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## Technology - Software &amp; Services | Europe

## 4Q22 CIO Survey - Continued caution on IT spending into 2023

2023 IT budget growth expectations fell marginally to +2.7% (vs. 2.8% previously), while the up-to-down ratio fell to c. 0.3x (lowest since 3Q16). Against an uncertain macro backdrop and with further budget revisions likely, CIOs appear to remain cautious on the near-term IT spending backdrop.

**2023 budget growth expectations soften slightly, but further revisions are likely:**

2023 CIO IT budget growth expectations came in at c. 2.7% this quarter, down c. 10bps from our first 2023 reading of c. 2.8% from 3Q22. In addition, the 1-year IT budget revision up-to-down ratio (which measures the % of CIOs expecting an increase vs. those expecting a decrease in spending) decreased again this quarter to 0.3x (vs. 0.4x in 3Q22 and 1.1x in 2Q22), which is below the 2Q20 pandemic lows (of 0.4x) and the lowest level since 3Q16. With the up-to-down ratio <1x, and growth expectations softening, we think further revisions to 2023 IT budget growth expectations are likely through the year. In terms of timing, we see this as consistent with our expectations - we lowered our forecasts across our coverage universe in mid-2022 ahead of an expected weakening of the demand environment in 2023. Against this backdrop, we remain defensively positioned in our current stock preferences, favouring companies with highly recurring business models, selling mission-critical/enterprise products, and which are trading at (relatively) low multiples. Our top picks in software are **Sage** (95% recurring revenues, exiting FY22 with 12% growth in its recurring revenue line), followed by **SAP** (c. 80% recurring revenue, business-critical products, and large enterprise exposure).

**Longer-term spending growth expectations soften:** In this survey we observed a significant weakening in long-term (LT) CIO IT spending growth expectations, which we think stems from the still cautious near-term outlook. The % of CIOs expecting budget to increase (as a % of total revenue) over the next 3 years declined to c. 40% (vs. 47% in 3Q22), while the % of CIOs expecting budgets to decline over the next 3 years increased to c. 12% (from 8% in 3Q22). This means that the LT up-to-down ratio almost halved to c. 3.3x (from c. 5.9x as of 3Q22). However, despite the moderation, this is still broadly in-line with the prior 3-year average (1Q19-4Q21) of c. 3.2x. The majority of CIOs still expect IT spending to grow as a percentage of revenue over the medium term.

**US IT budget growth to outpace the EU, and Software remains the fastest**

**growing sector in 2023:** 2023 IT budget growth is expected to be higher in the US (+3.0%) vs. the EU (+2.1%). 2023 expectations are slightly lower vs. 2022 in the US (3.0% vs. 3.2% in 2022), while 2023 EU growth expectations are in-line with 2022. From a sector view, CIOs continue to expect spending growth to

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## Technology - Software &amp; Services

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decelerate across all sectors in 2023 (vs. 2022). Software remains the fastest growing sector at 3.3% (vs. 3.6% in 2022), followed by Communications at 2.6% (vs. 2.9%), Services at 2.5% (vs. 2.8%), and Hardware 1.5% (vs. 1.6%).

**Level of discounting increases; Security Software tops both our priority and defensive spending lists; and c. 46% of workloads expected to be in Public**

**Cloud by the end of 2025:** Our CIO survey data indicates vendors' willingness to discount has increased vs. 3Q22. 42% of CIOs say vendors are now more inclined to discount (up from 29% in 3Q22), while only 19% say vendors are less inclined to discount (down from 25%). In terms of projects likely to see the largest % increase in spending in 2023, Security Software (12.0% of CIOs cited as a top 3 priority), Cloud Computing (10.3%), and DW/BI/Analytics (9.0%) were the top 3 spending priorities for 2023. Similarly, Security Software (net score of 19.0%), Digital Transformation (9.0%), and Cloud Computing (5.0%) were considered by our surveyed CIOs to be the top 3 most defensive IT projects (least likely to be cut in a downturn). Turning to the location of current workloads, our surveyed CIOs indicated that c. 27% of current workloads reside in Public Cloud today, and they estimate this figure will reach 31% by the end of 2023 and c. 46% by the end of 2025.

Exhibit 1:



Primary Research

See what others don't.

1. Reported growth in 2022 IT budget was 2.9%, consistent with the last survey showing 3%. The 2023 IT budget growth is expected to remain muted at 2.7% (vs. 2.8% in 3Q22).

2. The 2023 IT budget revisions up-to-down ratio is at 0.3x, further down from 0.4x in 3Q22. Fewer CIOs than in 3Q22 (40% vs. 47%) anticipate IT spending to increase as a % of their companies' revenue over the next 3 years.

3. Top prioritized projects for 2023 are: 1) Security Software, 2) Cloud Computing, 3) DW/BI/Analytics, 4) Digital Transformation and 5) AI/ML/PA.

Methodology.

Between November and December 2022, AlphaWise conducted telephone and online interviews with CIOs discussing broad IT spending trends and domain specific strategies. The survey consists of 1) Macro CIOs Survey amongst 100 respondents (73 US / 27 EU); 2) Software Domain Survey with 60 respondents (45 US / 15 EU); 3) IT Services Domain Survey with 60 respondents (42 US / 18 EU). Their responses represent enterprise customer adoption and purchasing behaviors for Q4 2022.

Team behind the analysts.

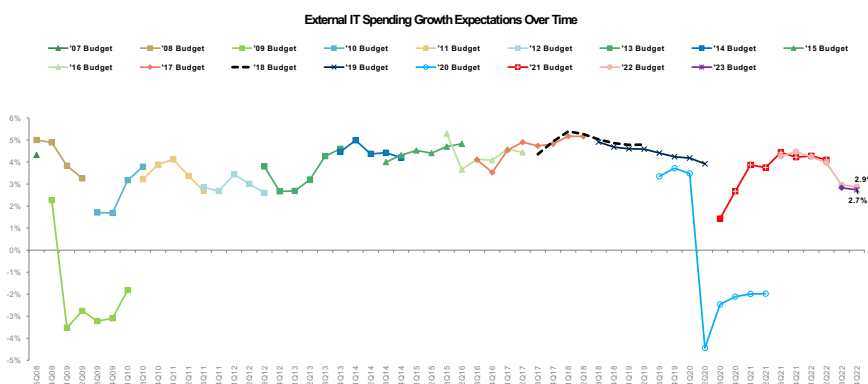
AlphaWise Primary Research gathers alternative data and generates unique insights via an innovative analytical and visualization platform.

# Macro – Key Takeaways

## 2023 IT budget growth expectations decrease further

What is your estimated percentage (%) growth for the External IT Spending portion of your IT Budget for the full year 2022 vs. 2021? What is your estimated spending for 2023 vs. 2022?

Exhibit 2: External IT spending growth expectations over time



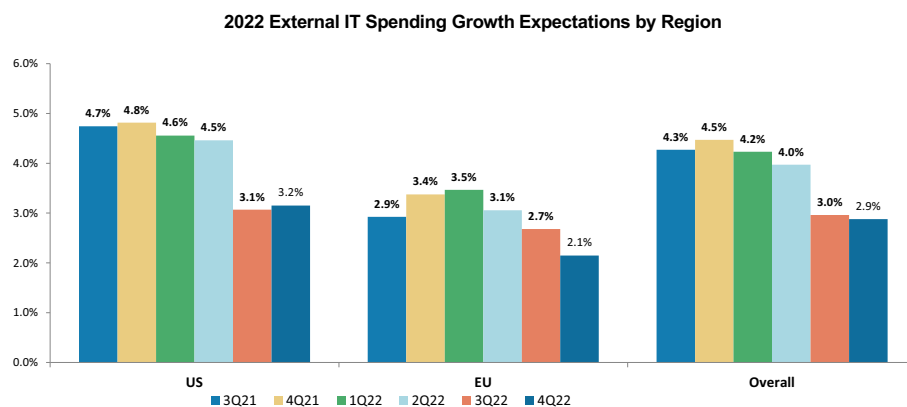
Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data). Note: 3Q15 CIO survey reflects data from a different surveying vendor.

- Our second reading of CIOs' expectations for 2023 IT budget growth came in at c. 2.7% in our 4Q22 survey, c. 10bps lower than the c. 2.8% reading at our 3Q22 survey. Expected 2022 budget growth expectations came in at c. 2.9% (vs. 3.0% in 3Q22). Both growth expectations for 2022 and 2023 are below the 10-year pre-Covid average of c. 4.1%.
- Meanwhile, the 1-year IT budget revision up-to-down ratio (which measures the % of CIOs expecting an increase vs. those expecting a decrease in spending) declined further, coming in at 0.3x (vs. 0.4x at 3Q22), suggesting further revisions to IT budgets in 2023 are likely.
- The combination of declining growth expectations, increasing likelihood of further revisions, and the current inflationary environment (i.e. rising vendor prices) indicates that new project spending will likely be constrained in the near term. We therefore maintain our cautious view on the current IT spending environment and expect this to start to filter through to earnings as we close FY22 and begin FY23.
- Looking to the next 3 years, c. 40% of CIOs expect IT spending to increase as a % of revenue (vs. 47% in 3Q22). Therefore, the LT spending up-to-down ratio (% increase / % decrease) decreased this quarter to 3.3x, falling significantly from 5.9x at 3Q22.

## 2023 IT budget expectations lower vs. 2022 in the US, in-line in EU

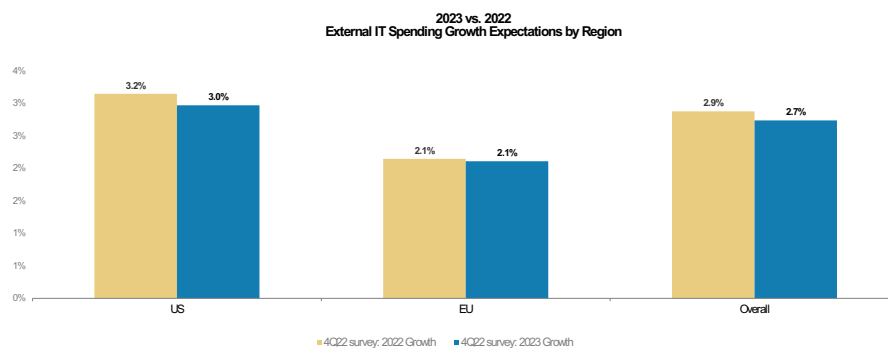
What is the estimated percentage growth for the external IT spending portion of your IT budget for the full year 2022 (vs. 2021)? What is the estimated percentage growth for the external IT spending portion of your IT budget for 2023 vs. 2022?

**Exhibit 3:** 2022 External IT spending growth expectations by region



Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data).

**Exhibit 4:** 2023 vs 2022 external IT spending growth expectations by region

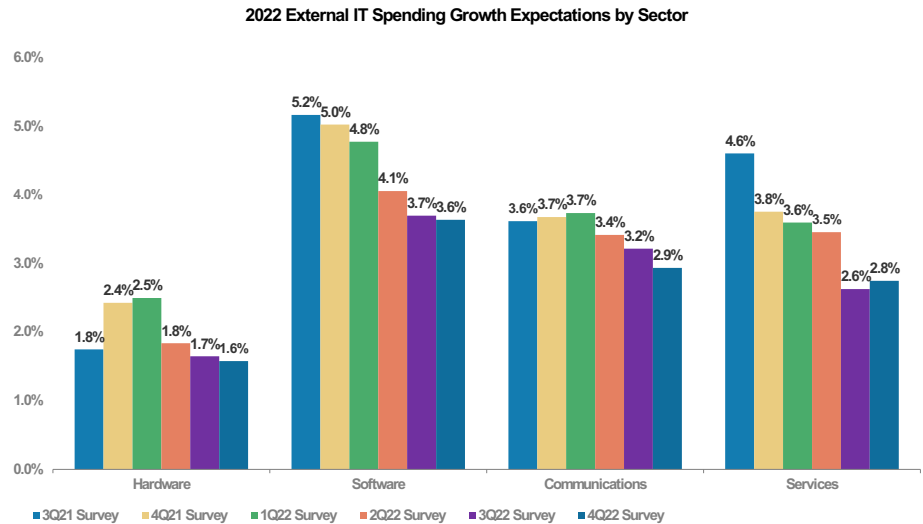


Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data).

- 2022 EU CIO IT budget growth expectations decreased this quarter, going from c. 2.7% in 3Q22 to c. 2.1% in 4Q22, while US growth expectations increased q/q, from c. 3.1% to c. 3.2% in 4Q22.
- Turning to 2023, growth expectations are slightly lower in the US (at c. 3.0%) vs. 2022, while the EU IT budgets are expected to grow in-line with 2022 (at c. 2.1%). 2023 US growth expectations were unchanged in 4Q22 vs. 3Q22, while EU growth expectations were revised down c. 30bps q/q.

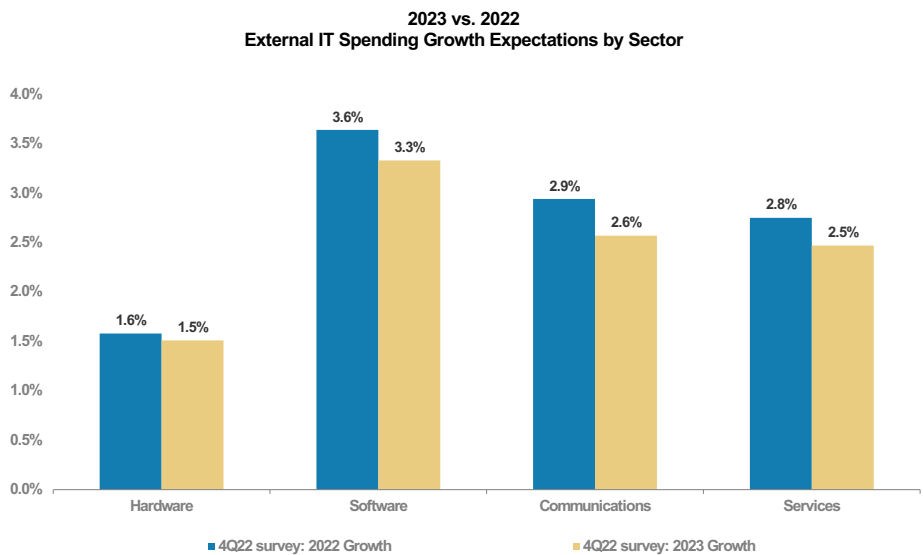
## 2023 IT Spending Growth Expected To Decelerate Across All Sectors Vs. 2022; Software remains the highest growth sector

**Exhibit 5:** 2022 external IT spending growth expectations by sector



Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data)

**Exhibit 6:** 2022 and 2023 spending growth expectations by sector



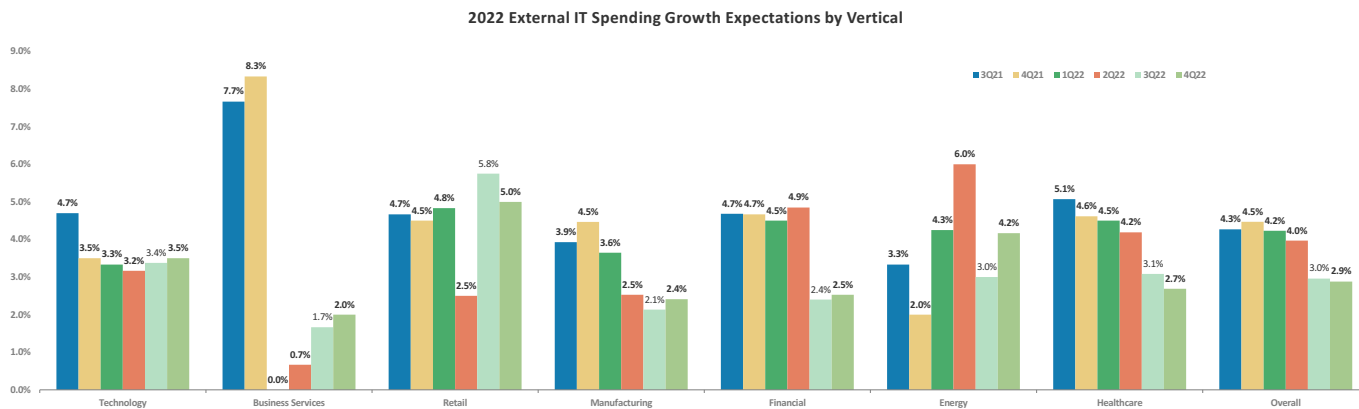
Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data)

- In 2023 CIOs expect spending growth to decelerate across all sectors vs. 2022. Software remains the fastest growing sector at 3.3% (vs. 3.6% in 2022), followed by Communications at 2.6% (vs. 2.9%), Services at 2.5% (vs. 2.8%), and Hardware 1.5% (vs. 1.6%).
- 2023 growth expectations were up vs. 3Q22 in both Software (3.3% vs. 3.1% in 3Q22) and Services (2.5% vs. 2.2%). Whereas Communications was down (2.6% vs. 2.8%) and Hardware was unchanged (at c. 1.5%).

- Similarly, 2022 growth expectations ticked lower across all sectors this quarter, except services. Software growth expectations came in at 3.6% (vs. 3.7% in 3Q22), communications at 2.9% (vs. 3.2%), and hardware at 1.6% (vs. 1.7%). Services growth expectations came in higher in 4Q22 at c. 2.8% (vs. 2.6%).

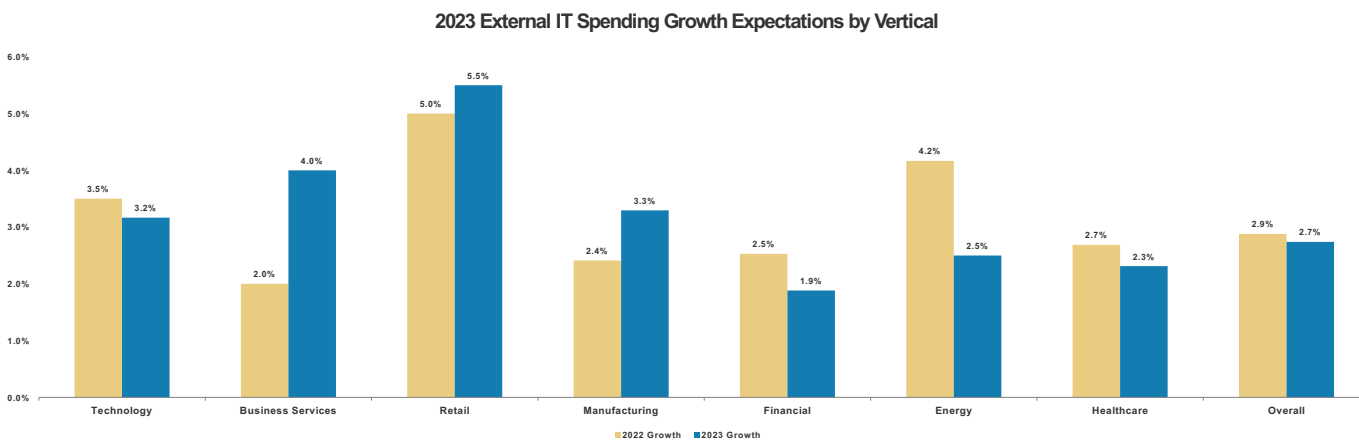
## 2023 IT spend growth expectations to accelerate vs. 2022 in Business Services, Manufacturing, and Retail segments

**Exhibit 7:** 2022 external IT spending growth by vertical



Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data)

**Exhibit 8:** 2023 vs 2022: external IT spending by vertical

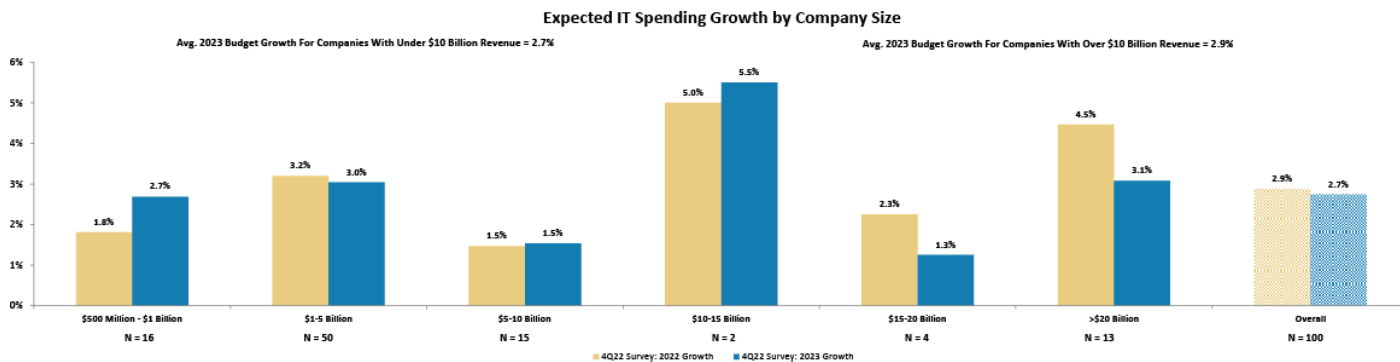


Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data)

- Looking at 2023 IT budgets, Retail remains the highest growth vertical at c. 5.5% (vs. c. 4.8% in 3Q22), followed by Business Services (4.0% vs. 2.7%), and Manufacturing (3.3% vs. 2.3%). Versus 2022, our surveyed CIOs expect spending growth to accelerate in Business Services (by c. 200bps), Manufacturing (c. 90bps), and Retail (c.50bps). Growth in Energy, Financial, Healthcare, and Technology are all expected to decelerate in 2023 vs. 2022 (by ~170, 60bps, 40bps and 30bps, respectively).

## IT Spending Growth Expectations similar between Smaller Companies Vs. Larger Companies In 2023

**Exhibit 9:** Expected IT spending growth by company size



Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data)

- For 2023, our survey suggests similar expected growth across companies with both under and over \$10 billion in revenues (2.7% and 2.9%, respectively). However, for 2022, our survey suggests a higher expected average IT budget growth rate amongst companies with under \$10bn in revenue at 2.6% vs. those with over \$10bn in revenue at 2.2%.



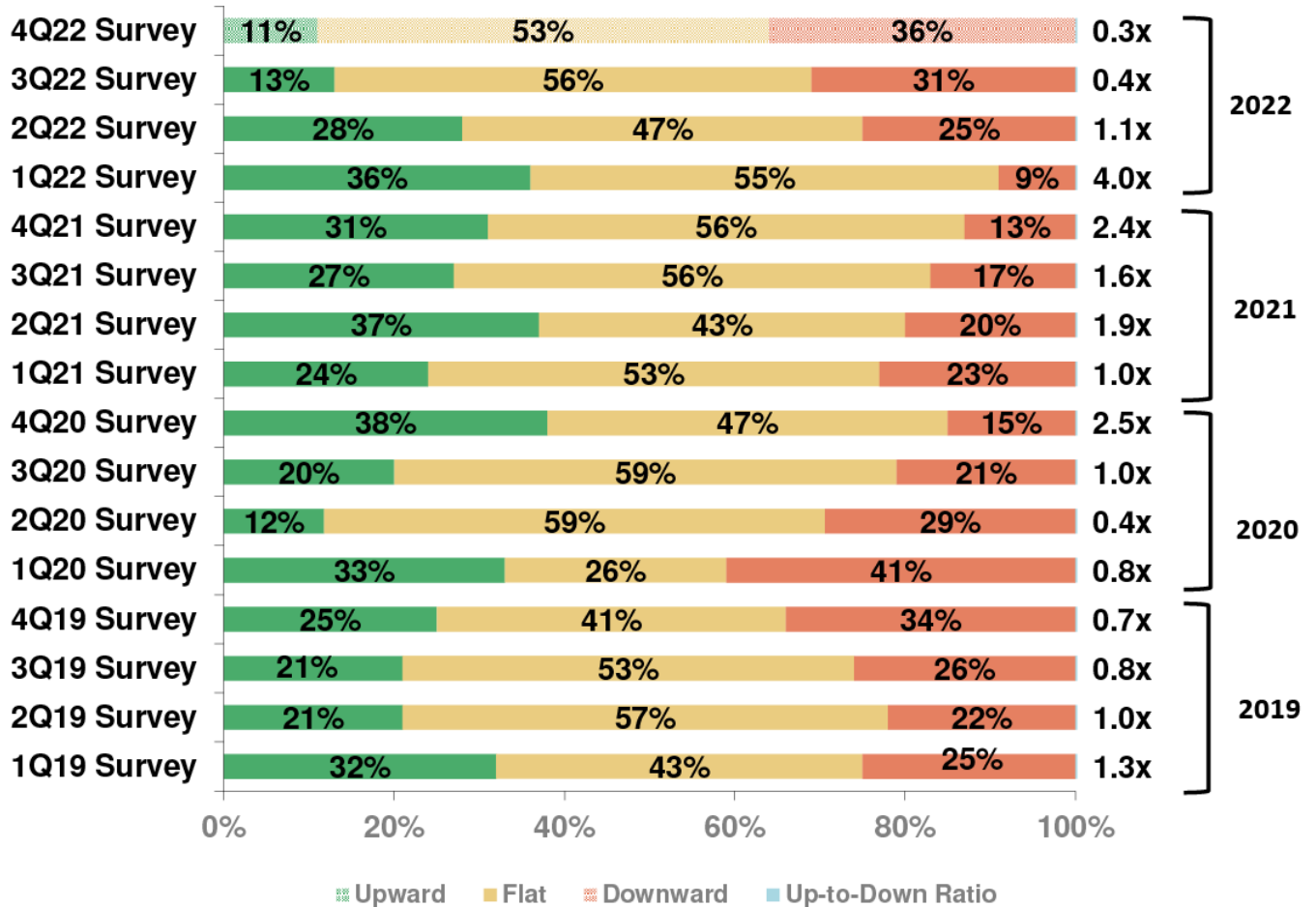
## 2023 IT budget revisions up-to-down ratio falls to lowest levels since 3Q16

What are your expectations regarding potential future revisions to your current 2023 IT budget plans?

Exhibit 10: Expectations of potential IT budget revisions

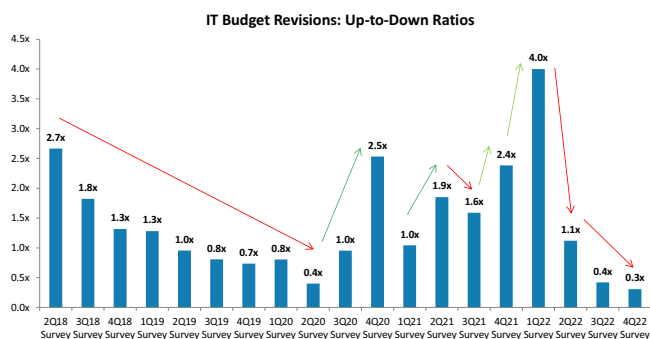
### Expectations of Potential IT Budget Revisions

Up-to-Down Ratio



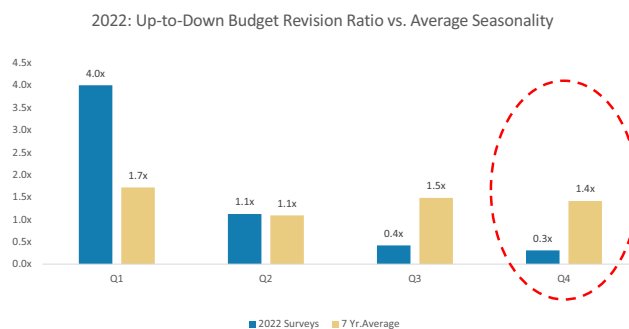
Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data)

**Exhibit 11: IT budget revisions: up-to-down ratios**



Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data)

**Exhibit 12: Up-to-down budget revision ratio vs average seasonality**



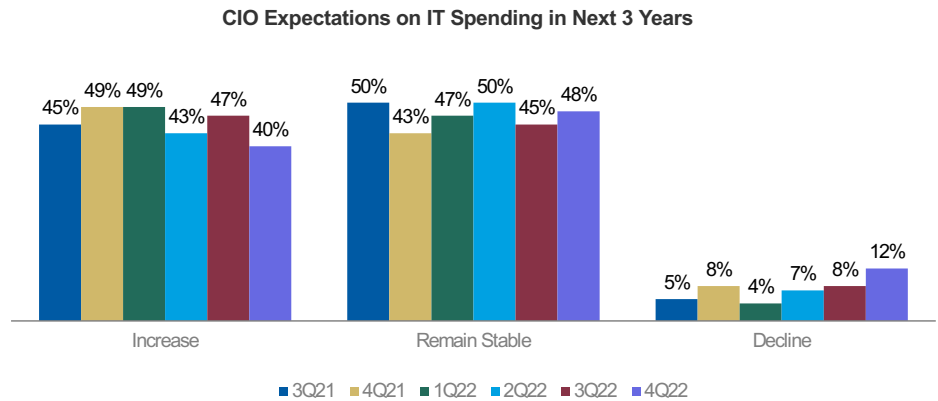
Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data)

- CIO revision expectations ticked down further again this quarter, with the one-year up-to-down IT budget revision ratio falling to 0.3x (down from 0.4x in 3Q22, 1.1x in 2Q22 and 4.0x in 1Q22). This is below the COVID-19 pandemic-era low recorded in 2Q20 (0.4x). This means that more CIOs (36% of those surveyed) expect to revise their 2023 IT budgets lower than those who expect them to increase (only 11%).
- This quarter's read of 0.3x is significantly below the 7-year Q4 average of 1.4x.

## Further decline in the LT spending up-to-down ratio suggests a weakening in the longer-term IT spending outlook

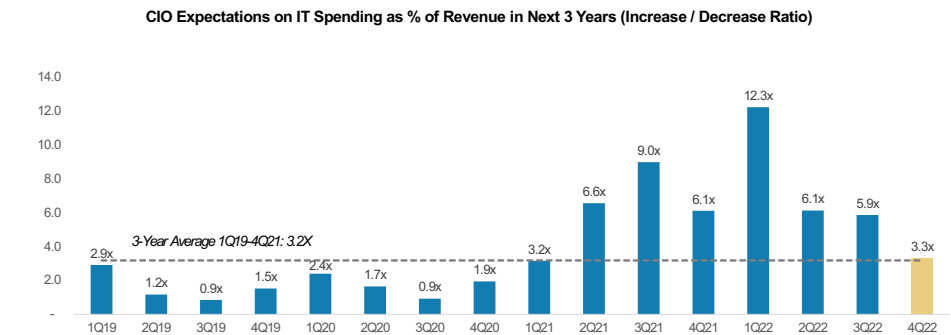
Over the next three years, how do you expect IT spending as a % of total revenues to change within your organisation?

**Exhibit 13:** CIO expectations on IT spending in next 3 years



AlphaWise, Morgan Stanley Research. n=100 (US and EU data).

**Exhibit 14:** CIO expectations on IT spending in next 3 years up-to-down ratio



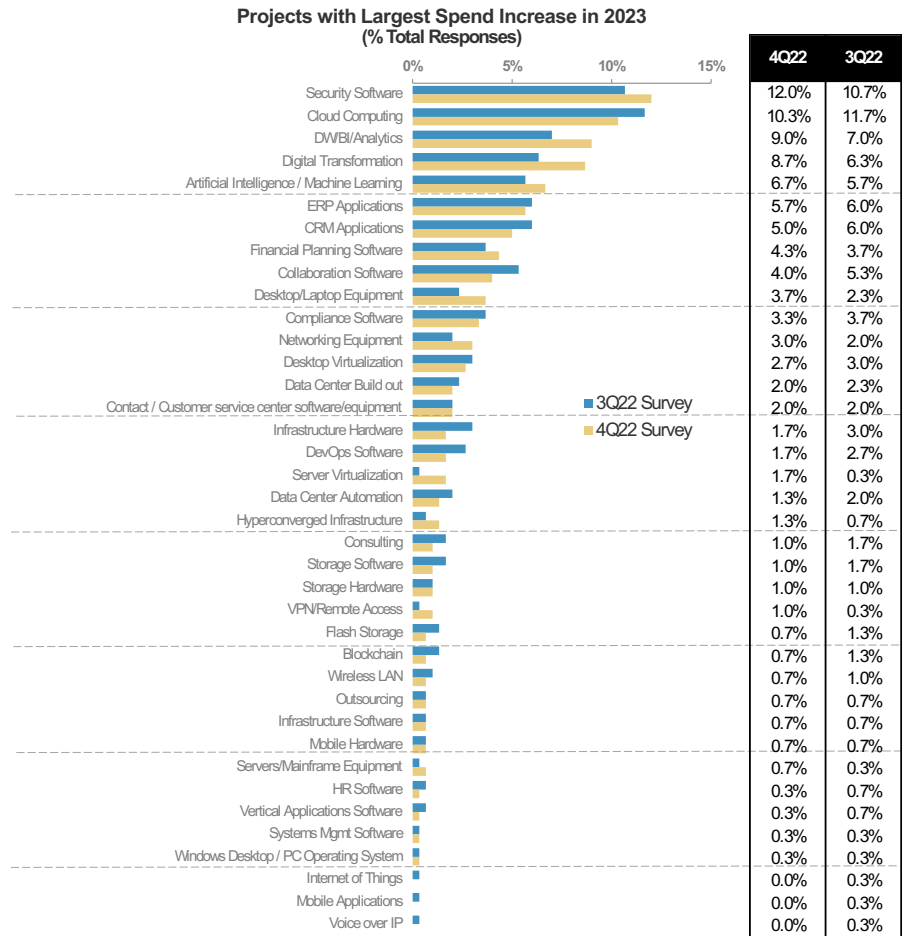
Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data).

- This quarter we observed a significant weakening in the long-term (LT) CIO IT spending growth expectation. The % of CIOs expecting budget to increase (as a % of total revenue) over the next 3 years declined to c. 40% (vs. 47% in 3Q22). Furthermore, the % of CIOs expecting budgets to decline over the next 3 years increased to c. 12% (from 8% in 3Q22).
- This means that the LT up-to-down ratio has decreased again this quarter, almost halving to c. 3.3x (from c. 5.9x as of 3Q22). This indicates a potential weakening in the IT spending environment longer term.
- However, despite the significant moderation in the LT up-to-down ratio, we note that it remains broadly in-line with the 3-year average (1Q19-4Q21) of c. 3.2x.

## Security Software, Cloud Computing and DW/BI/Analytics projects remain top of the priority list this quarter

Which three External IT Spending projects will see the largest percentage increase in spending in 2023?

**Exhibit 15: Projects with largest spend increase in 2023 (% total responses)**



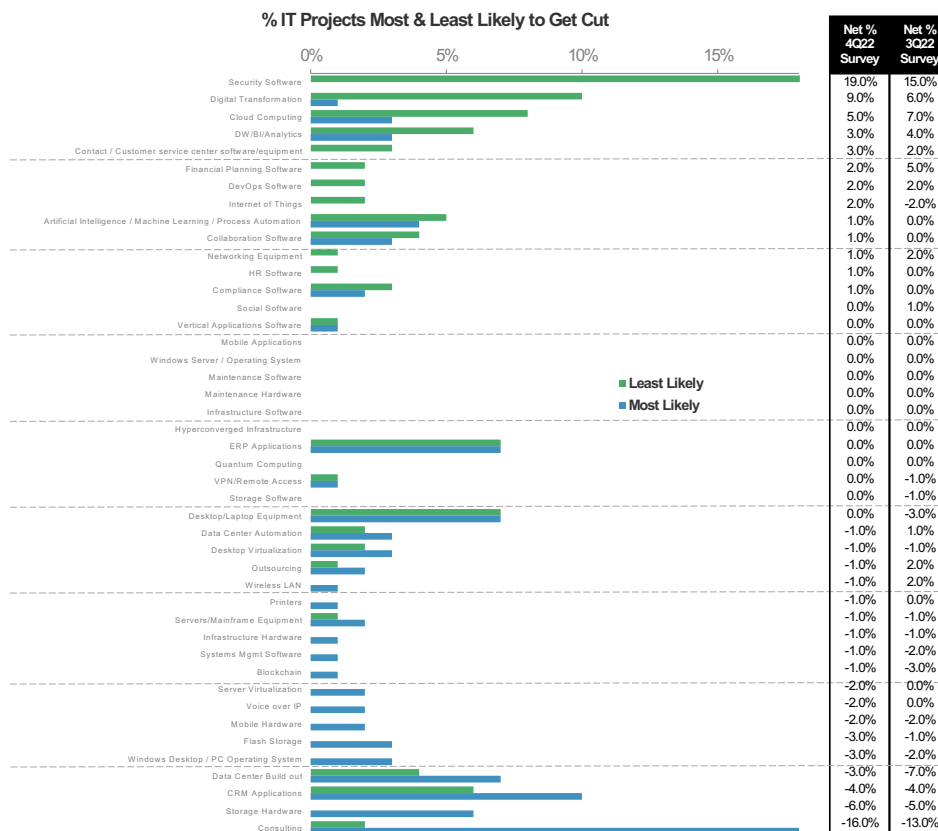
Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data).

- The top 2023 CIO priorities in 4Q22 are 1) Security Software (12.0%), 2) Cloud Computing (10.3%), 3) DW/BI/Analytics (9.0%), 4) Digital Transformation (8.7%), 5) AI/ML/PA (6.7%); these results are largely in line with our 3Q22 survey (although AI/ML/PA replaced CRM Applications).
- We see demand in these areas as a positive for companies exposed to these areas, such as Capgemini, Dassault Systemes, and SAP (Cloud Computing/Digital Transformation) as well as Exclusive Networks and Darktrace (Security Software).
- Digital Transformation (+2.3pts) and DW/BI/Analytics (+2.0pts) saw the largest quarterly increase in spending expectations, whereas Cloud Computing, Collaboration Software, and Infrastructure Hardware declined the most quarter on quarter (with all down ~1.3pts).

## Security software, digital transformation and cloud computing projects also top the list of most defensive projects

*If the economy worsens significantly in 2023, what spending project is most likely to get cut? What spending project is least likely to get cut?*

**Exhibit 16: IT projects least and most likely to be cut in case of an economic downturn**



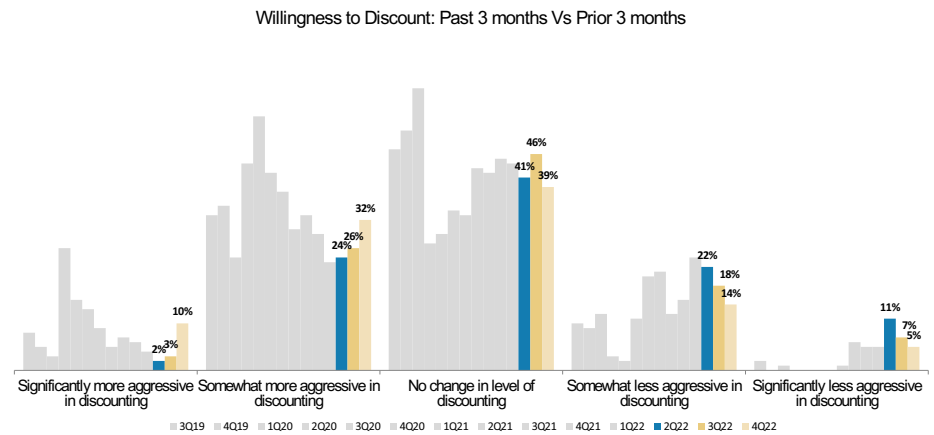
Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data). Note: Projects are ranked based on the percentage of CIOs indicating the project is most likely to be cut, adjusted for the percentage of CIOs indicating the project is least likely to get cut.

- According to our surveyed CIOs, the top 5 most defensive areas of IT spending are 1) Security Software (19.0%), 2) Digital Transformation (9.0%), 3) Cloud Computing (5.0%), 4) DW/BI/Analytics (3.0%), and 5) Contact/Customer service centre software/equipment (3.0%); this is largely in-line with top priorities except for Contact/Customer service centre software/equipment.
- The least defensive areas are in Consulting (-16.0%), Storage Hardware (-6.0%), CRM Applications (-4.0%), Data Centre Build Out (-3.0%) and Windows Desktop / PC Operating Systems (-3.0%).

## Technology vendors offering more aggressive discounts vs. previous quarter

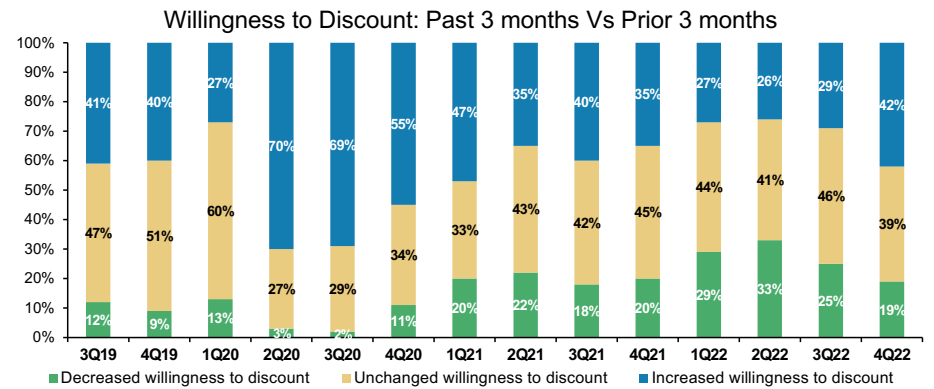
How do you perceive technology vendors' willingness to discount in the past three months versus prior three months (i.e. in 4Q22 versus 3Q22)?

**Exhibit 17:** Technology vendors' willingness to provide discount vs prior 3 months



Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data).

**Exhibit 18:** Technology vendors' willingness to provide discount vs prior 3 months (aggregated categories)



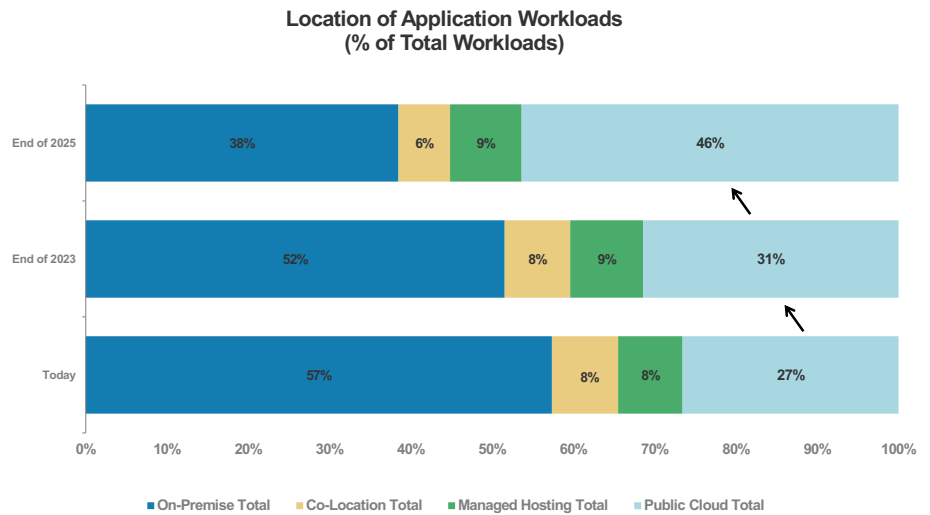
Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data).

- Our CIO survey data indicated vendors' willingness to discount has increased vs. 3Q22. 42% of CIOs say vendors are now more inclined to discount (up from 29% in 3Q22), while only 19% say vendors are less inclined to discount (down from 25%).

## Current percentage of workloads in public cloud stands at 27%, Microsoft continues to be the leader in hybrid cloud

What percentage of your application workloads reside in each of the following seven areas today? What percentage do you expect to reside in each of these seven areas by the end of 2023 and 20245

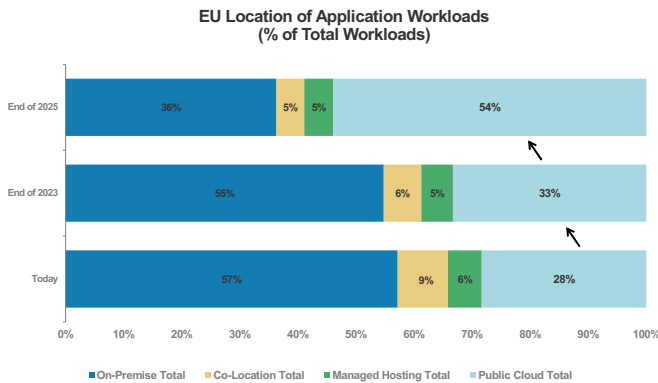
**Exhibit 19:** Location of application workloads (% of total workloads)



Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data).

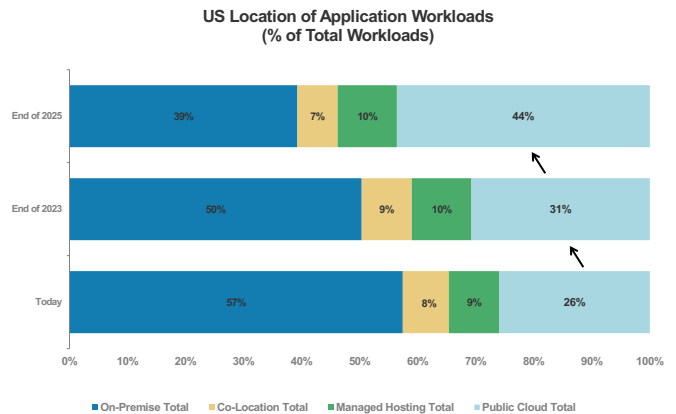
- The percentage of current workloads in the public cloud is at 27% (vs. 28% 2Q22). CIOs estimate that the share of workloads hosted on public cloud will increase to 31% by the end of 2023 and 46% by the end of 2025 (in-line with 2Q22). On-premise workloads are currently at 57%, which are set to decline to 52% by the end of 2023 and 38% by the end of 2025.

**Exhibit 20:** Location of EU application workloads (% of total workloads)



Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data).

**Exhibit 21:** Location of US application workloads (% of total workloads)

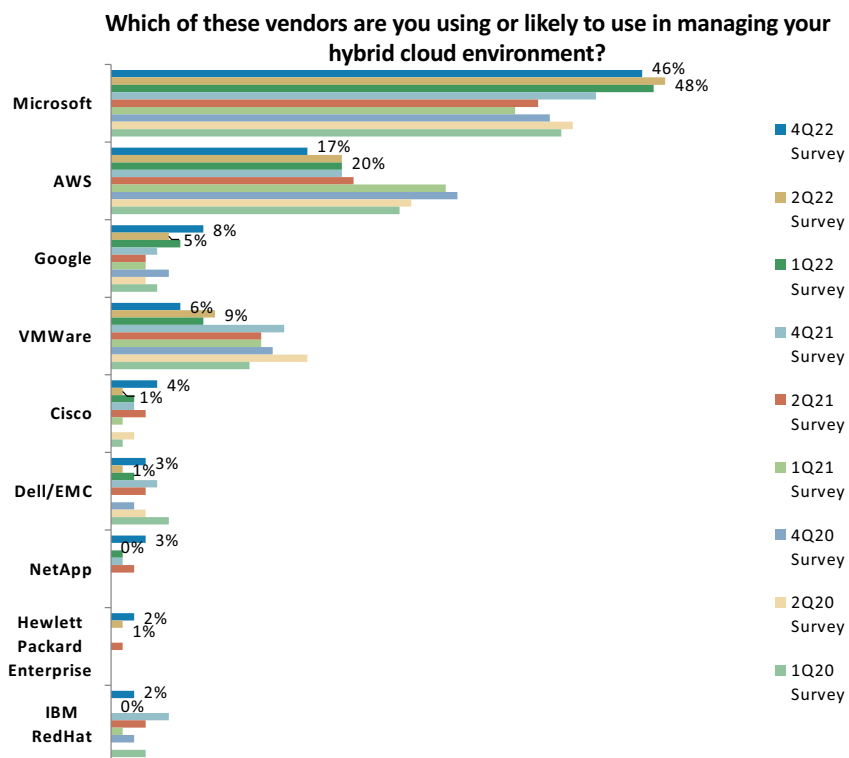


Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data).

- Our survey suggests that distribution of application workloads is broadly similar in the EU and the US, with the EU slightly ahead on public cloud adoption at 28% vs. 26%, respectively. By the end of 2023, 33% of workloads in the EU are expected to

be running on public cloud vs. 31% in the US. By 2025, 54% of workloads in the EU are expected to be running on public cloud vs. 44% in the US.

**Exhibit 22:** Hybrid cloud vendors



Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data).

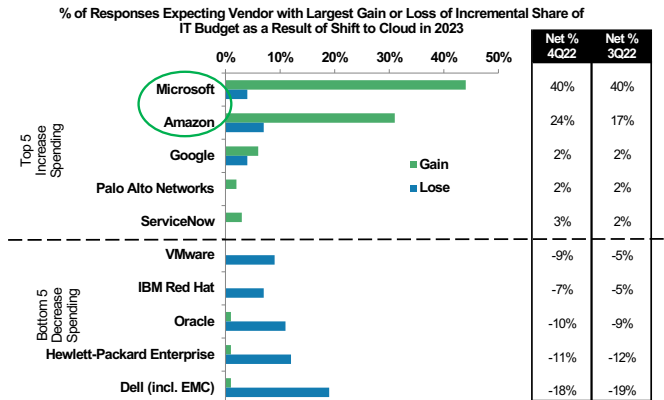
- The top 3 vendors most likely to be used for managing hybrid cloud environments are Microsoft (46% vs. 48% in 2Q22) followed by AWS (17% vs. 20% 2Q22) and Google (8% vs. 5% in 2Q22).



## Microsoft (#1) and Amazon (#2) remain greatest beneficiaries from increased spend on shift to cloud

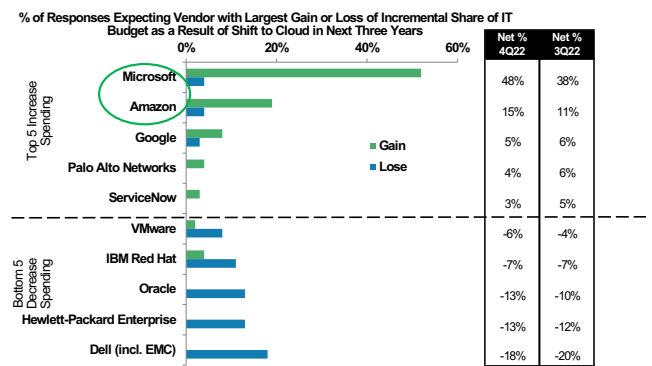
*As you shift workloads from on-premise to the cloud, which of these vendors are you using or likely to use in managing your hybrid cloud environment?*

**Exhibit 23:** % of responses expecting vendor with largest gain or loss of incremental share of IT budget as a result of shift to cloud in 2023 or 2021



Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data)

**Exhibit 24:** % of responses expecting vendor with largest gain or loss of incremental share of IT budget as a result of shift to cloud in next 3 years



Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data)

- Consistent with previous surveys, Microsoft (#1) and Amazon (#2) are expected to be the top net wallet share gainers from the increased spend on the shift to cloud both in 2023 and on a 3-year view. Google and Palo Alto Networks are expected to be the joint #3 beneficiaries from the shift to cloud in 2023.
- Dell and Hewlett-Packard Enterprise are expected to see greatest share loss from the shift to cloud both in 2023 and in 3 years.

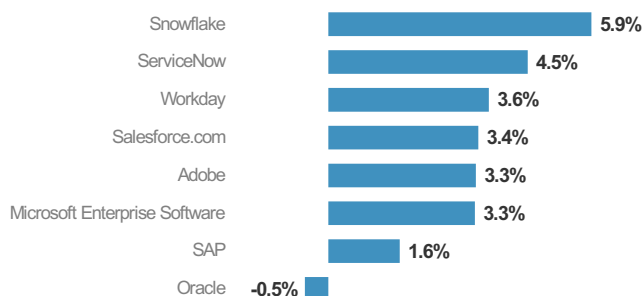
## Software Key Takeaways

CIOs expect to grow their spend with SAP 1.6% on average in 2023, down slightly vs. 2022 expectations

*How do you expect your spending for new software functionality or additional users/seats to change in 2023 versus 2022 for the following vendors?*

**Exhibit 25:** Average growth expectations of new functionality/seats in 2023 by vendor

Average Growth Expectations of New Functionality/ Seats in 2023



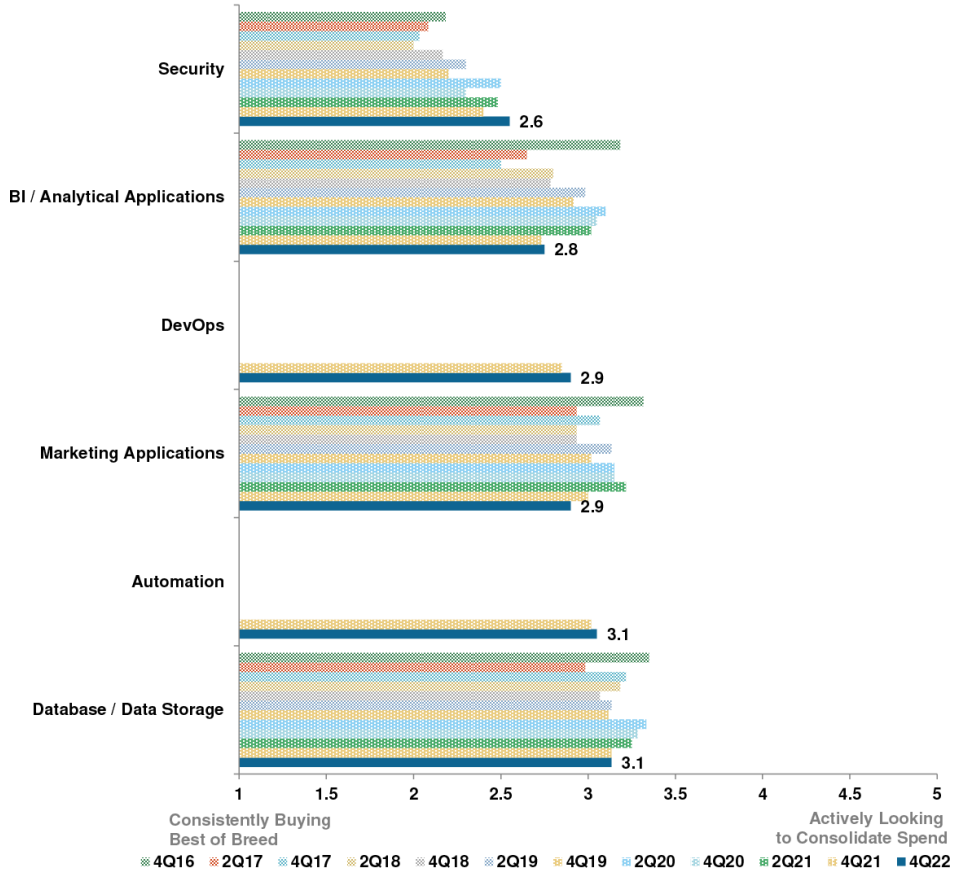
Source: AlphaWise, Morgan Stanley Research, n=60 (US and EU data)

- Spending growth expectations were mixed this quarter, with some vendors set to benefit from increased spend in 2023 and some seeing average growth expectations decrease. Snowflake will likely see the most bullish growth outlook (5.9% vs. 7.4% in 2Q22) followed by ServiceNow (4.5% vs. 3.5%), Workday (3.6% vs. 4.4%), Salesforce (3.4% vs. 3.3%), Adobe (3.3% vs. 2.0%), Microsoft Enterprise Software (3.3% vs. 5.7%), SAP (1.6% vs. 2.3%), and Oracle (-0.5% vs. -1.9%).

## CIOs continue to expect to move towards consolidating vendor spend over the next 3 years

Are you attempting to consolidate the number of vendors you utilize for the following software categories today?

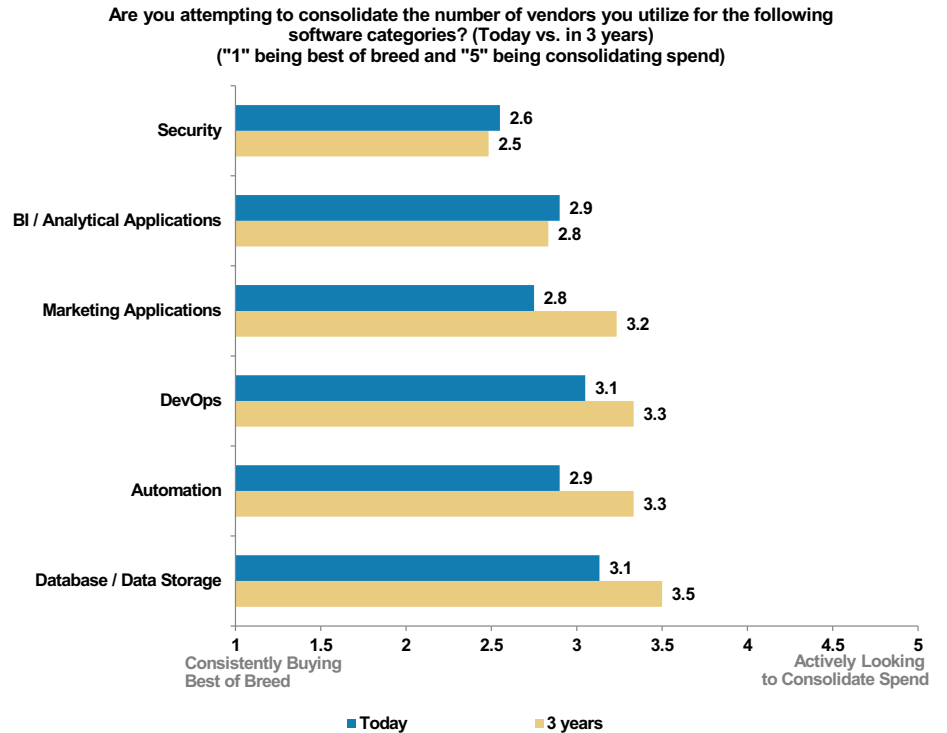
**Exhibit 26: Strategy used in the selection of vendors by software category today**  
**Are you attempting to consolidate the number of vendors you utilize for the following software categories today?**  
 ("1" being best of breed and "5" being consolidating spend)



Source: AlphaWise, Morgan Stanley Research, n=60(US and EU data)

Are you attempting to consolidate the number of vendors you utilize for the following software categories in 3 years?

**Exhibit 27:** Strategy used in the selection of vendors by software category today vs. in 3 years' time



Source: AlphaWise, Morgan Stanley Research, n=60 (US and EU data)

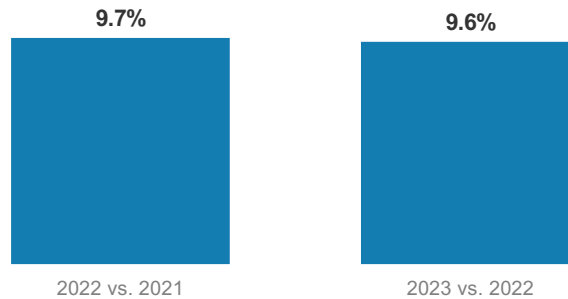
- Similar to what we observed in previous surveys, CIOs remain largely neutral in their preference between buying best-of-breed vendors vs. consolidating vendors today (total mean score c. 2.9 this quarter vs. 2.9 in 2Q22).
- On a 3-year view, our survey indicates a gradual shift in strategy away from buying best-of-breed solutions and towards consolidating vendor spend across all software categories, with the exception of Security software and BI / Analytical Applications, which show a slight preference for buying best-of-breed. The total mean score on a 3-year view is c. 3.1 vs. c. 2.9 today.

## Security Software spending growth in 2023 expected to be broadly in-line with 2022

By what percentages will your External IT spending change for your overall Security Software in 2022 vs. 2021? What is the expected change in 2023 vs. 2022?

**Exhibit 28:** Average change in Security Software spending

Average Change in Spending

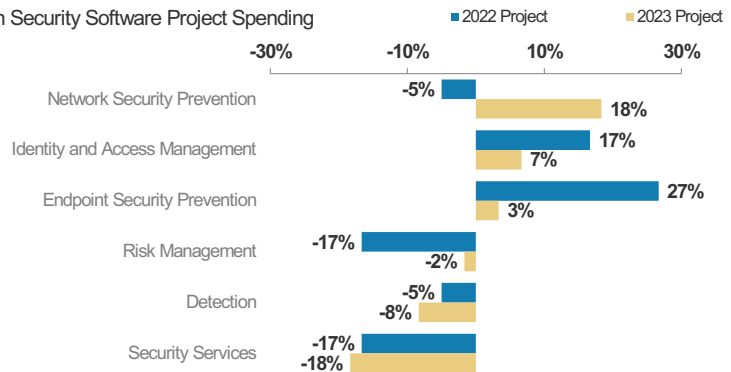


Source: AlphaWise, Morgan Stanley Research, n=60 (US and EU data)

Which Security Software project will see the largest percentage increase in spending in 2022 and 2023?

**Exhibit 29:** Net change in Security Software project spending

Net Change in Security Software Project Spending



Source: AlphaWise, Morgan Stanley Research, n=60 (US and EU data)

- Growth in overall security spending in 2022 (vs. 2021) was 9.7%, which is c. 300bps higher than expectations set in our 4Q21 survey (9.4%). Looking to 2023, our surveyed CIOs expect overall security spending growth to be broadly in-line with 2022 at c. 9.6%.
- Endpoint Security Prevention led the biggest increase in spend in 2022 as rated by a net 27% of CIOs, followed by Identity and Access Management (17%). All other projects saw a net decrease in spending in 2022, with Risk Management and Security Services showing the greatest net decrease, with both down -17%.
- In 2023, Network Security Prevention is expected to see the largest net increase in spending at 18%, followed by Identity and Access Management (7%), and Endpoint Security Prevention (3%). All other categories are expected to see a net decrease in spending.

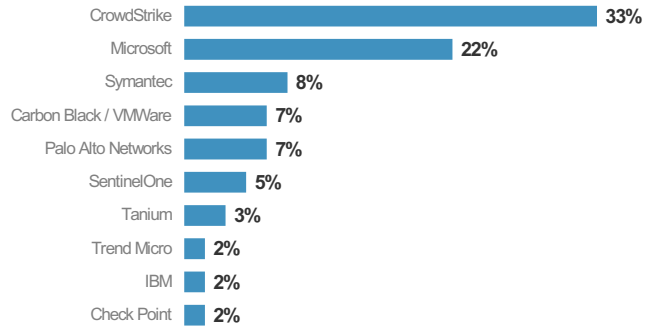
- We view these trends as a clear positive for **Exclusive Networks**, given its outsized exposure to networking.

## Cloud migration is expected to drive a net increase in security software spending

What endpoint security vendor do you expect will garner the most incremental spending in 2023?

**Exhibit 30:** Vendors gaining most incremental spending in 2023

Vendor with Most Incremental Dollars in 2023



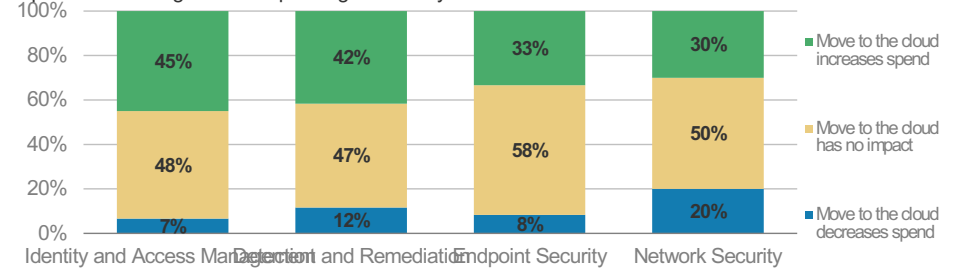
Source: AlphaWise, Morgan Stanley Research, n=60 (US and EU data)

- CrowdStrike is expected to overtake Microsoft as the endpoint security vendor with the highest incremental spend in 2023, as indicated by 33% of CIOs (up from 22% in 4Q21), vs. 22% for Microsoft (down from 27% in 4Q21).

As workloads shift to the public cloud environment (Infrastructure as a Service, Platform as a Service, Software as a Service), what will be the most likely impact on spend within security software?

**Exhibit 31:** Impact of cloud migration on security software spending

Impact of Cloud Migration on Spending of Security Software



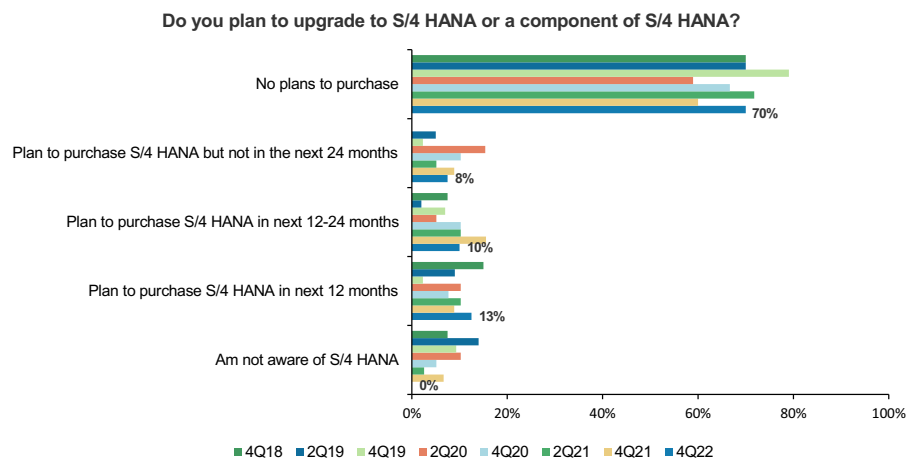
Source: AlphaWise, Morgan Stanley Research, n=60 (US and EU data)

- The impact of cloud migration is expected to drive a net increase in security software spending across all categories listed above. The net spending intentions of security products increased vs. 4Q21 across all categories; Identity and Access Management (38% vs. 35% in 4Q21), Detection and Remediation (30% vs. 25%), Endpoint Security (25% vs. 17%), and Network Security (10% vs. 5%).
- We view this general trend of increasing security spend as workloads shift to the cloud as broadly positive for our European cyber-security coverage, including **Darktrace** and **Exclusive Networks**.

## 30% of existing SAP customers surveyed plan to upgrade to S/4 HANA or a component of S/4 HANA, in-line with prior surveys

*Do you plan to upgrade to S/4 HANA or a component of S/4 HANA (e.g. Simple Finance)?*

**Exhibit 32:** Plan on S/4 HANA upgrade as % of current SAP customers



Source: AlphaWise, Morgan Stanley Research, n=60 (US and EU data)

- Of the CIOs surveyed who are existing SAP customers, 30% plan to purchase S/4 HANA (or a component of S/4 HANA), vs. 26% in our 2Q22 survey and 33% in our 4Q21 survey. Of those who plan to purchase S/4 HANA, c. 13% intend to do so within the next 12 months, while c. 10% intend to do so within the next 12-24 months. The ~30% level is consistent with surveys conducted over the past two years.
- *Note: of the 60 CIOs surveyed, 20 were not SAP customers and thus these percentages are only representative of the remaining 40 respondents.*

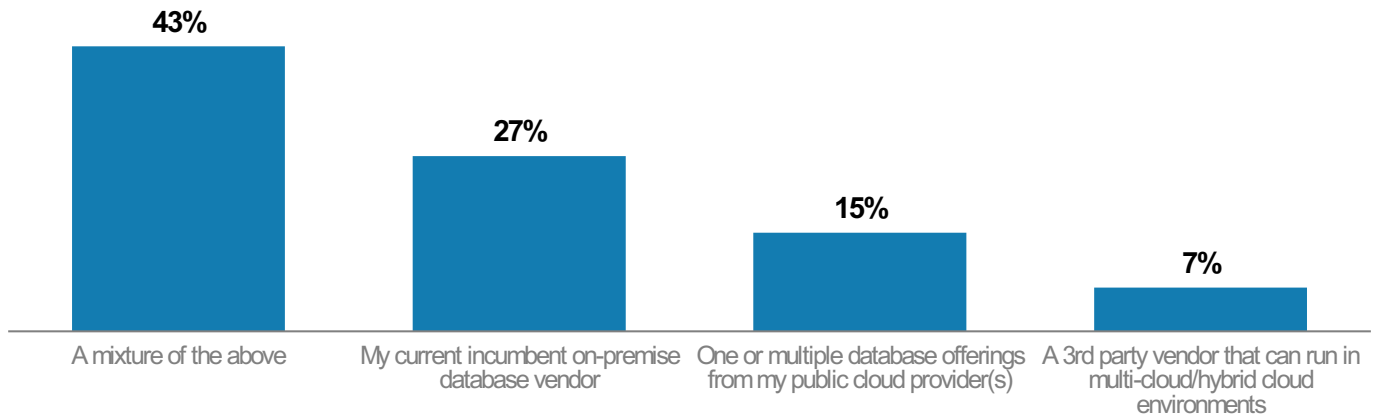


## As workloads shift to the cloud, CIOs expect to use a mixture of on-prem and public cloud database vendors

*As more of your workloads and data move to the public cloud, the database vendors you are more likely to use will be...?*

**Exhibit 33:** Database vendors used as workloads shift to the cloud

### Database Vendors Likely to be Used



Source: AlphaWise, Morgan Stanley Research, n=60 (US and EU data)

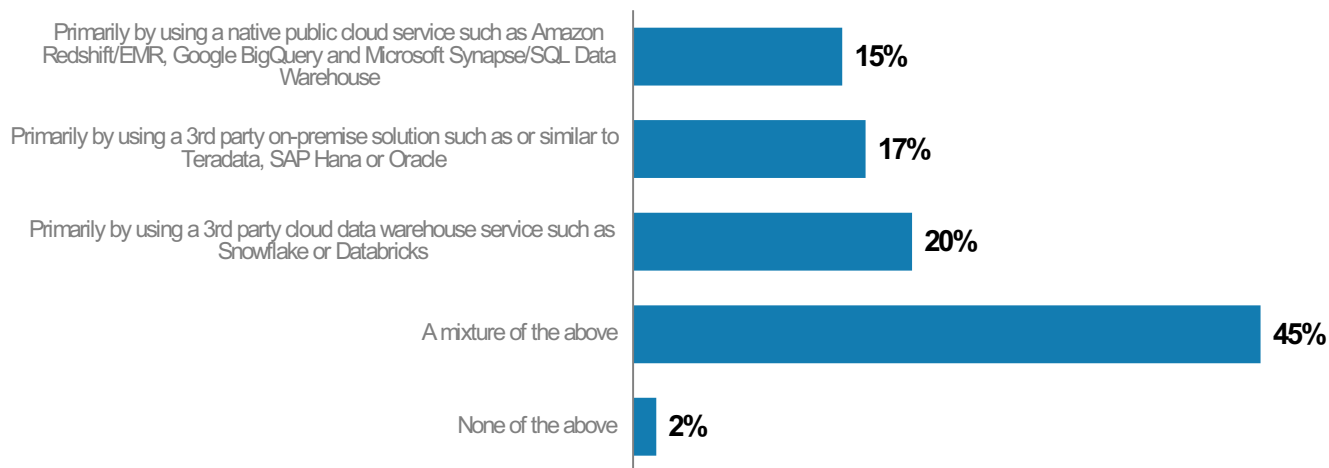
- As workloads shift to public cloud, more of our surveyed CIOs (43%) suggested that they were most likely to use a mixture of database providers (3rd party hybrid cloud, current on-prem vendor, offerings from public cloud providers).

## CIOs are increasingly interested in utilising 3rd party cloud data warehouse services such as Snowflake or Databricks

*How are you currently meeting your Analytics/Data Warehousing needs?*

**Exhibit 34:** How respondents are currently meeting their analytics/data warehousing needs

### Meeting Current Analytics / Data Warehousing Needs



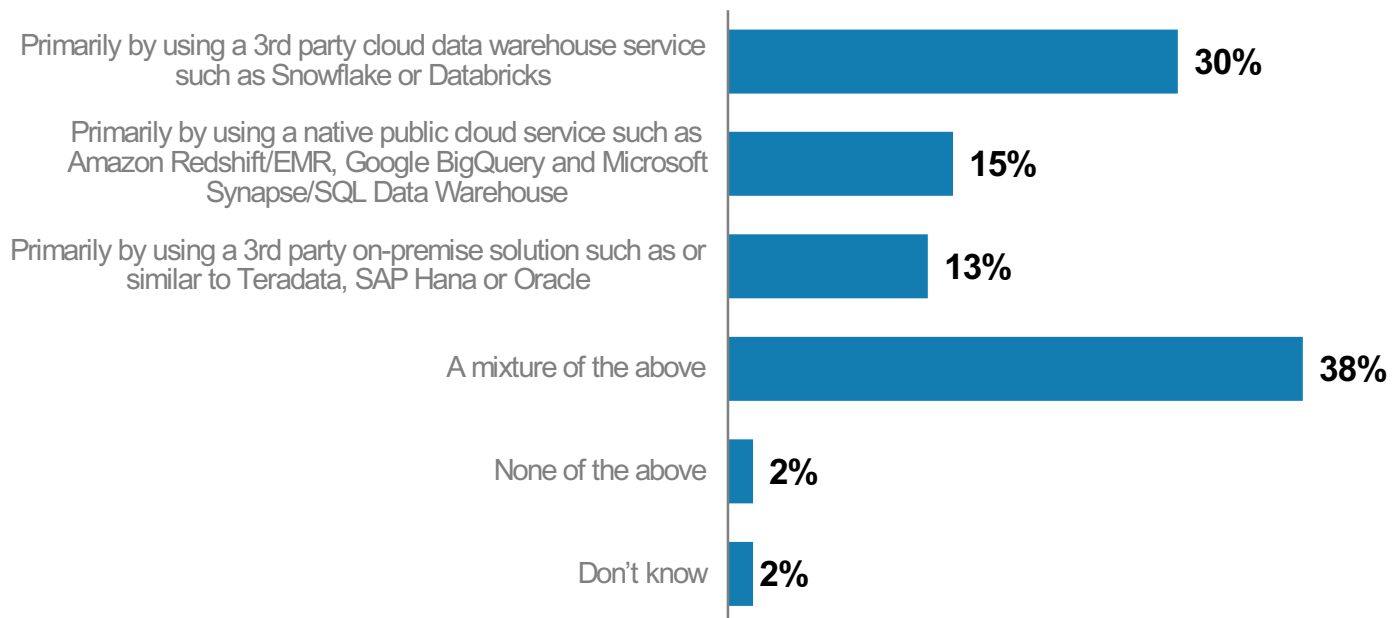
Source: AlphaWise, Morgan Stanley Research, n=60 (US and EU data)

- Current analytics/data warehousing needs are currently most likely being met by a mixture of vendors across a range of cloud environment (as indicated by 45% of CIOs). 17% of CIOs indicated that their current analytics/data warehousing needs were being met primarily by a 3rd party on-premises solution such as or similar to Teradata, **SAP HANA** or Oracle.

*How will you meet your Analytics/Data Warehousing needs 12 months from now?*

**Exhibit 35:** How respondents intend to meet their analytics/data warehousing needs in 12 months

## Meeting Future Analytics / Data Warehousing Needs



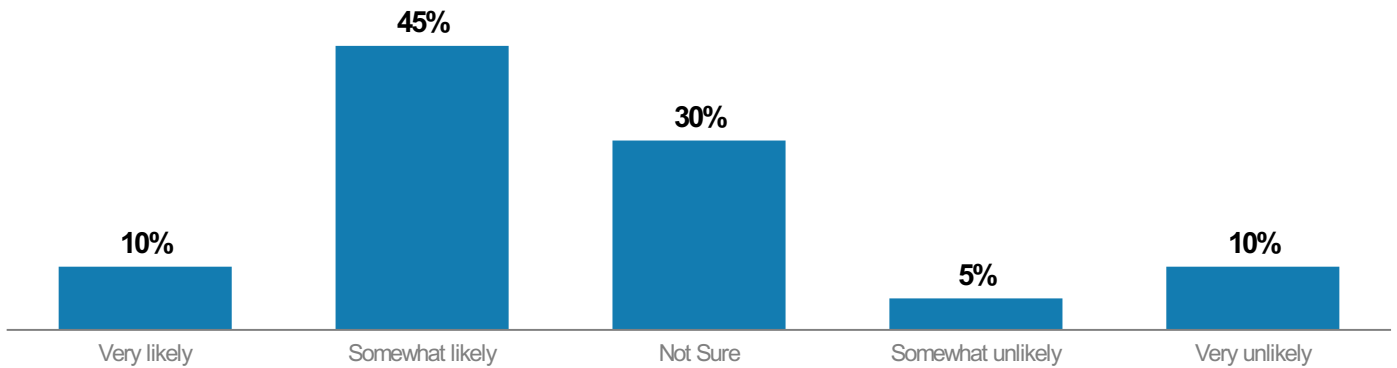
Source: AlphaWise, Morgan Stanley Research, n=60 (US and EU data)

- However, in 12 months' time, more CIOs (30%) indicate that they are likely to primarily utilise 3rd party cloud data warehouse services such as Snowflake or Databricks. 38% still intend to use a mixture of services, while 13% expect to use a 3rd party on-premises solution such as or similar to Teradata, **SAP HANA** or Oracle, which is below the 17% that currently use them today.

*How likely are you to use an Analytical Database/Data Warehousing provider for transactional or operational data if they provide the ability to handle both transactional operations and analytical operations?*

**Exhibit 36:** Likelihood of using an analytical database/data warehousing provider for transactional or operational data

Likelihood of Using Analytical Database / Data Warehousing Provider for Transactional / Operational Data



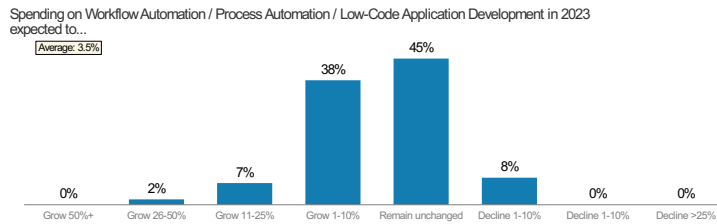
Source: AlphaWise, Morgan Stanley Research, n=60 (US and EU data)

- Overall, the interest in using an Analytics/DW provider for transactional/operational data slightly reduced to 55% from 62% in 4Q21.

## Robotic process automation spending expected to grow c. 3.5% on average in 2023 vs. 5.6% in our 4Q21 survey

*How do you expect your organization spending on Workflow Automation / Process Automation / Low-Code Application Development to change in 2023?*

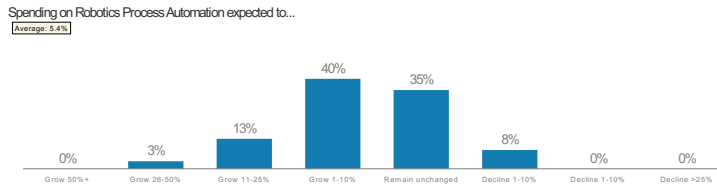
**Exhibit 37: Growth in Workflow Automation / Process Automation / Low-Code Application Development spend in 2023**



Source: AlphaWise, Morgan Stanley Research. n=60 (US and EU data).

*How do you expect your organization spending on Robotic Process Automation to grow in 2023?*

**Exhibit 38: Growth in RPA spend in 2023**

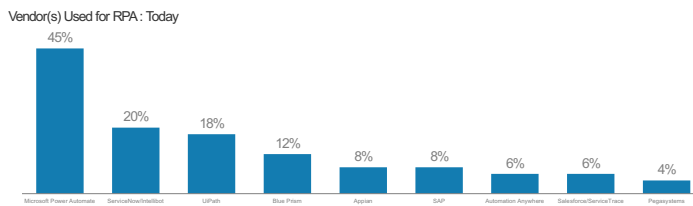


Source: AlphaWise, Morgan Stanley Research. n=60 (US and EU data).

- On average, CIOs expect the organization's spend next year to grow by 3.5% for Workflow Automation / Process Automation / Low-Code Application Development (vs. 5.6% in the 4Q21 survey) and 5.4% for RPA (in-line with 4Q21).

*Which of the following vendors do you use for Robotic Process Automation in your organization today?*

**Exhibit 39: RPA vendors used today**



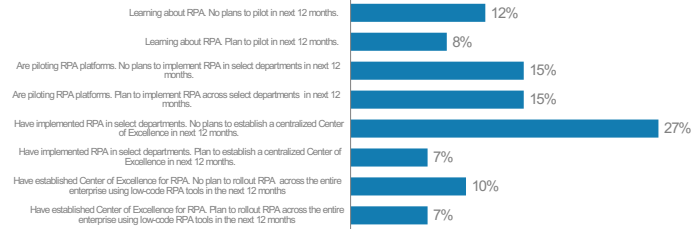
Source: AlphaWise, Morgan Stanley Research, n = 49

- The most commonly used RPA vendor today, according to our CIOs, is Microsoft Power Automate (45% of CIOs), followed by ServiceNow/Intellibot (20%), and UiPath (18%). 8% of CIOs used SAP for RPA (up from 3% in 4Q21).

Where are you in your current Robotic Process Automation (RPA) journey today? Where do you expect to be in 12 months?

**Exhibit 40: RPA journey: Today and in 12 months**

Expectation for Robotics Process Automation Journey: Today and in Next 12 Months



Source: AlphaWise, Morgan Stanley Research. n=60 (US and EU data)

- Corporate interest in RPA has increased significantly since our 4Q21 survey, with 38% of companies in our survey now piloting or planning to pilot RPA (vs. 15% in 4Q21).

Microsoft remains the clear vendor of choice for enterprise automation capabilities

What departments are currently using RPA in your organization?

**Exhibit 41: Departments currently using RPA**

Departments Currently Using RPA



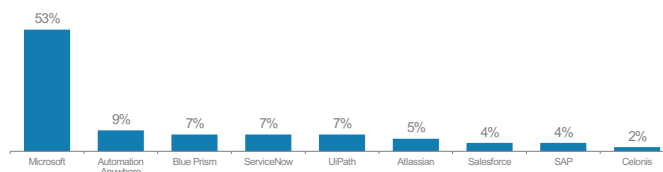
Source: AlphaWise, Morgan Stanley Research. n=60 (US and EU data).

- The most common departments currently utilising RPA are IT (37% vs. 30% in 4Q21), Operations (25% vs. 27%), and Accounting (22% vs. 12%).

*If you prefer to consume enterprise automation capabilities from a single vendor, which vendor(s) do you plan to standardize on?*

**Exhibit 42: Vendor of choice for enterprise automation capabilities**

Standardized Vendor Preference to Consume Enterprise Automation Capabilities



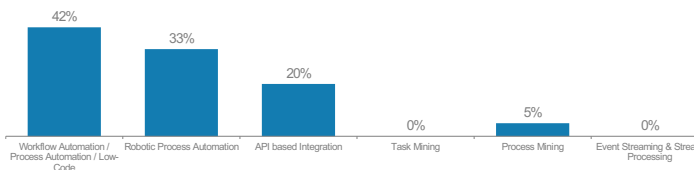
Source: AlphaWise, Morgan Stanley Research, n = 55

- More than half (53%) of our surveyed CIOs choose Microsoft as their single vendor of choice to standardise their enterprise automation capabilities. 4% choose SAP, in-line with our 4Q21 survey.

*In terms of driving your automation objectives, which capability of the enterprise automation suite contributes the most to your organization's automation goals?*

**Exhibit 43: Enterprise automation capability contributing the most to automation goals**

Enterprise Automation Capability Contributing the Most to Automation Goals



Source: AlphaWise, Morgan Stanley Research, n=60 (US and EU data)

- 42% of CIOs think Workflow Automation/Process Automation/Low-code contributes the most to their organisation's automation goals, up from 40% in 4Q21.

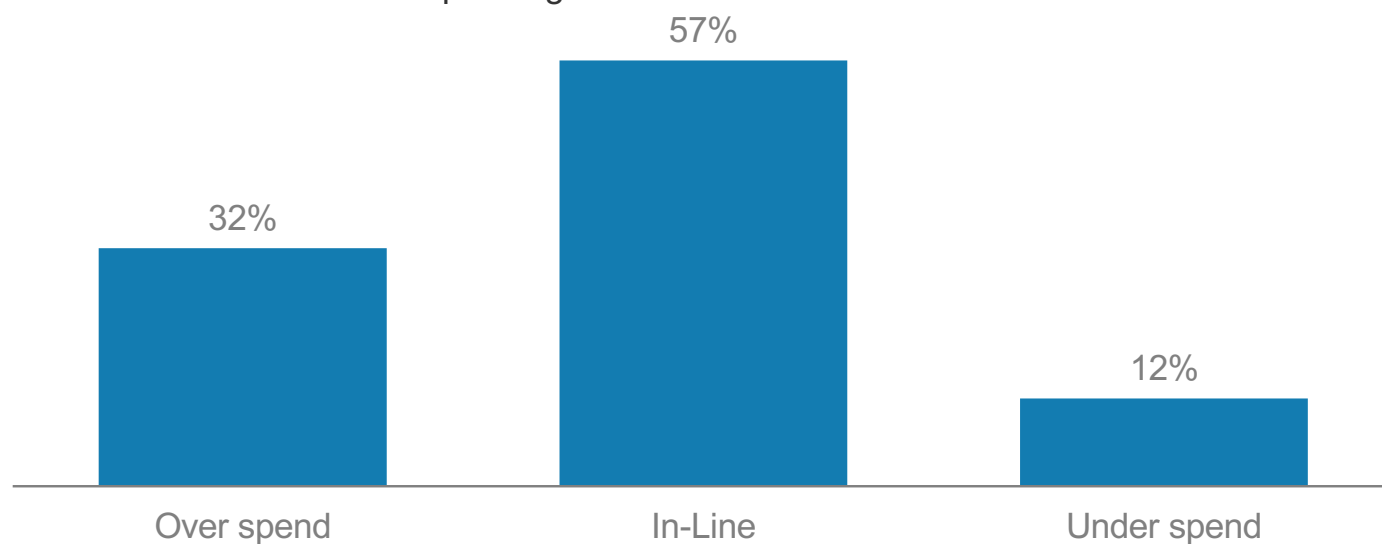
## IT Services Key Takeaways

### C. 57% Of CIOs Expect Their 2023 IT Services Budget To Be In-Line With The Amounts Spent In 2022

*Do you expect your professional IT services spending in 2023 to be in-line with the budget this year, or is your organization more likely to over or underspend vs. your 2022 IT services budget?*

**Exhibit 44:** 2023 vs 2022 IT Services: overspending vs underspending

#### 2023 vs. 2022 IT services Spending



Source: AlphaWise, Morgan Stanley Research; n=100 (US and EU data)

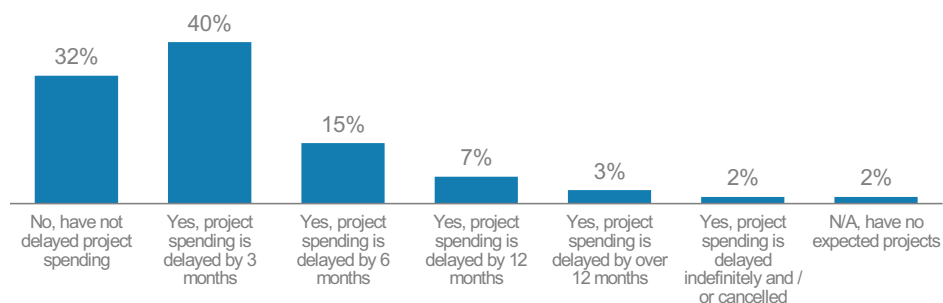
- After an uptrend in corporate sentiment around IT Services spending seen between 4Q20 and 2Q22, 2023 overspending expectations were down this survey vs. 2Q22, with 32% of surveyed CIOs expecting to overspend on IT Services in 2023. This is below the 37% level recorded in 2Q22; however, we note that this is still above the 25% recorded in 4Q21. Furthermore, the % of CIOs expecting to underspend on IT Services in 2023 decreased in 4Q22 vs. 2Q22, coming in at 12% vs. 15%, respectively.
- Together this meant that the *over-to-underspend* ratio increased to 2.7x in 4Q22, from 2.4x in our 2Q22 survey (and also above the 1.3x recorded in 4Q21).
- However, we would note that the majority (57%) of CIOs indicate that they expect 2023 spending of IT Services to be in-line with their budgets.
- We view this increase in the 2023 over-to-under spend ratio as a small positive for the professional IT Services providers in our coverage. We'd call out **Capgemini** as a clear beneficiary.



### c. 67% Of Surveyed CIOs Have Seen Project Delays Due To Geopolitical/Macroeconomic Concerns

*Are your expected professional IT Services-related projects (e.g., digital transformation, cloud migration) still delayed due to geopolitical and / or macroeconomic concerns?*

**Exhibit 45:** IT services: project delays due to geopolitical and / or macroeconomic concerns  
Impact on Project Spending Due to geopolitical / macro concerns



Source: AlphaWise, Morgan Stanley Research; n=60 (US and EU data)

- c. 67% of surveyed CIOs have seen IT services-related project delays due to geopolitical and/or macroeconomic concerns.
- This is up from 52% recorded at our 2Q22 survey.

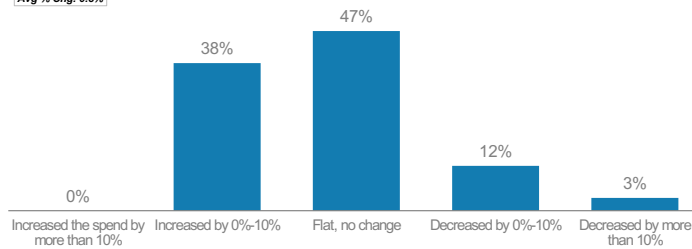
## Data Suggest The Current Geopolitical Environment Is Slowing The Increase In Offshore Utilisation

*Are you changing your mix of spending on resources in-house vs. outsourced?*

### Exhibit 46: Change of in-house vs. outsourced resources mix

Impact of Current Political Environment on Offshore Services

Avg % Chg: 0.8%



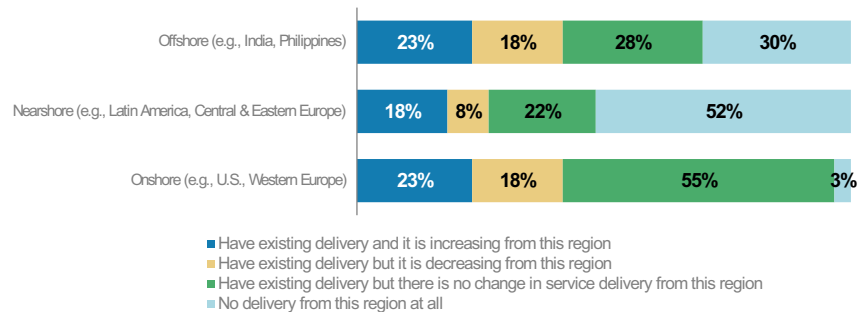
Source: AlphaWise, Morgan Stanley Research; n=60 (US and EU data)

- The % of CIOs planning to increase utilisation of outsourced services has fallen to pre-COVID levels (38%) - this is after three consecutive surveys of increases. This is significantly below the 55% level recorded in 2Q22, which was the highest level we have observed since 3Q16.
- On average, our surveyed CIOs expect to increase the level of outsourced resources by c. 0.8% (down from c. 2.8% in 2Q22).

*How do you expect the current macroeconomic conditions to change the IT service delivery from each of the following regions?*

### Exhibit 47: Change in IT Services delivery due to current macroeconomic factors by region

Change in IT Services Delivery due to Current Macroeconomic Factors by Region



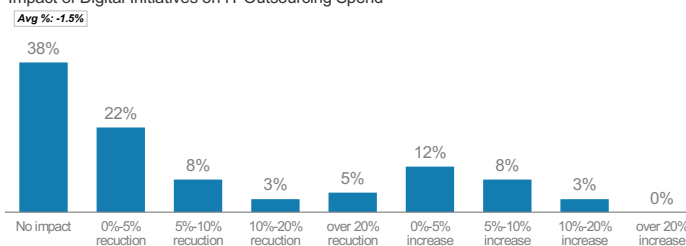
Source: AlphaWise, Morgan Stanley Research. n=60 (US and EU data)

- Our surveyed companies expect offshore delivery to increase c. 5%, nearshore to increase c. 10%, and onshore to increase c. 5% - all on a net basis. Among our surveyed companies, c. 70% have offshore delivery, c. 48% have nearshore delivery, and c. 97% have onshore delivery.

*How is digital transformation impacting your traditional IT outsourcing spend?*

**Exhibit 48: Impact of digital initiatives on IT outsourcing spend**

Impact of Digital Initiatives on IT Outsourcing Spend



Source: AlphaWise, Morgan Stanley Research; n=60 (US and EU data)

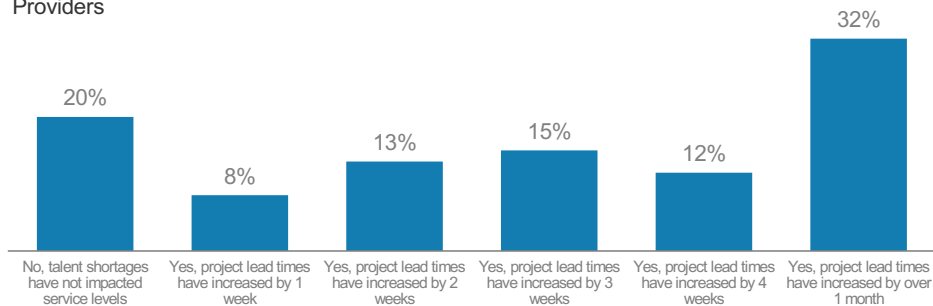
- 38% of CIOs indicated that digital transformation was reducing the level of traditional IT outsourcing spending, which is slightly down from the 42% recorded in 2Q22 and the 45% recorded in 4Q21.
- On average, we estimate that digital transformation initiatives reduce our surveyed companies' traditional IT outsourcing spending by c. 1.5%, which is greater than 1.1% calculated in 2Q22.

c. 80% of CIOs indicate that talent shortages have led to longer project lead times from IT Service Providers

*Are talent shortages impacting service levels you receive from your IT Services providers?*

**Exhibit 49:** Impact of talent shortages on project lead times

Impact of Talent Shortages on Service Levels Received from IT Service Providers



Source: AlphaWise, Morgan Stanley Research; n=60 (US and EU data)

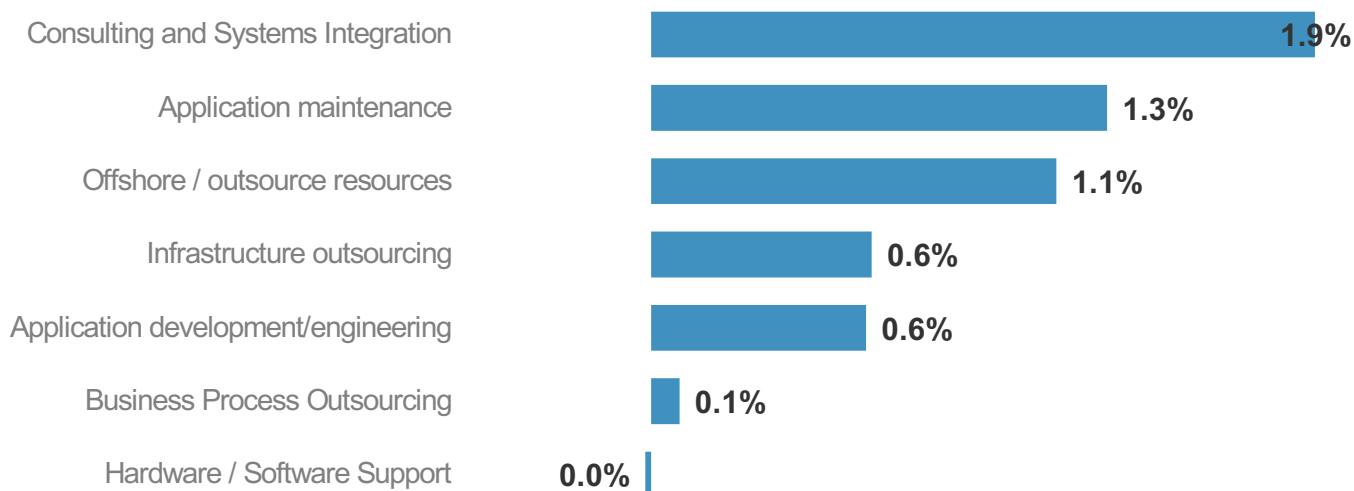
- 80% of our surveyed CIOs indicated that talent shortages are impacting the service levels they are receiving from IT Service providers (increased project lead times), up from 75% in 2Q22 and 70% in 4Q21.

CIOs expect IT Services spending to increase over the next 12 months, with the Consulting and SI segment expected to be the largest beneficiary

*How do you expect your professional IT services spending in the following segments to change in the next 12 months?*

**Exhibit 50:** Weighted average degree of spending shift by category (%)

**Avg % Change in IT Services Spending in N12M by Segment**



Source: AlphaWise, Morgan Stanley Research; n=60 (US and EU data)

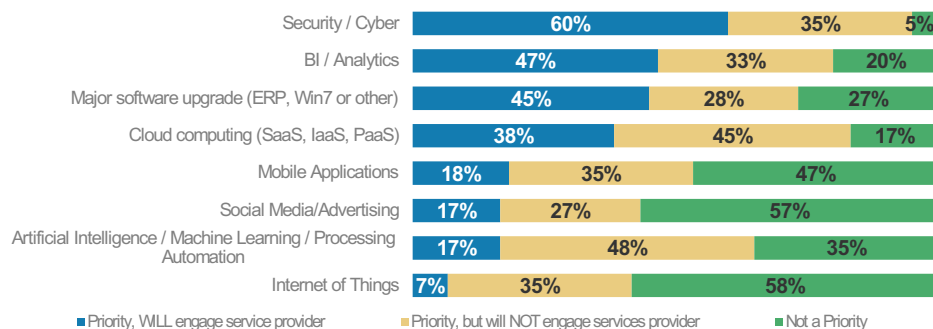
- On average, CIOs expect an increase in IT spending across all the above IT Services segments in the next 12 months, except for Hardware/Software Support (which is expected to be flat). The highest increase was in Consulting and Systems Integration spending (+1.9%), followed by Application Maintenance (+1.3%) and Offshore/Outsource Resources (+1.1%).

## Security/Cyber projects remain the clear #1 priority for CIOs into 2023

Are any of the following initiatives a priority for your company in 2023? If so, is your company engaging or planning to engage outside professional IT services providers to help with the planning or execution?

### Exhibit 51: Key initiatives in 2023

Key Initiatives in 2023



Source: AlphaWise, Morgan Stanley Research; n=60 (US and EU data)

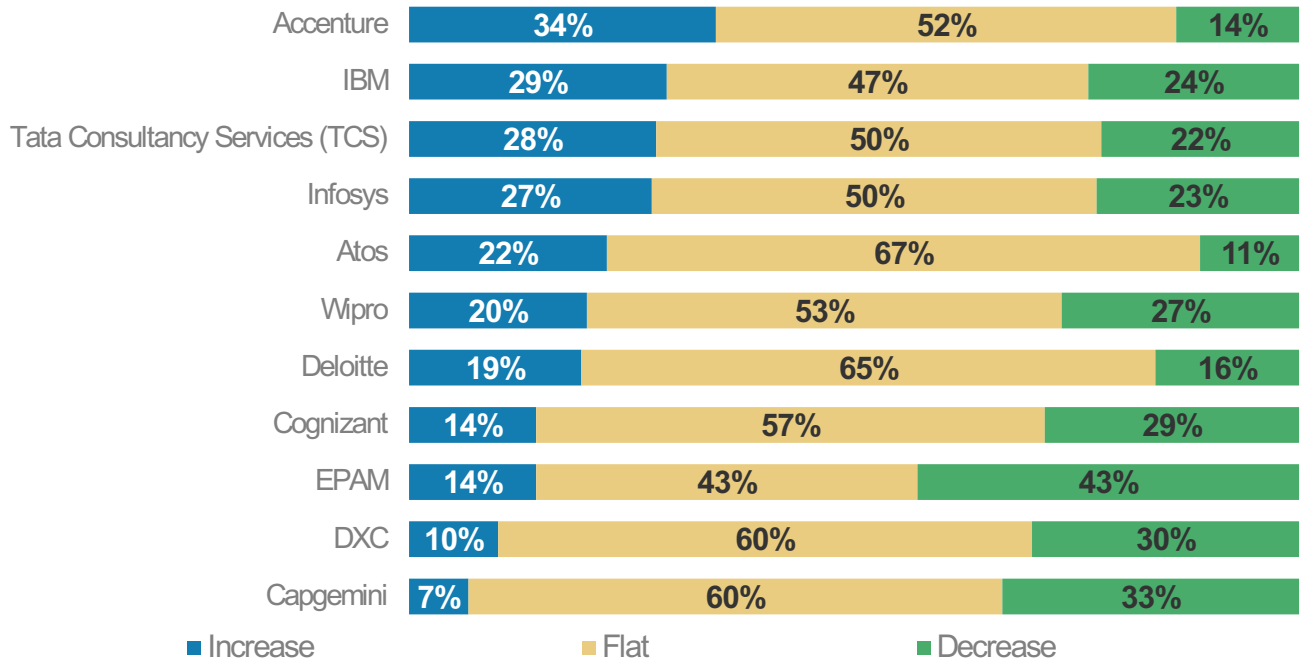
- Security/Cyber remains the top priority among surveyed CIOs, with 60% looking to engage with an outside professional IT services provider to help with the planning/execution. A further 35% cite Security/Cyber as a priority, but will not be engaging with a services provider. Only 5% indicate that it is not a priority for them in 2023.
- The other top priorities (on which CIOs say they will engage with a service provider) are BI/Analytics (47%), Major Software Upgrades (45%) and Cloud Computing (38%).
- Compared to the 2Q22 survey, Cloud Computing has seen the biggest increase in engagement (up 5%).

### Accenture, IBM and TCS all likely to see increased spending from existing customers over the NTM

Over the next 12 months, what are your IT services spending plans as it relates to specific vendors?

**Exhibit 52:** IT services spending plans in N12M by vendor (% of respondents increasing spending, net of % of respondents decreasing spending)

#### IT Services Spending Plans in N12M by Vendor



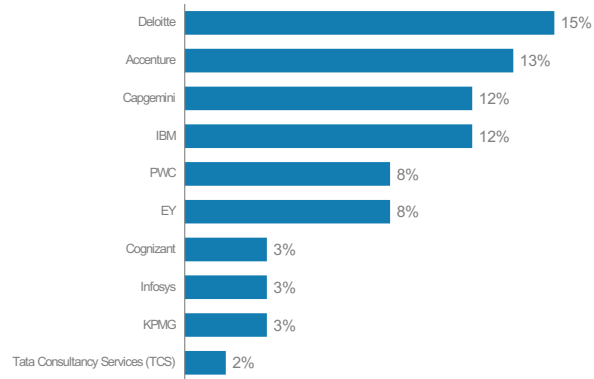
Source: AlphaWise, Morgan Stanley Research; n=60 (US and EU data)

- On average, our surveyed CIOs indicate that they are likely to increase spend over the next 12 months with the following vendors: Accenture (21% on a net basis), Atos (11%), TCS (6%), IBM (5%), and Infosys (5%). They indicate that they are likely to decrease spend with EPAM (-29%), Capgemini (-27%), DXC (-20%), Cognizant (-14%) and Wipro (-7%).
- We note that the sample size of existing customers of European IT Services is small, which likely skews our results (Atos n=9, Capgemini n=15).

Which of the following vendors provides the highest-quality level of strategic consulting?

**Exhibit 53: Highest-quality vendors for strategic consulting**

Vendors for Strategic Consulting



Source: AlphaWise, Morgan Stanley Research. n=60 (US and EU data)

- Deloitte (15% of surveyed CIOs), Accenture (13%), **Capgemini** and IBM (both 12%) are the top 4 vendors that are perceived by our surveyed CIOs as the highest-quality vendors for strategic consulting.

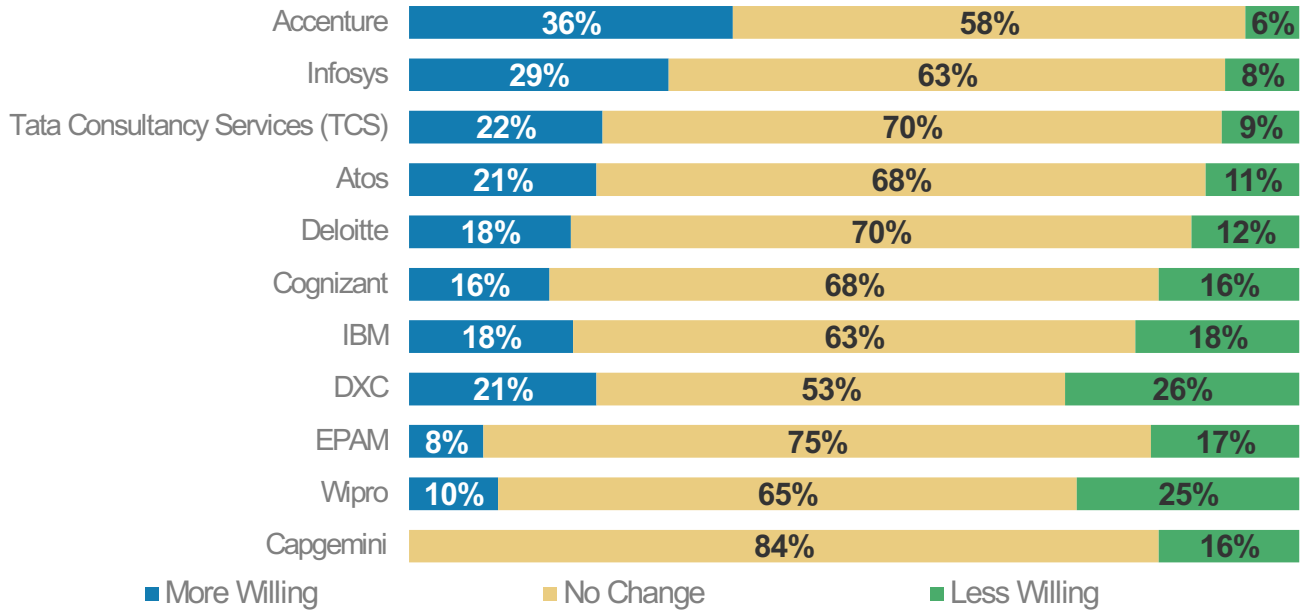


## Vendors' Willingness to discount pricing ticks up this quarter

*Compared to last year, how would you describe the following vendors' willingness to discount pricing over the past 12 months?*

**Exhibit 54:** Vendor willingness to discount pricing in last 12 months (% of respondents increasing spending, net of % of respondents decreasing spending)

### Vendors' Willingness to Discount Pricing over P12M



Source: AlphaWise, Morgan Stanley Research. n=60 (US and EU data)

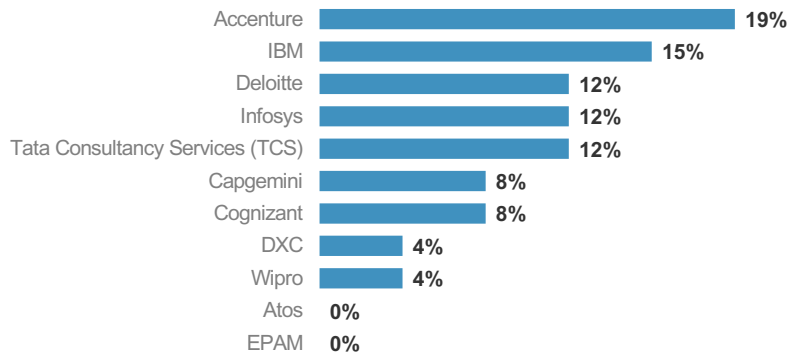
- The willingness of vendors to discount prices increased vs. our 2Q22 survey across the majority of vendors, with Capgemini and Wipro the only two exceptions - with the perceived net willingness to discount decreasing c. 5% in both cases.
- A net 16% of **Capgemini's** existing customers surveyed indicated that they felt the company has been **less** willing to discount in the last 12 months (vs. 11% in 2Q22).
- A net 11% of **Atos'** existing customers surveyed indicated that they felt the company has been **more** willing to discount in the last 12 months. This is in sharp contrast to the net 14% of existing customer that felt the company had been **less** willing to discount at our 2Q22 survey.

## Accenture and Infosys are the largest overall net share gainers due to vendor consolidation

Has your organization undergone vendor consolidation with respect to professional IT Services providers? If so, which professional IT Services vendor was the largest share gainer?

**Exhibit 55:** Vendor with largest share gain due to vendor consolidation

Vendor with Largest Share Gain Due to Vendor Consolidation

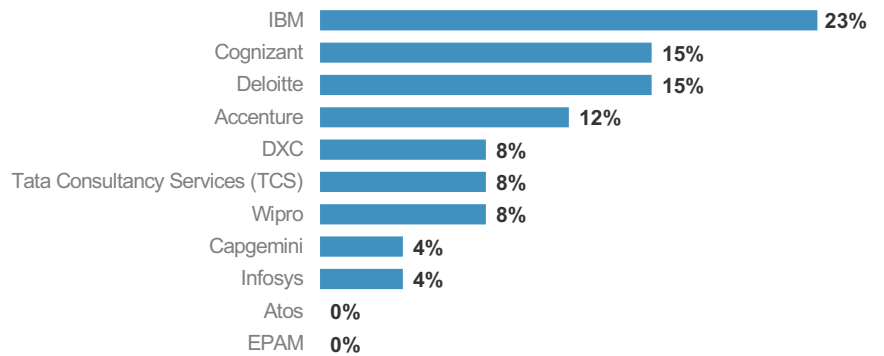


Source: AlphaWise, Morgan Stanley Research. n=60 (US and EU data)

Has your organization undergone vendor consolidation with respect to professional IT Services providers? If so, which professional IT Services vendor was the largest share donor?

**Exhibit 56:** Vendor with largest share loss due to vendor consolidation

Largest Share Donor Due to Vendor Consolidation



Source: AlphaWise, Morgan Stanley Research. n=60 (US and EU data)

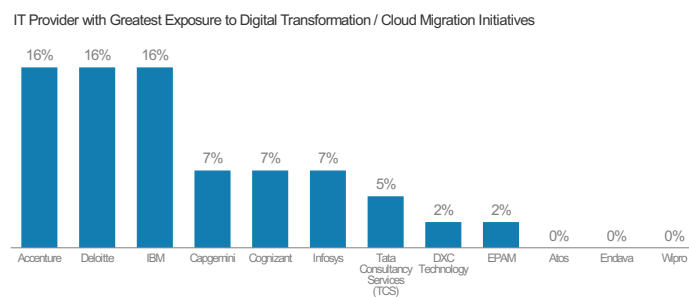
- According to our CIOs surveyed, the largest beneficiaries of vendor consolidation are Accenture (19% of respondents), followed by IBM (at 15%). **Capgemini** has gained share due to vendor consolidation (8% of those companies that have undergone vendor consolidation).
- IBM was the largest share donor (at 23%) due to vendor consolidation. Our surveyed CIOs also indicated that **Capgemini** has lost share due to vendor consolidation (4% of those companies that have undergone vendor consolidation). This implies that Capgemini has gained a net 4% share.

- Accenture and Infosys are the largest overall net share gainers due to vendor consolidation (share gain - share donation) with both gaining c. 8% share.

Accenture, Deloitte and IBM are the top-3 vendors with the greatest exposure to Digital Transformation/Cloud Migration Initiatives, according to our surveyed CIOs; Capgemini #4

*Which IT Services provider are you engaging with or plan to engage with for your digital transformation and / or cloud migration initiatives?*

**Exhibit 57:** Providers with greatest exposure to Digital Transformation/Cloud Migration initiatives



Source: AlphaWise, Morgan Stanley Research. n=60 (US and EU data)

- According to our surveyed CIOs, the top-3 vendors with the greatest exposure to Digital Transformation/Cloud Migration Initiatives are Accenture, Deloitte and IBM (each with 16% share of respondents). 7% of respondents are engaging with/plan to engage with **Capgemini** for their DT/CM initiatives, while none of our surveyed CIOs reported to be engaging with/plan to engage with **Atos**.

## Morgan Stanley AlphaWise CIO Survey Demographics

- **CIO Survey** - This report contains the results of our CIO Survey. The survey was conducted by telephone and online interviews with 100 decision makers, representing 100 enterprise Information Technology organizations, during October and December 2022. 73 of the respondents are from the US and 27 from Europe. All responses were collected in strict confidence and were used only in combination with all others in the survey sample. Their responses represent enterprise customer adoption and purchasing behaviours for Q4 2022.
- **Enterprise Software Domain** - we conducted telephone and online interviews with 60 respondents (45 US / 15 EU), representing 60 enterprise Information Technology organizations. Survey respondents hold responsibility for purchasing, integrating and maintaining software strategies.
- **IT Services Domain** - we conducted telephone and online interviews with 60 respondents (42 US / 18 EU), representing 60 enterprise Information Technology organizations. Survey respondents hold responsibility for purchasing, integrating and maintaining software/services technology strategies.

Exhibit 58: By Revenue

Revenue		
<b>Total Respondents = 100</b>		
<b>US Respondents = 73</b>		
\$500 Million - \$1 Billion	11	15%
\$1-5 Billion	39	53%
\$5-10 Billion	10	14%
\$10-15 Billion	0	0%
\$15-20 Billion	3	4%
>\$20 Billion	10	14%
<b>Europe Respondents = 27</b>		
\$500 Million - \$1 Billion	5	19%
\$1-5 Billion	11	41%
\$5-10 Billion	5	19%
\$10-15 Billion	2	7%
\$15-20 Billion	1	4%
>\$20 Billion	3	11%

Source: AlphaWise, Morgan Stanley Research

Exhibit 59: By Industry Vertical

Vertical		
<b>Total Respondents = 100</b>		
Aerospace / Defense	0	0%
Business services	2	2%
Communications	2	2%
Consumer Goods	6	6%
Education	7	7%
Energy	6	6%
Financial	17	17%
Healthcare	16	16%
Legal	2	2%
Manufacturing	17	17%
Pharmaceuticals	3	3%
Retail	4	4%
Services	9	9%
Technology	6	6%
Transportation	2	2%
Wholesale / Distribution	1	1%
<b>US Respondents = 73</b>		
Aerospace / Defense	0	0%
Business services	2	3%
Communications	2	3%
Consumer Goods	4	5%
Education	6	8%
Energy	3	4%
Financial	11	15%
Healthcare	12	16%
Legal	2	3%
Manufacturing	12	16%
Pharmaceuticals	2	3%
Retail	3	4%
Services	6	8%
Technology	6	8%
Transportation	2	3%
Wholesale / Distribution	0	0%
<b>Europe Respondents = 27</b>		
Aerospace / Defense	0	0%
Business services	0	0%
Communications	0	0%
Consumer Goods	2	7%
Education	1	4%
Energy	3	11%
Financial	6	22%
Healthcare	4	15%
Legal	0	0%
Manufacturing	5	19%
Pharmaceuticals	1	4%
Retail	1	4%
Services	3	11%
Technology	0	0%
Transportation	0	0%
Wholesale / Distribution	1	4%

Source: AlphaWise, Morgan Stanley Research

## Valuation Methodology and Risks

### SAP SE (SAPG.DE)

We use a 10-year DCF to value SAP, with a WACC of 8.5% and terminal growth rate of 2.5%.

#### Risks to Upside

- RISE with SAP offering gains traction.
- S/4 HANA cycle accelerates, supporting growth ambitions.
- Macro backdrop strengthens.
- M&A activity.

#### Risks to Downside

- Macro backdrop remains subdued, impacting end customer spending.
- Cloud subscription growth weaker than we expect.
- Systems integrators suffer from bottlenecking, slowing adoption of S/4.

### Sage (SGE.L)

We use a 10-year DCF to value Sage, with a WACC of 8.5% and terminal growth rate of 2.0%.

#### Risks to Upside

- M&A activity
- New product development aids accelerating growth
- Shift to cloud connected/cloud native products
- Regulation requiring connected accounting systems

#### Risks to Downside

- Stalled momentum around product development (particularly cloud products)
- Traction subsides in internationalising Sage Intacct
- Continued investment leaves margins depressed

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(as of December 31, 2022)

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STOCK RATING CATEGORY	COVERAGE UNIVERSE		INVESTMENT BANKING CLIENTS (IBC)			OTHER MATERIAL INVESTMENT SERVICES CLIENTS (MISC)	
	COUNT	% OF TOTAL	COUNT	% OF TOTAL IBC	% OF RATING CATEGORY	COUNT	% OF TOTAL OTHER MSC
<b>Overweight/Buy</b>	<b>1352</b>	<b>37%</b>	<b>278</b>	<b>42%</b>	<b>21%</b>	<b>593</b>	<b>38%</b>
<b>Equal-weight/Hold</b>	<b>1659</b>	<b>45%</b>	<b>309</b>	<b>46%</b>	<b>19%</b>	<b>735</b>	<b>47%</b>
<b>Not-Rated/Hold</b>	<b>3</b>	<b>0%</b>	<b>0</b>	<b>0%</b>	<b>0%</b>	<b>0</b>	<b>0%</b>
<b>Underweight/Sell</b>	<b>651</b>	<b>18%</b>	<b>82</b>	<b>12%</b>	<b>13%</b>	<b>224</b>	<b>14%</b>
<b>TOTAL</b>	<b>3,665</b>		<b>669</b>			<b>1552</b>	

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months. Due to rounding off of decimals, the percentages provided in the "% of total" column may not add up to exactly 100 percent.

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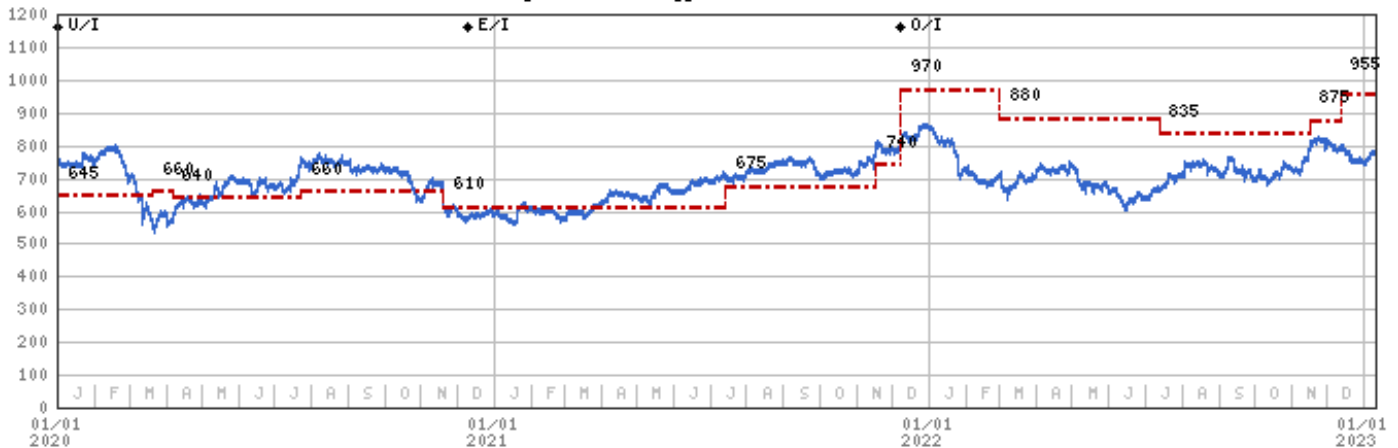
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### Stock Price, Price Target and Rating History (See Rating Definitions)

Sage (SGE.L) - As of 1/9/23 in GBP  
Industry : Technology - Software & Services



Stock Rating History: 1/1/18 : U/I; 12/10/20 : E/I; 12/8/21 : O/I

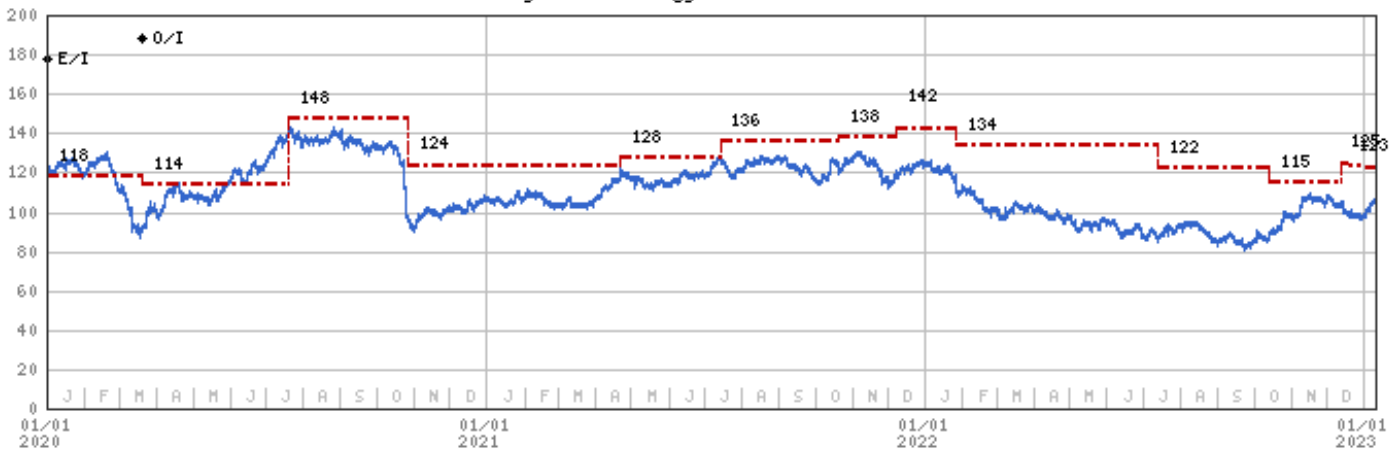
Price Target History: 12/15/17 : 750; 7/13/18 : 610; 9/12/18 : 570; 11/22/18 : 550; 2/4/19 : 575; 12/12/19 : 645; 3/20/20 : 660; 4/6/20 : 640; 7/23/20 : 660; 11/20/20 : 610; 7/14/21 : 675; 11/17/21 : 740; 12/8/21 : 970; 3/1/22 : 880; 7/13/22 : 835; 11/16/22 : 875; 12/12/22 : 955

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 Stock Price (Not Covered by Current Analyst) --- Stock Price (Covered by Current Analyst) ■  
 Stock and Industry Ratings (abbreviations below) appear as ♦ Stock Rating/Industry View  
 Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)  
 Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

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SAP SE (SAPG.DE) - As of 1/9/23 in EUR  
Industry : Technology - Software & Services



Stock Rating History: 1/1/18 : O/I; 1/11/18 : E/I; 3/20/20 : O/I

Price Target History: 12/15/17 : 111; 1/11/18 : 105; 7/10/19 : 115; 12/12/19 : 118; 3/20/20 : 114; 7/20/20 : 148; 10/27/20 : 124; 4/22/21 : 128; 7/14/21 : 136; 10/21/21 : 138; 12/8/21 : 142; 1/27/22 : 134; 7/13/22 : 122; 10/14/22 : 115; 12/12/22 : 125; 1/10/23 : 123

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target --- No Price Target Assigned (NA)  
 Stock Price (Not Covered by Current Analyst) --- Stock Price (Covered by Current Analyst) ■  
 Stock and Industry Ratings (abbreviations below) appear as ♦ Stock Rating/Industry View  
 Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)  
 Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

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## INDUSTRY COVERAGE: Technology - Software &amp; Services

COMPANY (TICKER)	RATING (AS OF)	PRICE* (01/10/2023)
<b>Adam Wood</b>		
Amadeus IT Holdings S.A. (AVAMC)	O (12/16/2015)	€54.56
Atos SA (ATOS.PA)	U (12/08/2021)	€11.55
Capgemini (CAPP.PA)	E (12/12/2022)	€163.60
Dassault Systemes SA (DAST.PA)	O (09/26/2019)	€34.39
Hexagon AB (HEXAb.ST)	U (03/20/2020)	SKr 116.20
Indra (IDR.MC)	E (03/25/2022)	€10.72
Sage (SGE.L)	O (12/08/2021)	778p
SAP SE (SAPG.DE)	O (03/20/2020)	€104.68
Sopra Steria Group (SOPR.PA)	E (04/12/2019)	€147.30
Trustpilot (TRST.L)	O (12/08/2021)	95p
<b>Alastair P Nolan</b>		
Computacenter PLC (CCC.L)	E (03/09/2021)	1,968p
Exclusive Networks (EXN.PA)	O (09/27/2022)	€19.00
Softcat PLC (SCTS.L)	E (12/08/2021)	1,183p
Software AG (SOWGn.DE)	U (07/13/2022)	€25.88
Softwareone Holding AG (SWON.S)	E (03/04/2022)	SFr 14.31
<b>George W Webb</b>		
Aveva Group Plc (AV.L)	E (02/14/2022)	3,217p
Darktrace PLC (DARK.L)	E (09/28/2022)	293p
Nemetschek SE (NEKG.DE)	E (07/13/2022)	€50.90
Netcompany Group A/S (NETCG.CO)	O (10/20/2021)	DKr 302.60
OVH GROUPE SAS (OVH.PA)	U (03/25/2022)	€14.83
TeamViewer AG (TMM.DE)	U (12/12/2022)	€13.00
TietoEVERY (TIETO.HE)	E (03/10/2021)	€27.58
<b>Laura C Metayer</b>		
CompuGroup Medical SE & Co KgaA (COP1n.DE)	E (03/25/2022)	€38.36
Sinch AB (SINCH.ST)	E (09/29/2022)	SKr 49.08
Suse SA (SUSEG.DE)	E (09/16/2022)	€17.39

Stock Ratings are subject to change. Please see latest research for each company.

\* Historical prices are not split adjusted.