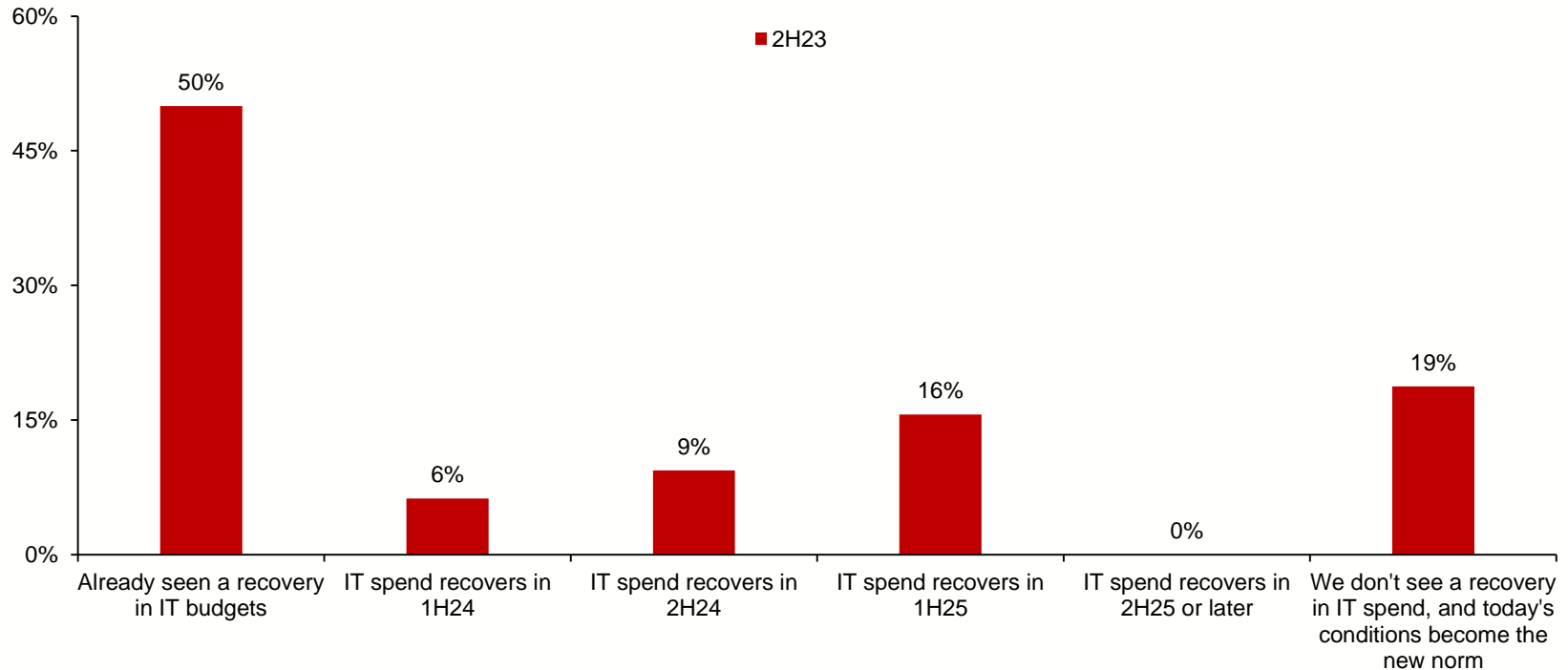


- 31% of large company respondents expected declines in 2024 spend. 10% of mid-sized companies and 11% of small companies expected declines for 2024.
- 31% of large company respondents expected increases in 2024 spend. 60% of mid-sized and 67% of small companies expected increases for 2024.

N=32
Source: KeyBanc Capital Markets Inc.

Half of CIOs Have Already Seen a Recovery in IT Spend

In your IT budgeting assumptions going forward, when do you expect to begin seeing a recovery in IT spend?



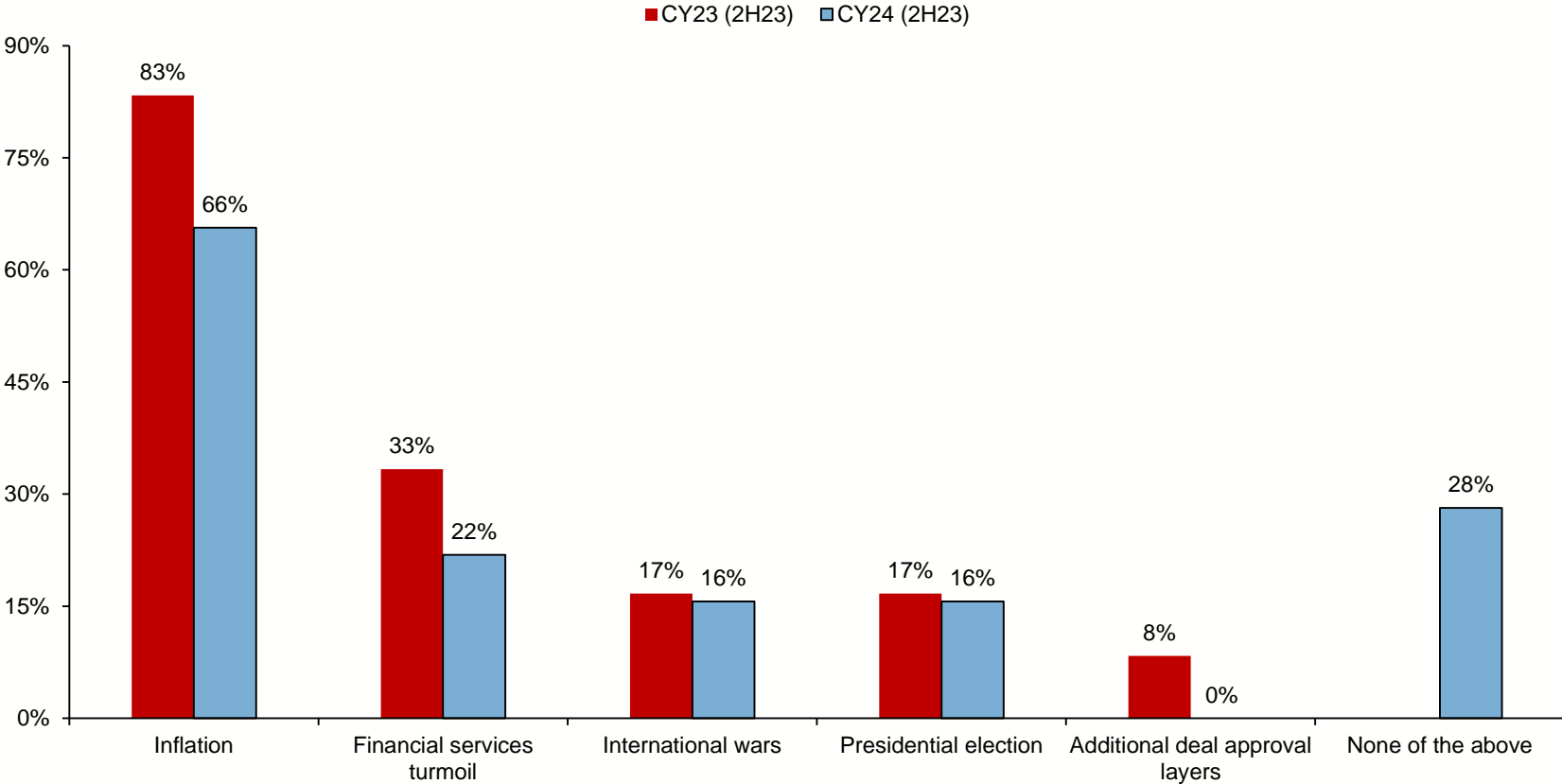
Key Takeaways:

- ❑ 50% of CIOs indicated they have already seen a recovery in IT spend.
- ❑ 19% of CIOs indicated they do not expect to see a recovery in IT spend.
- ❑ 15% of CIOs indicated they expect to see IT spend recovery in 2024 while 16% see recovery in 1H25.

N=32
Source: KeyBanc Capital Markets Inc.

Inflation & Deal Approval Layer Pressure Coming Down

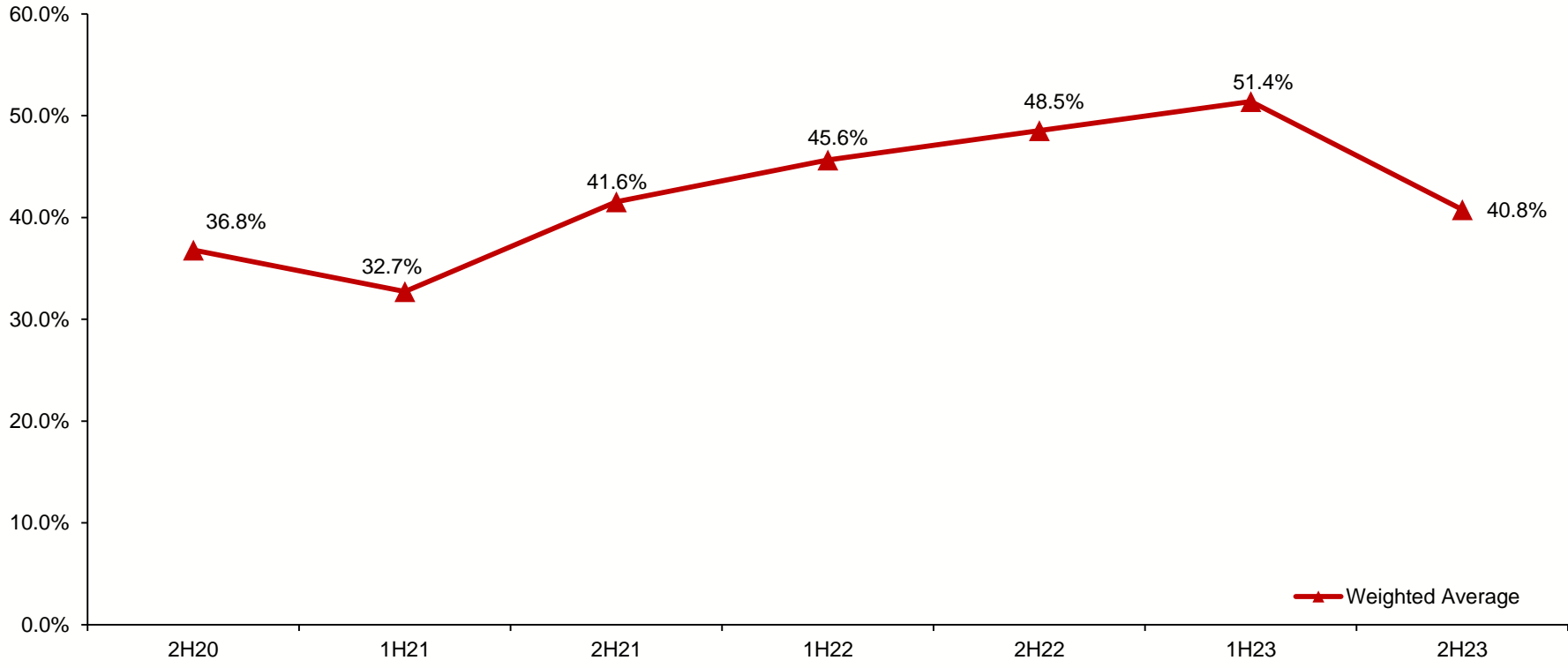
Which of the following macro factors impacted your budget in CY23 or are expected to impact your budget in CY24?



N=24
Source: KeyBanc Capital Markets Inc.

Cloud/SaaS Adoption Downticks

What percent of your applications have been migrated to the cloud or shifted to a SaaS vendor?



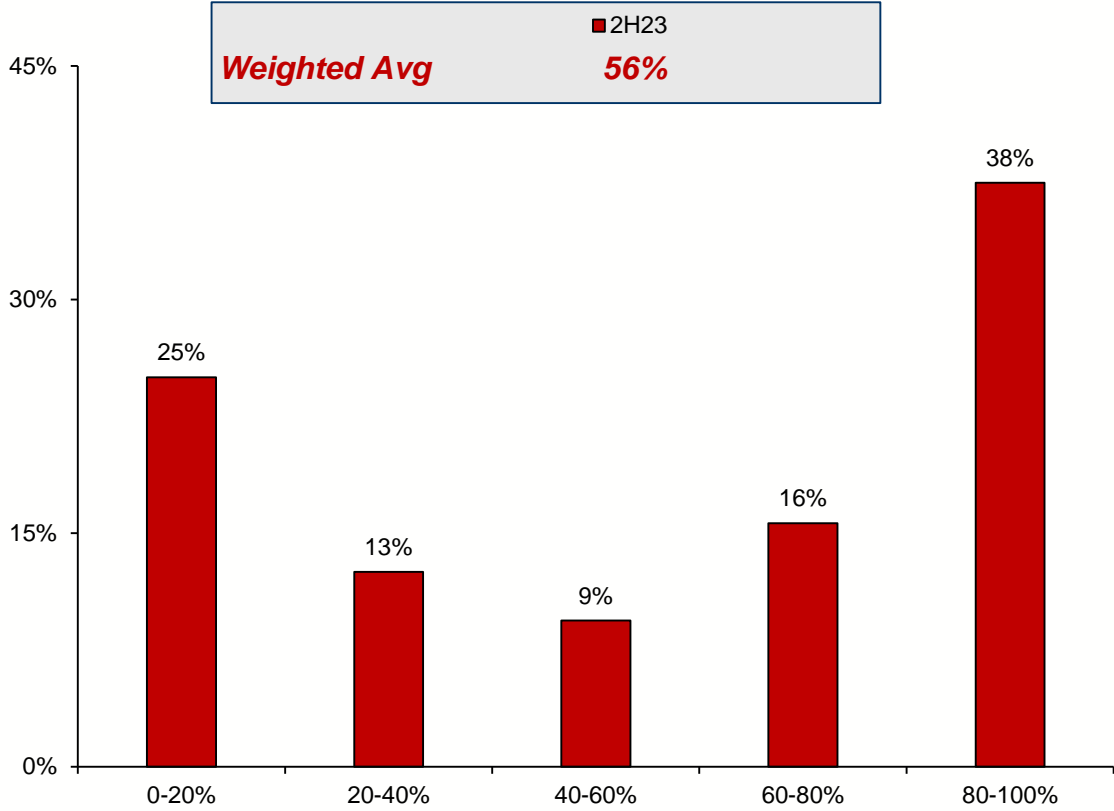
Key Takeaways:

- 1. General trend of greater shift toward Cloud/SaaS reversed this survey with respondents seeing an average 41% of workloads having been shifted to cloud/SaaS, down from 51% in 1H23.
- 2. This is likely a result of the mix of respondents and some noise in their responses as we do not believe SaaS applications have reversed course away from the cloud.

N=32, x-axis indicates date of survey
Source: KeyBanc Capital Markets Inc.

Long-Term Cloud/SaaS Expectations Healthy

What percent of your applications do you anticipate in the long term migrating to the cloud or shifting to a SaaS vendor?



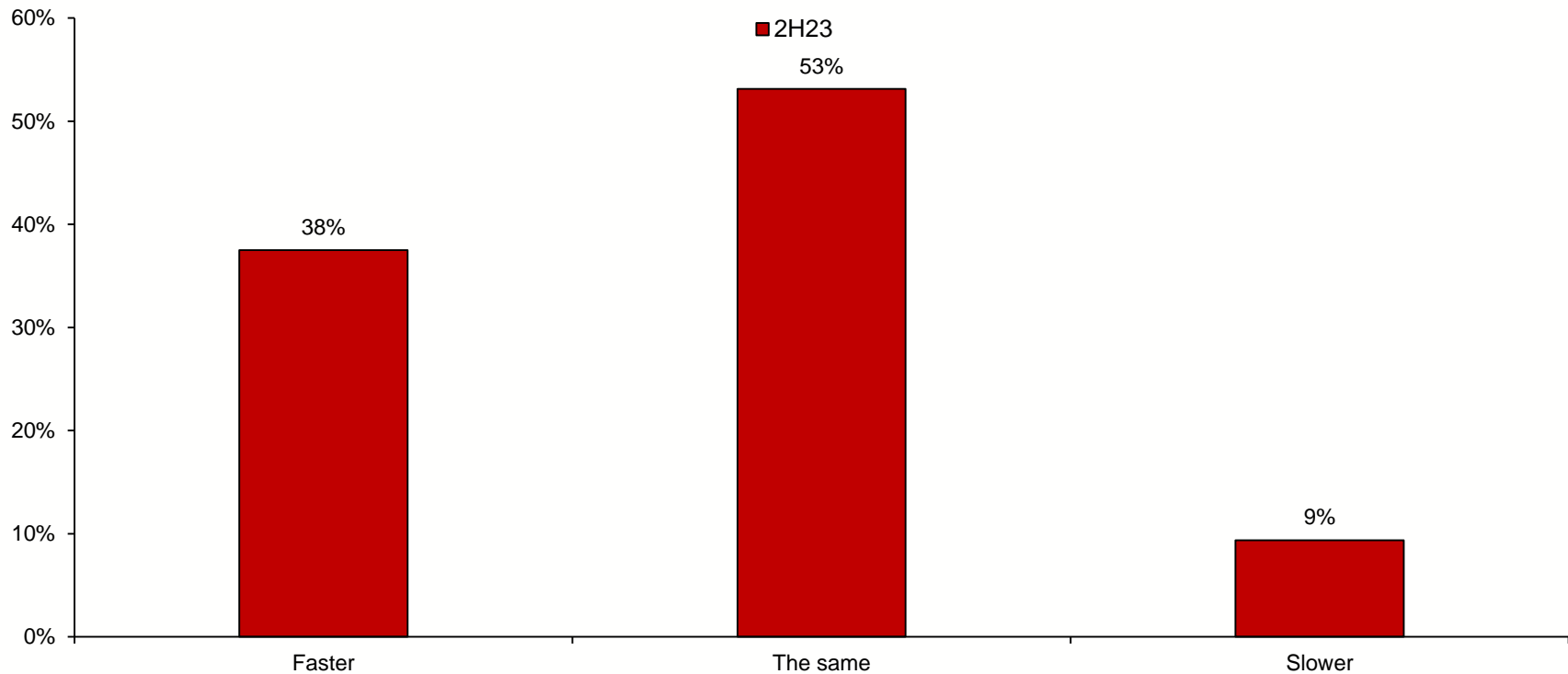
Key Takeaways:

- 1. Respondents anticipate ~56% of applications will be migrated to the cloud/SaaS in the long term, 15 points above the 41% CIOs currently see migrated.
- 2. 90% of respondents in our [4Q23 VAR survey](#) expected similar or faster cloud spend growth in the NTM, up from 87% in 3Q.

N=32
Source: KeyBanc Capital Markets Inc.

91% Expecting Flat to Accelerated NTM Cloud Public Cloud Spend

Do you expect your customers' spend for public cloud services over the next 12 months to grow faster, slower, or similar to the prior 12 months?



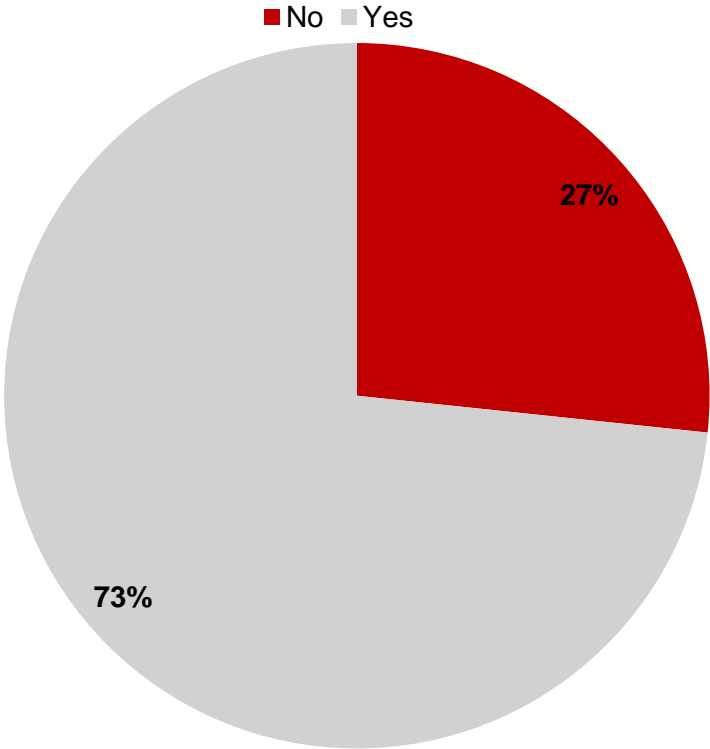
Key Takeaways:

1. 91% expect flat to accelerated public cloud spend in the NTM, with 38% expecting a reacceleration in spend.

N=32 Source: KeyBanc Capital Markets Inc.

Majority of CIOs Have Reduced/“Optimized” Cloud LTM

Have you taken proactive steps to reduce or "optimize" your cloud spend over the past 12 months?



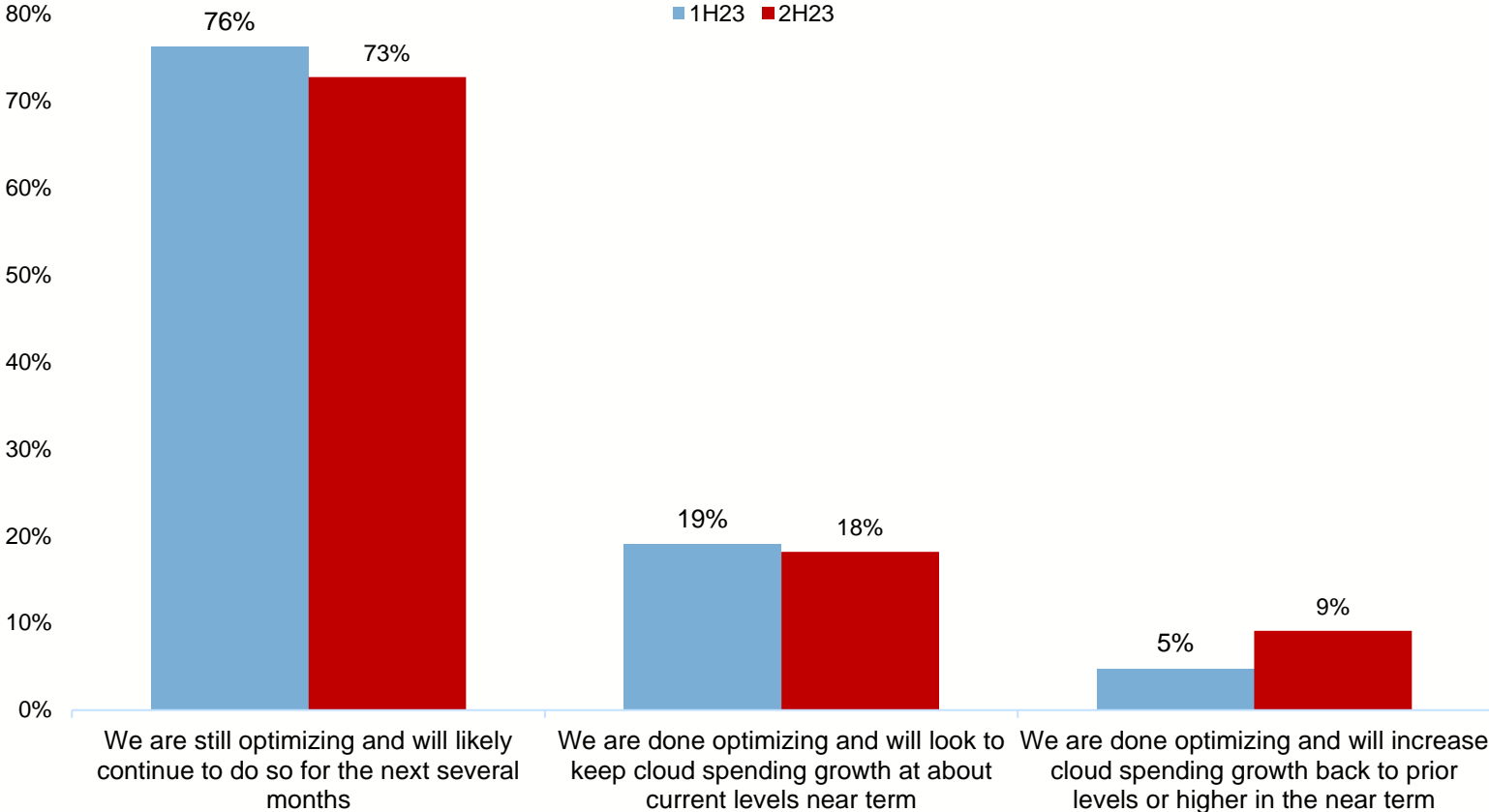
Key Takeaways:

- 1. 69% of respondents indicated they have taken steps to reduce or “optimize” their spend over the past 12 months, up from 58% in 1H23.
- 2. Optimization trends ongoing, but CIO commentary suggests progress in starting to move beyond optimization.

N=32
Source: KeyBanc Capital Markets Inc.

Small Yet Increasing % of Optimizations Completed

Where are you along that cloud spend "optimization" journey?

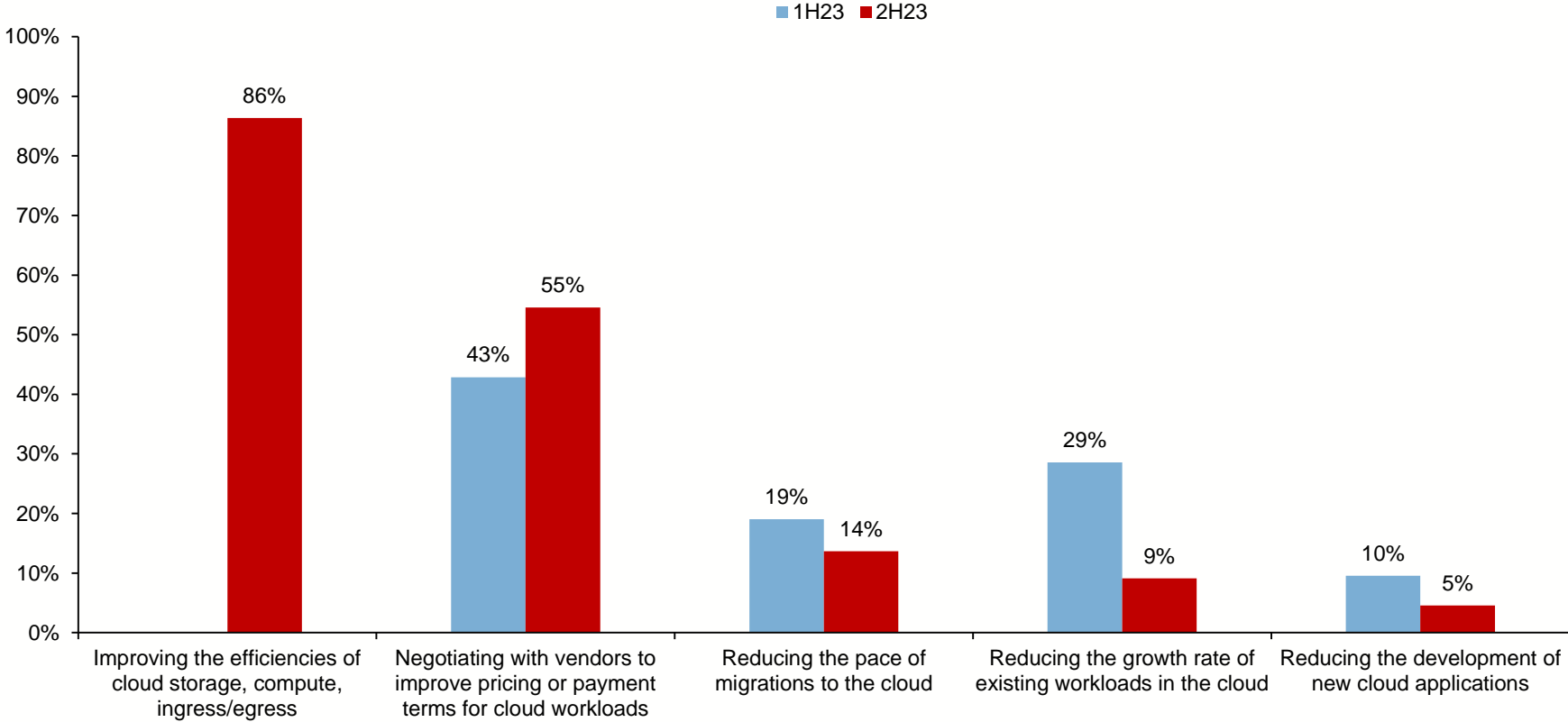


Key Takeaways:

- 23% of respondents have completed cloud spend optimization, with 9% expecting to increase near-term cloud spend, up from 5% in 1H23, but the majority of respondents are still undergoing spend optimization.

Cloud Optimization Focuses on Efficiencies and Contract Terms

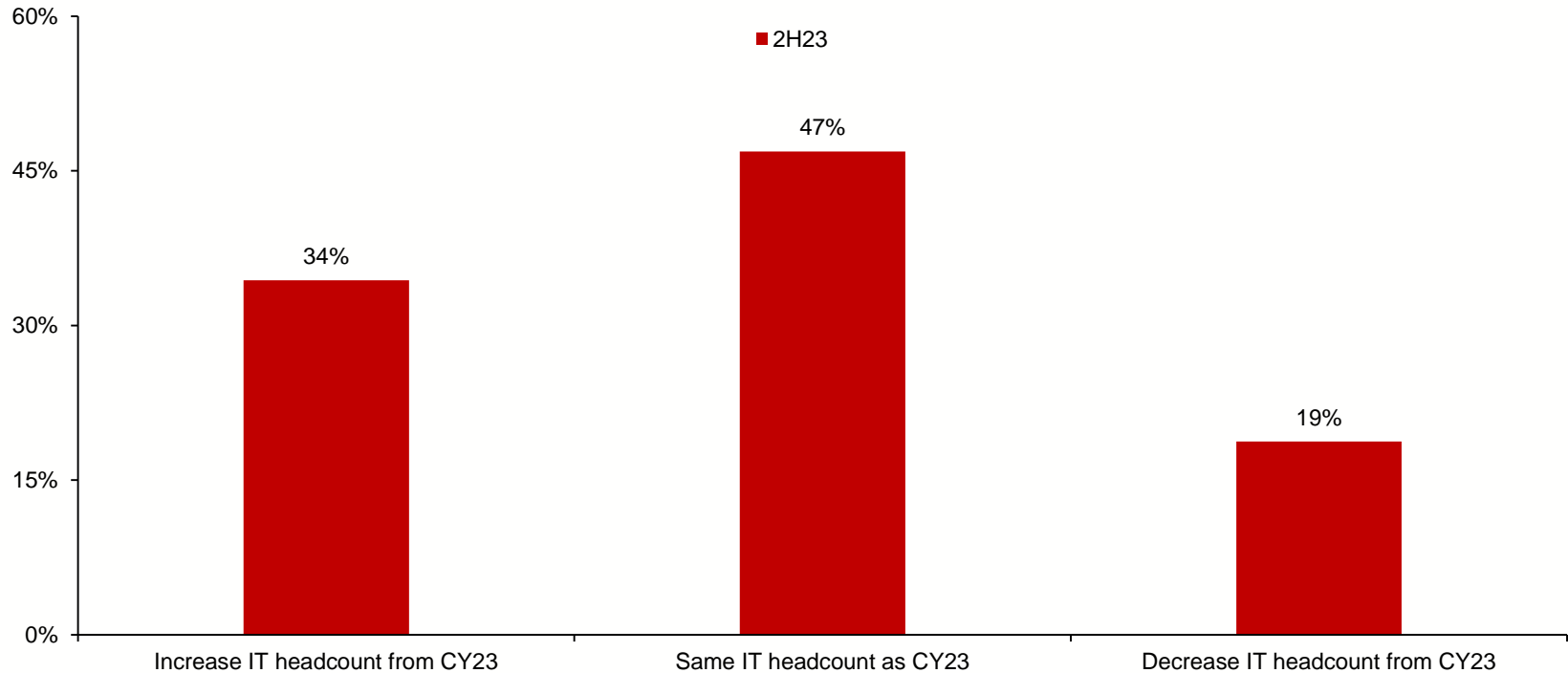
How are you "optimizing" your cloud spending?



*2H23 added option "Improving the efficiencies of cloud..."
**2H23 allowed for multiple answer selections
N=22
Source: KeyBanc Capital Markets Inc.

A Majority of CIOs See Headcount Up or Flat in 2024

What are your IT hiring plans for CY24 from CY23?



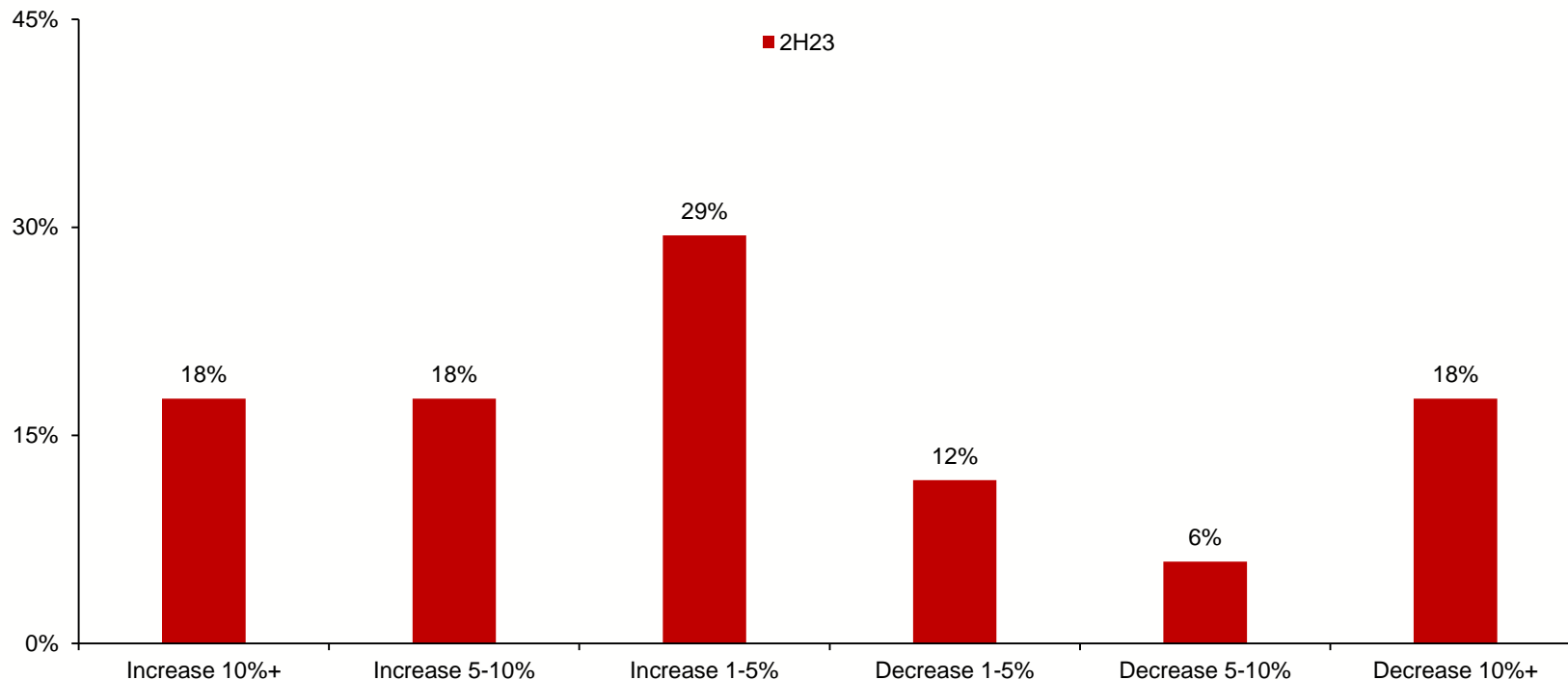
Key Takeaways:

- ❑ 81% of CIOs indicated they plan on increasing or maintaining headcount levels in 2024.
- ❑ 19% of CIOs indicated they plan on reducing headcount next year, up from 17% in our midyear survey.

N=32
Source: KeyBanc Capital Markets Inc.

CIOs Hiring Plans Are Positive vs. 2023

How much are you planning to increase or decrease headcount vs. CY23?



Key Takeaways:

- ❑ Wide distribution on headcount hiring plans in CY24, though positively skewed toward increasing headcount overall.
- ❑ 18% of CIOs indicated they are planning on reducing headcount by 10%+ in 2024 vs. 2023.

N=17

Source: KeyBanc Capital Markets Inc.

What CIOs Are Saying: Macro Still Tempering Budgets

How are you adjusting your IT budget plans, if at all, in light of inflation, geopolitical, or macro conditions?

CIO Responses

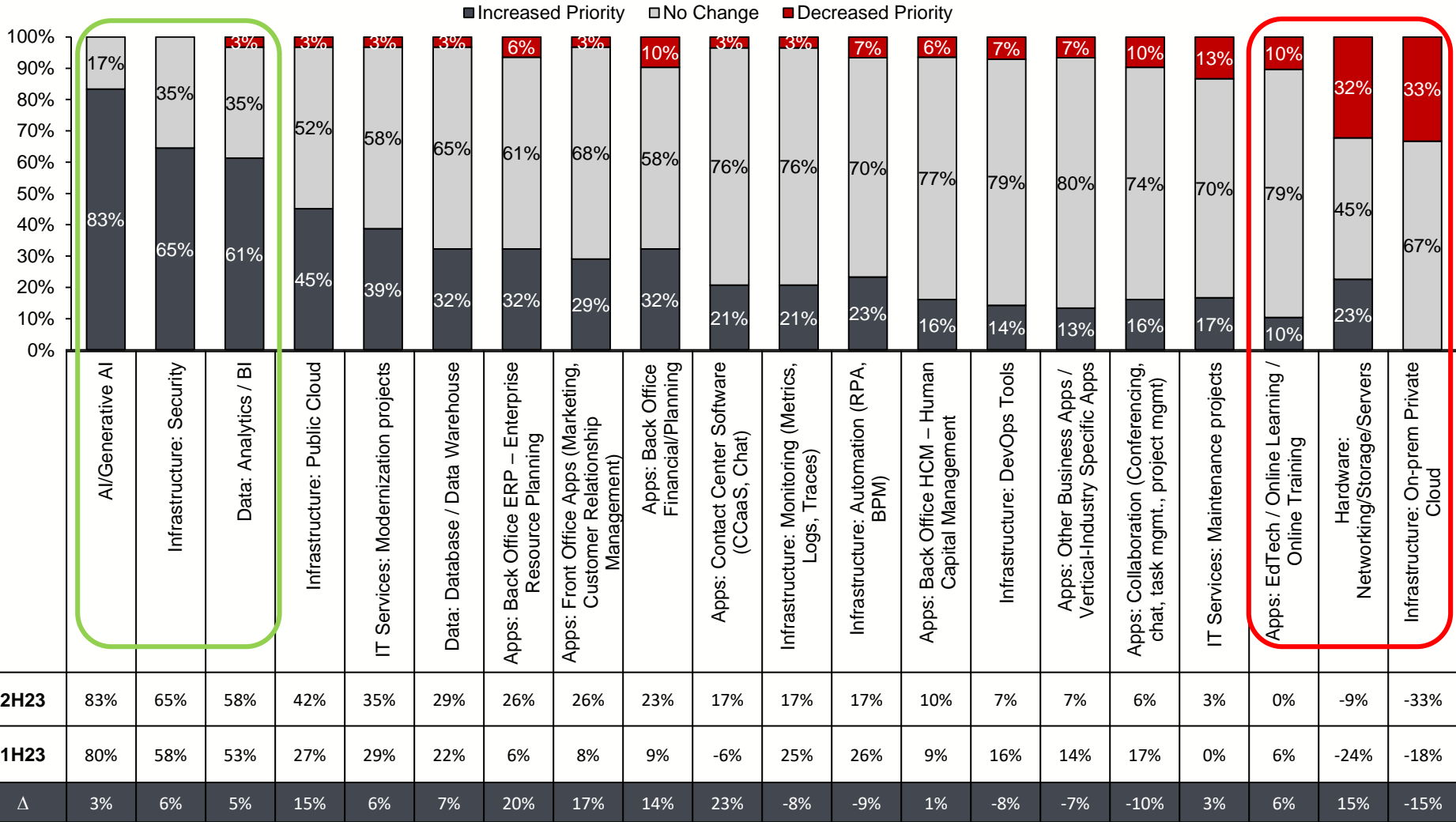
- “**Leveraging cloud infrastructure** as much as possible to **delay and reduce on-premise infrastructure refresh investments.**” – *Education*
- “**Strict oversight on new spend** and focus on negotiation of contract renewals.” – *Healthcare*
- “Aggressively looking at spend and tools to **reduce 5-10% to permit anticipated growth next year.**” – *Healthcare*
- “**Lowering budgets** to key projects and meeting compliance requirements.” – *Finance*
- “Growth of business and acquisition is **driving need for more resources**—plus the integration effort.” – *Finance*
- “**Scaling back** as required.” – *Retail*
- “Budget increase will **closely track PPI, about 3%.**” – *Finance*
- “**Delaying capital purchases** until 2H of 2024.” – *Healthcare*
- “**Not currently adjusting.**” – *Finance*
- “**Reducing spend in specific areas** where growth has not met expectations.” – *Professional Services*
- “**Not adjusting** at all.” – *Manufacturing*
- “Those items don't affect us significantly.” – *Education*
- “We are **not adjusting them—business as usual**, continue to execute against our five-year plan.” – *Manufacturing*

2H23 CIO SURVEY

Spend by Vendor/Category

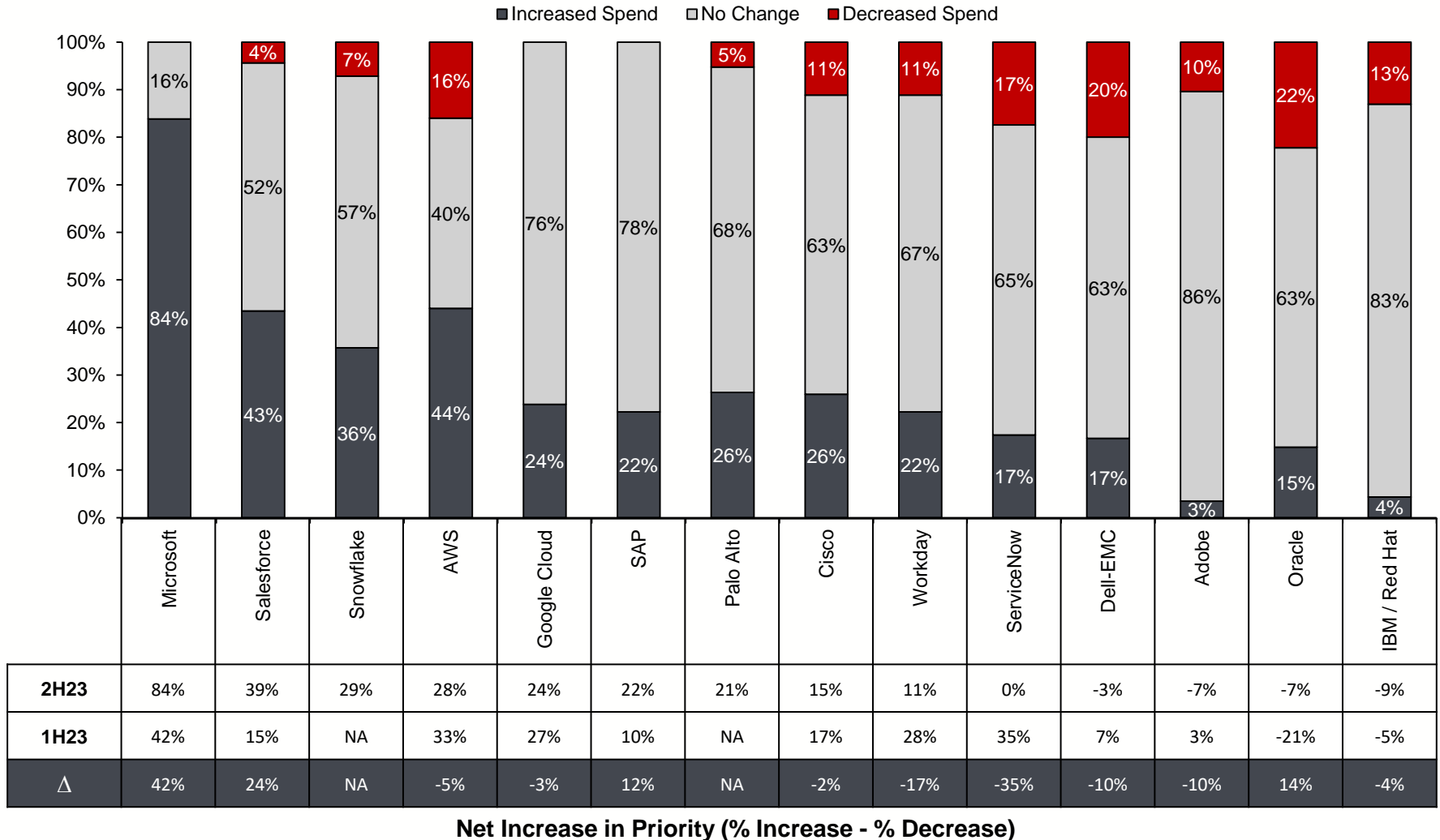
CY24 Budget Priorities Similar: AI/Gen AI, Security, Analytics/BI

Which projects are seeing the largest increase/decrease in budget priority in 2024 [Multiple Selections]



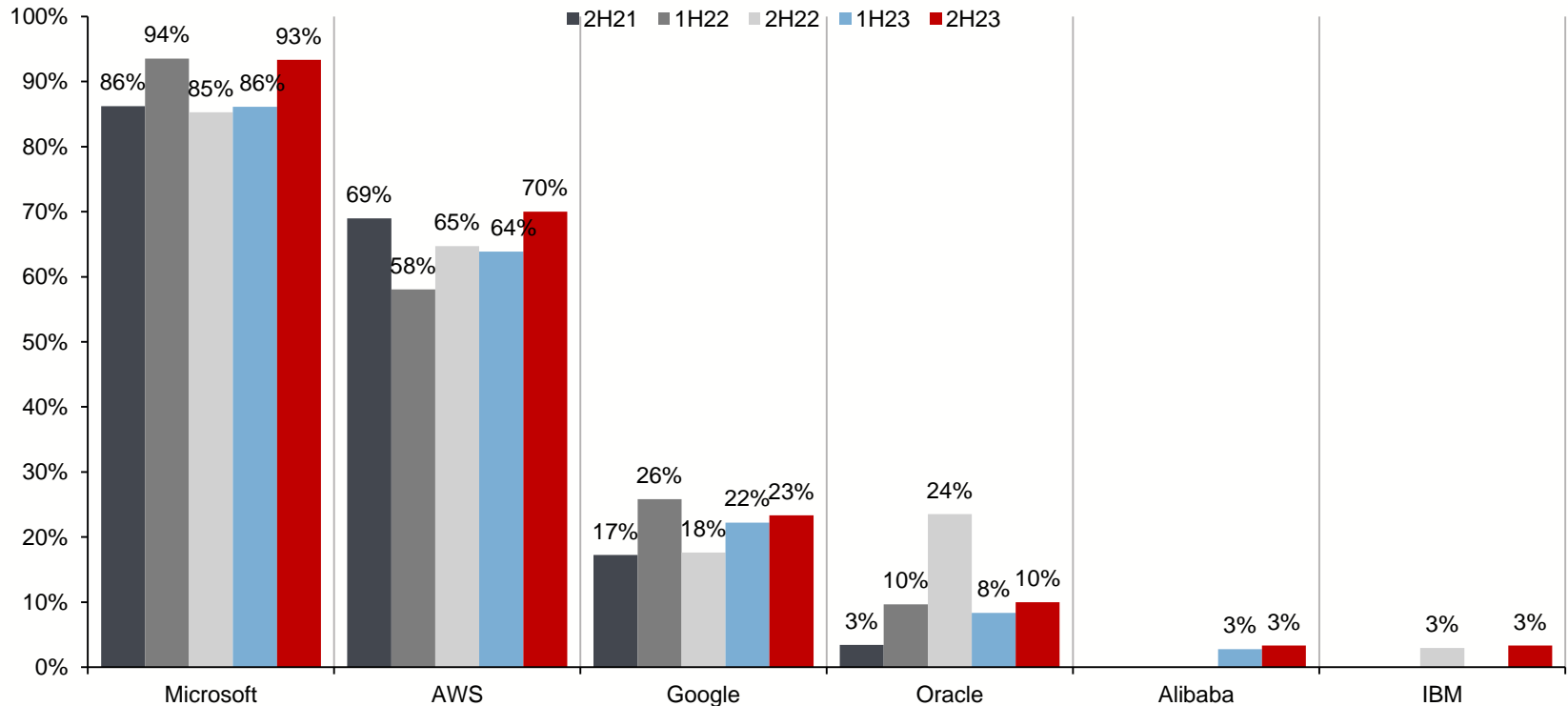
MSFT, CRM Top NTM Budget Beneficiaries

How do you expect budgeted spend for each vendor to change over the next 12 months?



Top Public Cloud Vendors—MSFT/AWS Continue to Lead

Which of the following are your primary public cloud vendors? [1-3 SELECTIONS ALLOWED]



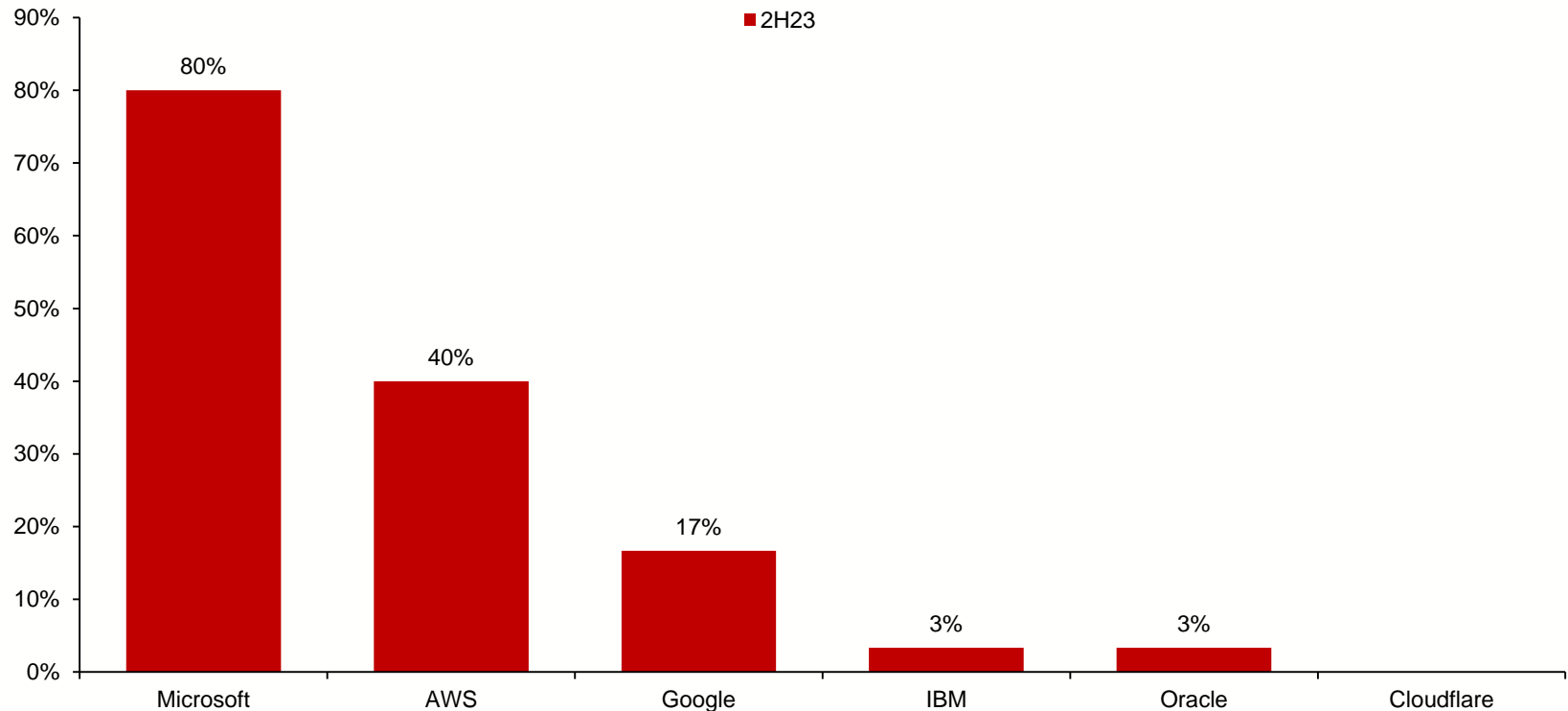
Key Takeaways:

- ❑ **Azure and AWS Continue to Lead and Seeing Largest Gains, Google Remains #3.** Microsoft and AWS the most often cited vendors used for public cloud. **Google** relatively unchanged from 1H23 and still well above #4 **Oracle**.
- ❑ **Majority Still Multi-Cloud.** 73% of respondents cited **using more than one public cloud vendor**, up slightly from our 1H23 survey at 67%. The majority are using two public cloud vendors.

2H21: N=29 2H22: N=34
 1H22: N=31 1H23: N=36
 2H23: N=30

Top Public Cloud Vendors—MSFT/AWS Continue to Lead

Which cloud vendors do you expect to spend more with in CY24?



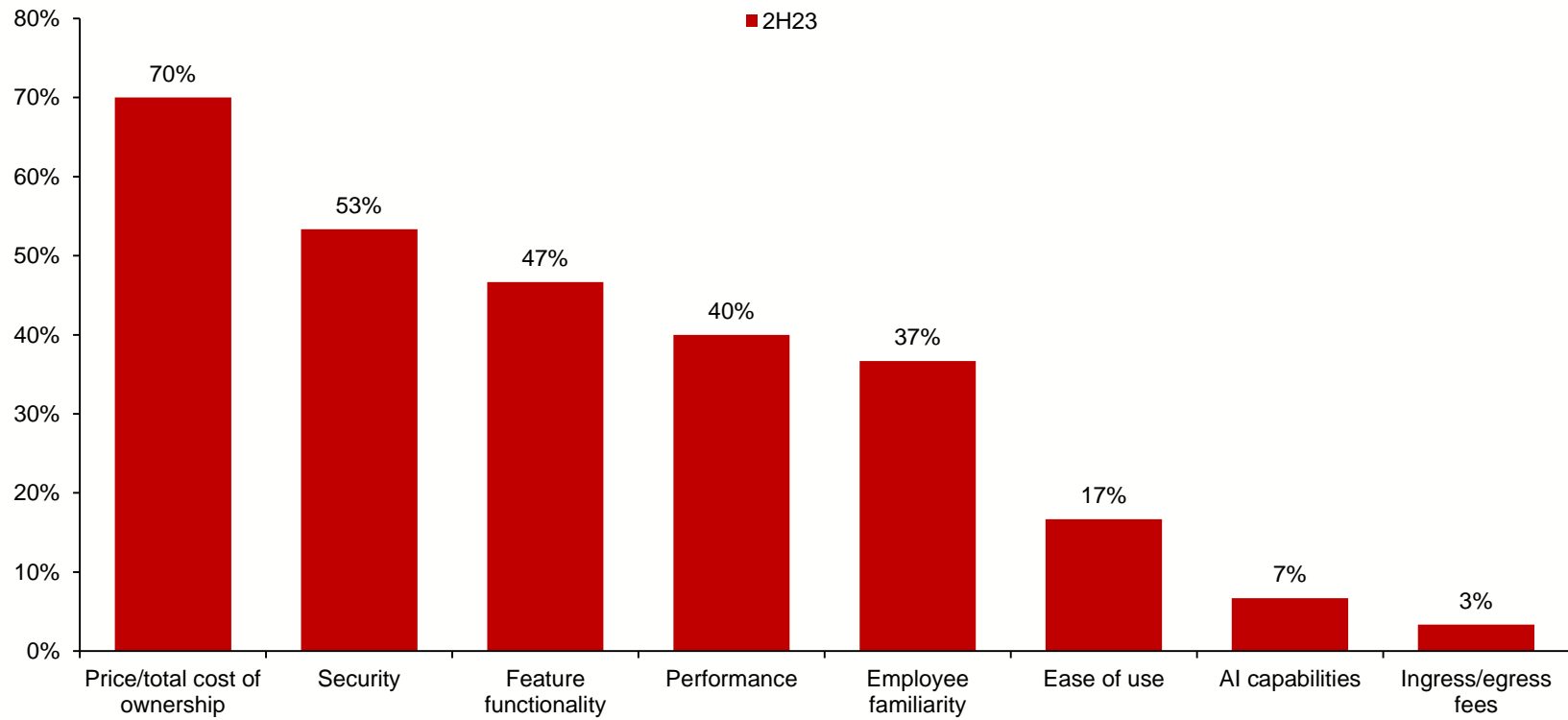
Key Takeaways:

- ❑ Cloud vendors respondents expect to see an increase in spend largely match current cloud providers with Microsoft, AWS, and Google taking #1-3.
- ❑ Respondents heavily skewed toward Microsoft with 80% expecting to spend more with Microsoft in CY24 while AWS at 40% was 30 points below the % of respondents who use AWS as a primary cloud (70%).

2H21: N=29 2H22: N=34
1H22: N=31 1H23: N=36
2H23: N=30

Price/Security Top Factors in Choosing Public Cloud Vendor

What are your primary reasons for choosing one public cloud vendor over another?



Key Takeaways:

- ❑ Rationale behind choosing public cloud vendors widely distributed, but overall led by cost #1 and security capabilities #2.
 - ❑ Ease of use and AI capabilities ranked as relatively unimportant in choosing cloud vendor.
- 2H21: N=29 2H22: N=34
1H22: N=31 1H23: N=36
2H23: N=30

Which Areas of IT Spend Are Not Moving to the Cloud

Which areas of your IT spend do you expect will not move to the cloud or to a SaaS vendor?

CIO Responses

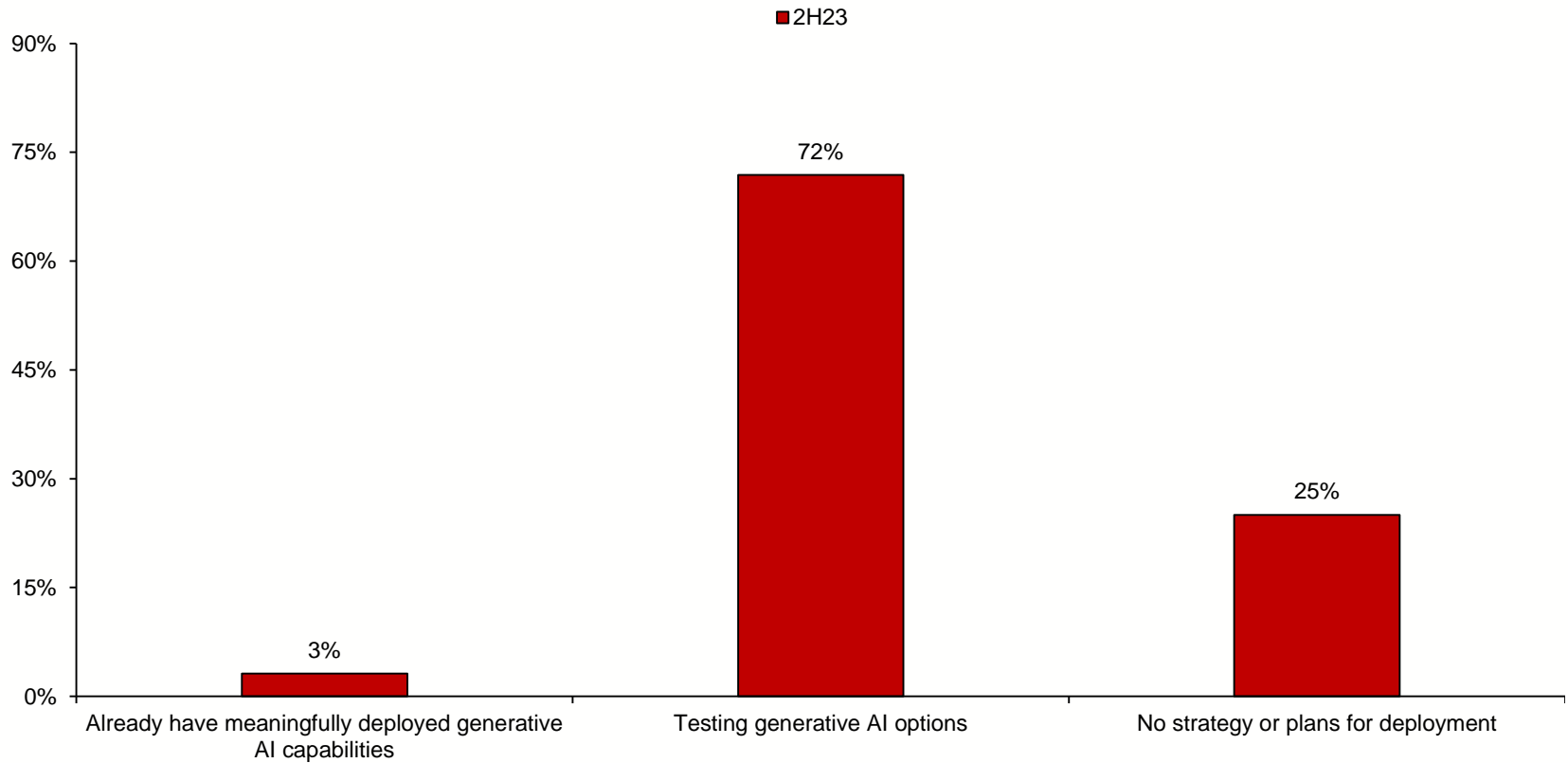
- “None”
- “Everything is on the table”
- “Some of our high-performance computing (HPC) infrastructure and high-volume storage needs”
- “Legacy student information systems”
- “Core ERP”
- “Security operations”
- “Some home-grown applications”
- “Core banking transactional footprint and associated apps”
- “High dollar transactions, sensitive data, mainframe applications”
- “Legacy apps that are not cloud compatible”
- “Applications hosting sensitive geo restricted data”

2H23 CIO SURVEY

GENERATIVE AI

Most CIOs Are Testing Generative AI Options

What is your organization's current adoption/strategy for Generative AI?

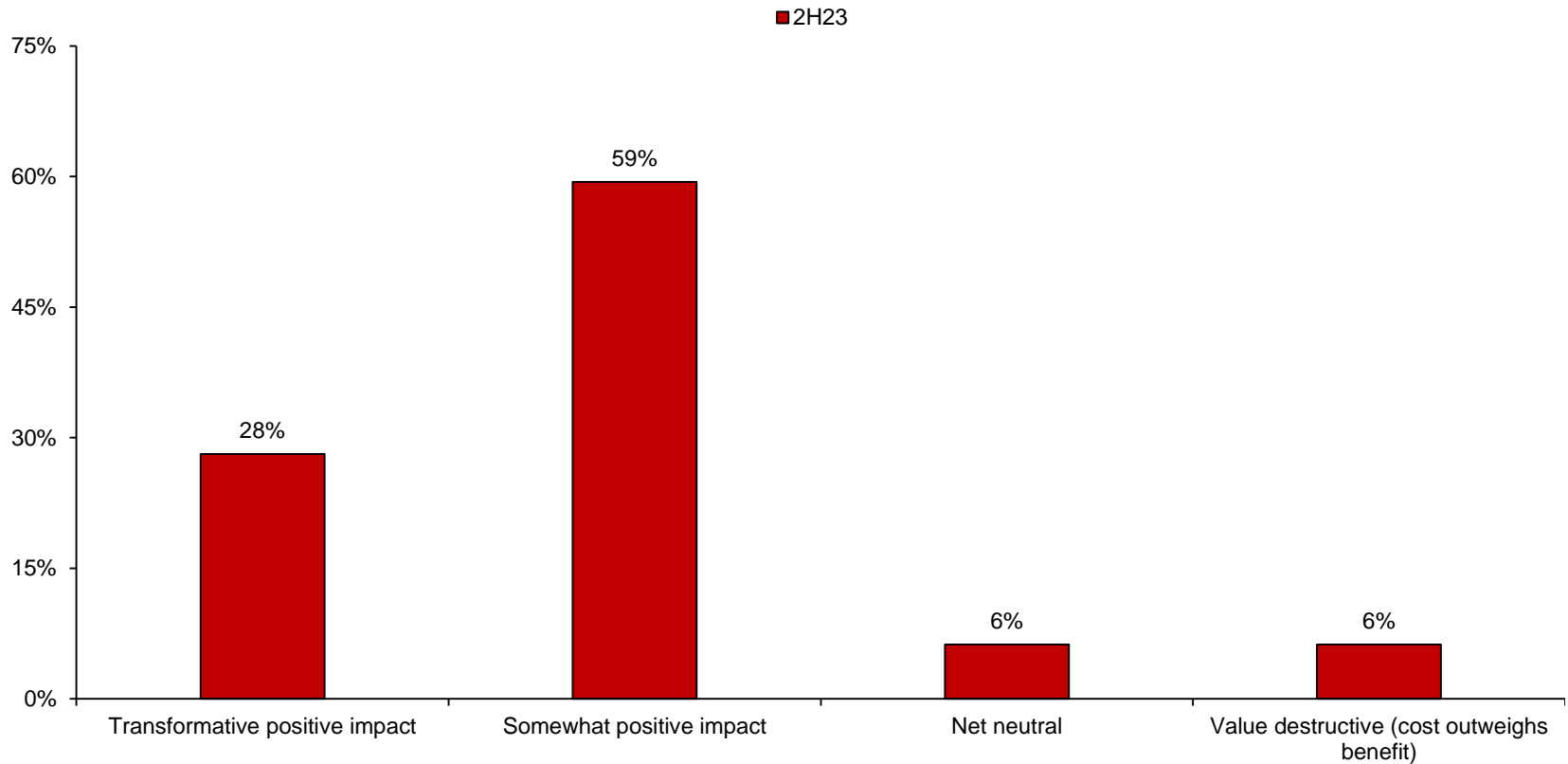


Key Takeaways:

- 75% currently testing or have already meaningfully deployed generative AI capabilities.
- 25% of CIOs have no strategy or plans for any generative AI deployments.

Most CIOs Are Somewhat Positive on Gen AI Impacts

What impact do you expect deploying generative AI would have on your business?

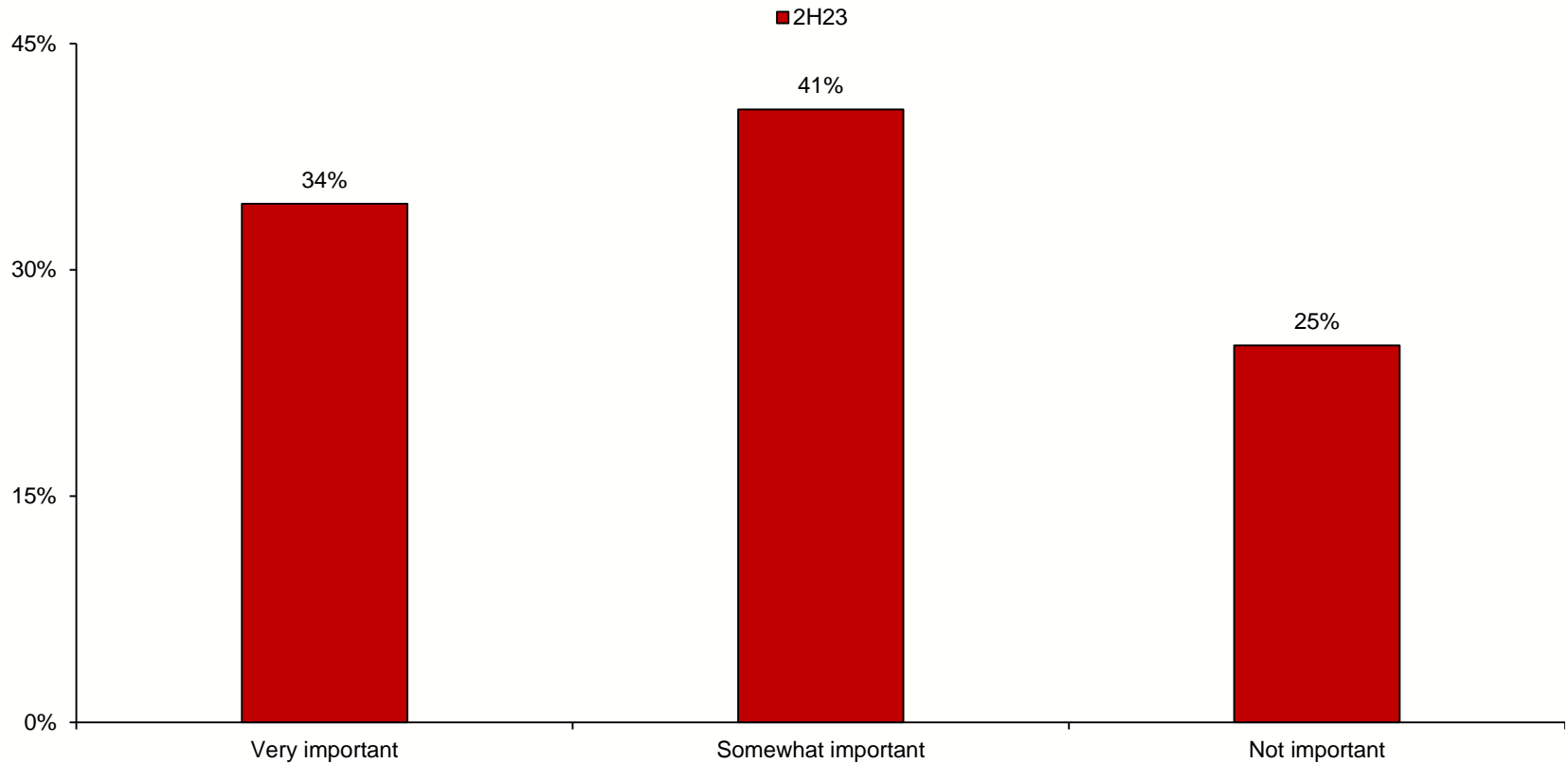


Key Takeaways:

- 28% expect a transformative positive impact from generative AI's impact on their business vs. only 6% expecting negative value (cost outweighs benefit)
- A majority of CIOs see a somewhat positive impact from generative AI on their business.

No CIO Consensus Yet on Impacts of Content Generation

How important do you believe Generative AI capabilities for generating text, images, or other media in response to natural language or other prompts will be for your business?

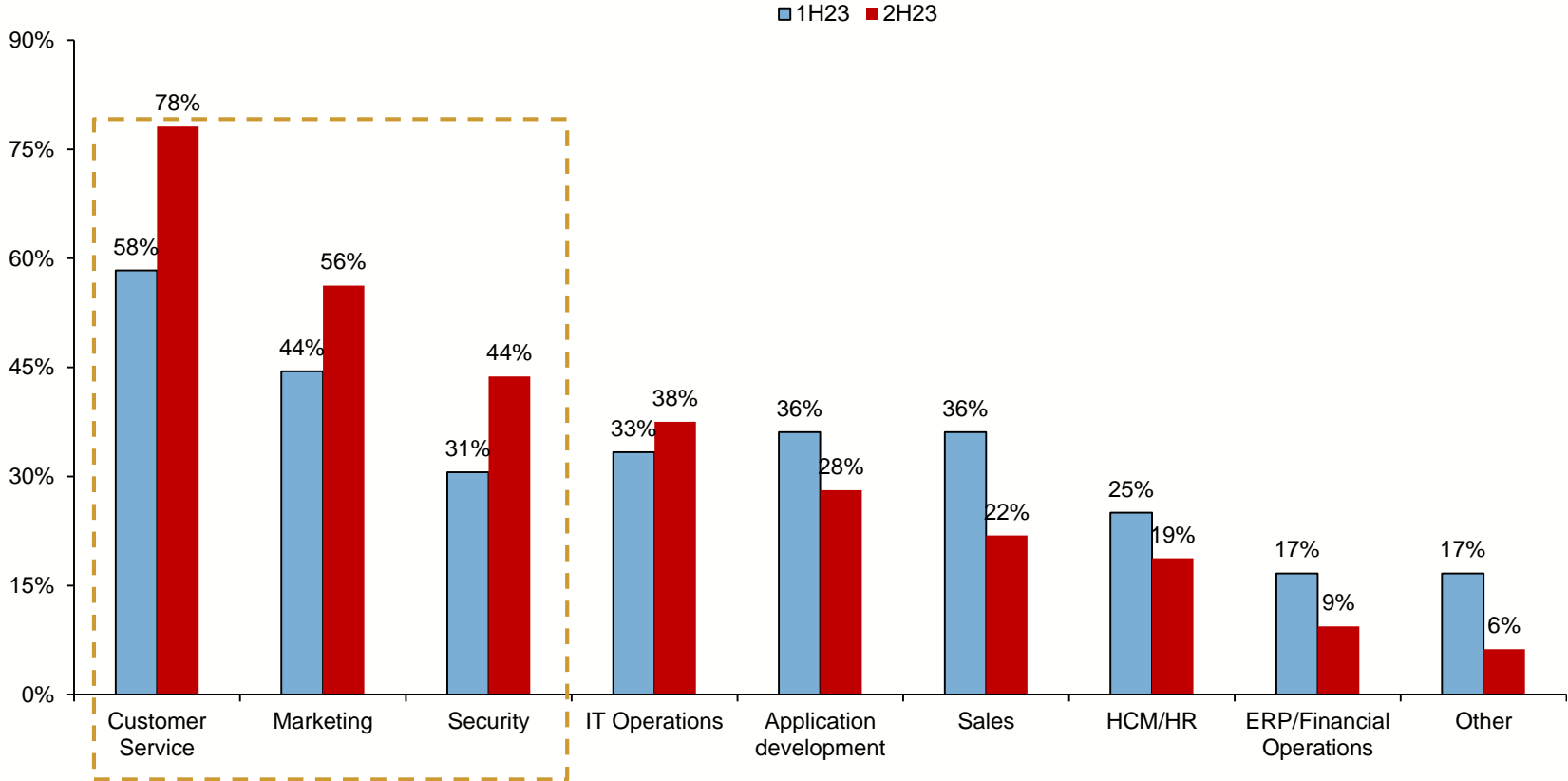


Key Takeaways:

- While 41% of CIOs believe the generation of text, images, and other media in response to natural language or other prompts is somewhat important, 25% believe it is not important and 34% believe it is very important.

Front Office & Security the Most Cited Uses Cases for GenAI

Where in your business do you see strong potential benefit from Generative AI?

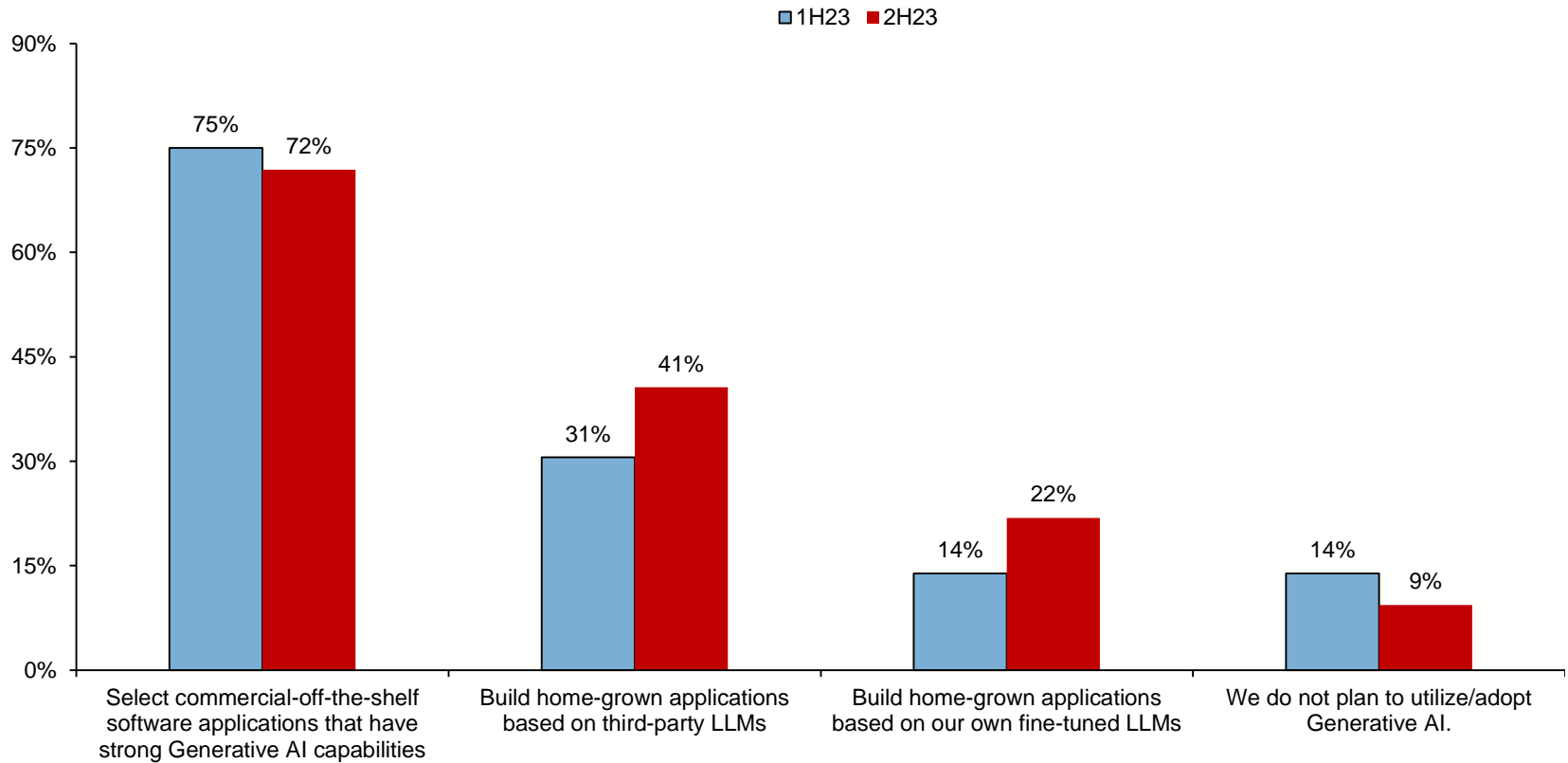


Key Takeaways:

- ❑ Customer Service (78%) again was the top area of the business in which CIOs noted they could see strong benefit from Gen AI, followed by Marketing (44%), and Security (44%).
- ❑ Security improved from #6 to #3 as areas expected to benefit from generative AI.

CIOs Prefer to Buy vs. Build Gen AI Capabilities

How do you expect to utilize/adopt Generative AI?

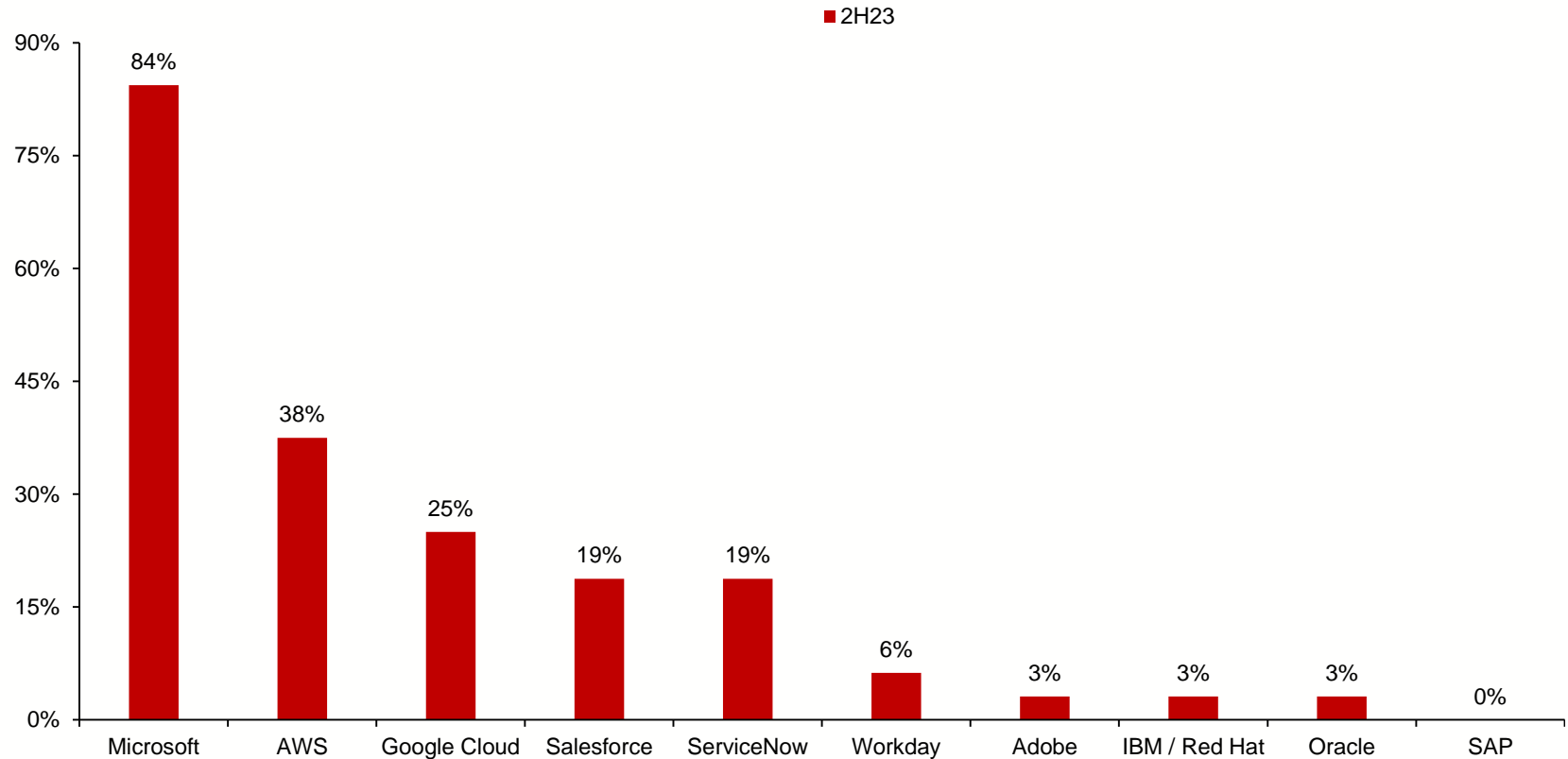


Key Takeaways:

- ❑ 72% prefer commercial-off-the-shelf applications that have Gen AI capabilities vs. building out their own capabilities.
- ❑ 41% of respondents prefer building home-grown applications based on third-party LLMs, up from 31% in our last survey.

MSFT Seen as the Strongest Generative AI Provider

Which vendors do you believe have the strongest Generative AI solutions & capabilities?



Key Takeaways:

- Microsoft more than double the second ranked vendor AWS likely aided by Microsoft Copilots and Open AI.

What CIOs Are Saying: DT Ongoing, GenAI Interest High

Please provide a few examples of Digital Transformation (DT) projects you have recently participated in or are planning

- “ERP replacement, software consolidation, software retirement, application rationalization.” – *Education*
- “Application Migration to Public/Private Cloud, Data Center Consolidation” – *Finance*
- “Implemented numerous AI related projects to embed AI tools into existing solutions.” – *Professional Services*
- “Cyber security enhancements—endpoint security, enhanced proxy, and logging.” – *Government*
- “Cloud SaaS ERP Implementation (Workday).” – *Education*
- “Employee self service, supply-chain, finishing digital transformation of CRM/sales, and marketing.” – *Healthcare*
- “Use of quantum security tools and generative AI technologies.” – *Healthcare*
- “Continue to migrate to open source cloud architecture.” – *Hospitality*
- “Introducing AI into our workflows; CRM upgrade.” – *Finance*
- “New Project Management System, Automated invoicing.” – *Manufacturing*
- “Sunset colo datacenter, Implement ZTNA.” – *Healthcare*

2H23 CIO SURVEY

INFRASTRUCTURE & CLOUD COMMUNICATIONS

TOM BLAKEY

Infrastructure Software – Tom Blakey

SECTOR CONCLUSIONS FROM CIO SURVEY

2024 BUDGET EXPECTATIONS DIP VS. LAST SURVEY AND WEAKER THAN OUR 4Q23 VAR SURVEY

HARDWARE SPEND CONT. TO BE DE-PRIORITIZED YET STABLE WITH UPTICK IN NETWORKING, STORAGE

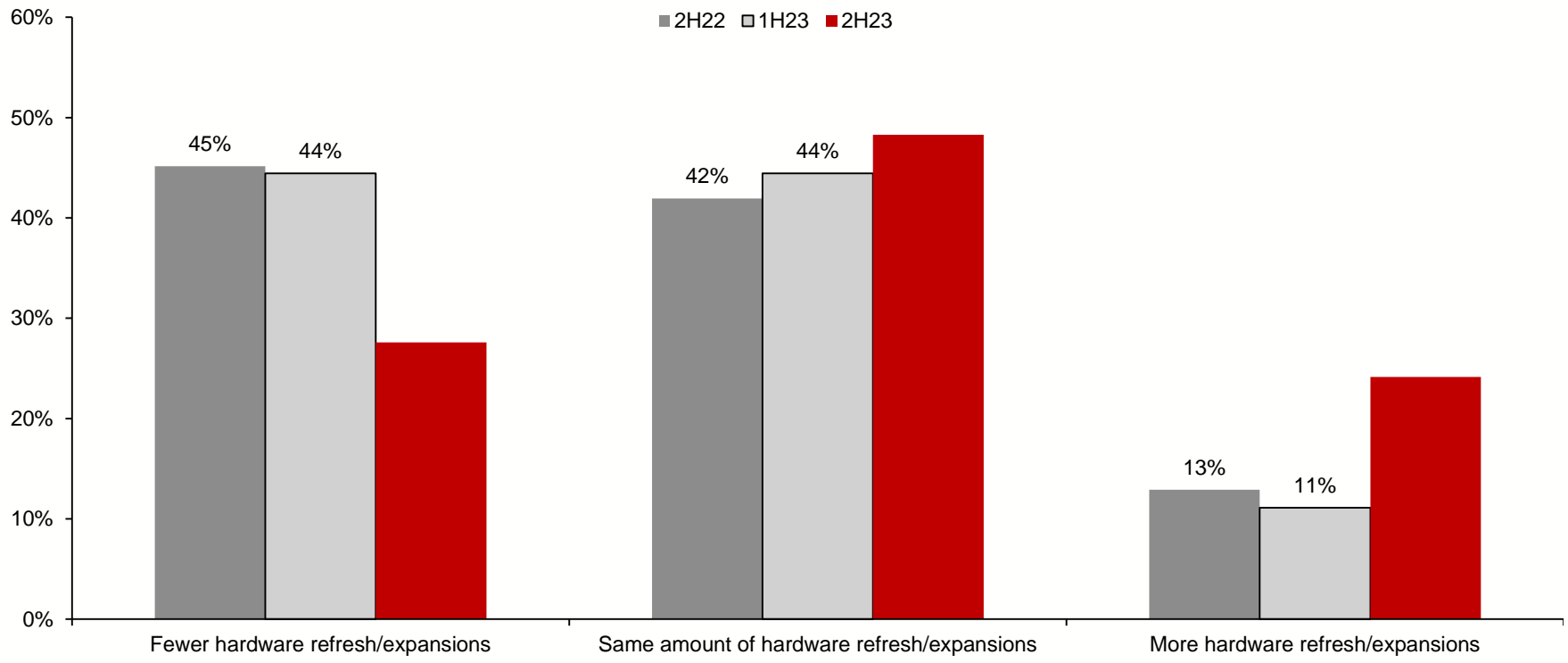
- With an **uptick in macro concerns** as evidenced by lower IT budget growth forecasts for CY24 ([page 12](#)), albeit with anticipation of improvements in 2024 budget vs. 2023, **on-prem infrastructure remains the least prioritized budget item** for the second survey in a row (33% of CIOs decreasing priority of on-prem private cloud spending in 2H23 vs. 18% 1H23). **Networking/Storage Hardware**, albeit still the second most decreased IT spend priority group cited by CIOs, did see a solid uptick in increased priority with the net (% increase - % decrease) at -9% 2H23 vs. -24% 1H23 as CIOs possibly look to increase network and data spend related to GenAI initiatives ([page 30](#)). Relatedly, we saw an increase in meet/beat of infrastructure sales expectations from VAR respondents in our 4Q23 survey. Despite de-prioritization of hardware related projects by CIOs, 72% expect the same or more hardware refreshes in 2024 ([page 46](#)) in comparison to 2023, up from 55% in our 1H23 survey, implying relative stability.
- Our survey highlighted that **video conferencing spend** remained stable, with CIO's citing a larger appetite to maintain existing spend (+7 points h/h) and even expand with new seat licenses (+7 points h/h; [page 48](#)). Zoom was down 18 points h/h when we polled respondents regarding which video conferencing software was most deployed across their organization, possibly highlighting a shift to Teams as companies focus on cost-cutting initiatives and vendor consolidation, in our view ([page 49](#)).
- **Plans to adopt CCaaS down 13 points h/h** as 20% of respondents plan to adopt CCaaS vs. 33% in 1H23. That said, plans to implement on-prem contact center solutions dropped 21 points in 2H23 vs. 2H22, which could serve as a LT positive for the group. **Augmented CC spend with AI** downticked in 2H23 but remains relatively stable from CY22, and Customer Service remains top GenAI initiative from our 4Q23 VAR survey.

NOTABLE CIO INTERVIEW QUOTES

- “Decreased spending on Cisco. Part cyclical, but also due to transitional journey to leverage SaaS.” (Finance 0-1,999 employees).
- “We may have to combat higher prices with contract negotiations in order to achieve cost savings.” (Healthcare 0-1,999 employees).

Uptick in CIOs Expecting Same/More HW Refreshes in 2024

Do you expect to do more/same/fewer hardware refresh/expansions in 2024 vs. 2023?

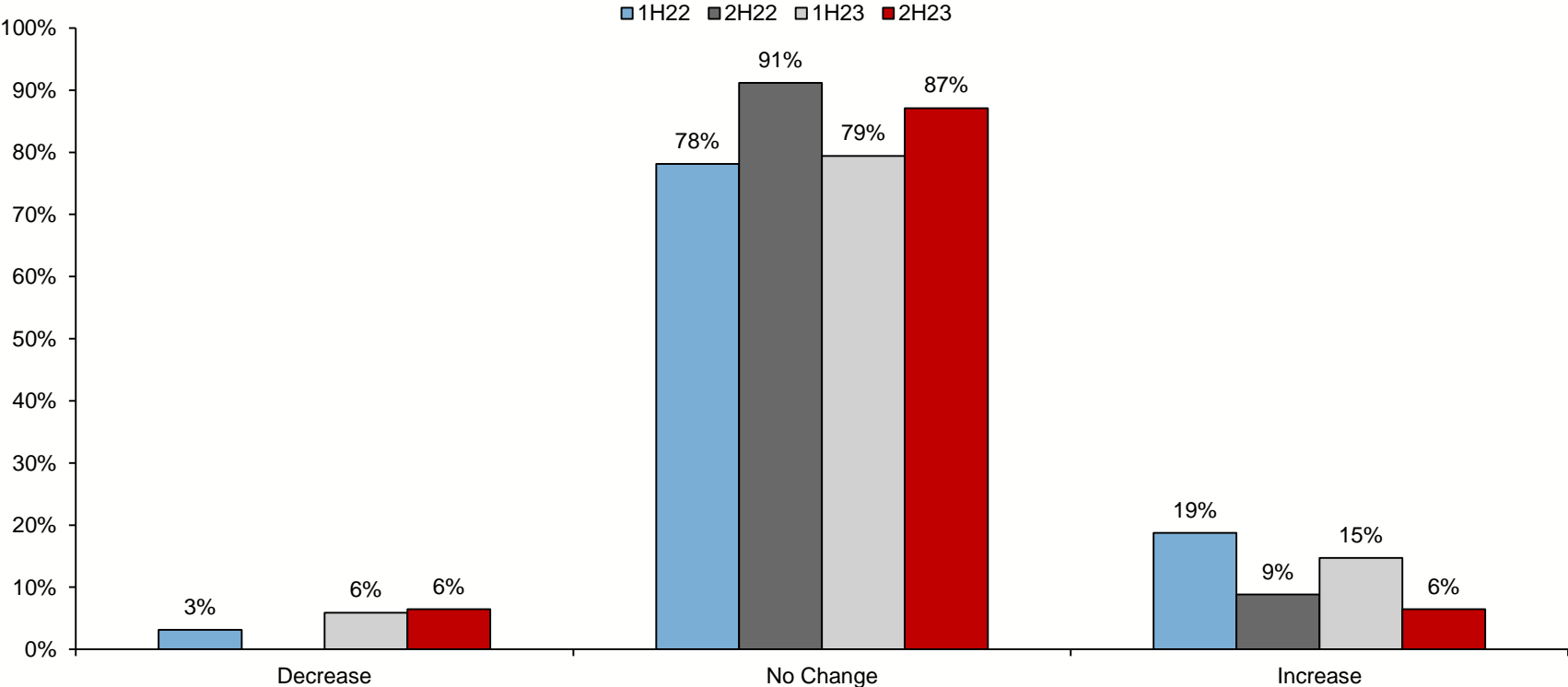


Key Takeaways:

- 72% of CIOs indicated same/more hardware refreshes/expansions in 2H23, exceeding our last survey, despite macro pressures and increased scrutiny on IT budgets.
- 28% indicated fewer hardware refreshes/expansions, also about in line with our last survey.

Unified Data Management Spend Resilient

Has your budget for Unified Data Management seen an increase, no change, or decrease in CY24 compared to CY23?

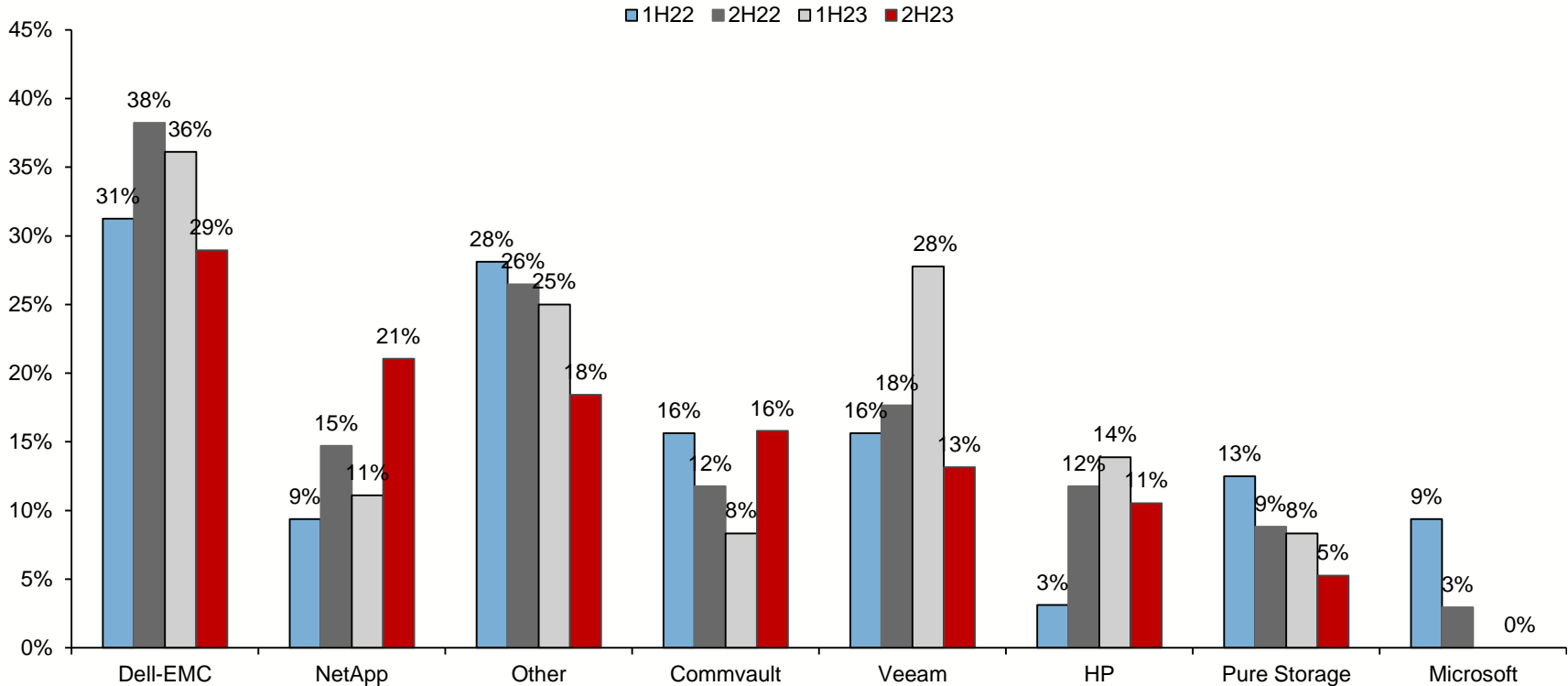


Key Takeaway:

- 1. Unified Data Management seeing consistent budget priority y/y.
- 2. 93% of respondents reported consistent or increasing budget priority for Data Management in CY24 vs. CY23.

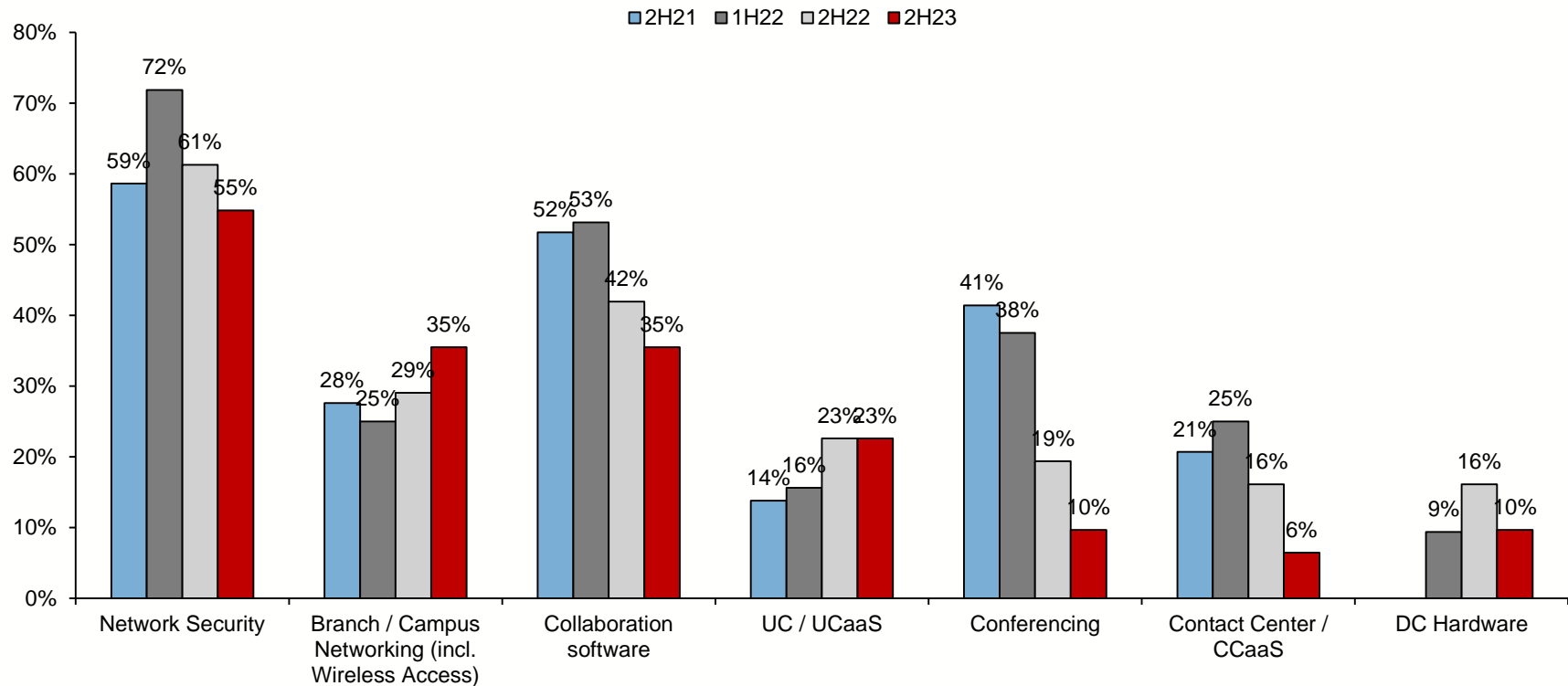
Diverse Data Mgmt. Vendors: Legacy & Next-Gen

Which vendors are you using for Unified Data Management? - Selected Choice



Security, Networking Top Hybrid Work Initiatives

What are the areas of infrastructure investment as you begin to return to the office and implement more hybrid work initiatives? [Multiple Selections Allowed]

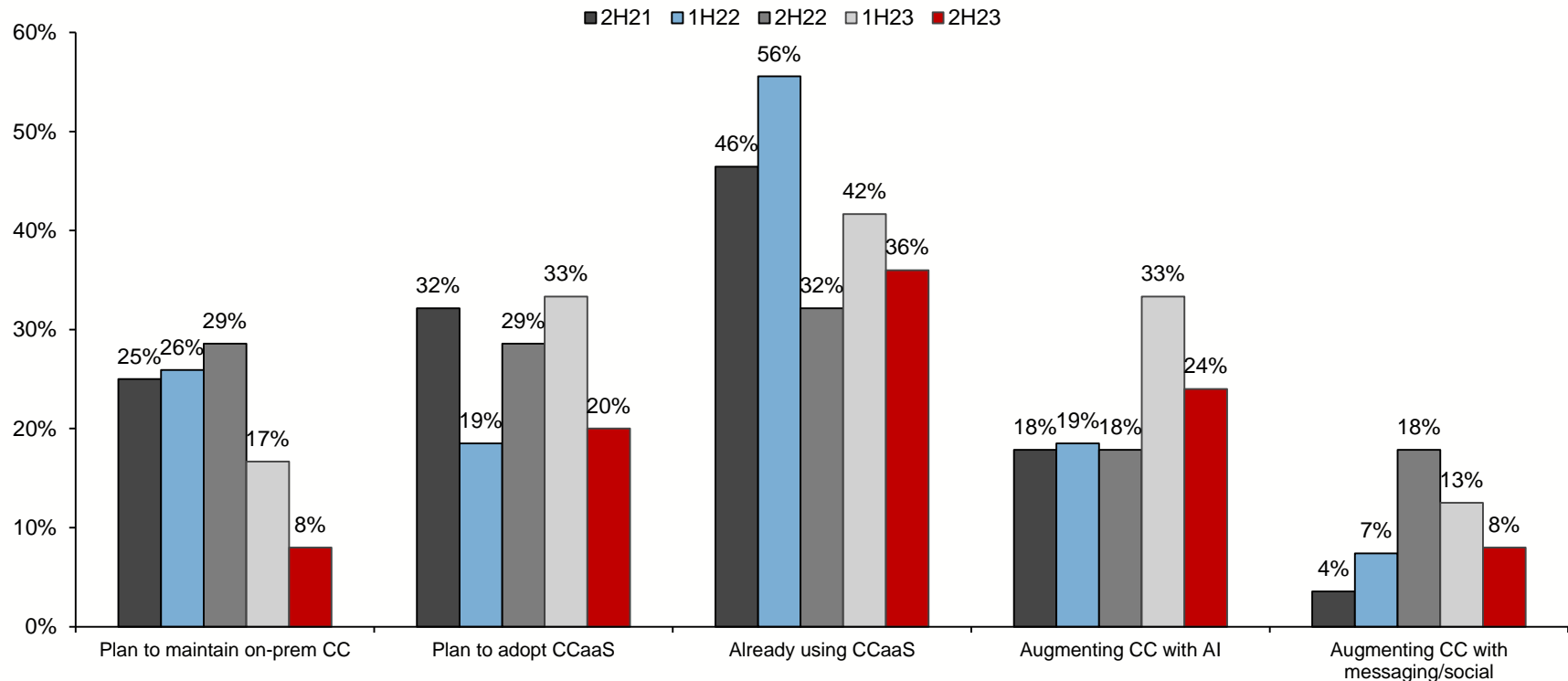


Key Takeaways:

1. Hybrid work infrastructure investment initiatives downtick in CCaaS, conferencing, and network security with UCaaS stable and branch/campus networking upticking vs. C2H22 (Note: did not ask question C1H23).
2. Network security remains #1 (55%, -6 points y/y) and Branch/Campus Networking is tied at #2 (35%, +6 points y/y).
3. Collaboration software (-7 points y/y) and Conferencing (-9 points y/y) seem to be less of a focus as people return to the office.

On-Prem CC Downtick Positive for CCaaS

How do you expect to implement your contact centers? [Multiple Selections Allowed]

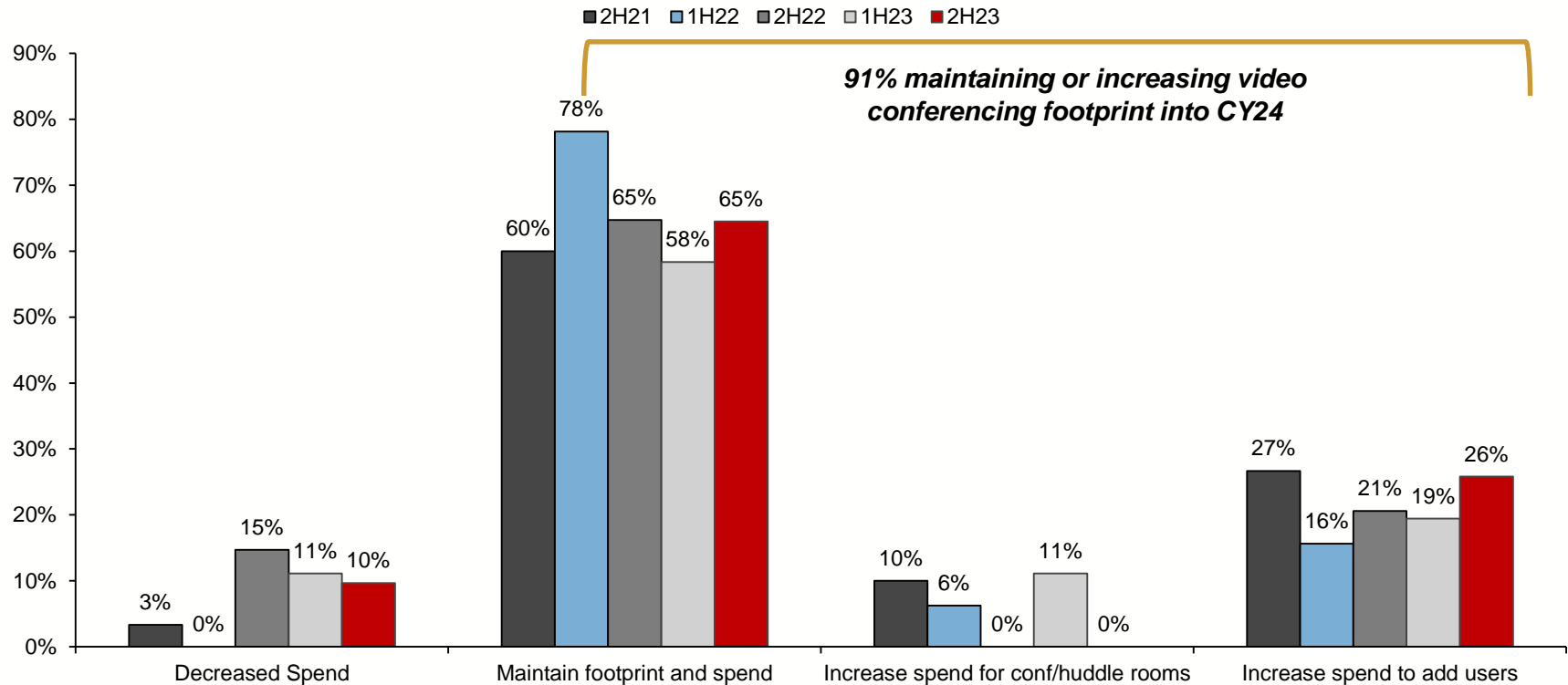


Key Takeaways:

- 56% of respondents either already use or plan to adopt CCaaS (-19 points h/h) with a downtick in respondents already using (-6 points h/h).
- Feature augmentation saw lower AI adoption (-9 points h/h) and messaging/social saw a slight decrease increase (-5 points h/h).
- Respondents planning to maintain on-prem CC ticked down (-9 points h/h).

Video Conferencing Spend Remains Resilient

How do you expect your spend on video collaboration/conferencing platforms to trend in CY24?

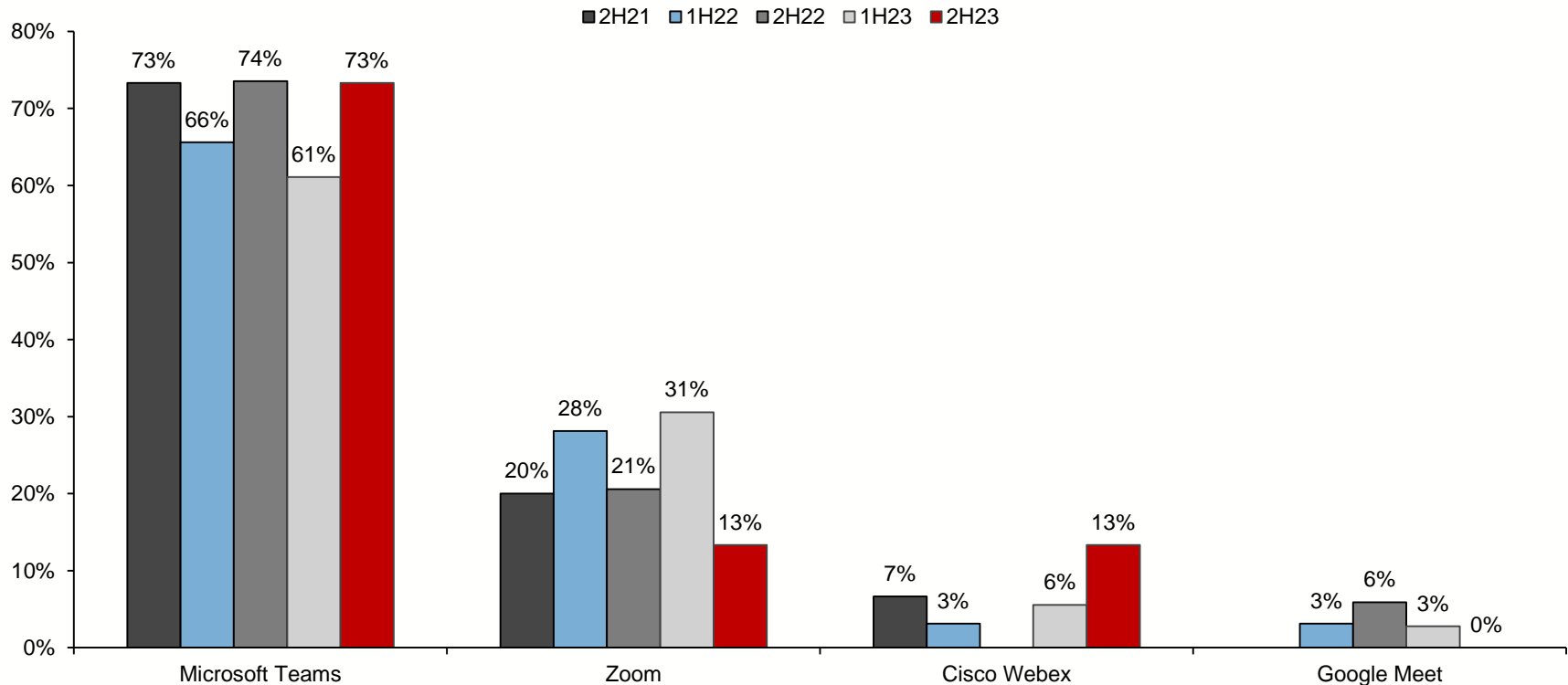


Key Takeaways:

- 10% of respondents expect to reduce spend on video collab/conferencing in CY24 (-1 point h/h).
- 26% of respondents expect to increase spend (expansion and user addition spending; -4 points h/h) based on 26% increasing spend to add users and 0% increasing spend on conference/huddle rooms in 2H23 survey (-11 points h/h).

Teams Dominate Video Conferencing, Downtick in ZM

Which video collaboration/conferencing has been **most** deployed across your org?

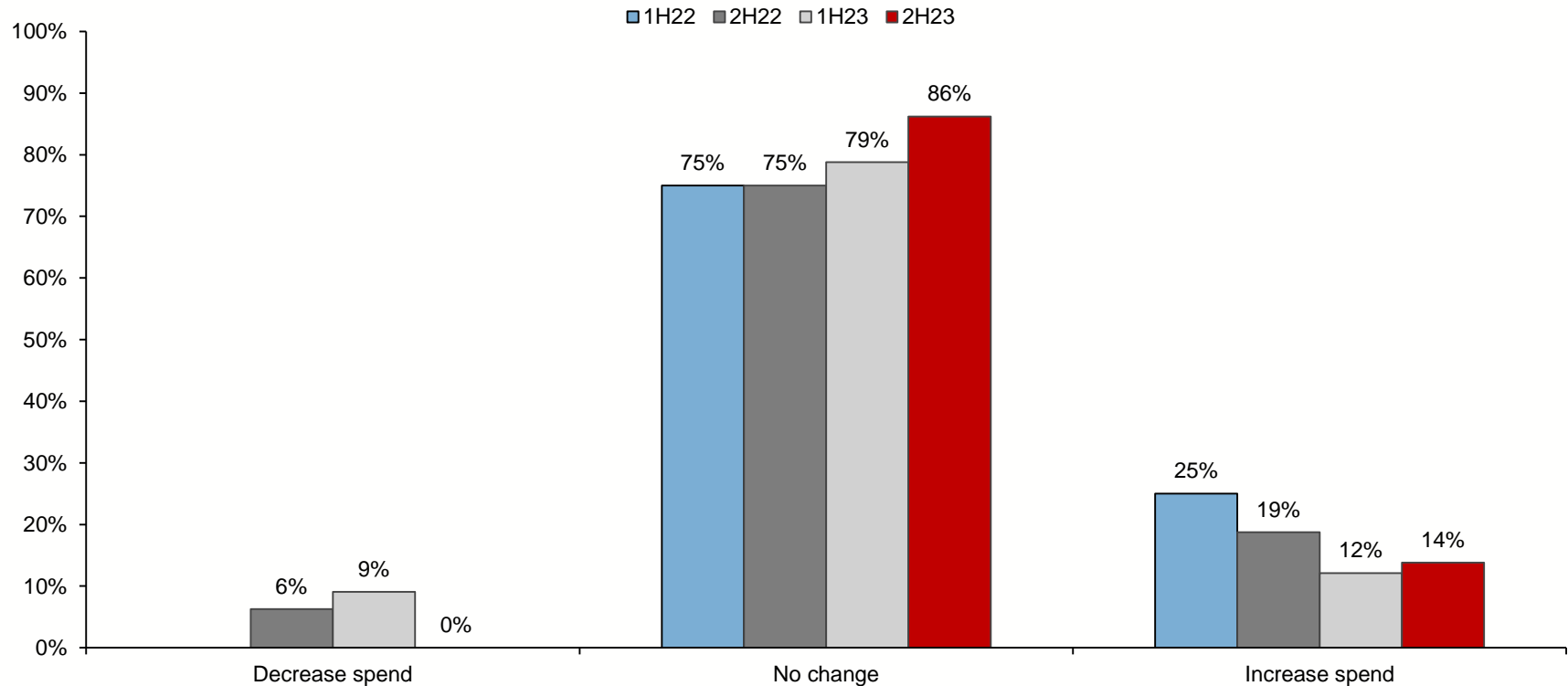


Key Takeaways:

1. Microsoft Teams (73%, +12 points h/h) and Zoom (13%, -18 points h/h) continue to command the large majority of responses.
2. Consolidation with top three vendors and minimal other responses suggests a relatively concentrated market.

Virtual Event/Webinar Spend Stable

How do you expect your virtual event/webinar platform spend will change in the next 12 months vs. the prior 12 months?

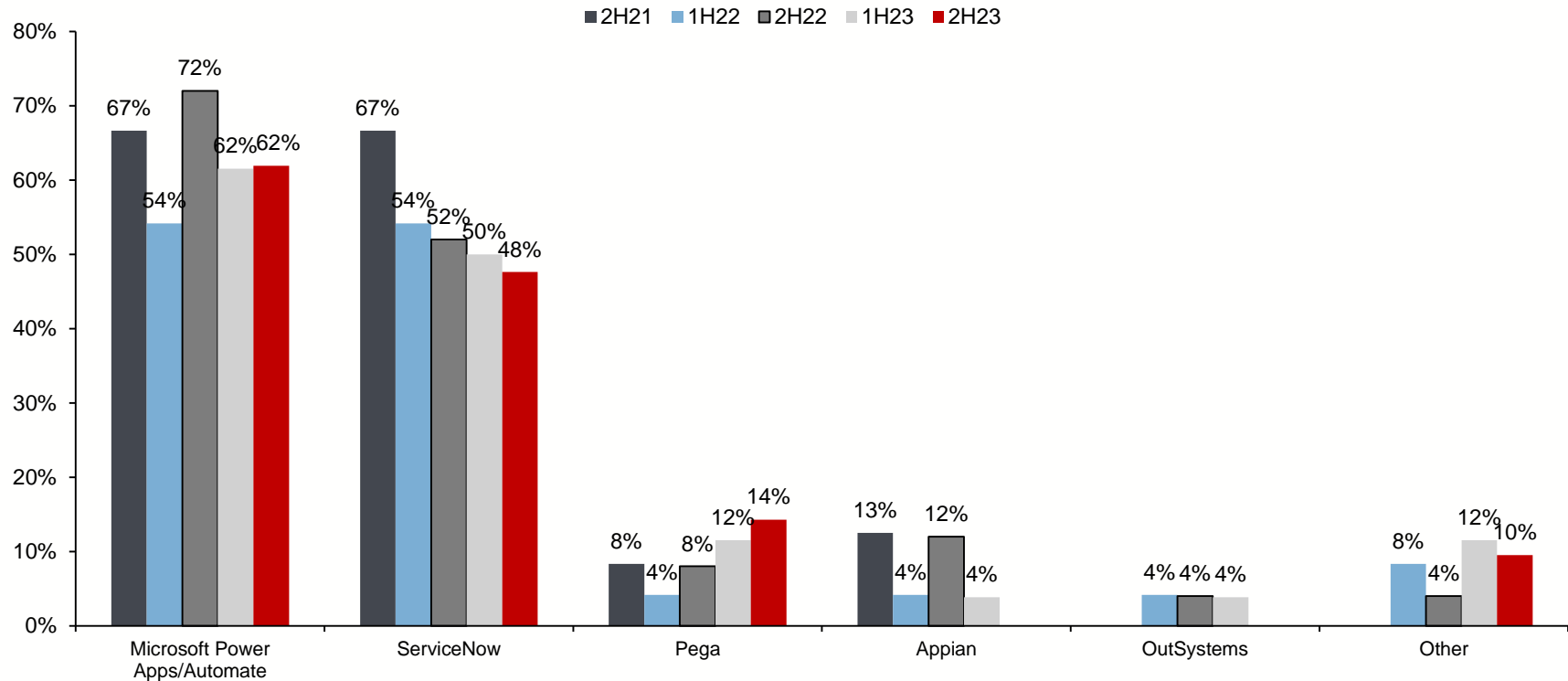


Key Takeaways:

- 100% (up 9 points h/h) expect flat-to-up virtual event/webinar spend over the next 12 months, suggesting orgs are viewing digital channels like virtual events & webinars as important given broader reach, strong ROI, and evolving end-user preferences.
- The increase spend category increased 2 points h/h, bucking its two consecutive periods of decline.

MSFT & NOW Again Lead Low-Code Vendors

Which Low-Code vendors are you investing in? [Multiple Selections Allowed]

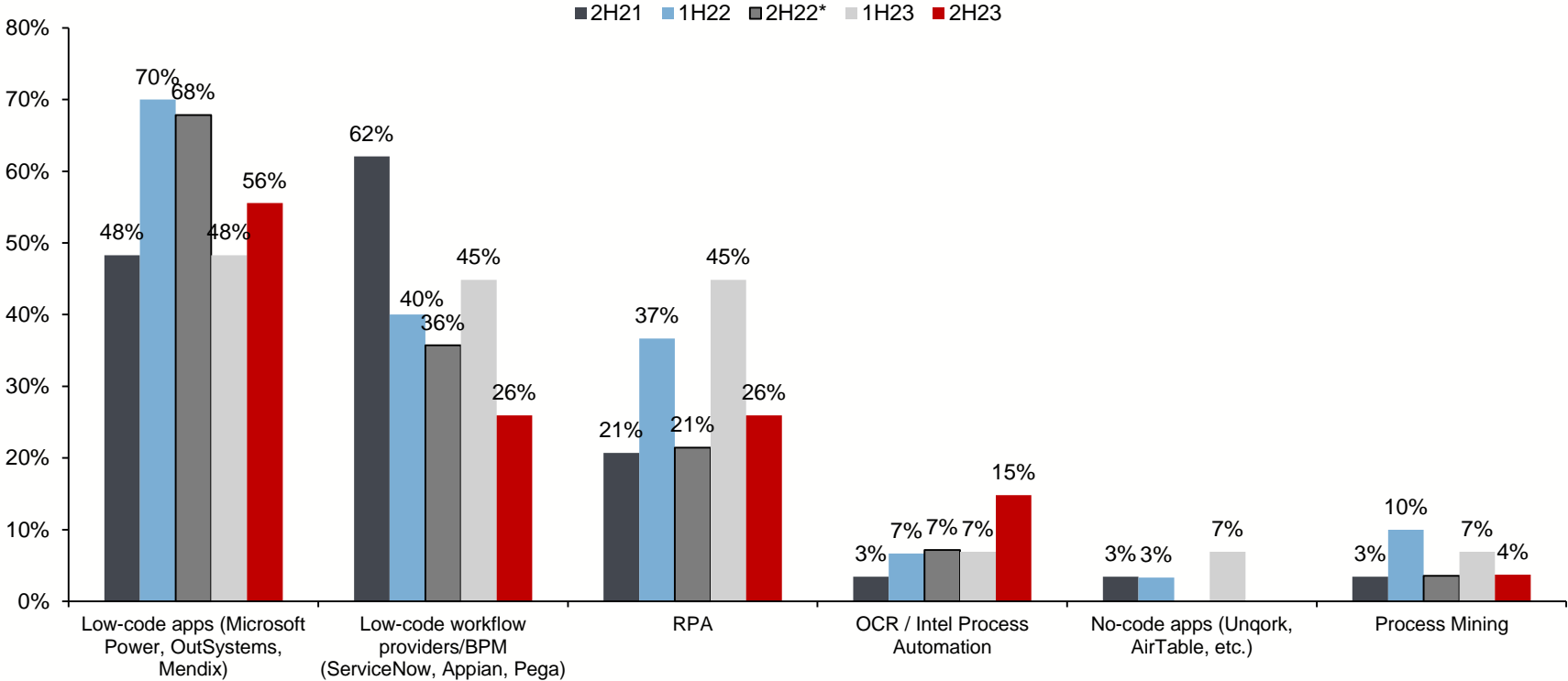


Key Takeaways:

- ❑ Microsoft remains the lead low-code platform followed by ServiceNow.
- ❑ 38% of respondents are using two+ low-code platforms (up from 31% in 1H23 but below 44% in 2H22).

Low-Code Apps Again Lead Automation, RPA Ranks Lower

What areas of automation have you/do you plan to invest in CY24? [Multiple Selections Allowed]



Key Takeaways:

- ❑ LC apps still lead (56%, +8 points vs. prior survey) vs. LC Workflow (26%, -19 points), and RPA (26%, -19 points).
- ❑ 11% of respondents use or plan to use multiple types of automation technology, vs. 21% in 1H23.

*Question changed to address CY23 in 2H22.
 1H21 N=31, 2H21 N=29, 1H22 N=30, 2H22 N=28, 1H23 N=29, 2H23 N=27

2H23 CIO SURVEY

VERTICAL SOFTWARE, HCM, & DEVOPS

JASON CELINO

PRIMARY THESIS

SECTOR CONCLUSIONS FROM CIO SURVEY

HCM BUDGET PRIORITY HOLDS STEADY; MULTIPLE DATAPPOINTS REINFORCE WDAY HCM LEADERSHIP POSITION AND CONTINUED EXPANSION OPPORTUNITIES.

- HCM budget priority for CY24 holds steady in the middle of the pack.
- **WDAY** now leads as the vendor of choice in starting new finance/back-office projects in CY24.
- ~20% of CIOs are looking to consolidate HCM and finance apps onto one platform in the NT-MT. As the leading HCM vendor among survey respondents, along with robust financial capabilities, we see ample of expansion opportunities for **+WDAY**.

SKILLING AND WORK MGMT BUDGET PRIORITIES DOWNTICKED.

- Work Mgmt (**ASAN, MNDY, SMAR**) and Skilling (**UDMY, COUR**) budget priorities for CY24 downticked toward bottom quartile of priorities, after a rebound to middle of the pack in 1H23.
- **SMAR** adoption rate among our respondents continues to trend higher, reinforcing its increasing penetration within enterprise.

DEVOPS AND RPA BUDGET PRIORITIES TICKED LOWER.

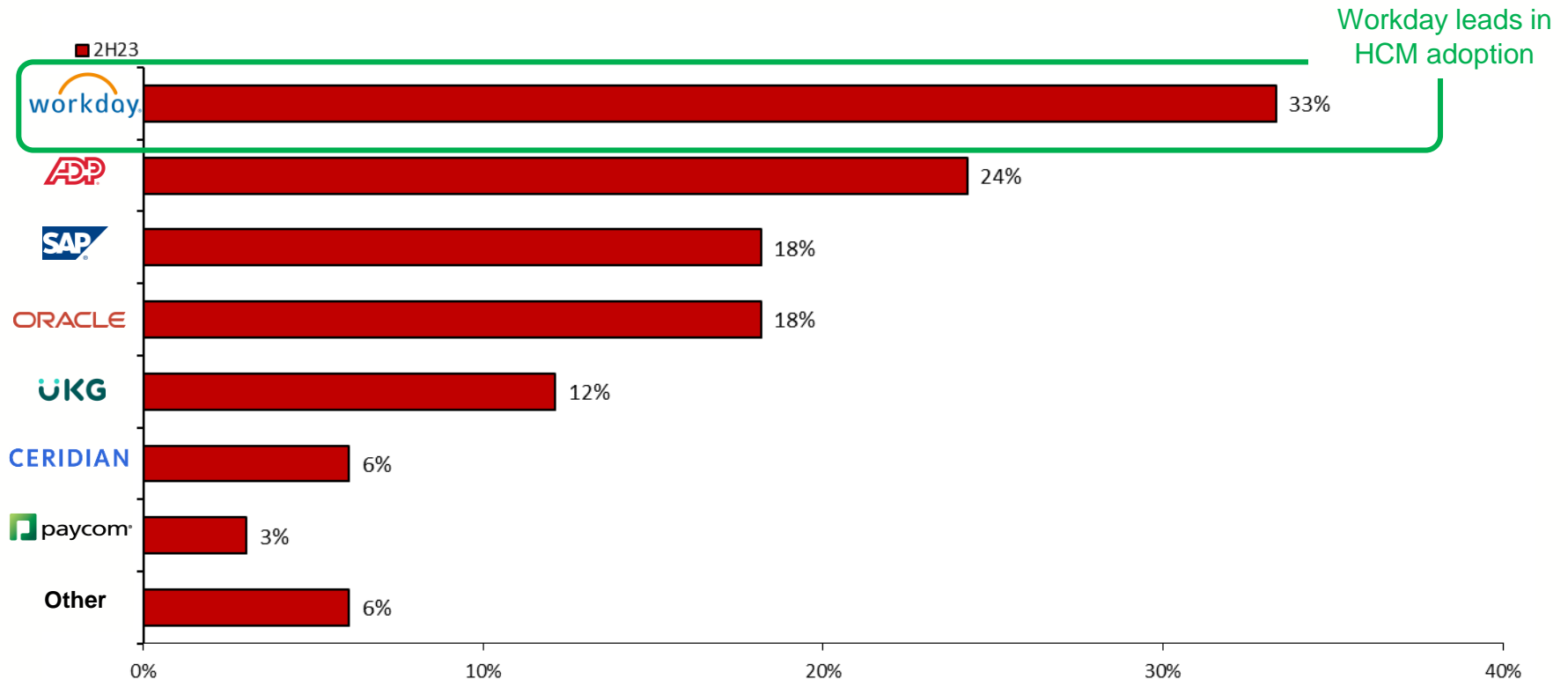
- DevOps budget priorities for CY24 downticked from our 1H23 survey, as a smaller proportion of respondents plan to increase spend, and a greater proportion plan to hold flat or decrease.
- RPA budgets trended similarly with more respondents plan to hold budgets flat, vs. 1H23.

Notable CIO Interview Takeaways

- Finance Executive: “We don’t have plans to replace or add any new HCM vendors in the next 12 months, but we are increasingly looking at adopting modules that would increase employee engagement and interaction.”
- Healthcare Executive: “Vendor consolidation is a big focus this past year and likely again in 2024. We just consolidated several HCM modules onto Workday.”

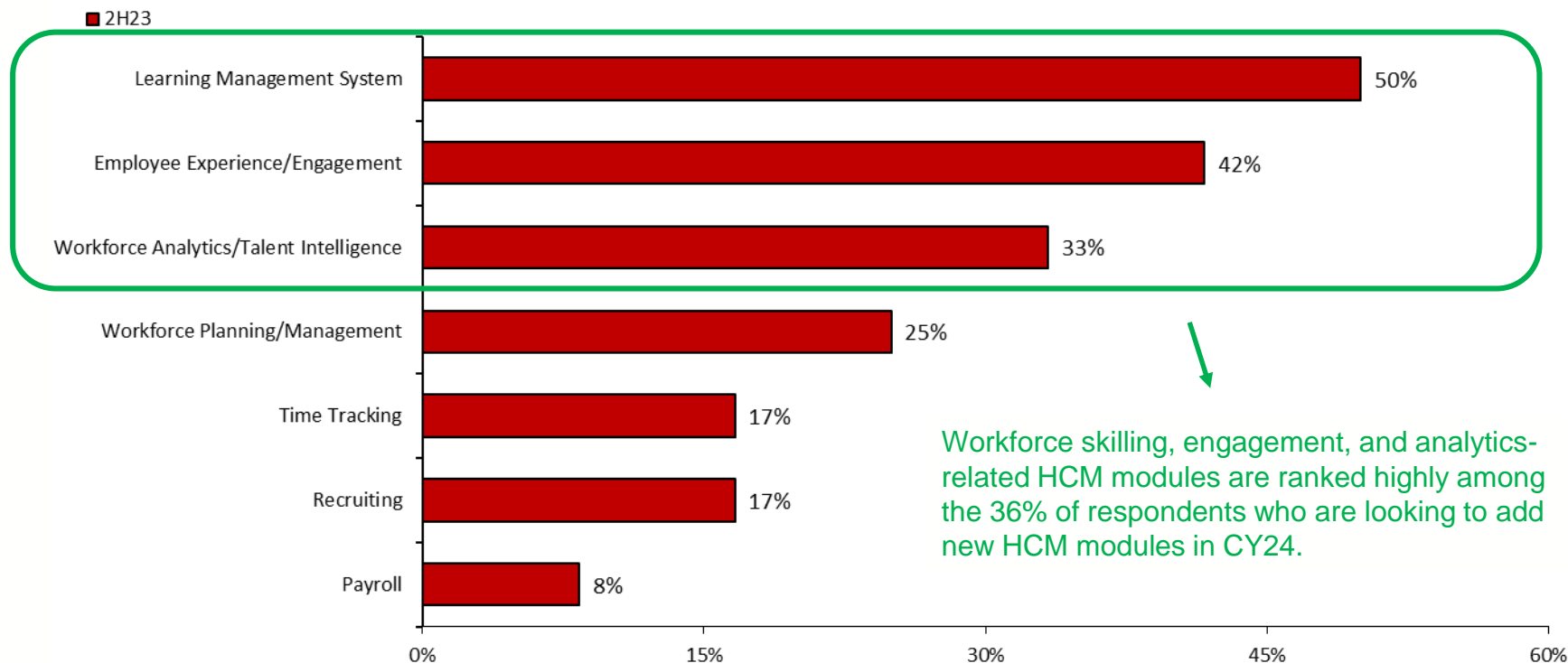
HCM – Workday Leads HCM Adoption

Which of the following is your current HCM vendor(s)?



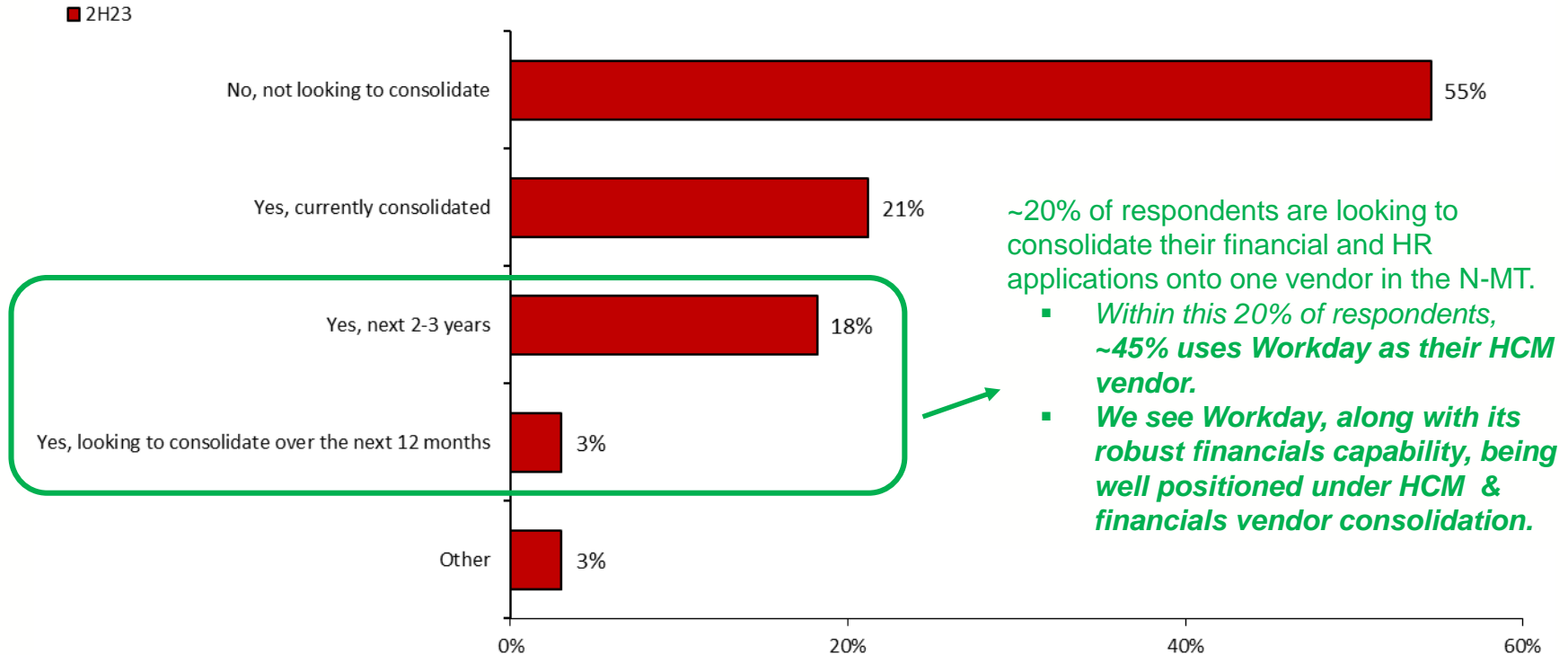
HCM – Workforce Skilling, Engagement, Analytics = Top Priorities

Are you looking to add new HCM/HR-related module(s) in CY24? If so, please select the modules you are looking to add.



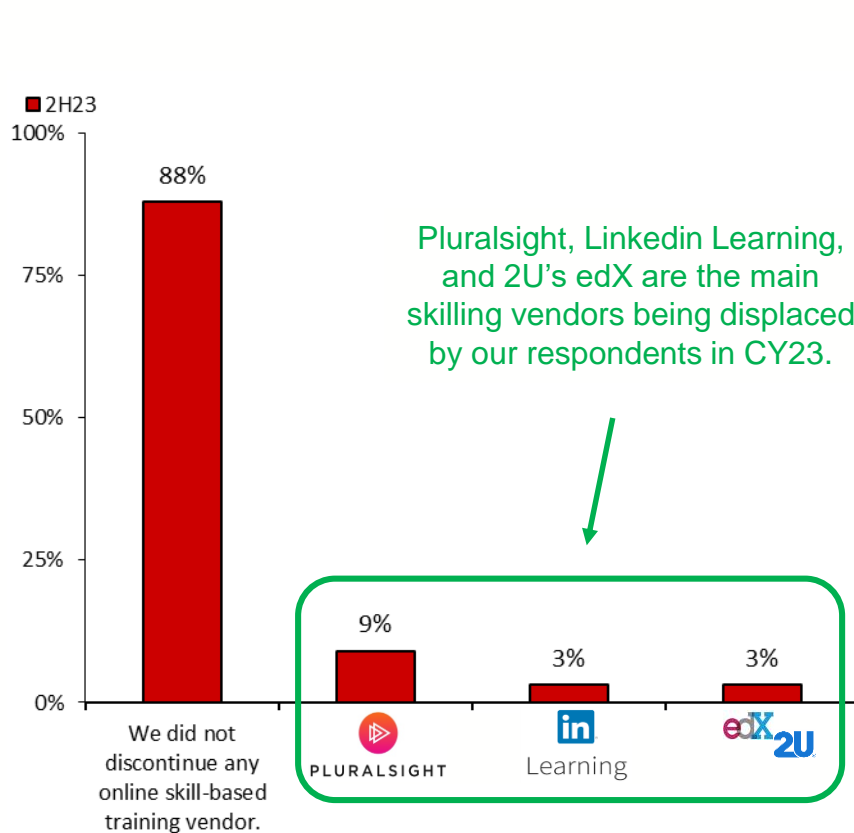
HCM – Workday Well Positioned in Vendor Consolidation

Have you, or do you plan to, consolidate your financial (i.e., general ledger, procurement, expenses) and HR applications onto one vendor?

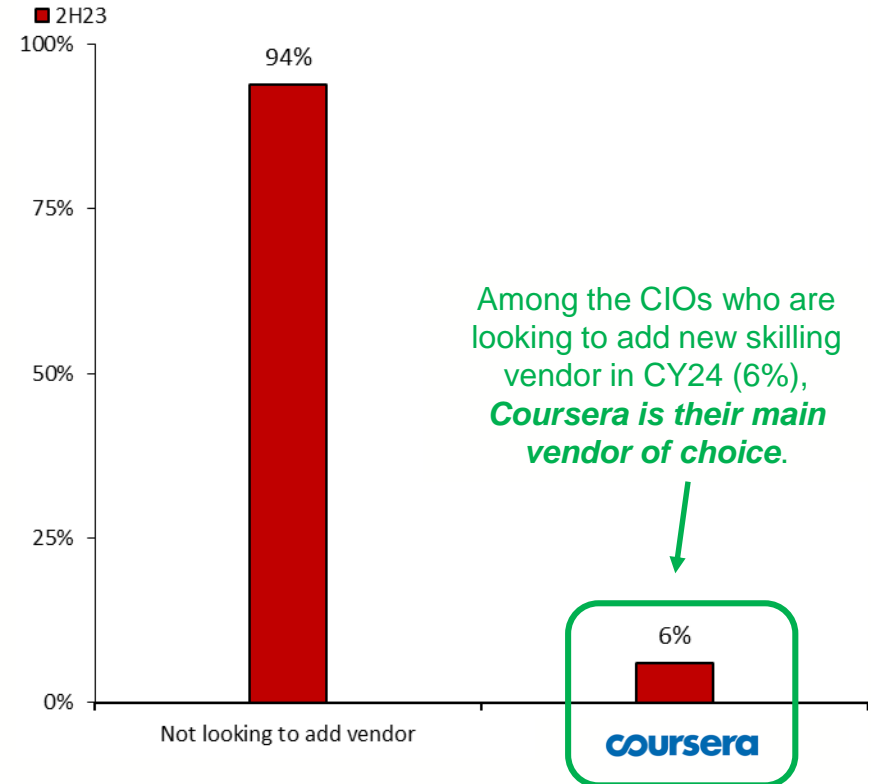


Skilling – Coursera as the Preferred New Vendor Selection

Did you stop using/replaced an online skill-based training platform provider(s) in CY23? If so, which vendor did you discontinue?

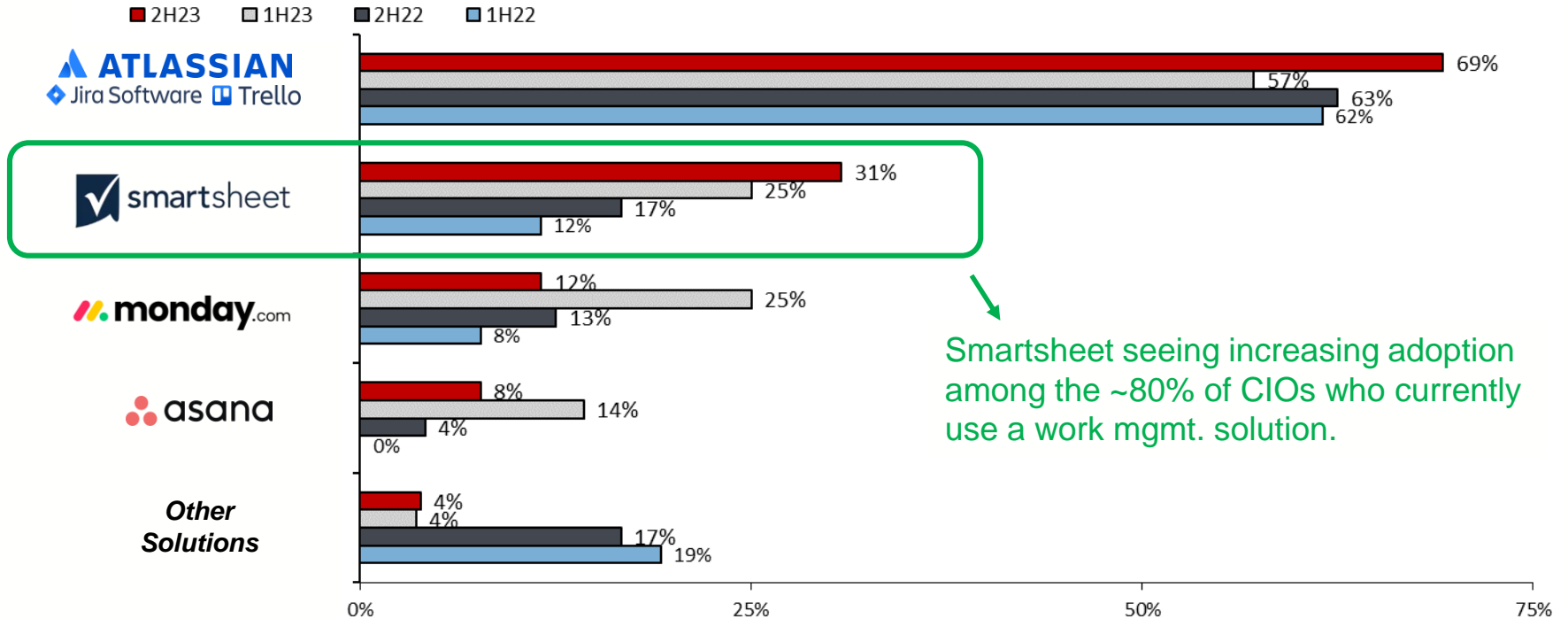


Are you looking to add a new online skill-based training platform provider(s) in CY24? If so, which vendor are you looking to add?



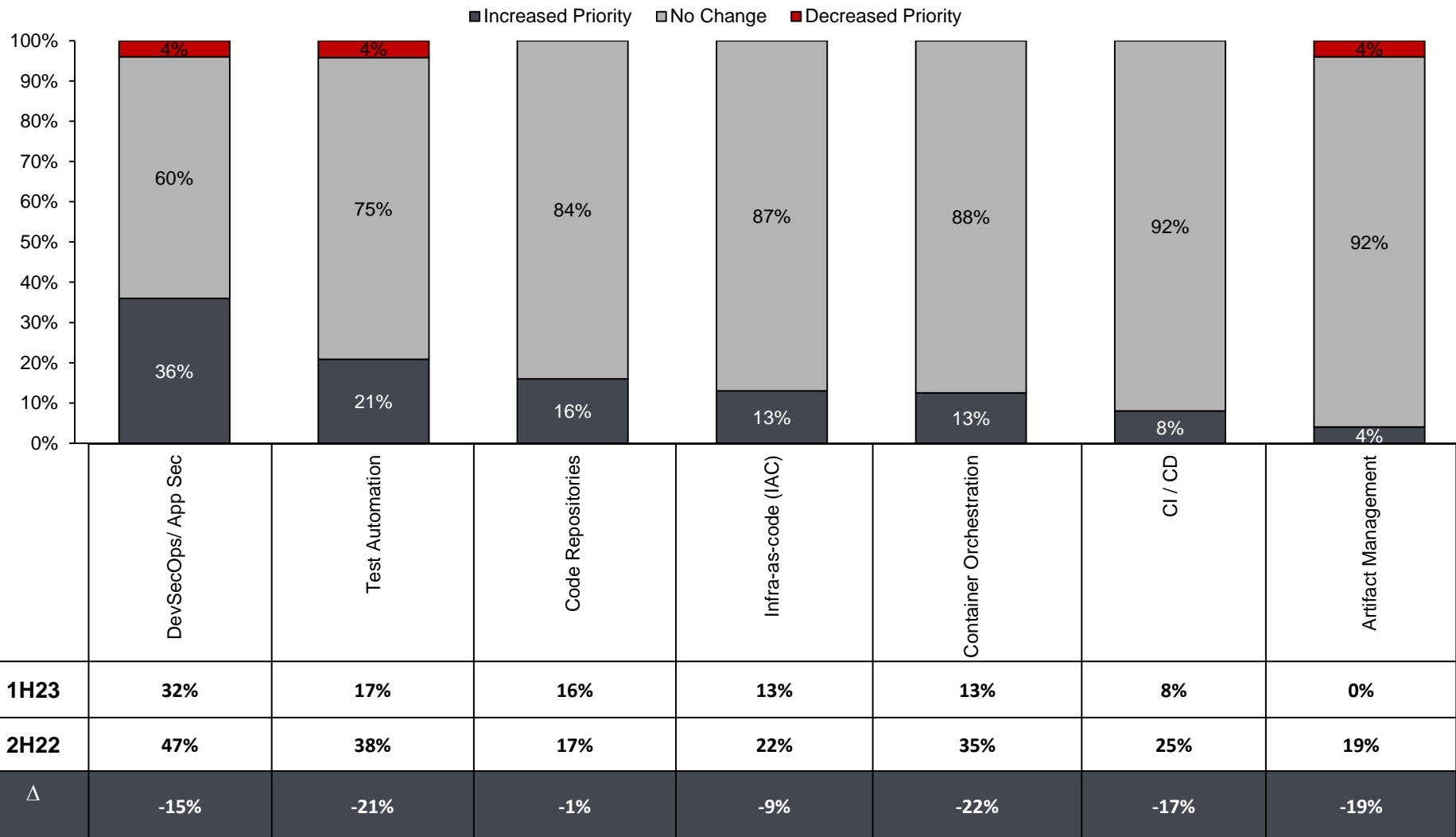
Collab – Smartsheet Seeing Increasing Adoption

Do you currently use a work collaboration/project management solution (Atlassian Jira, Asana, Smartsheet, Monday.com, etc.)?



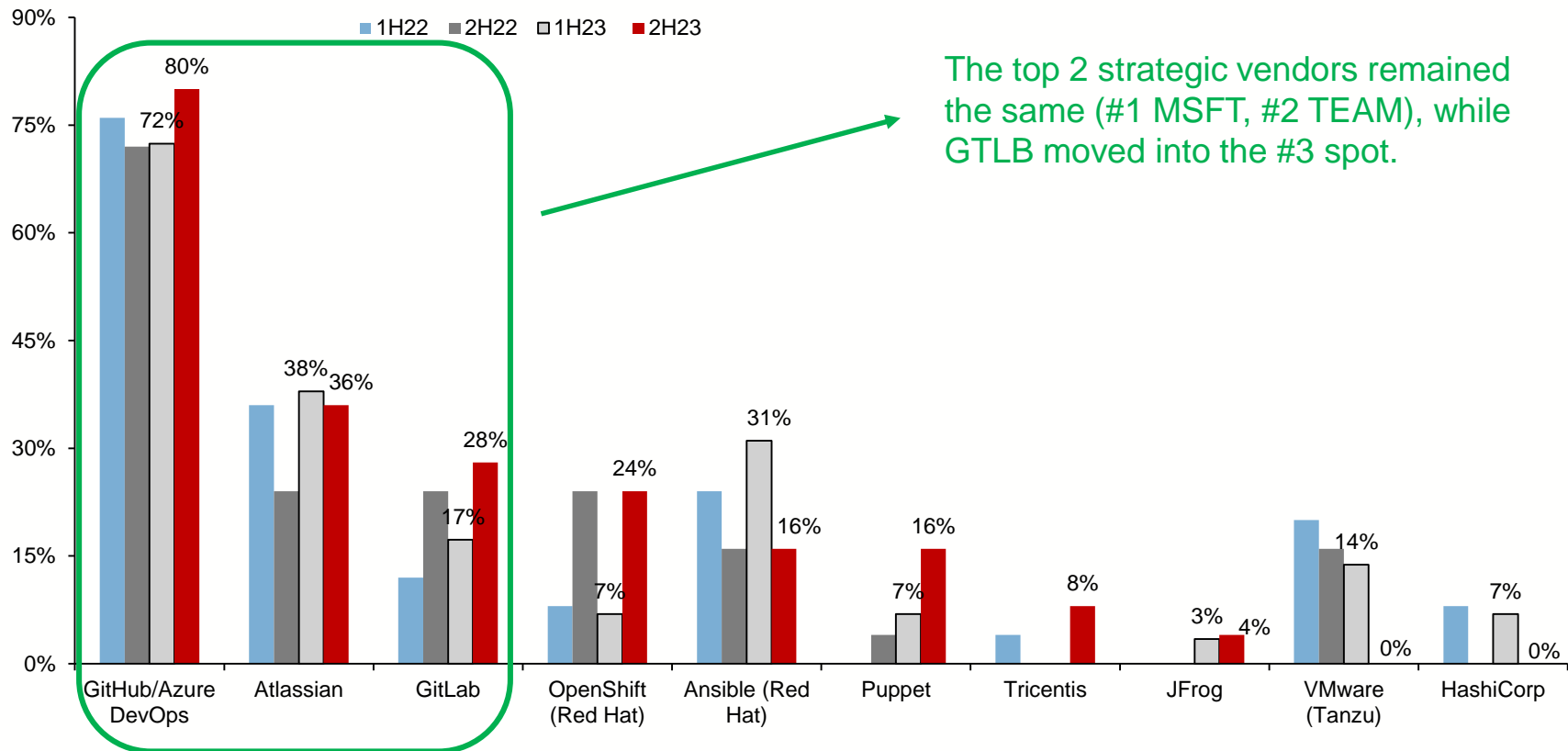
DevOps – Majority Expects No Change in DevOps Budget Priorities

What changes in budget priorities are you seeing for the following DevOps categories in the next 12 months?



DevOps – MSFT Most Strategic DevOps Vendor

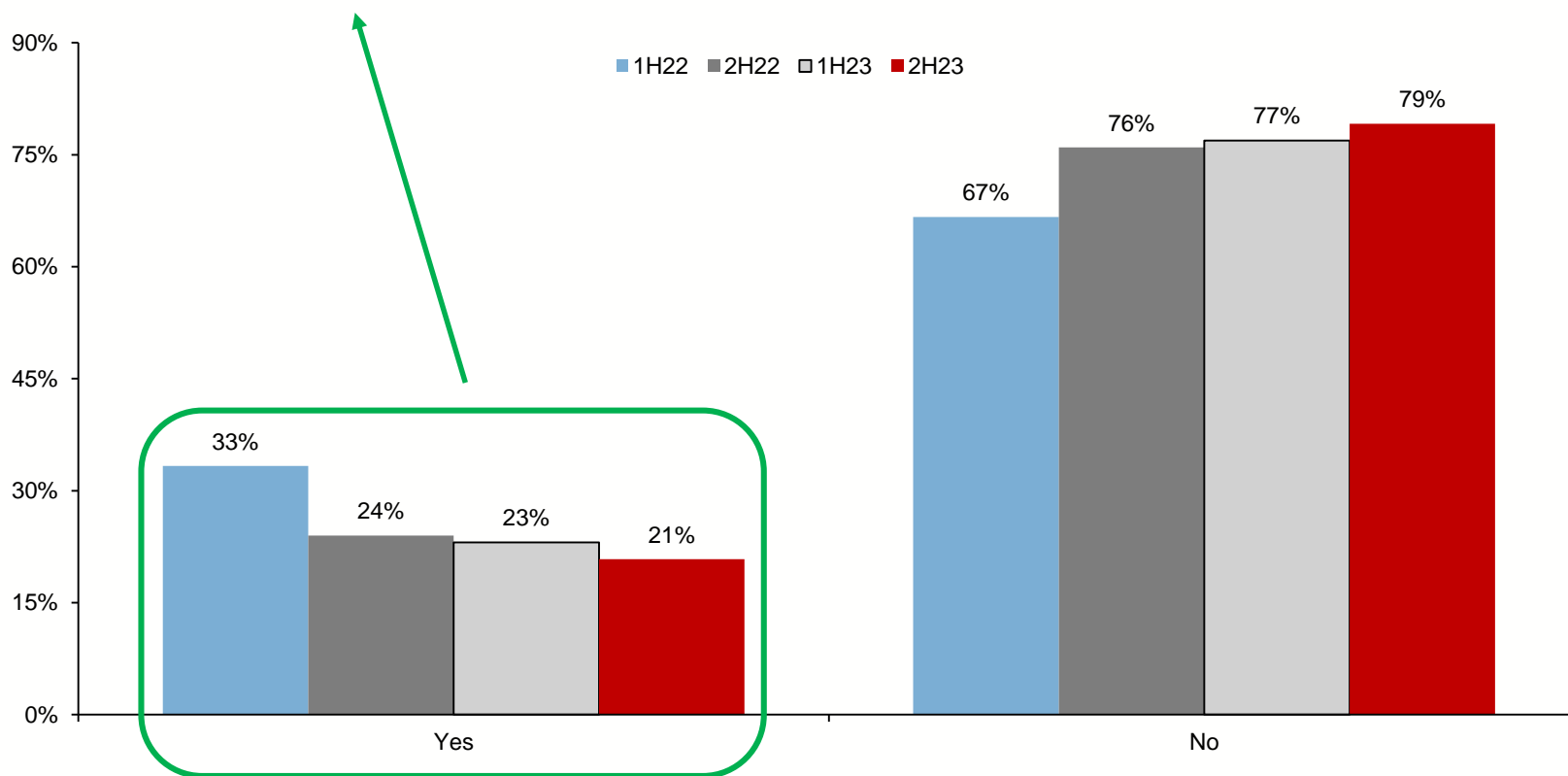
Who are your most strategic DevOps vendors?



DevOps – Vendor Consolidation Largely Unchanged

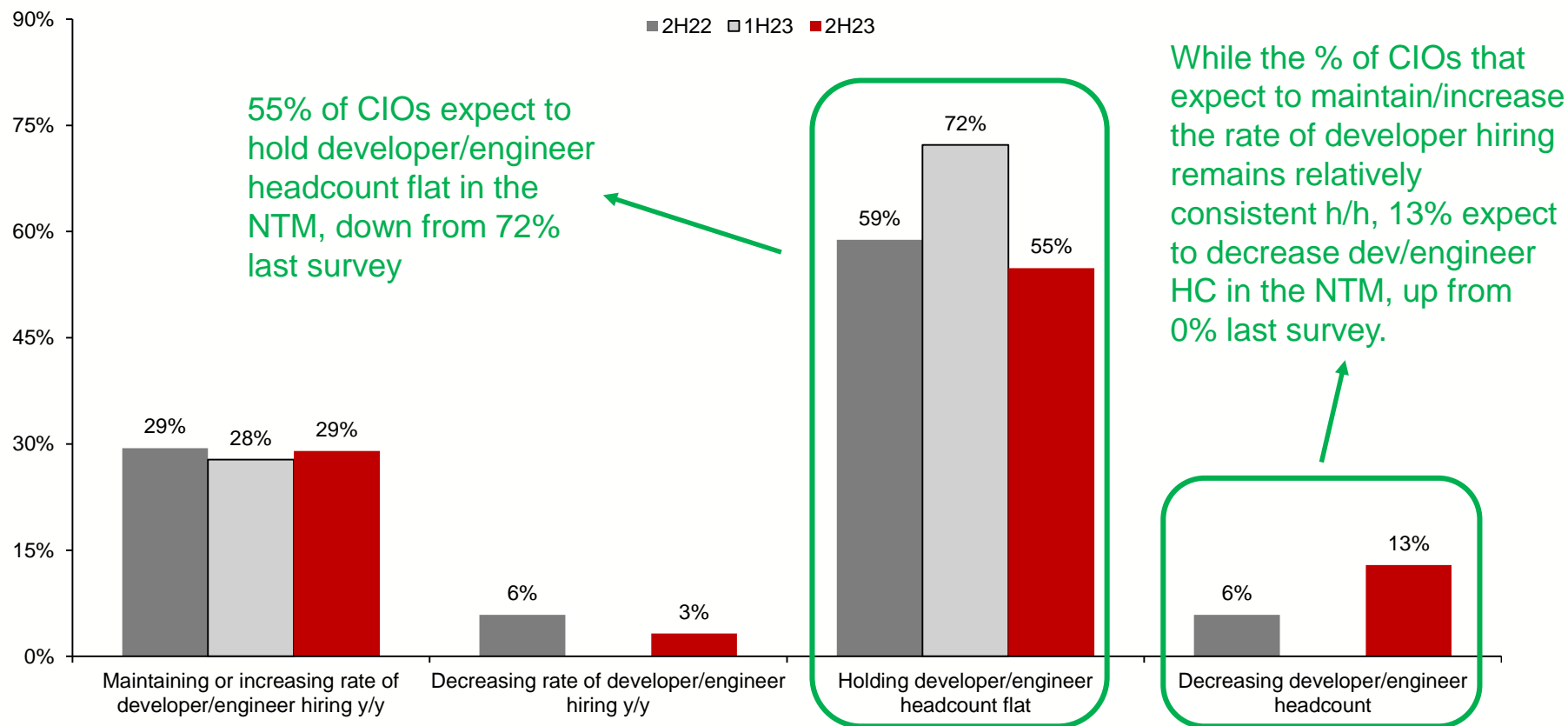
Are you looking to consolidate your DevOps spend with a smaller number of vendors?

Consolidation of DevOps vendors appears largely unchanged, with 21% of respondents indicating they are looking to consolidate with a smaller number of vendors.



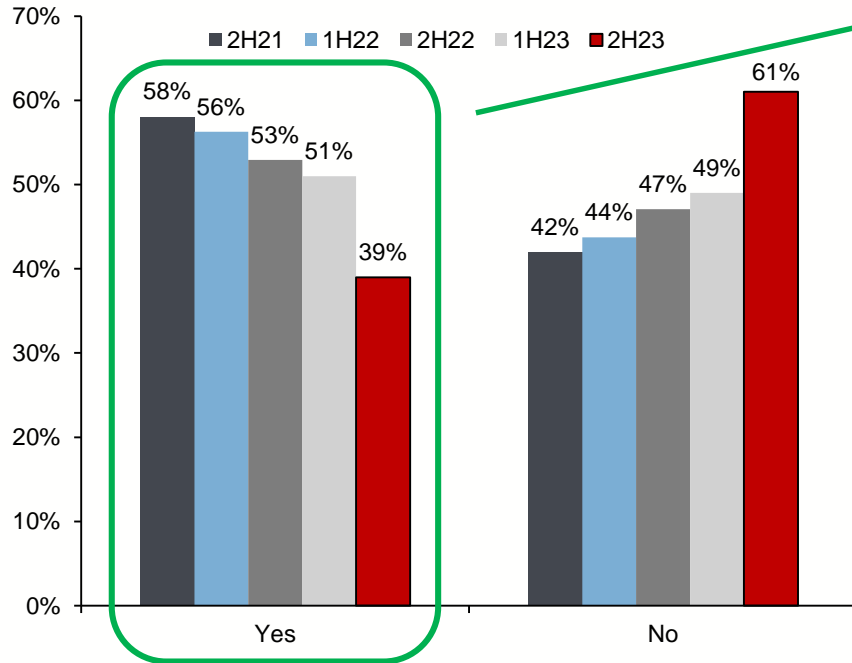
DevOps – Uptick in Developer/Engineer Headcount Cuts NTM

What are your software developer/engineering hiring plans in the next 12 months vs. last 12 months?



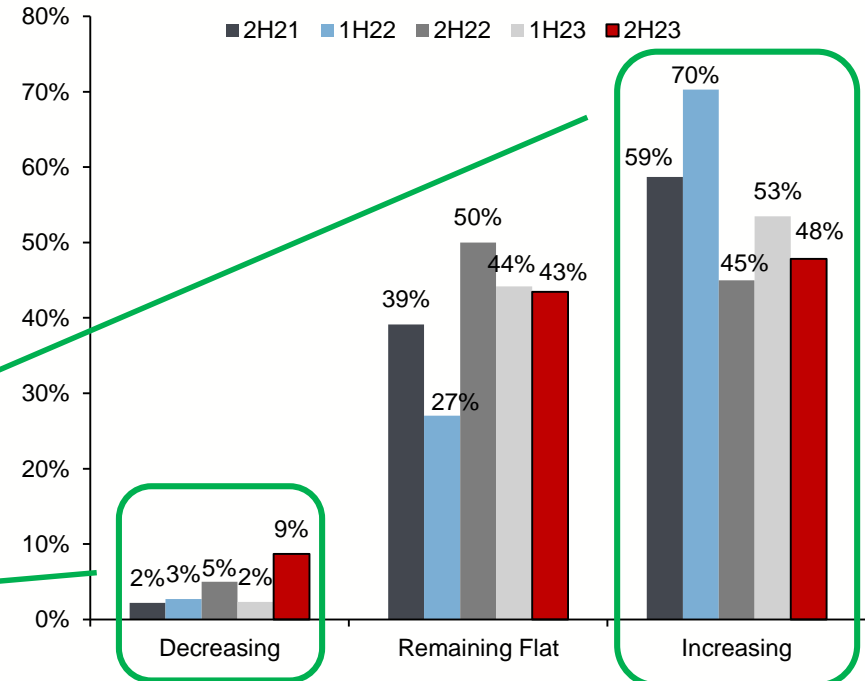
RPA – Investment Expectations Remain Steady

Do you use Robotic Process Automation today or plan to in the near future?



RPA adoption downticked, with 39% of respondents currently using or planning to use RPA in the NT, a 12 point decrease h/h.

Investment Expectations with RPA Vendors

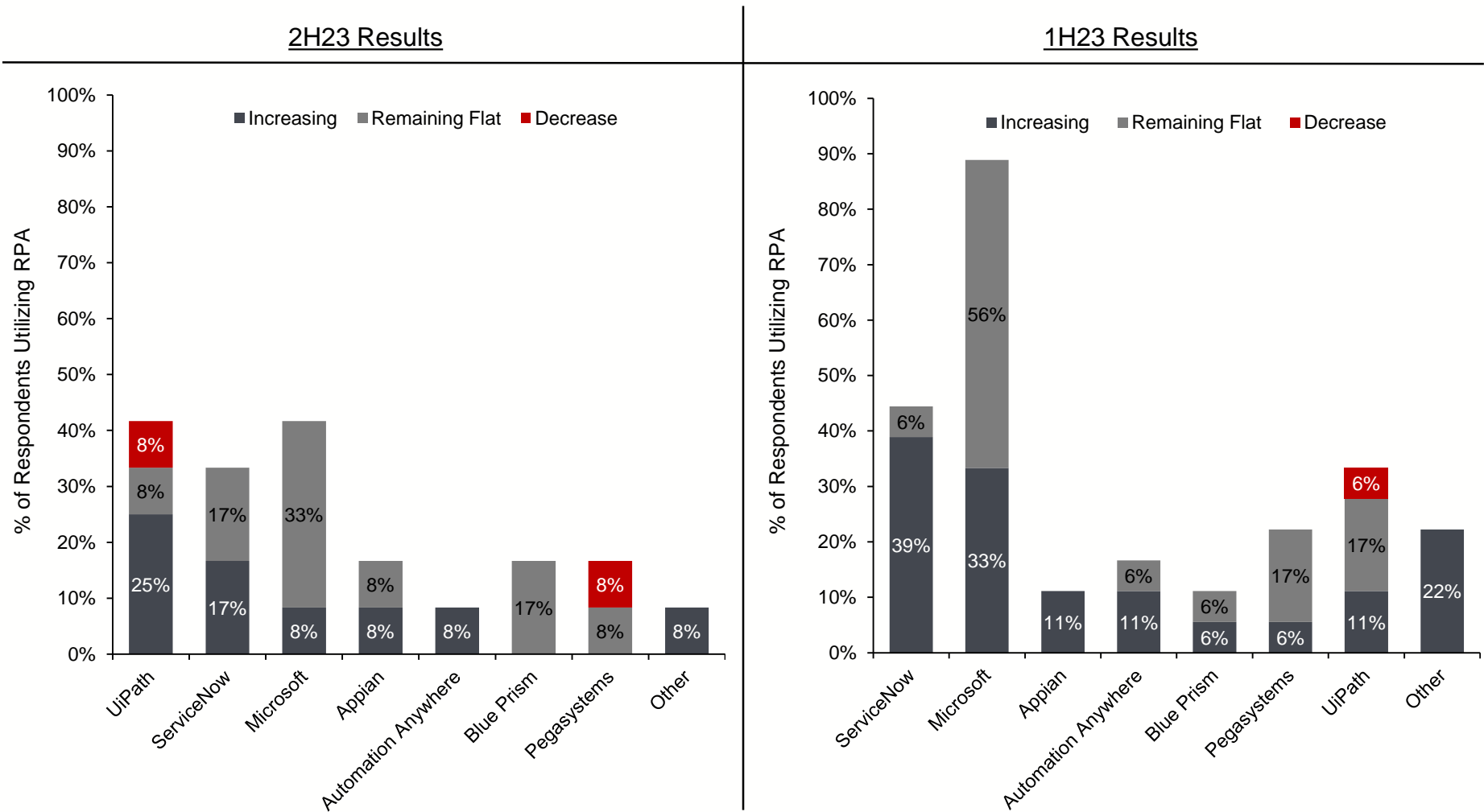


Expectations for spend with existing RPA vendors showed a similar picture, with 48% of respondents planning to increase RPA spend, down from 53% in 1H23.

Respondents planning to decrease RPA spend also saw a 7-point uptick h/h.

RPA – PATH Leads in Increasing RPA Investment

Are you increasing or decreasing investment with the following Robotic Process Automation vendors?



2H23 CIO SURVEY

VERTICAL/BACKOFFICE SAAS & FINTECH

ALEX MARKGRAFF

Vertical/Backoffice SaaS & FinTech – Alex Markgraff

PRIMARY THESIS

DIGITAL TRANSFORMATION REMAINS IN MIGRATION PHASE

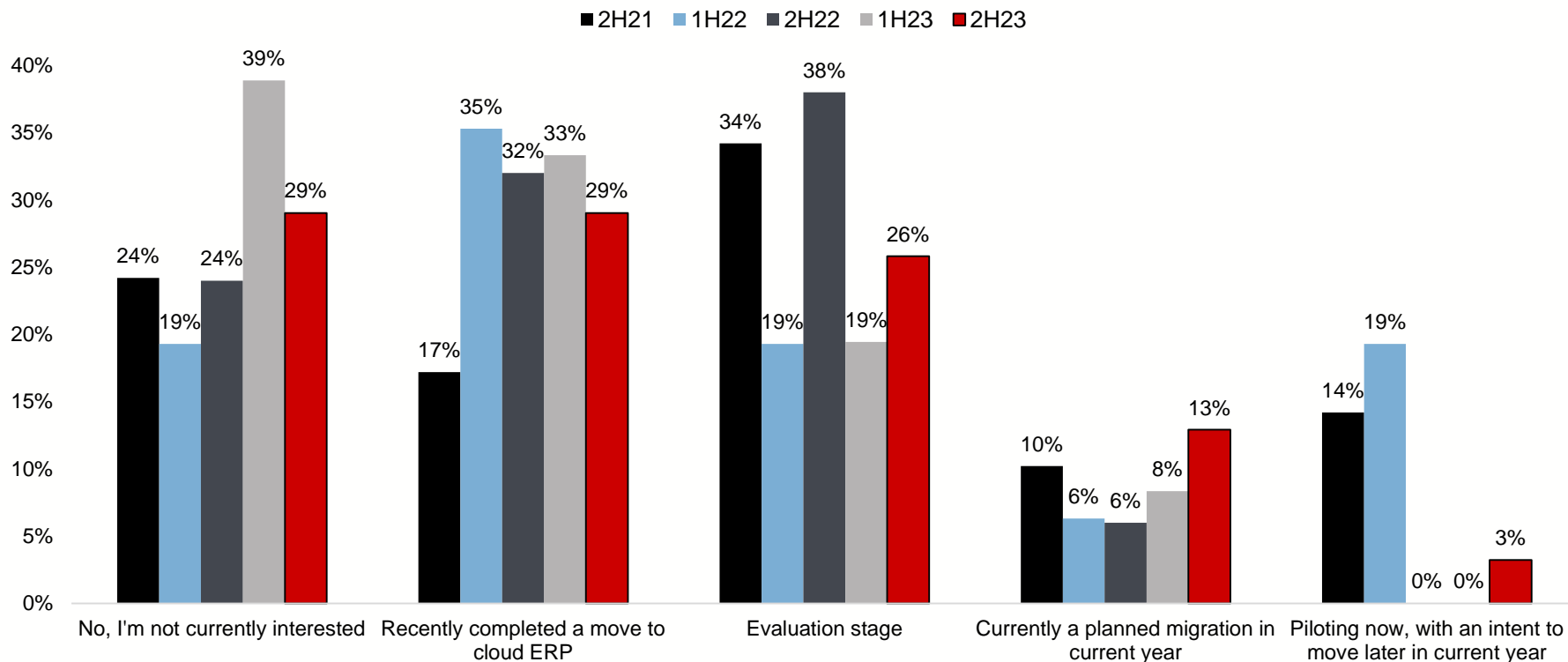
- Survey results showed continued back-office digital transformation consideration, **and the current survey captured a sequential uptick in NT in ERP migration plans** with 42% of respondents evaluating ERP/financials cloud migrations (i.e., 2024-2025 action), a material improvement period-over-period and more in line with the MT average. The improvement and reversion to pre 1H23 levels may indicate improving sentiment/comfort with large, transformational projects.
- **Macro conditions are generally not impacting software vendor selection/implementation decisions.**
- Payroll, HCM, AP/AR again received the highest consideration for SaaS adoption within the back-office.
- Back-office project starts continue to be concentrated among large, horizontal enterprise software vendors, consistent with a broader vendor consolidation theme observed throughout the survey
- **Financial services IT budget growth expectations were indicated in the LSD range for 2024,** with little change to macro factors impacting budget decisions.

SECTOR CONCLUSIONS FROM CIO SURVEY

- **We exit the survey with positive read-throughs for the AP/AR category (AVDX)** as we observed sustained interest and priority in the continuous automation of the back-office. Further, respondents indicated continued consolidation of back-office vendors for which **AVDX** is well positioned to partner/embed solutions.
- Survey results indicate a similar year for banks in 2024 as 2023, which featured a continuation of macro-related software sales headwinds (**concentration at enterprise level**). **Headline budget growth and macro considerations for 2024 read slightly negative for bank software names, yet are balanced by online/mobile banking and customer facing priorities (NCNO, QTWO).**

Notable Uptick in ERP/Financials Cloud Migration Evaluations

Do you plan on migrating your ERP/financials to the cloud?

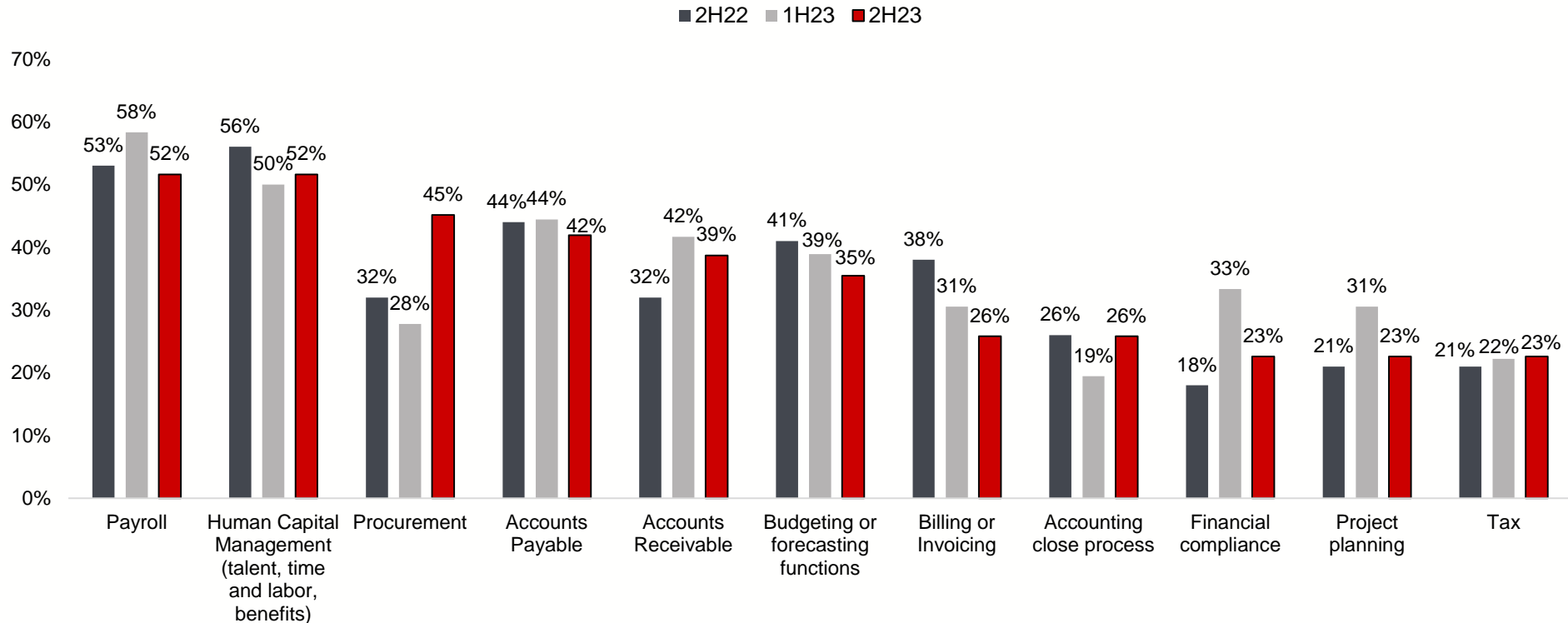


Key Takeaways:

Near-to-mid-term migration plans moved higher to 42% of respondents (from 28% in 1H23), a value consistent with pre-1H23 survey periods, as respondents indicated more current year (i.e., 2024) migrations and evaluations (i.e., 2025 migrations). The sequential improvement may be attributable to greater clarity in IT budget growth/priorities vs. the mid-2023 time frame.

Back-Office SaaS Solutions Remain a Top Consideration

For which of the following financial or back-office applications are you most likely to consider a SaaS solution [Multiple Selections]?

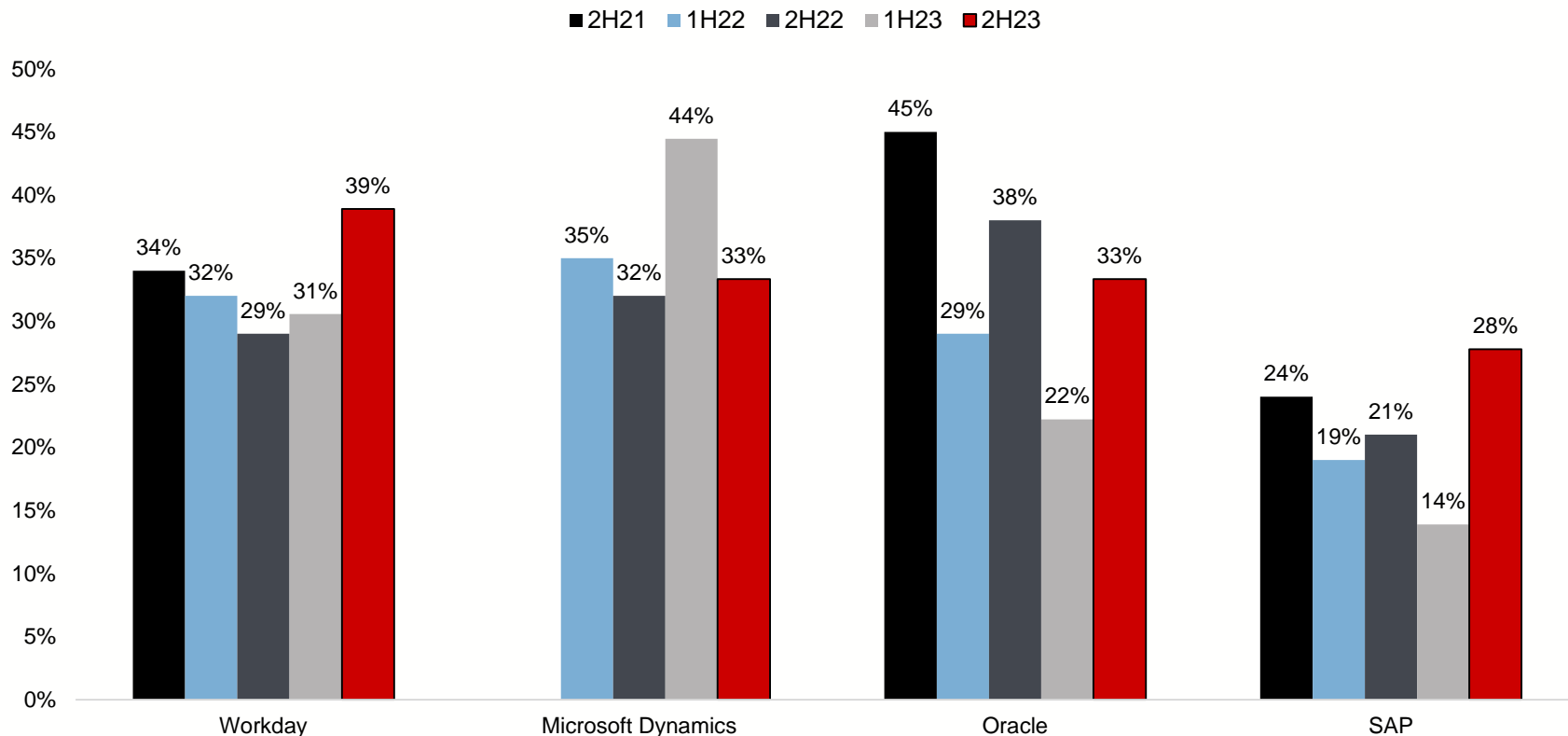


Key Takeaways:

Most back-office functions maintained relevance period-over-period with respect to SaaS consideration. Procurement notched the largest gains in consideration from the prior survey period. AP, AR, and billing & invoicing ticked lower sequentially.

Concentrated Back-office Vendor Preferences

Which finance or back-office applications vendors do you plan to start new projects with in 2024 [Multiple Selections]?

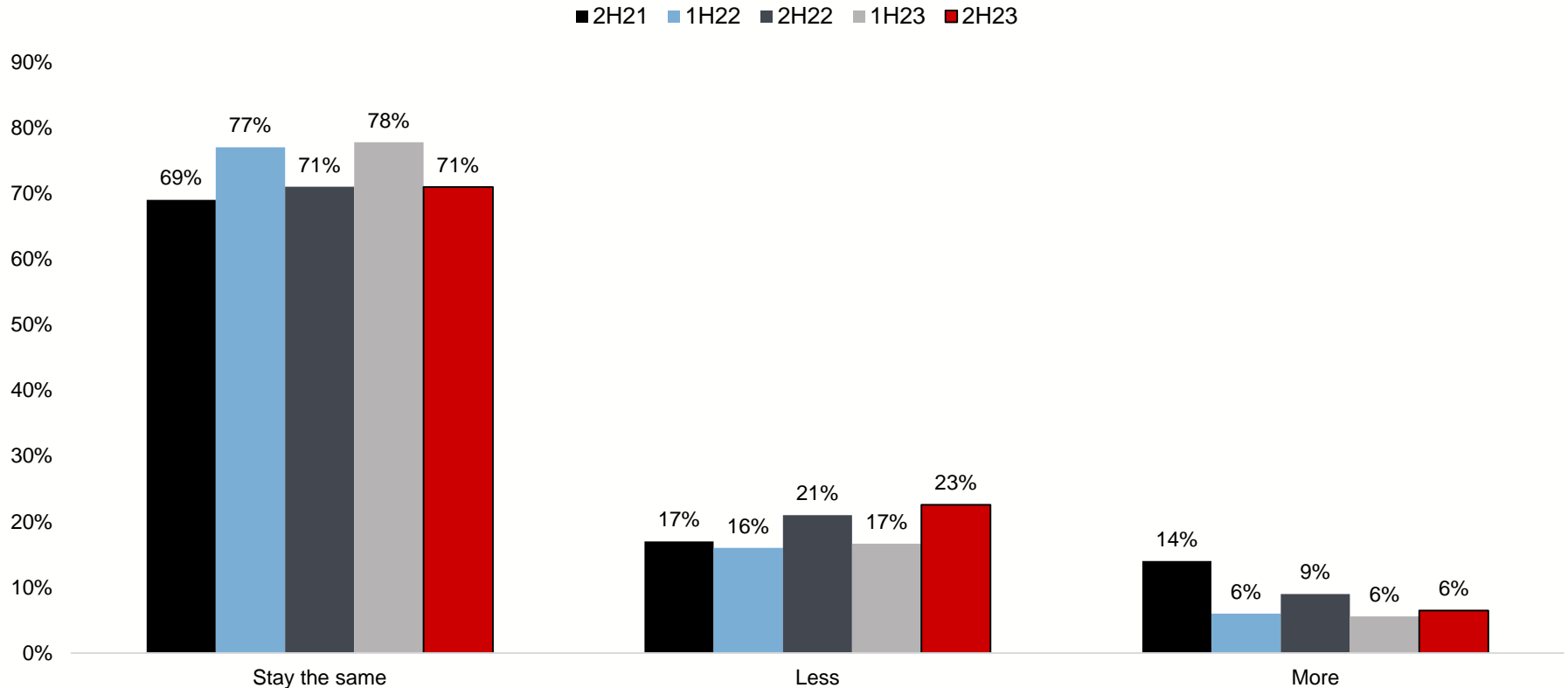


Key Takeaways:

While we observed variability among the top four vendors, results continue to show a persistent trend of large enterprise software vendors garnering the majority of “mentions” as it relates to new project starts (WDAY, ORCL, SAP, MSFT).

Persistent Vendor Consolidation

Are you planning on working with more or fewer vendors within the financial and back-office function over the next year?

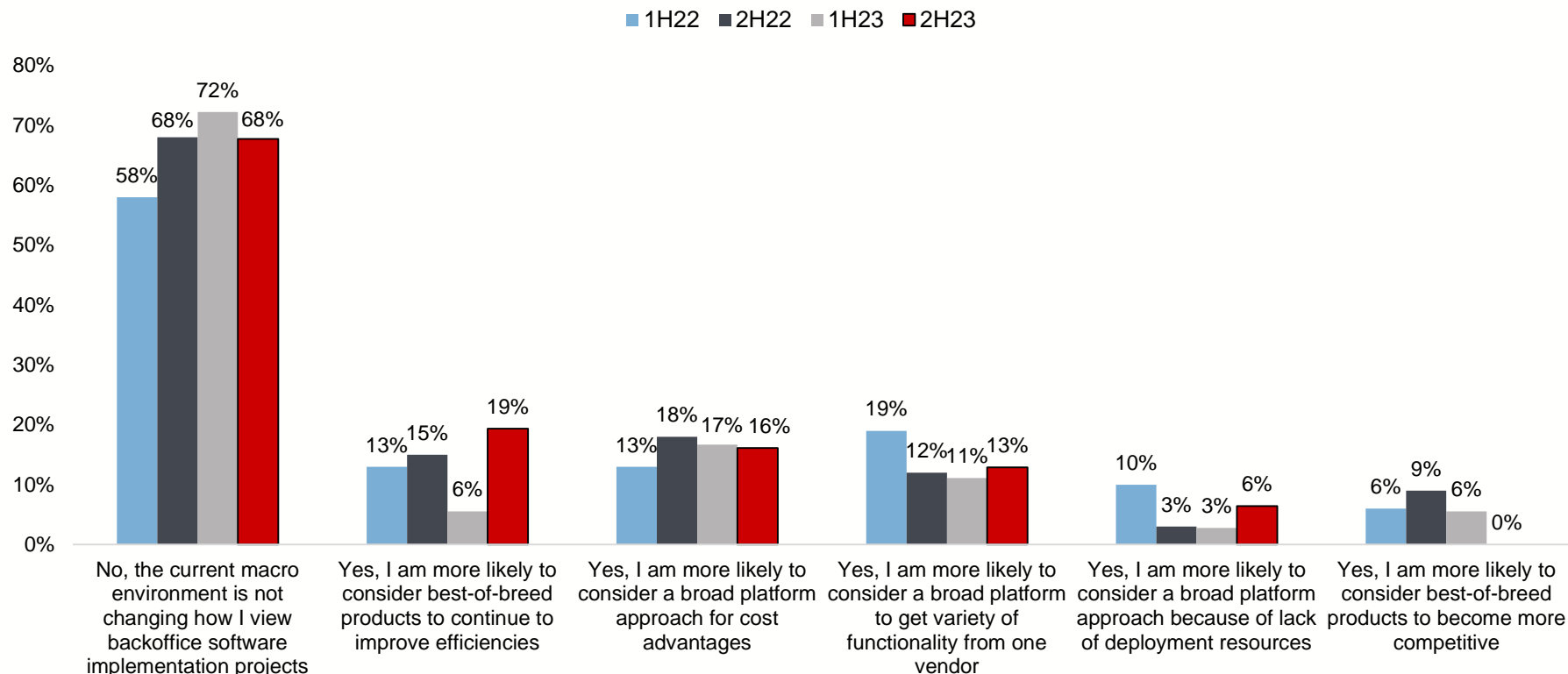


Key Takeaways:

Most respondents intend to maintain the number of back-office and financial software vendors, though the response rate indicating a preference for consolidation moved higher sequentially to 23% (from 17%). Response data continues to prove consistent with trends observed in other questions/conversations around back-office vendor concentration among large, horizontal enterprise software vendors.

Macro Increasingly Irrelevant to Vendor Selection

Have recent macro concerns changed your approach to selecting vendors for back-office software implementation projects [Multiple Selections]?



Key Takeaways:

Respondents generally did not change their view on back-office software selection/implementation given the uncertain macro environment, though results showed a directional reversal of three trailing observations (i.e., 4% downtick in “no” response rate). The biggest delta from the 1H23 survey showed up in an affinity for best of breed products to improve efficiency (i.e., operational efficiency). Responses otherwise support an overarching consolidation theme.

2H23 CIO SURVEY

Security, Data & AI

ERIC HEATH

2024: Survey highlights -- GenAI, security, analytics/BI remain highest IT priorities

1. **Security** the top investment priority, behind GenAI. Top 3 areas **Cloud Security (+ PANW, CRWD, RPD, S)**, **Data Security (+ PANW)** and **Identity (+CYBR, OKTA)**. **MSFT** remains the top strategic security vendor, followed by **CSCO PANW CRWD**. **GenAI** adoption in security remains uncertain (35% unsure when or if they'd adopt)
2. **Analytics/BI** the #3 priority for 2024. AI/GenAI, BI, and Data Warehouse/Data Lake the top 3 priorities within Data/Analytics (**AI, SNOW**). **MSFT** again the top strategic data/analytic vendor.
3. **GenAI** cited as top investment priority for 2024.
4. **Observability** NTM spend intentions stable at ~4% y/y. **SPLK** again cited as most strategic observability vendor, followed by **CRWD** (LogScale). **DDOG** tied 5th.

SECTOR CONCLUSIONS FROM CIO SURVEY

MOST POSITIVE (+)

1. **GenAI**: Top priority for '24. 72% of respondents are testing Gen AI capabilities (though only 2% in production). 63% plan to build home-grown apps based on 3rd party or fine-tuned LLMs, up from 45% last survey (+ **MDB**)
2. **Security**: The top investment priority after GenAI. Top priorities in '24 & LT are cloud security (**PANW**), data security, and identity (**OKTA CYBR**).
3. **Data/Analytics**: #3 budget priority for 2024 (**MDB CFLT AI**).
4. **PANW**: Security #2 priority for 2024; spend intentions with Palo strong (+21% net increase); cloud security #1 priority for 2024 and LT. (-) **SASE** a low priority, however.

MOST NEGATIVE (-)

1. **Endpoint security (CRWD, S)**: Endpoint/XDR scored low as a LT priority; endpoint was the most cited area where Microsoft is the primary solution; 35% of CIOs uncertain on timing of GenAI adoption.
2. **MDB**: 0% mentioned non-relational database as an NTM priority and MDB ranked low as a strategic data vendor.
3. **ZS**: SSE cited as a low priority for 2024 & LT budgets, although ZTNA was solid. ZS scored low as a strategic security vendor. (+) *SASE the least likely area CIOs will use Microsoft as the primary vendor.*

Quotes: Security, Data, GenAI

Security

- “Security is still one of the biggest areas where people are underinvesting. Our **security spend is 15% of the IT budget** and we expect spend to grow next year.” – *EdTech Company*
- “We are pursuing a platform strategy. We’re trying to leverage a vendor’s capabilities as much as possible. **Okta is the primary one.** Okta and Microsoft are our go to for investing in right now.” – *Small APAC based bank*
- “**Primary spend is on identity** to automate provisioning/deprovisioning and governance. We use RSA for MFA and Microsoft for AD.” – *U.S. Healthcare Organization*
- “We use **Palo Alto** for firewalls now. **Its significantly easier to operate** and for team to get up to speed [vs. **Check Point**].” – *Consumer Technology Company*
- “Okta is primarily an SSO solution for cloud applications and it **does not address the need we have.** We use RSA for SSO.” – *U.S. Public University*
- “**Cisco is the primary vendor for our security portfolio.** We’re still building out our network segmentation and access control using Umbrella.” – *U.S. Healthcare Organization*
- “Our security team is looking into SASE... we currently use **Zscaler** for ZTNA.” – *Retail Company*
- “There are concerns about VMware and Broadcom. **Trying to reduce our environment if we can.** We’re leaning towards Microsoft.” – *Retail Company*

Data/Analytics

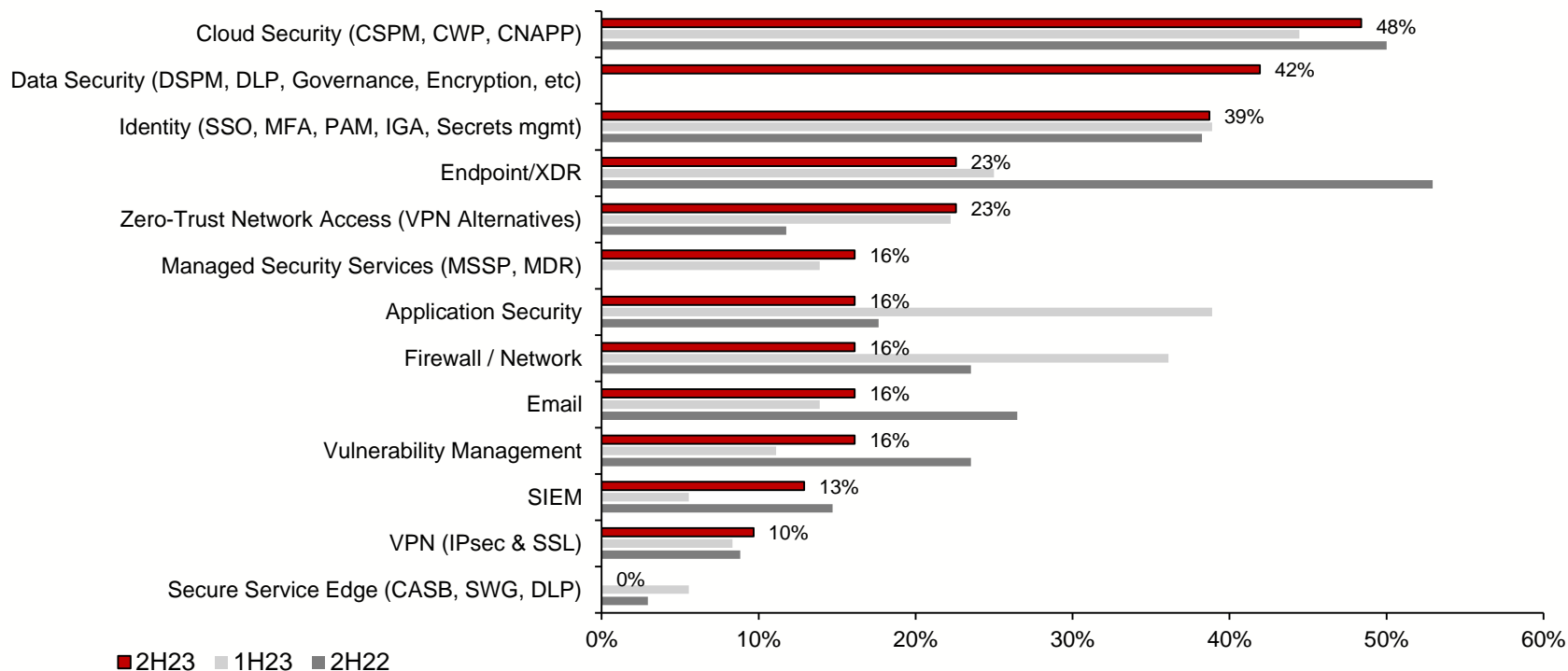
- [re Snowflake] “**It just works.** Full stop.” – *EdTech Company*
- “One of our top priority areas is [data] analytics.” – *U.S. Healthcare Organization*
- [re Datadog] “I would say that the CIO view is that **the tool is expensive.** Not as expensive as traditional APM, but expensive.” – *Consumer Technology Company*

AI/Gen AI

- “2024 is going to be the year of AI.” – *U.S. Public University*
- “We are primarily using gen AI for customer care interaction and to make content for marketing.” – *Consumer Technology Company*
- “We are all guns blazing for AI.” – *Large Global Bank*
- “Implementing Amazon Lex as part of our contact center... there's a lot of stuff than can be handled by a chatbot.” – *Animal Healthcare Service*
- “Trying to look at automating the call center a little more by using AI to respond to calls and more.” – *Retail Company*
- “I’m skeptical. One thing on my radar is to support a sandbox environment.” – *U.S. Healthcare Organization*

Security: CNAPP, Data, Identity – Top Priorities for 2024

In 2024, which part(s) of your security budget do you expect to increase priority?



Key Takeaways:

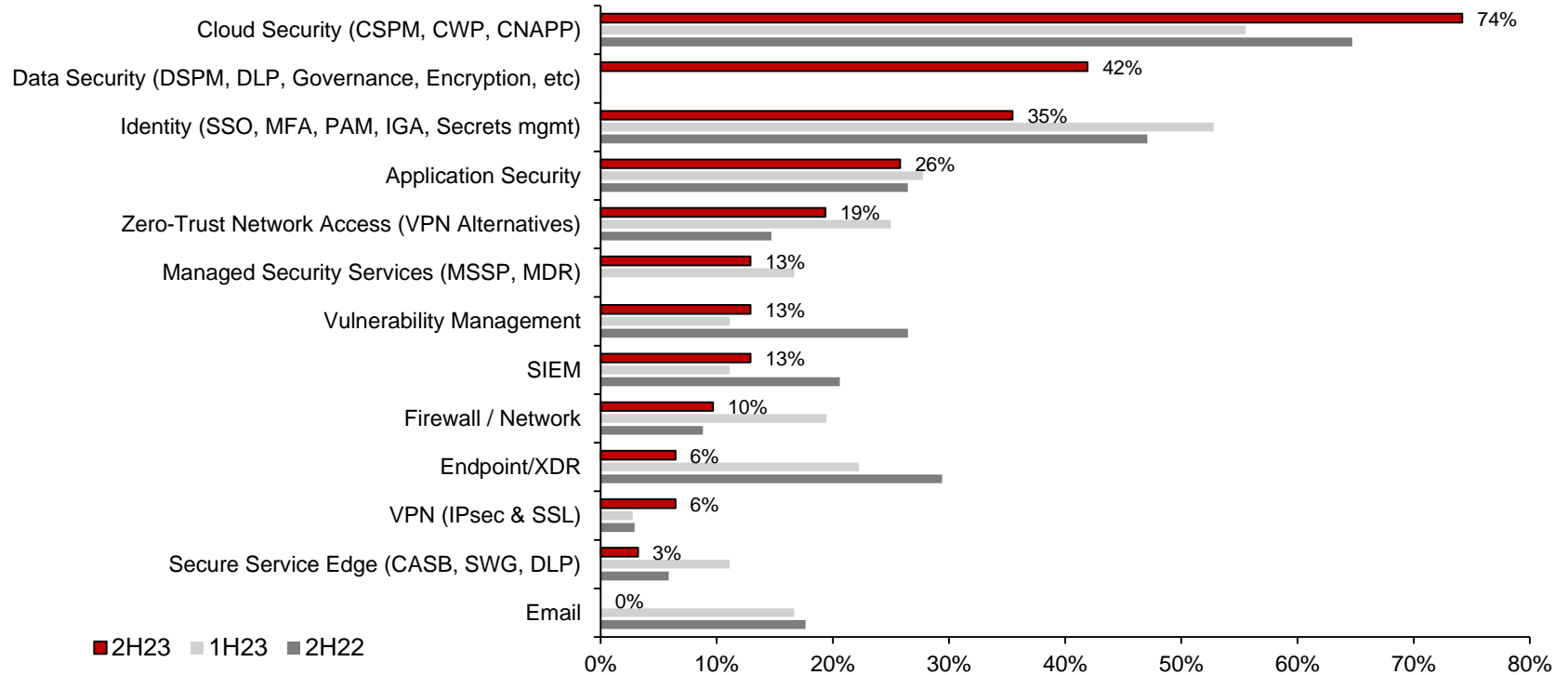
- Cloud security** remains the top priority for 2024 (+) **PANW, CRWD, RPD.**
- Identity** remains a top 3 priority (+) **OKTA, CYBR.**
- Data security** debuts as # 2.
- Firewall/Network** declined from 4th to tied for 6th (-) **PANW, FTNT, CHKP.**
- SIEM** a low priority (-) **SPLK. SASE** mixed; **SSE** low, but **ZTNA** solid (-/+) **PANW, ZS.**

2H22 N=34; 1H23 N=36; 2H23 N=31
 1H22 survey asked for top priorities for 2022
 1H23 survey asked for top priorities for 2023
 Source: KeyBanc Capital Markets Inc.

Data Security added as an option in 2H23

Security: CNAPP, Data, Identity – Top Priorities LT Too

LT, with the shift to the cloud, which part(s) of your security budget do you expect to increase priority?

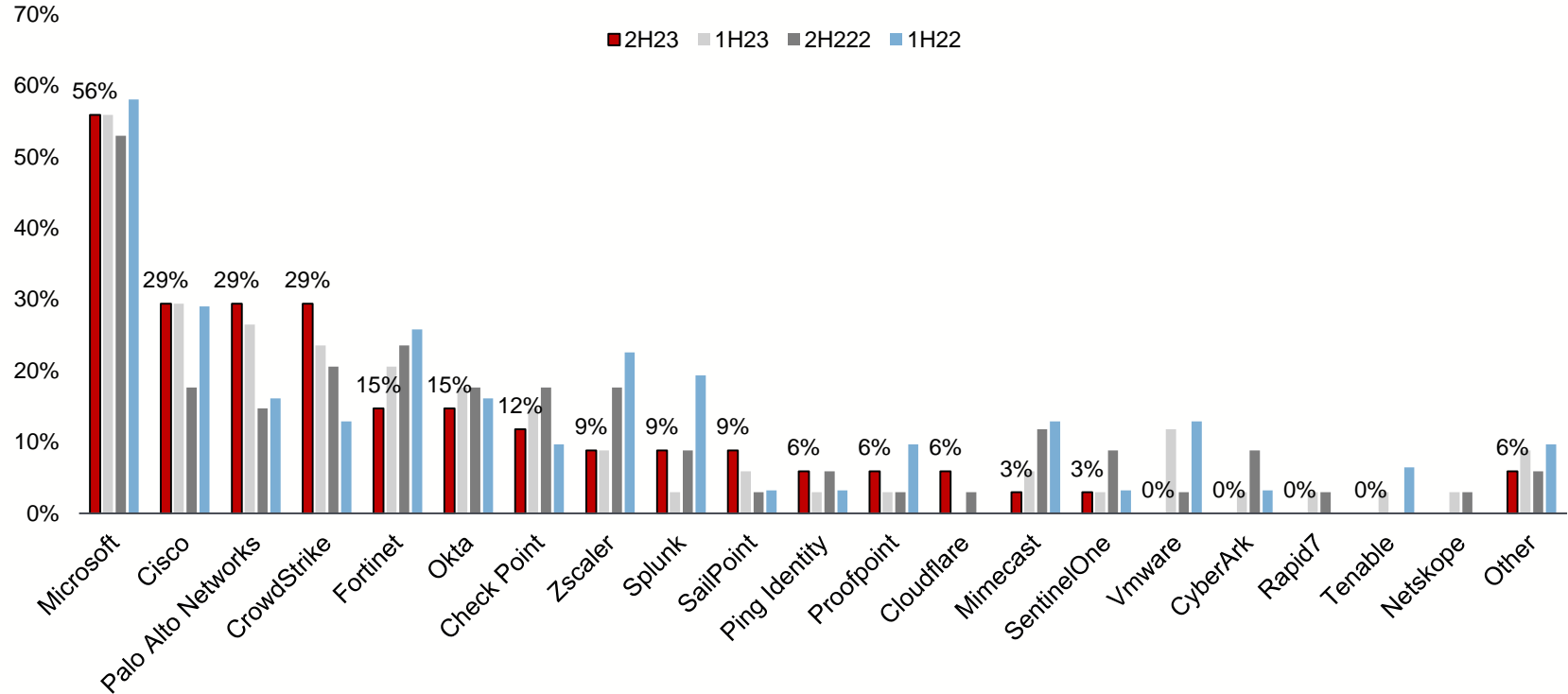


Key Takeaways:

- ☐ **Cloud security, data security & identity** the top priorities long-term with the shift to the cloud (+) Cloud: **PANW, CRWD, RPD**; (+) Data Security: **PANW**; (+) Identity: **OKTA, CYBR**. Data Security added as an option in 2H23
- ☐ **SSE** remains low priority for budgets. (-) **PANW, ZS**
- ☐ **Endpoint** meaningfully declined vs. last survey (-) **CRWD, S**.

Security: MSFT Remains Top Strategic Security Vendor

Who do you view as your most strategic security vendors?

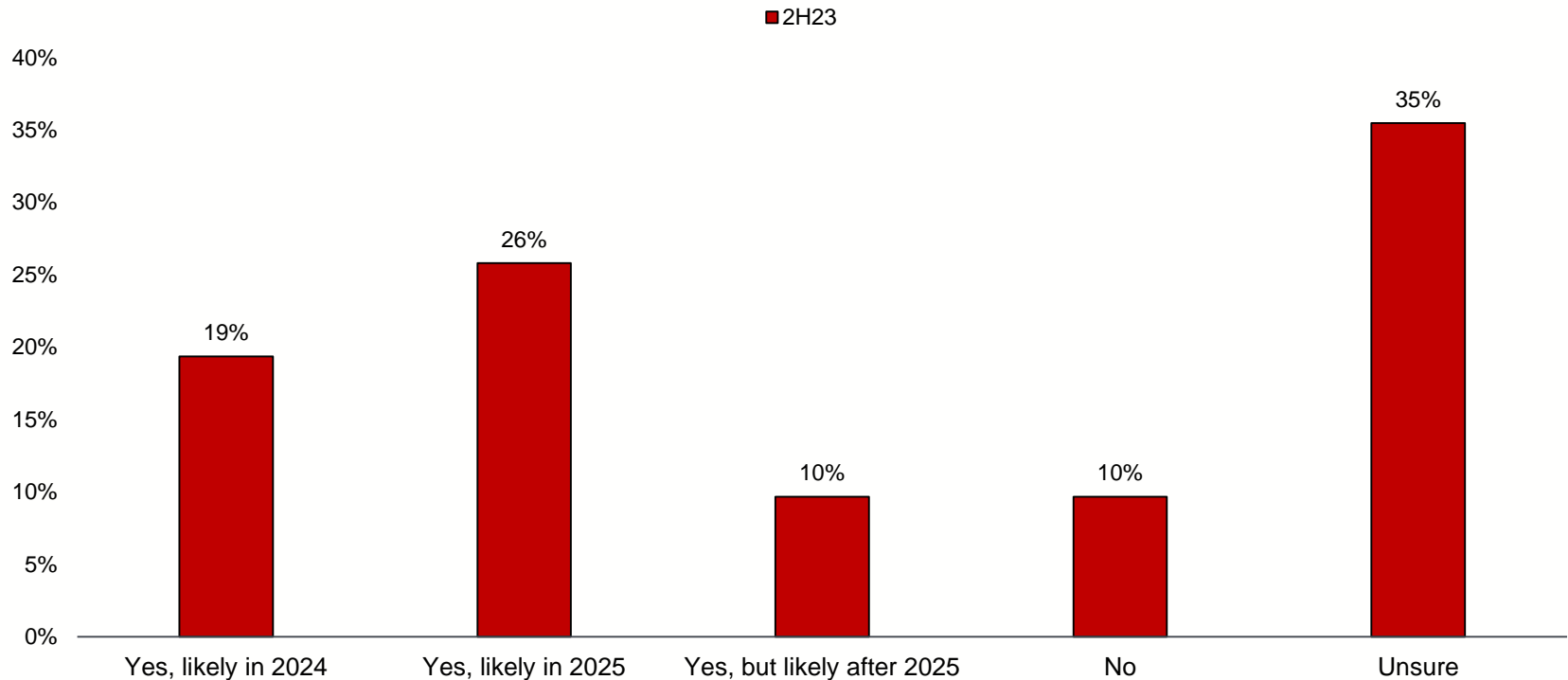


Key Takeaways:

- ❑ (+) **Microsoft** remains the most strategic security vendor.
- ❑ (+) **Palo Alto** improved to 2nd (tied with Cisco) from 3rd previously.
- ❑ (+) **Cisco** remained 2nd.
- ❑ (-) **Zscaler, CyberArk, SentinelOne** and **Rapid7** scored low.

Security: Uncertainty Around Gen AI Adoption

Do you expect to adopt a GenAI solution within your security team?
(i.e., CrowdStrike Charlotte AI, Microsoft Security Copilot)



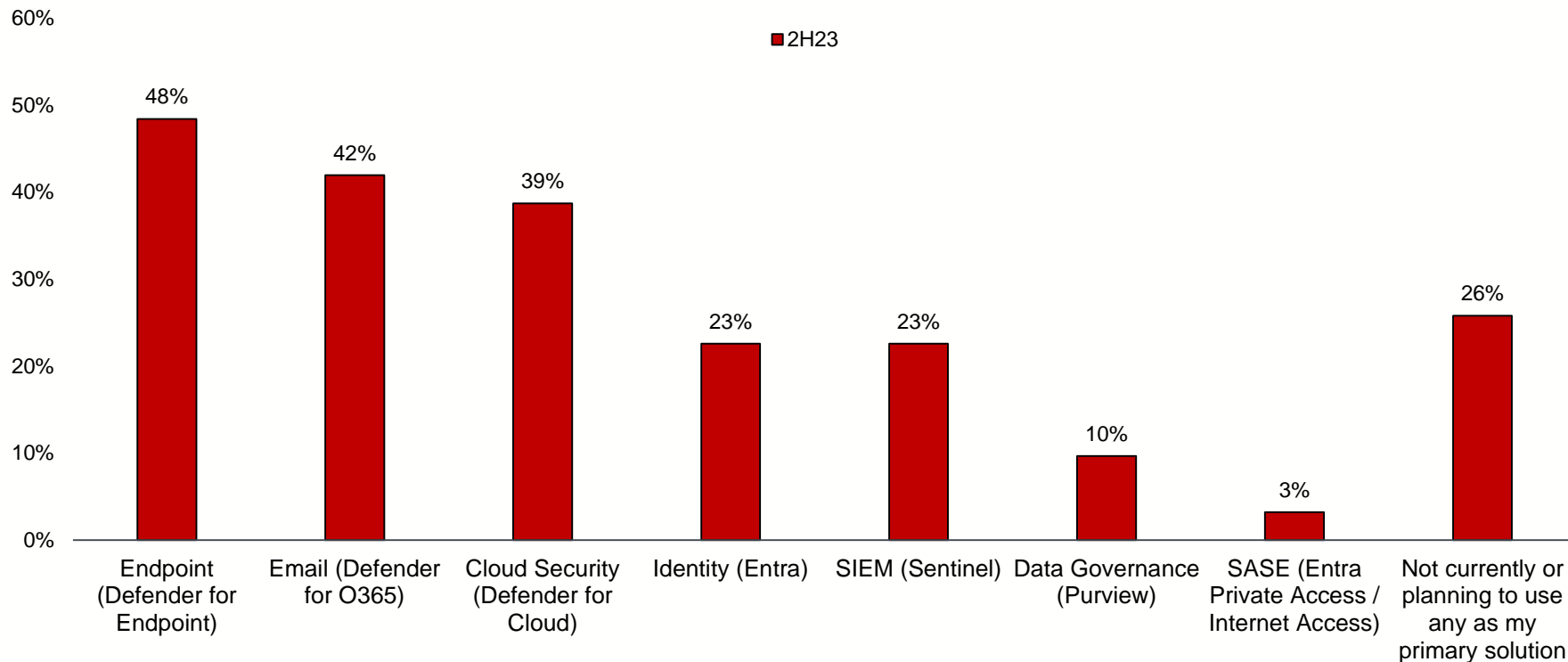
Key Takeaways:

❑ Majority of CIO respondents uncertain about gen AI adoption (-) **CRWD, MSFT, S**

1H22 N=31; 2H22 N=34; 1H23 N=36; 2H23 N=31
Question was added in 2H23
Source: KeyBanc Capital Markets Inc.

Security: Endpoint the Most Used Microsoft Solution

Which security product, if any, are you using or plan to use from Microsoft as your primary solution?



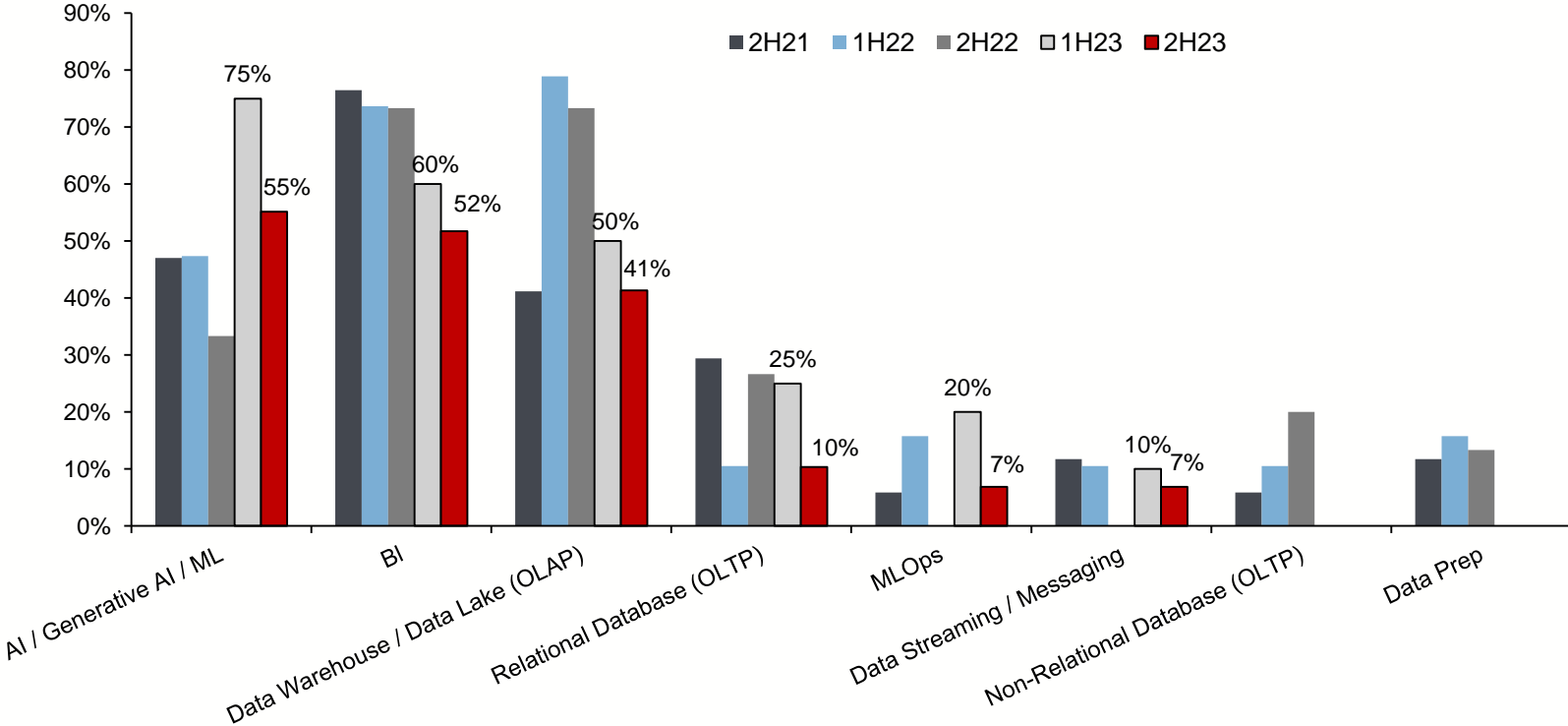
Key Takeaways:

- Endpoint the most often cited area of security that CIOs are using or plan to use Microsoft as their primary solution (-)
CRWD, S; SASE the least (+) ZS PANW.

1H22 N=31; 2H22 N=34; 1H23 N=36; 2H23 N=31
Question was added in 2H23
Source: KeyBanc Capital Markets Inc.

Data/Analytics: AI/GenAI, BI, Data Warehouse/Data Lake Remain Top Priorities

Which areas within Data/Analytics do you expect to see an increase in priority next 12 months?



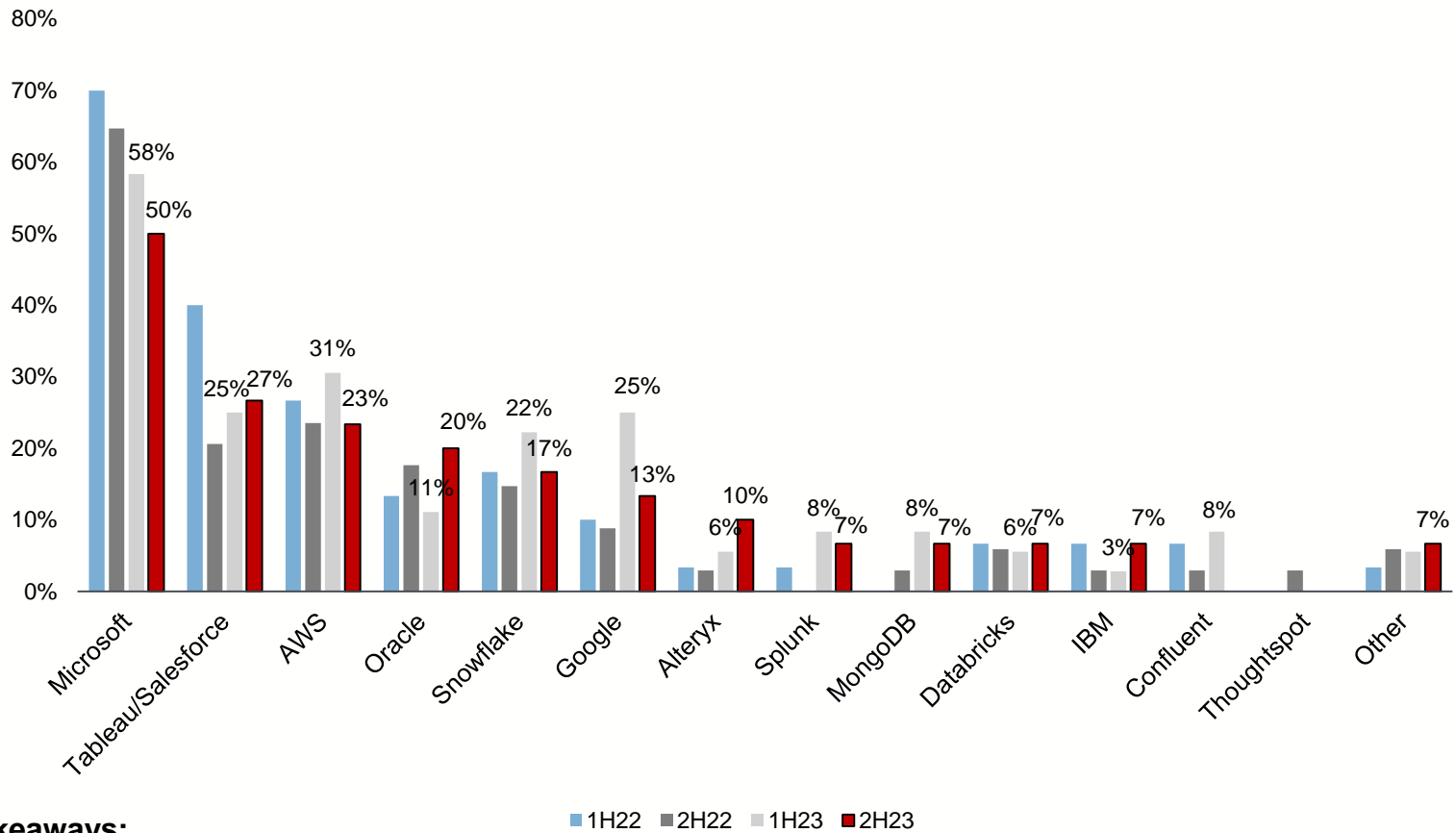
Key Takeaways:

- ❑ AI/GenAI, BI, and Data Warehouse/Data Lake consistently remain top priorities within Data and analytics. (+) **AI SNOW.**
- ❑ Non-Relational Database surveyed with 0% of responses, down 20pts q/q (-) **MDB.**

2H23 N=29; 1H23 N=20; 2H22 N=15; 1H22 N=19
 *AI/ML changed to AI/Generative AI in 1H23 Survey
 *Cloud Database changed to Relational Database (OLTP) in 2H23 Survey
 Source: KeyBanc Capital Markets Inc.

Data/Analytics: Microsoft Most Strategic Data/Analytics Vendor

Who do you view as your most strategic data/analytics vendors?



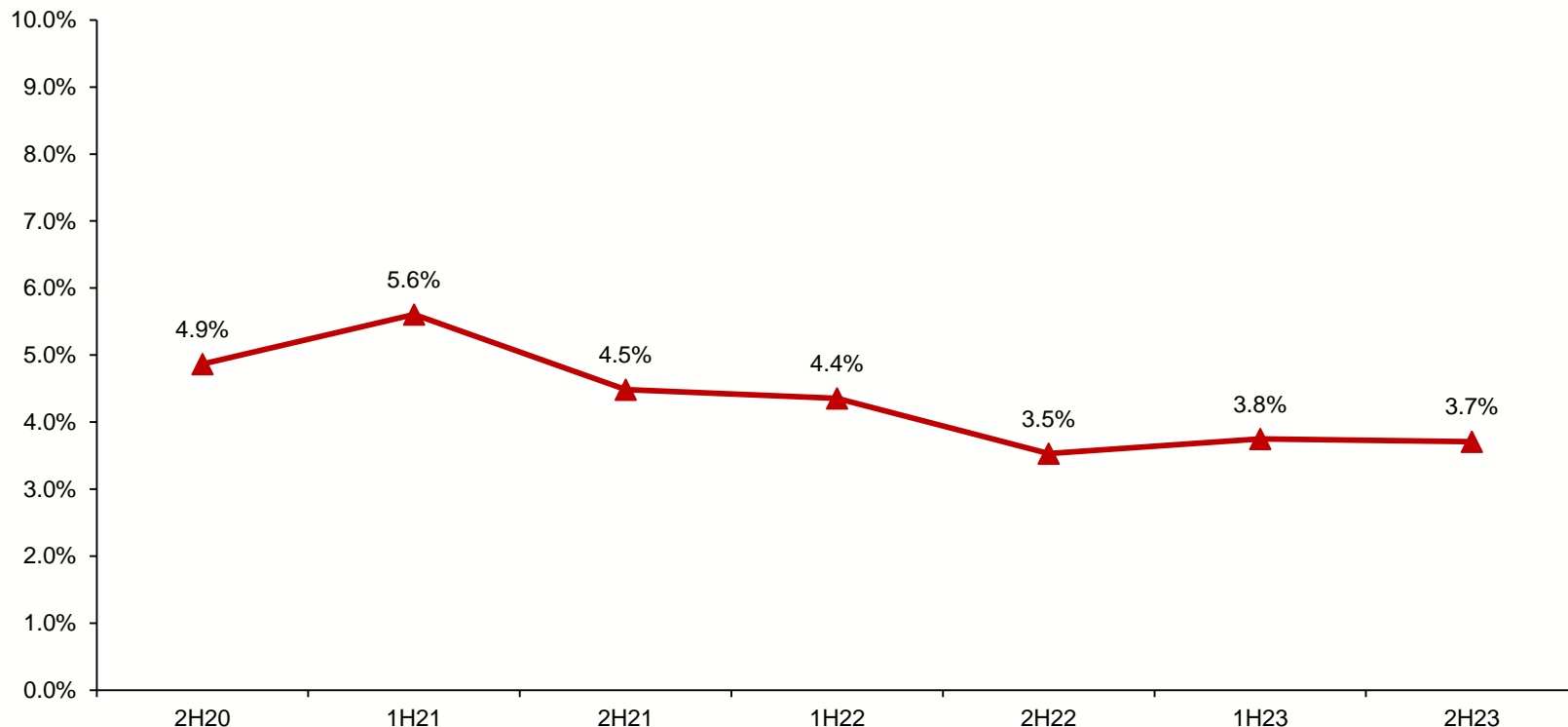
Key Takeaways:

- ❑ **Microsoft Top Strategic Data/Analytics Vendor.** Microsoft the most often cited strategic Data/Analytics vendor by our CIO respondents for the fourth consecutive survey, although its lead is narrowing.
- ❑ **Google** reverted to 6th from 3rd last survey.
- ❑ **Oracle** saw a 9pt improvement vs. last survey. **Confluent** received 0% of responses.

2H23 N =30; 1H23 N=36; 2H22 N=34; 1H22 N=30
Source: KeyBanc Capital Markets Inc.

Observability: NTM Spend Intentions Relatively Stable

How do you expect the spend on Observability (APM, Infrastructure, Logs, Network) to change in the next 12 months?



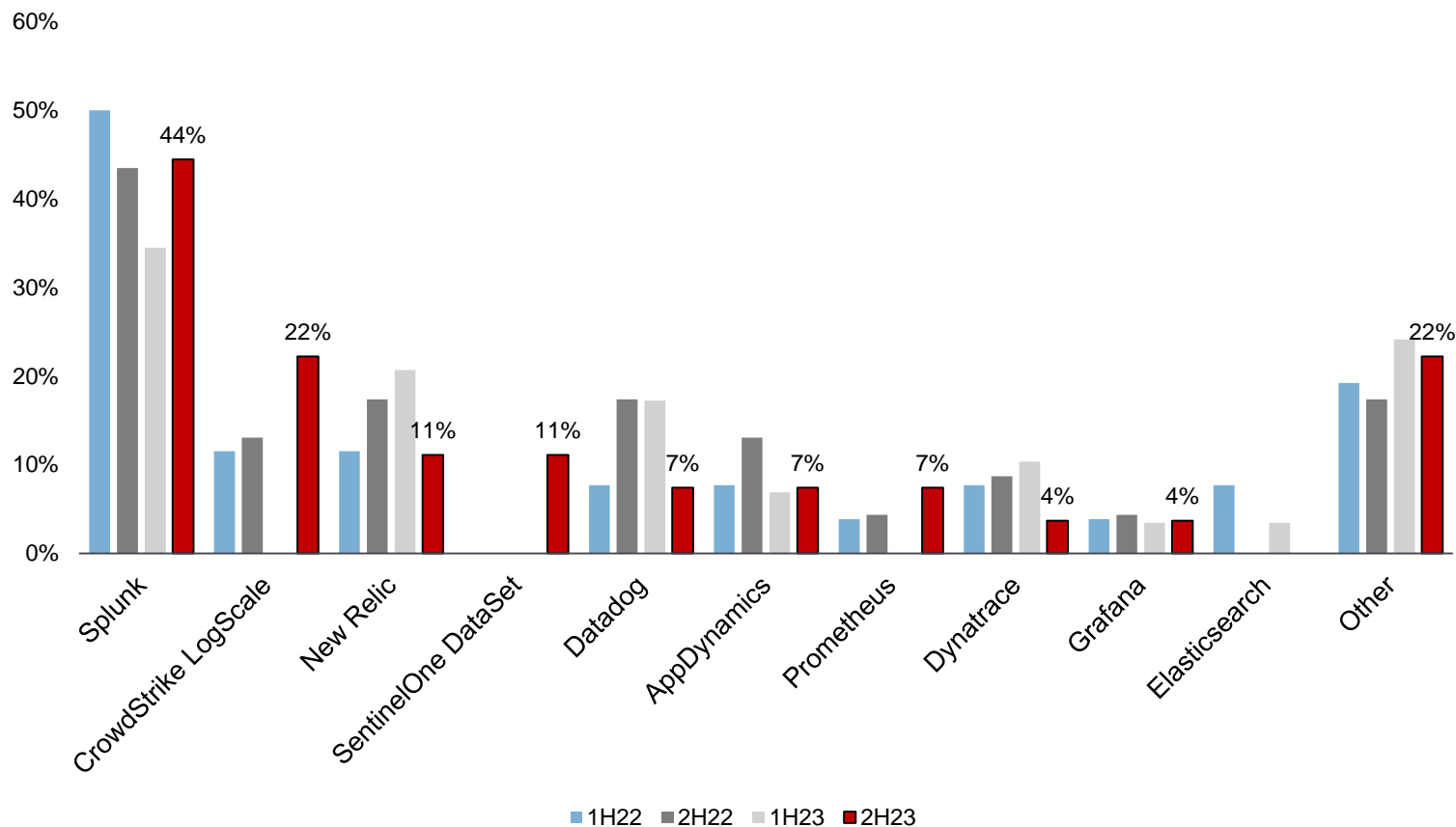
Key Takeaways:

- NTM spend intentions for Observability solutions didn't improve upon last surveys acceleration, though appears relatively stable (=) **DDOG SPLK.**

2H23 N=31; 1H23 N=36; 2H22 N=34; 1H22 N=31; 2H21 N=29; 1H21 N=33; 2H20 N=37
Source: KeyBanc Capital Markets Inc.

Observability: Splunk Again Most Strategic Observability Vendor

Who do you view as your most strategic observability vendors?



Key Takeaways:

- ❑ **Splunk** again cited as top strategic observability vendor, followed by **CrowdStrike LogScale**
- ❑ **SentinelOne** debuted as tied #3 strategic observability Vendor. **DataDog** falls 10pts to fourth spot (third previously)

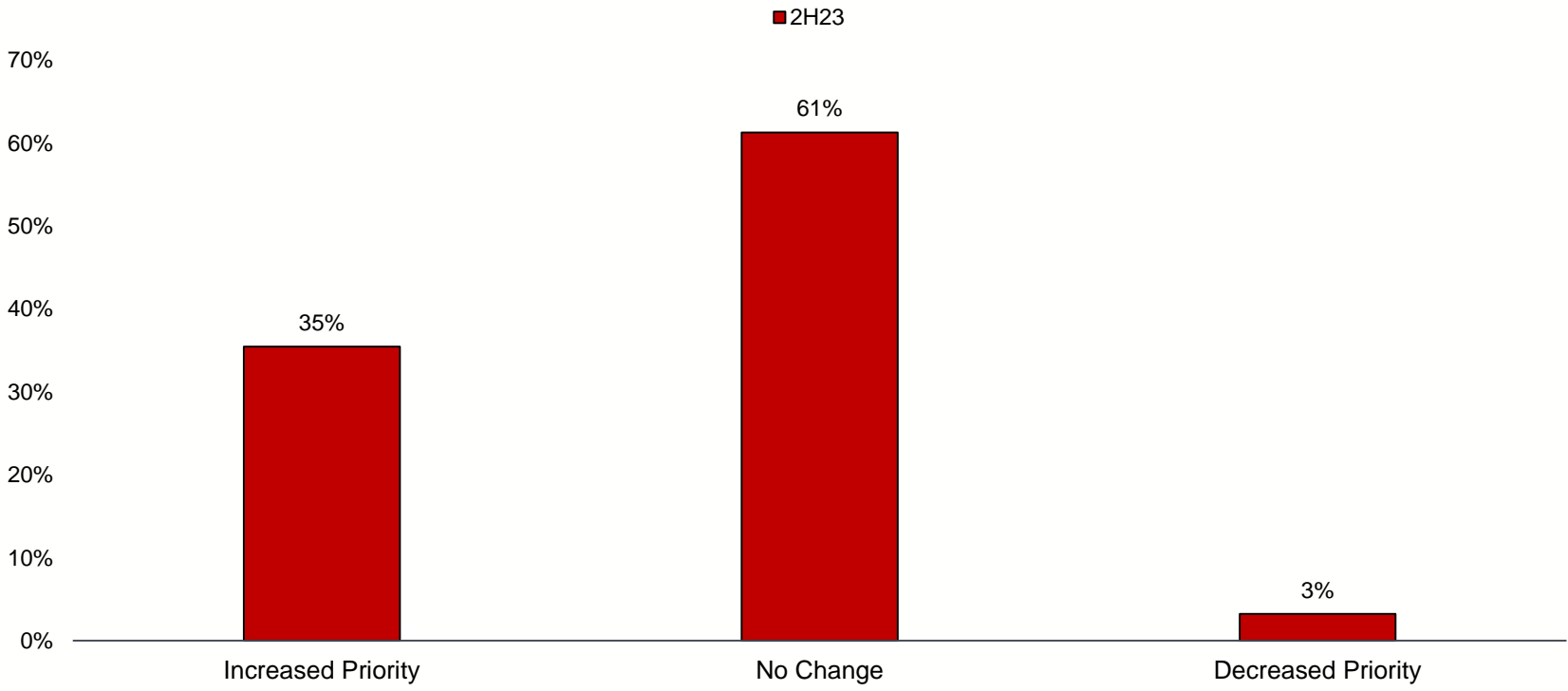
2H23 N=27; 1H23 N=29; 2H22 N=23; 1H22 N=26
 *CrowdStrike Humio changed to CrowdStrike LogScale in 2H23; Added SentinelOne DataSet in 2H23
 Source: KeyBanc Capital Markets Inc.

2H23 CIO SURVEY

Enterprise Software: Applications

Front-Office: Priority Relatively Flat but Improving

How did the priority of Front-Office Apps (AI, analytics, CRM, sales, marketing, customer service, front-end commerce) change in CY23?



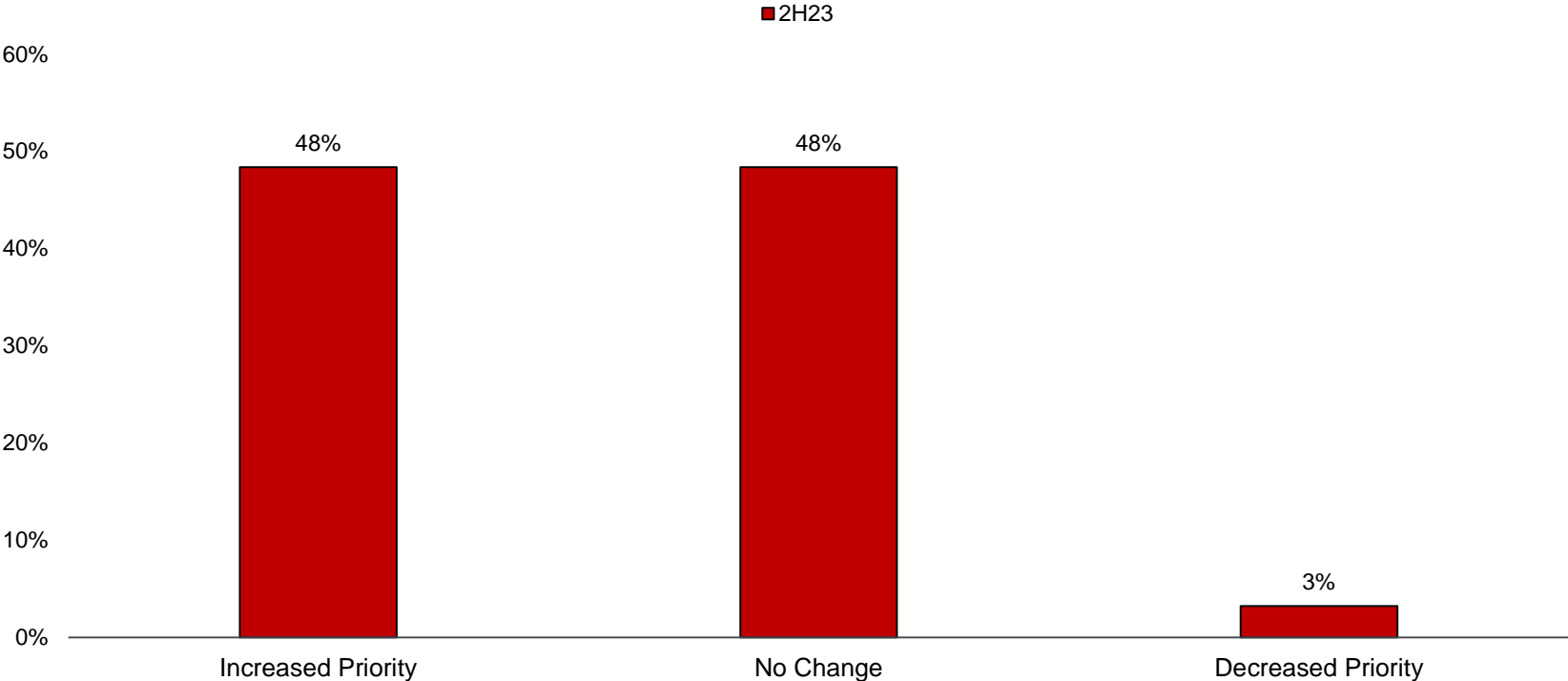
Key Takeaways:

- 1. Front-office stable at 96% priority no change or increasing, but the mix shifted slightly to increasing. CY23 relative budget priority results (slide 25) increased from our last survey.

N=31
Source: KeyBanc Capital Markets Inc.

Front-Office: Continued Mix Shift to Increased Priority

How do you expect the priority of Front-Office Apps (AI, analytics, CRM, sales, marketing, customer service, front-end commerce) to change in CY24?



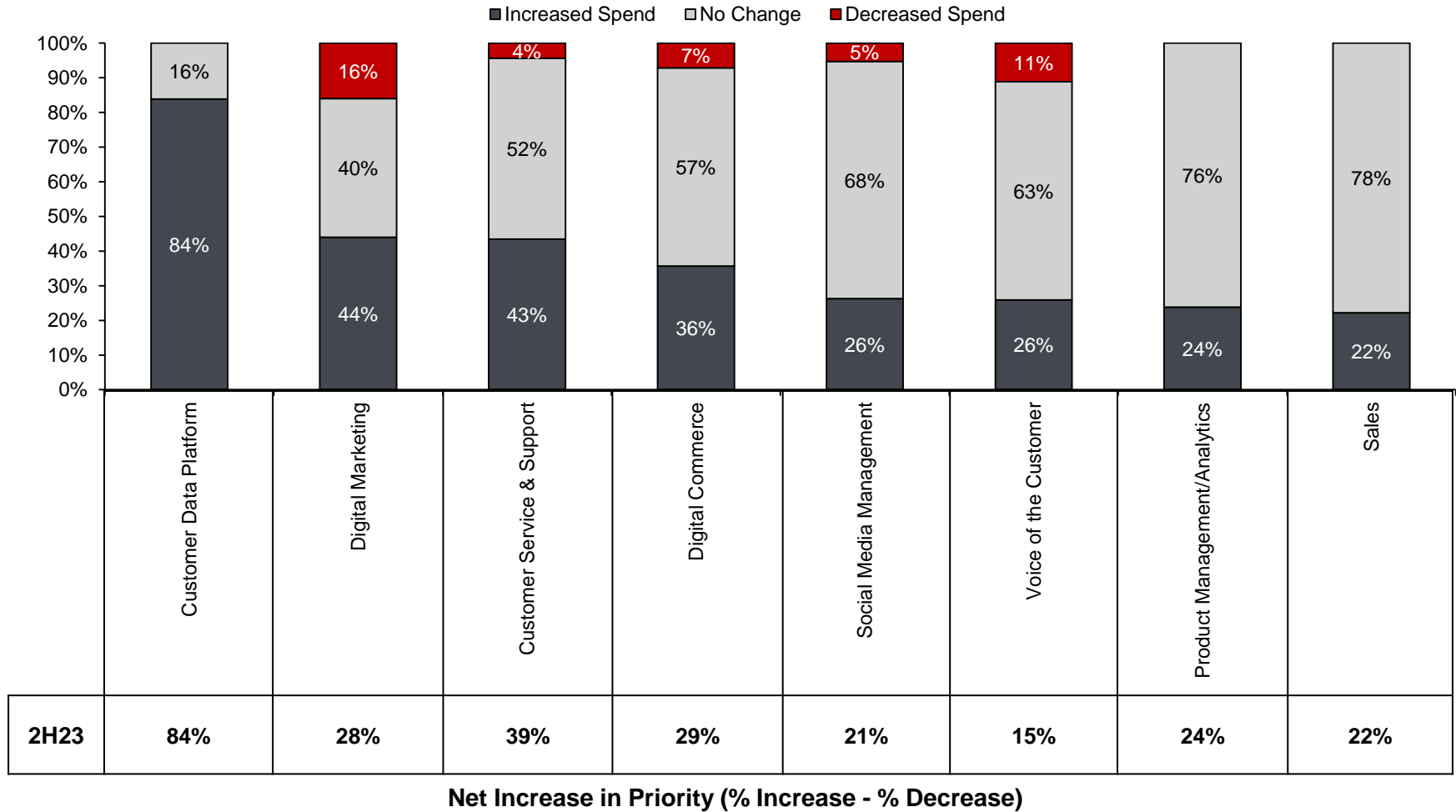
Key Takeaways:

- 1. CIOs expect Front-office stability to continue with 96% priority no change or increasing, with further mix shift to increasing priority at 48% vs. 35% in 2023.

N=31
Source: KeyBanc Capital Markets Inc.

Front Office: CDP Seeing Highest NTM Budget Priority

How are the following parts of your front office application budget expected to change in priority in the next 12 months?



Price Target Changes

PSTG

We are increasing our PT on PSTG due to expanding multiples in the market and potential for accelerated business model transition and related re-rating of shares. Our new PT of \$47 is supported by our weighted average EV/S methodology using 9.5x for Pure Storage's recurring 20%+ growing support/services STaaS business (~40% of revenue), which is inline with the 20%+ software/SaaS cohort, and LSD multiple for the remaining (60%) Product business.

Market and macroeconomic conditions could impede the stock from achieving our price target, as could risks such as heightened competitive pressures, aggressive pricing, supply chain constraints, component pricing increases (especially for merchant NAND), weaker than expected cash generation and profitability, the launch of new products to sustain growth, the success of alternative technologies, and management turnover.

Mentioned Companies

Analyst	Ticker	Rating	Price	Price Target
Eric Heath	CHKP	SW	\$159.06	-
	CRWD	OW	\$298.66	\$318.00
	CYBR	OW	\$234.29	\$265.00
	FTNT	SW	\$62.66	-
	OKTA	SW	\$84.55	-
	PANW	OW	\$345.65	\$390.00
	ZS	SW	\$240.85	-
	RPD	SW	\$54.90	-
	S	SW	\$26.29	-
	AI	SW	\$26.44	-
	AYX	SW	\$47.44	-
	CFLT	SW	\$22.40	-
	DDOG	SW	\$132.98	-
	MDB	OW	\$413.42	\$500.00
SPLK	SW	\$153.29	-	

Analyst	Ticker	Rating	Price	Price Target
Alex Markgraff	AVDX	OW	\$11.02	\$15.00
	NCNO	SW	\$32.70	-
	Q TWO	SW	\$44.75	-

Analyst	Ticker	Rating	Price	Price Target
Jason Celino	ASAN	SW	\$19.04	-
	COUR	OW	\$17.95	\$22.00
	MNDY	OW	\$202.94	\$220.00
	SMAR	OW	\$46.25	\$53.00
	UDMY	OW	\$13.85	\$15.00
	WDAY	OW	\$289.88	\$310.00

Analyst	Ticker	Rating	Price	Price Target
Thomas Blakey	ANET	OW	\$266.60	\$306.00
	CSCO	SW	\$51.57	-
	CVLT	SW	\$80.26	-
	FIVN	OW	\$79.79	\$93.00
	JNPR	SW	\$37.47	-
	NET	OW	\$84.68	\$94.00
	NTNX	OW	\$56.00	\$60.00
	PSTG	OW	\$41.18	\$47.00
	RNG	OW	\$35.34	\$50.00
	ZM	SW	\$69.59	-

Disclosure Appendix

Important Disclosures

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Rating Disclosures

KeyBanc Capital Markets					Technology				
Rating	Count	Percent	IB Serv/Past 12 Mos.		Rating	Count	Percent	IB Serv/Past 12 Mos.	
			Count	Percent				Count	Percent
Overweight [OW]	236	48.07	42	17.80	Overweight [OW]	89	55.28	6	6.74
Sector Weight [SW]	251	51.12	44	17.53	Sector Weight [SW]	72	44.72	3	4.17
Underweight [UW]	4	0.81	1	25.00	Underweight [UW]	0	0.00	0	0.00

Rating System

Overweight - We expect the stock to outperform the analyst's coverage sector over the coming 6-12 months.

Sector Weight - We expect the stock to perform in line with the analyst's coverage sector over the coming 6-12 months.

Underweight - We expect the stock to underperform the analyst's coverage sector over the coming 6-12 months.

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