The future of market data

Distribution and consumption through cloud and AI

Part 1

Executive summary

Google Cloud commissioned Coalition Greenwich to survey more than 102 institutional capital markets professionals to uncover the key factors leading to market data adoption in the cloud by both the buy side and sell side. Respondents included exchanges, investment banks, asset managers, hedge funds, data aggregators, and data producers. For the purposes of this research, we defined market data as direct feeds, consolidated feeds, terminal and desktop products, security and reference data, pricing data, historical data, alternative data, and index data.
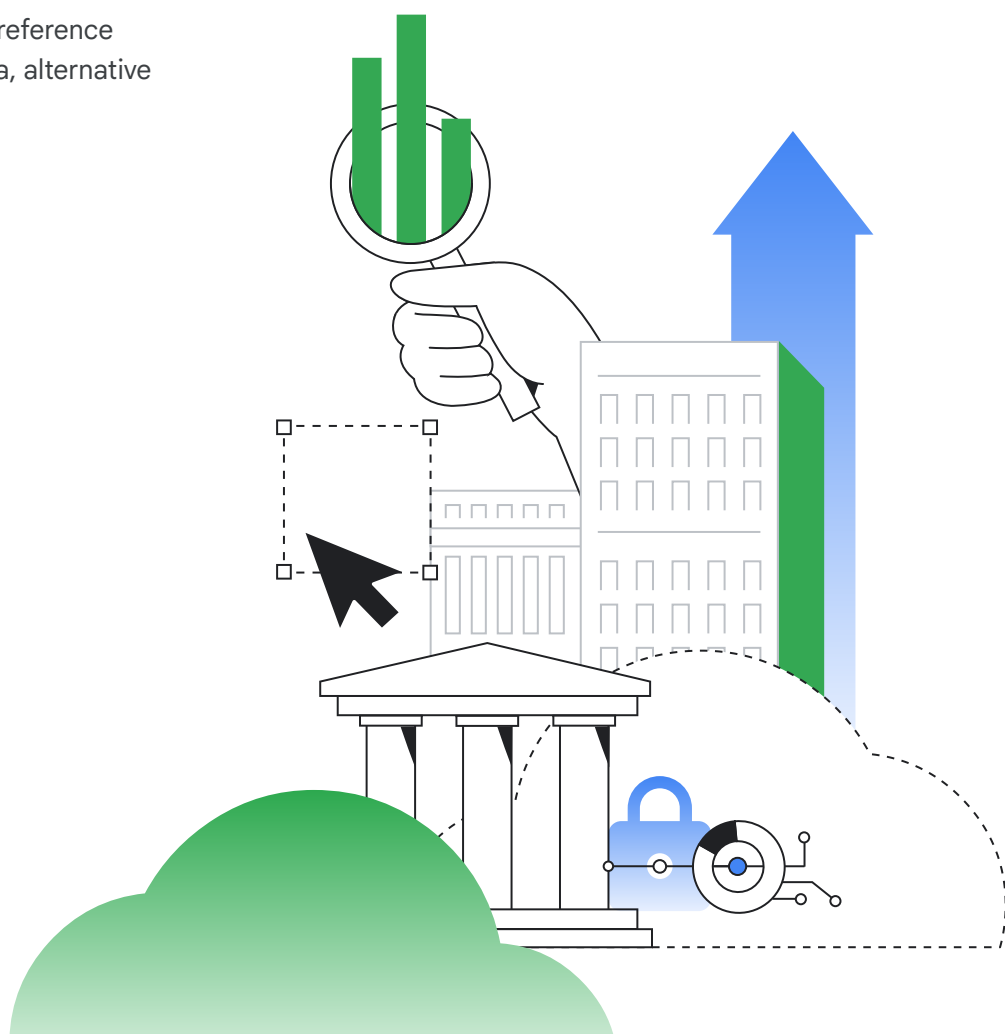
There were **four** important takeaways from the study.

01

Cloud services are becoming ubiquitous for data delivery.

Exchanges and trading systems will continue to launch a wide array of new cloud-based data services across derived, pricing, end-of-day, and reference data to direct exchange feeds and desktop analytics among other data types. Today, cloud is pervasive with 93% of surveyed exchanges, trading systems, and data providers offering cloud-based data and services (15 survey respondents included several of the top 10 global exchanges and data providers). Moreover, 100% of surveyed data providers are offering cloud-based data delivery to end-clients, with securities pricing and reference data most common. Looking just at exchanges, 100% of those surveyed intend to offer new cloud-based services, such as derived data, in the next 12 months.

02

Commercial and investment banks will also offer additional connectivity, real-time data feeds, and trading applications delivered via the cloud.

This trend demonstrates it's not only exchanges, trading systems, and data providers that are moving to the cloud. Internal use cases abound as well, with 67% of surveyed commercial and investment banks consuming cloud-deployed market data, primarily for data analytics. At the same time, 88% intend to consume more cloud-based market data services in the next 12 months and 60% intend to offer more cloud-based trading infrastructure services to their clients in the next 12 months, including connectivity.
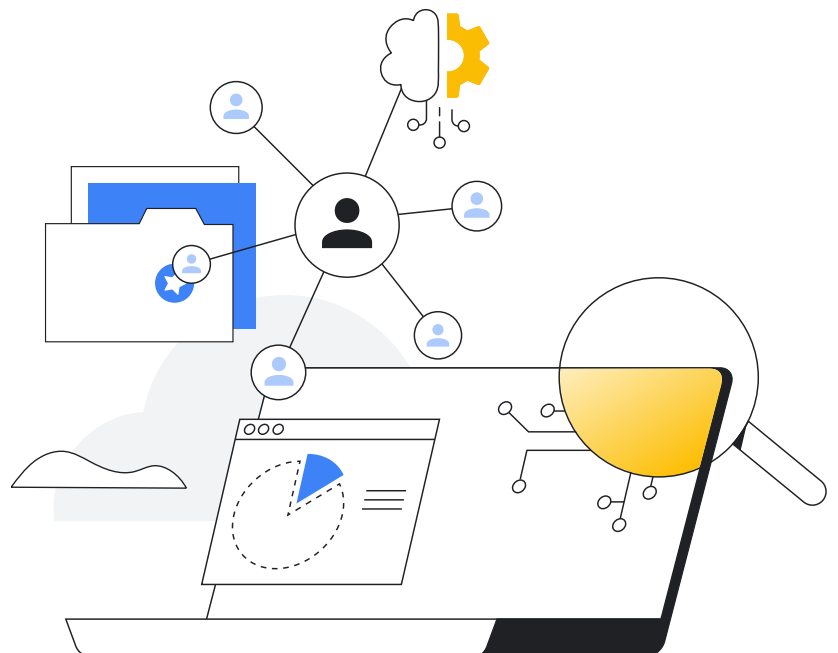
03

Buy side firms will consume even more cloud-deployed data.

This consumption will include both real-time market data and data specific to portfolio management and risk analytics. Today, 90% of surveyed buy side firms are consuming cloud-deployed market data, mostly for portfolio management. 70% intend to consume public cloud-based market data services in the next 12 months for use cases such as compliance and regulatory reporting.

04

AI/ML, powered by cloud, is moving ahead rapidly.

Today, 50% of exchanges, trading systems, and data providers are offering data products or services powered by artificial intelligence and machine learing (AI/ML), and of those, 42% intend to offer AI-powered trade execution and trading analytics services in the next 12 months. As for end users, only 14% of buy side are using AI/ML in the cloud, compared to 55% of commercial and investment banks.
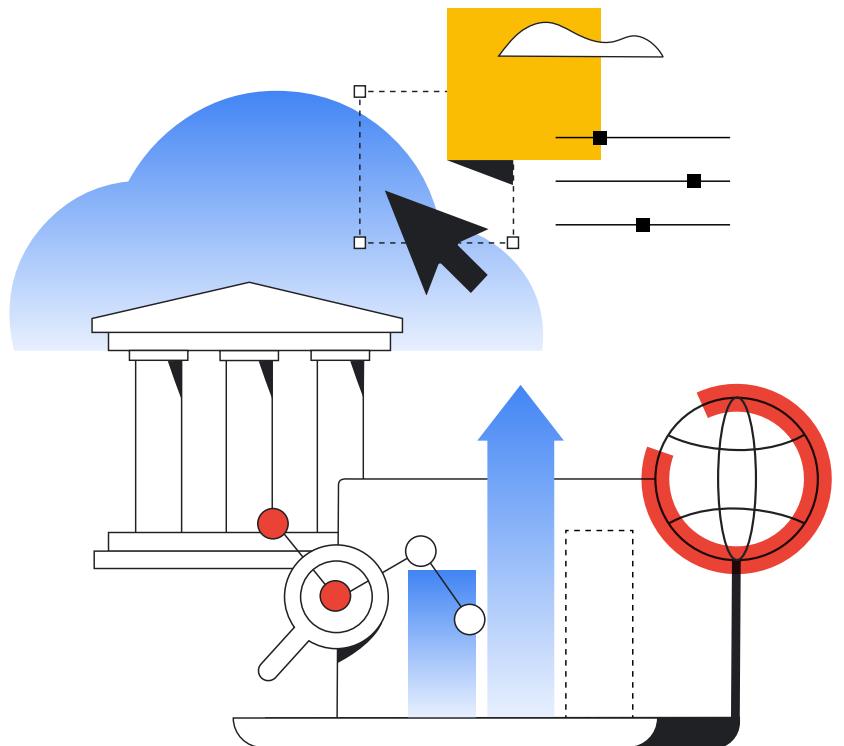
Introduction

Cloud computing has been embraced by numerous parts of the capital markets value chain across the front-, middle-, and back-office. Specifically, market data and the applications that utilize it provide fertile ground for cloud offerings.

While there are many drivers, the demand for easier accessibility is fueling the widespread adoption of cloud-based market data services and associated trading infrastructure across the buy side and sell side. At the same time, exchanges, market data providers, aggregators, and trading systems are embracing the cloud as a delivery model by offering access to data directly via their own cloud services, APIs, or partners.

In a remote working environment, cloud has become more entrenched in the trading lifecycle across the buy side, the sell side, and exchanges. Market participants' cloud strategies become more central as the complexity of data access grows, as does the need to control costs. This is both the cause and effect of growing interest in public cloud platforms, alongside privately built cloud environments within the largest firms.
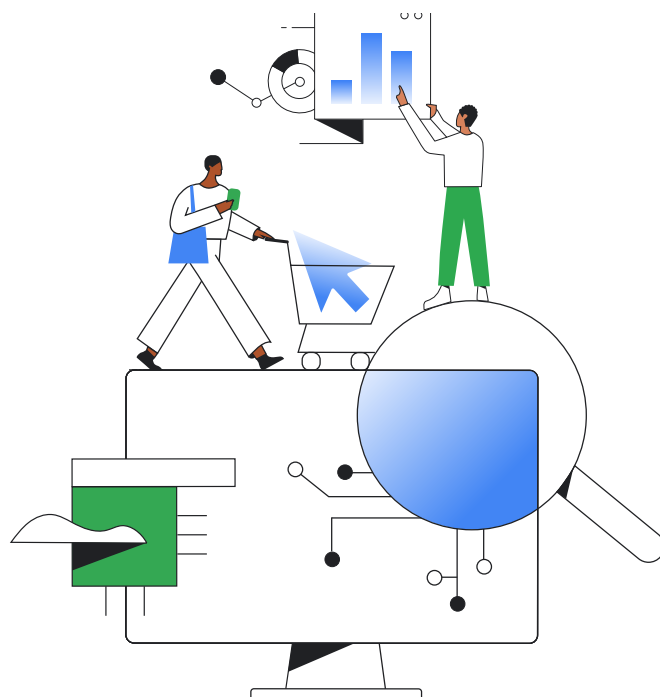
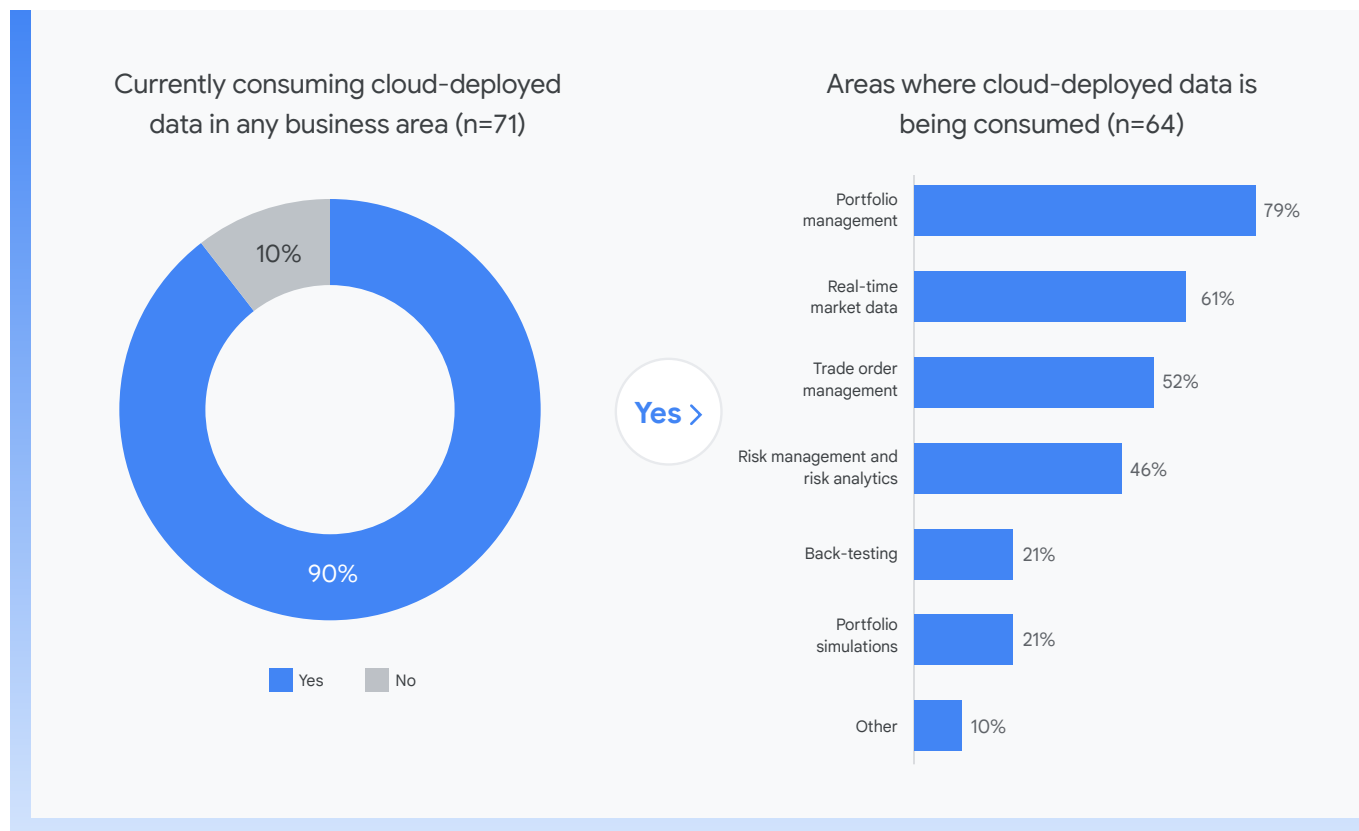The embrace of cloud-based services today is well beyond the tipping point.

Its time has arrived.

Buy side cloud consumption is becoming ubiquitous

Market data[1] creates challenges for market participants, particularly as they store, manage, and analyze it, and then put it to work. Each dataset is continuously growing and requires increasing amounts of compute power to process.

The demand for easier accessibility is driving the adoption of cloud-based market data services. In fact, as an example of the ubiquity of cloud for market data, regulators and self-regulatory agencies (SROs), including FINRA, are already major users of cloud.[2] Adoption of cloud-deployed market data has gone well beyond critical mass, with 90% of the buy side firms consuming cloud-deployed data in at least one business area.

Figure 1. Adoption of cloud-deployed data by buy side firms is becoming ubiquitous

Currently consuming cloud-deployed data in any business area (n=71)

10%

90%

Yes >

■ Yes   ■ No

Areas where cloud-deployed data is being consumed (n=64)

Portfolio management	79%
Real-time market data	61%
Trade order management	52%
Risk management and risk analytics	46%
Back-testing	21%
Portfolio simulations	21%
Other	10%

[1] Note: Coalition Greenwich definition of market data. Market data is data utilized for trading and includes direct feeds, consolidated feeds, terminal and desktop products, security/reference data, pricing data, historical data, alternative data, and index data.

[2] https://www.finra.org/media-center/finra-unscripted/how-cloud-has-revolutionized-finra-technology

Many buy side firms consume real-time market data via cloud, mostly for portfolio management. Coalition Greenwich has long noticed the trend toward cloud in the portfolio management function, including portfolio management system (PMS) providers migrating their solutions to software as a service (SaaS) architectures. This is because buy side firms increasingly seek a combined PMS/OMS (order management system) delivered via SaaS or cloud, supporting wider functionality and often integrated with portfolio accounting.

The buy side is most passionate about accessibility, with 82% of users citing this as a reason why it's critical their suppliers offer cloud-based market data services. Market data distributors and aggregators take note: hedge funds and investment managers want their data to be accessible when and where they need it.

Speed is the second priority for buy side users of cloud-based market data services. Some still believe that on-premises systems, with their dedicated connectivity and local processing, will outperform those deployed on cloud. In some cases, this is true. However, cloud-based services offer fast and modern upgrade potential for a large majority of firms whose existing infrastructures are built on decades-old technology. Moreover, asset managers have a positive view of cloud-deployed performance, especially for non-latency-sensitive applications.
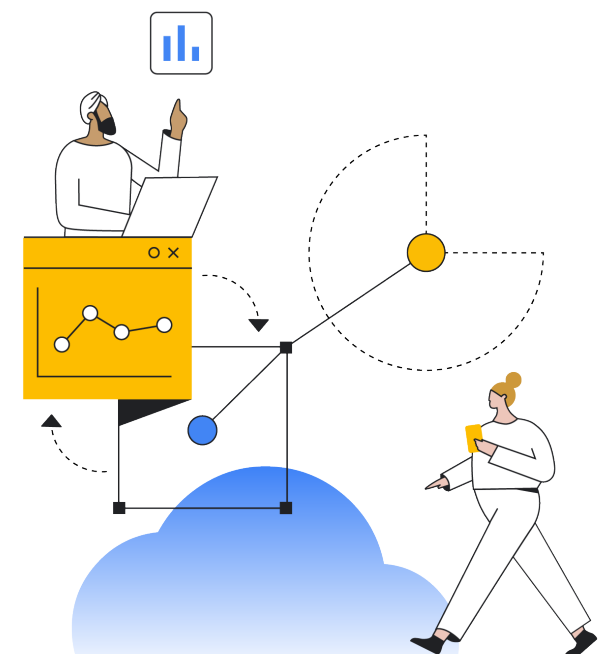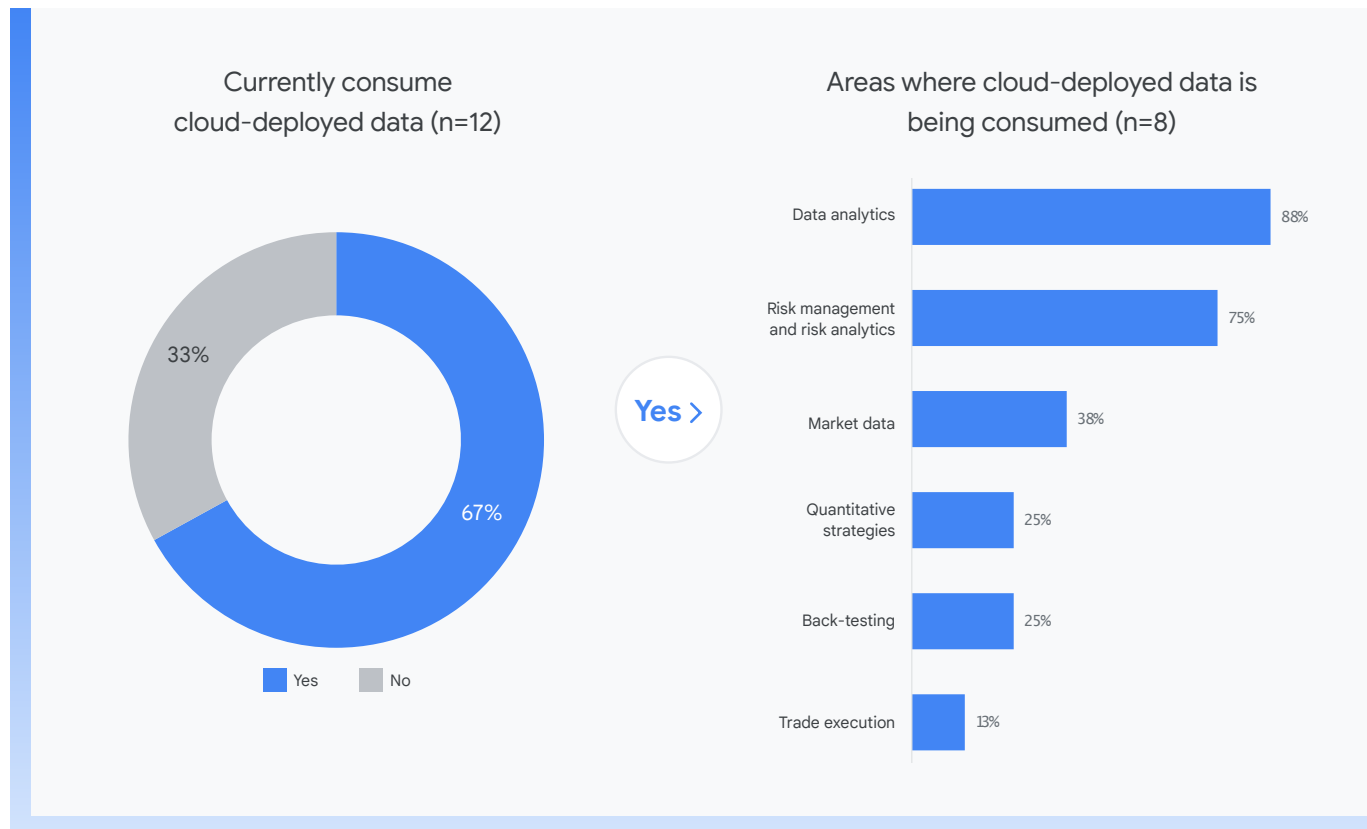
Cloud for the sell side: Analytics overdrive

Cloud-based data deployments are now commonplace, with 67% of banks[3] deploying data to cloud across at least one business area. The sell side has a propensity to consume cloud heavily for data and risk analytics related to their trading businesses.

Coalition Greenwich research has found that, despite significant uptake, sell side cloud adoption still lags behind that of the buy side. Complex middle- and back-office infrastructure and a burdensome regulatory environment still present considerable obstacles. That said, these roadblocks are swiftly fading as the efficiency that comes with cloud-deployed data overtakes most other concerns.

Figure 2. Widespread adoption of cloud-deployed data by the sell side

Currently consume cloud-deployed data (n=12)

33%

67%

Yes ›

Yes   No

Areas where cloud-deployed data is being consumed (n=8)

Area	Percentage
Data analytics	88%
Risk management and risk analytics	75%
Market data	38%
Quantitative strategies	25%
Back-testing	25%
Trade execution	13%

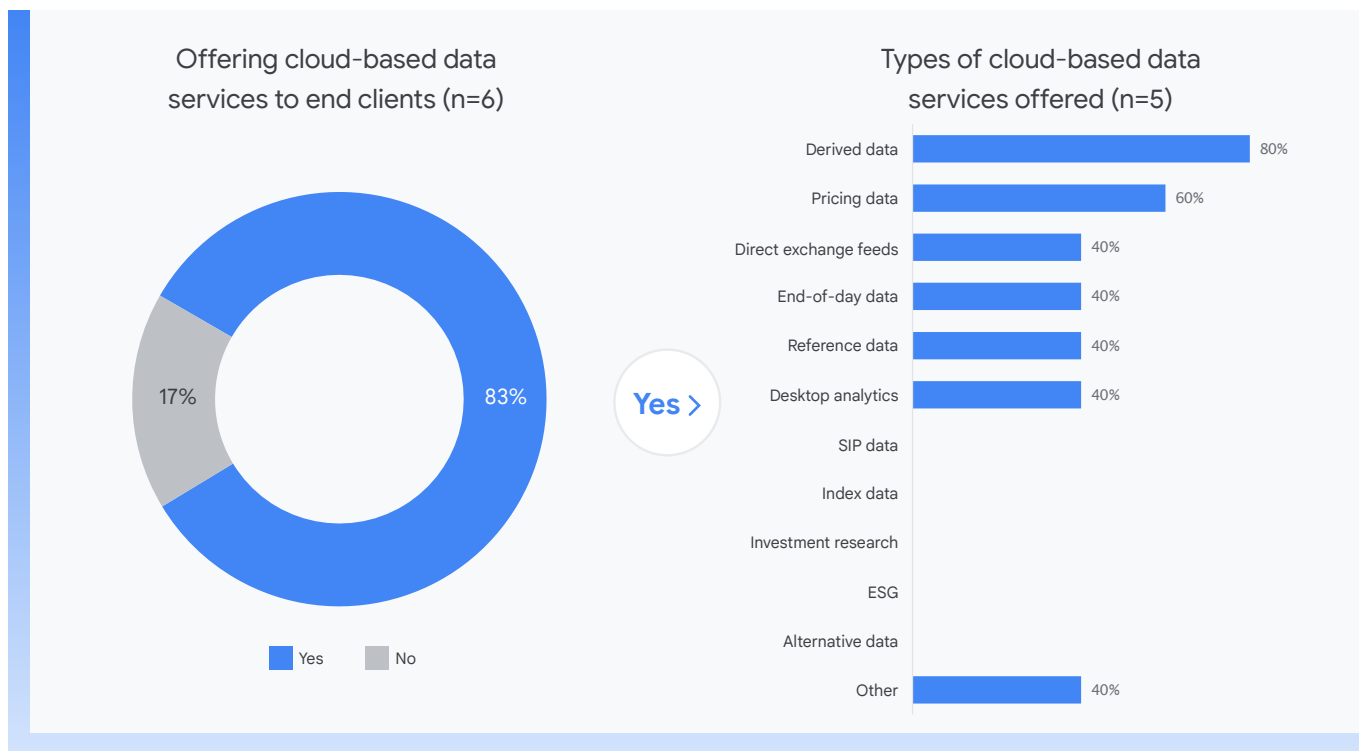[3] Commercial and/or investment banks

Making the switch easier

The ease of transition has accelerated cloud adoption for both the buy side and sell side. In Coalition Greenwich's previous research, concerns around cost and complexity of transition have dropped steeply over the past several years.

Market data costs remain significant to the largest banks and broker-dealers. Sell side firms spend an average of $140 million on market data annually,[4] allocated to both exchanges and third-party data providers and aggregators. Most banks have market data budgets at least three times[5] those of the buy side, and are looking for ways to lower their market data infrastructure costs. As data providers increasingly distribute market data via cloud-based services, they provide banks with a strong justification for cloud migration.

Exchanges, in particular, enable the transition by offering more cloud-based data services across a wider array of functions. Of the 83% of exchanges and trading systems that now offer cloud-based data services, the most commonly offered datasets are derived data and pricing data, though a variety of other feeds such as direct-exchange feeds, end-of-day data, reference data, and desktop analytics are also common.

Figure 3. Exchanges and trading systems are increasingly offering cloud-deployed data

Offering cloud-based data services to end clients (n=6)

17% 83%

Yes

■ Yes ■ No

Types of cloud-based data services offered (n=5)

Derived data	80%
Pricing data	60%
Direct exchange feeds	40%
End-of-day data	40%
Reference data	40%
Desktop analytics	40%
SIP data	
Index data	
Investment research	
ESG	
Alternative data	
Other	40%

Note: Other = risk management / surveillance and intra-day order information

With a variety of data offerings available via the cloud, exchanges and trading systems are continuously innovating. All the exchanges that Coalition Greenwich studied will be offering new cloud-based data services in the next 12 months. Given the pent-up demand we have described, suppliers are expecting that derived data, end-of-day data, reference data, and other datasets will be well received.
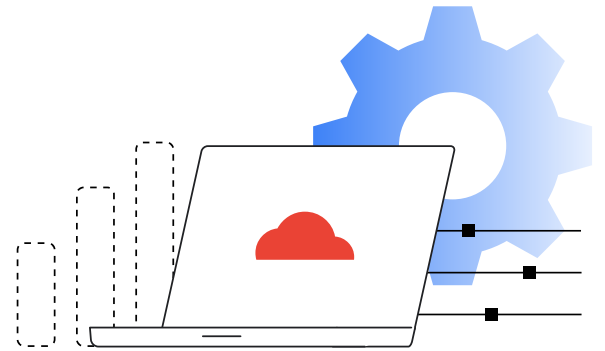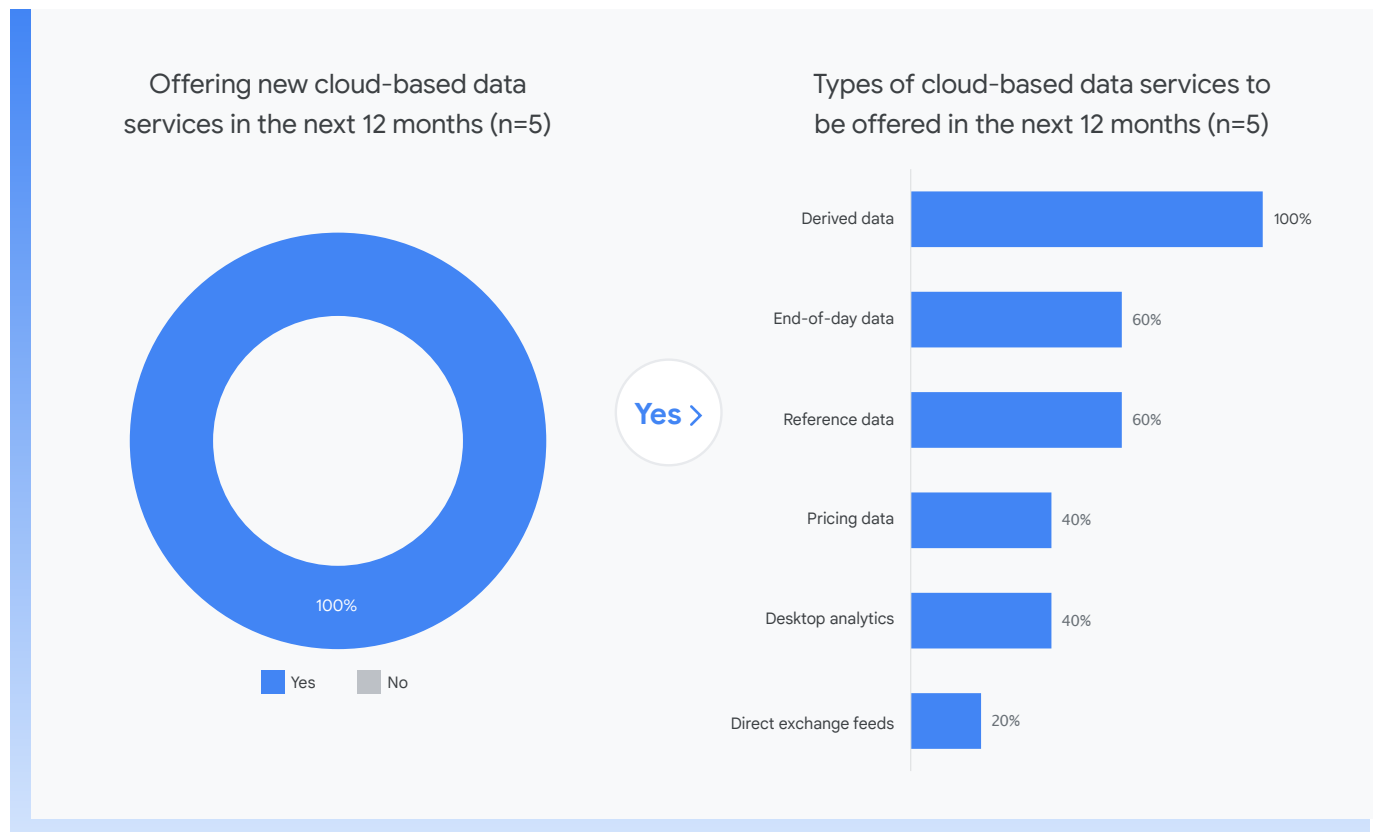
Figure 4. All exchanges and trading systems that were surveyed will offer new cloud-deployed data

Offering new cloud-based data services in the next 12 months (n=5)

100%

Yes ▢   No ▢

Yes ›

Types of cloud-based data services to be offered in the next 12 months (n=5)

Derived data	100%
End-of-day data	60%
Reference data	60%
Pricing data	40%
Desktop analytics	40%
Direct exchange feeds	20%

Google Cloud

Powering core applications with AI

The cloud solves not only for accessibility but also allows for the wider application of add-on capabilities such as AI/ML. Cloud allows end users to bring their programs to the data where it resides, rather than bringing the data to their programs.

Returning to the buy side firms, Coalition Greenwich sees slow adoption of AI/ML across the industry, with only 14% of buy side respondents using AI/ML in the cloud today. Portfolio construction, analysis of trading data, and risk modeling are good examples of its use. There is an opportunity for cloud providers to demonstrate the benefits of AI/ML in the cloud.

Turning to the sell side, 55% of banks are currently using AI/ML in the cloud, either in testing or production environments where they have access to increased processing power and flexible, on demand computing infrastructure. Sell side's use cases include investment research, transaction cost analysis, and risk analytics.
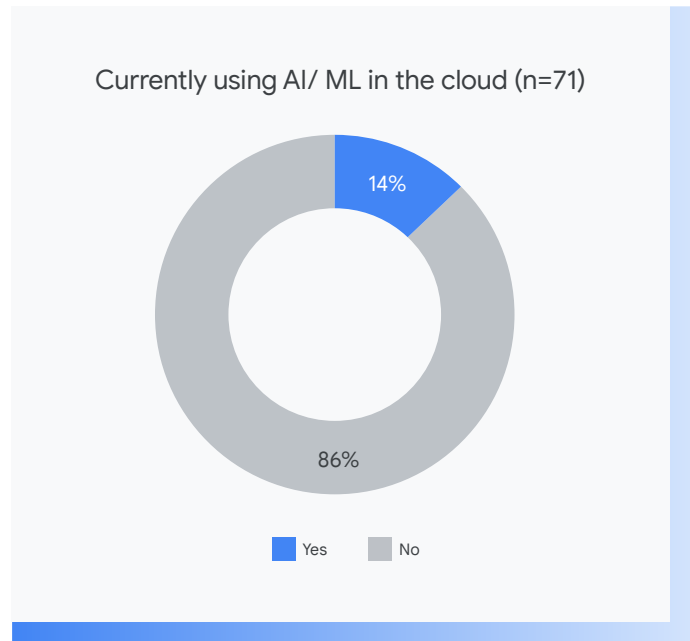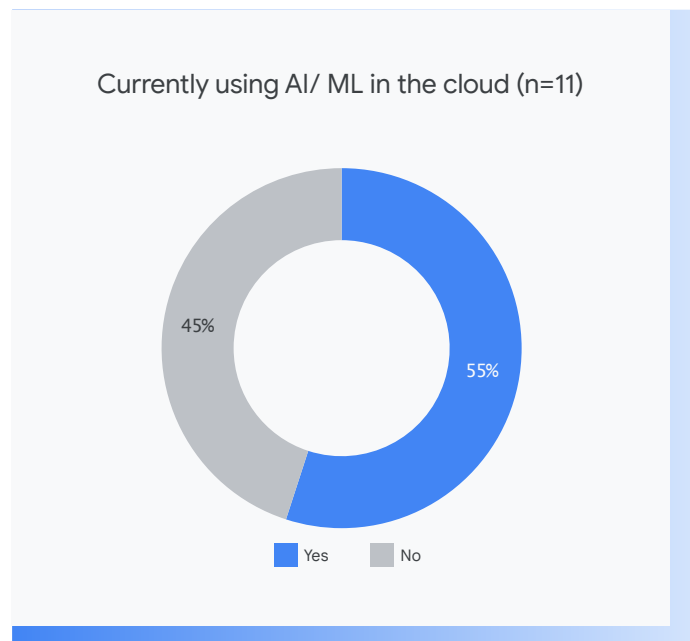
**Figure 5. Buy side is warming up to AI/ML**

Currently using AI/ ML in the cloud (n=71)

14%

86%

■ Yes ■ No

Figure 6. AI/ML has a strong presence among sell side firms.

Currently using AI/ ML in the cloud (n=11)

45%

55%

■ Yes ■ No

AI/ML use is also pervasive among exchanges, trading systems, and data providers. Today, 50% are offering data products or services powered by AI/ML. They are also bullish on the opportunity to launch new data products. In fact, 50% of exchanges intend to offer AI-powered trade execution and trading analytics services in the next 12 months.

Figure 7. AI/ML is increasingly powering data products or services

Offering data products or services
powered by AI/ML (n=14)

50%   50%

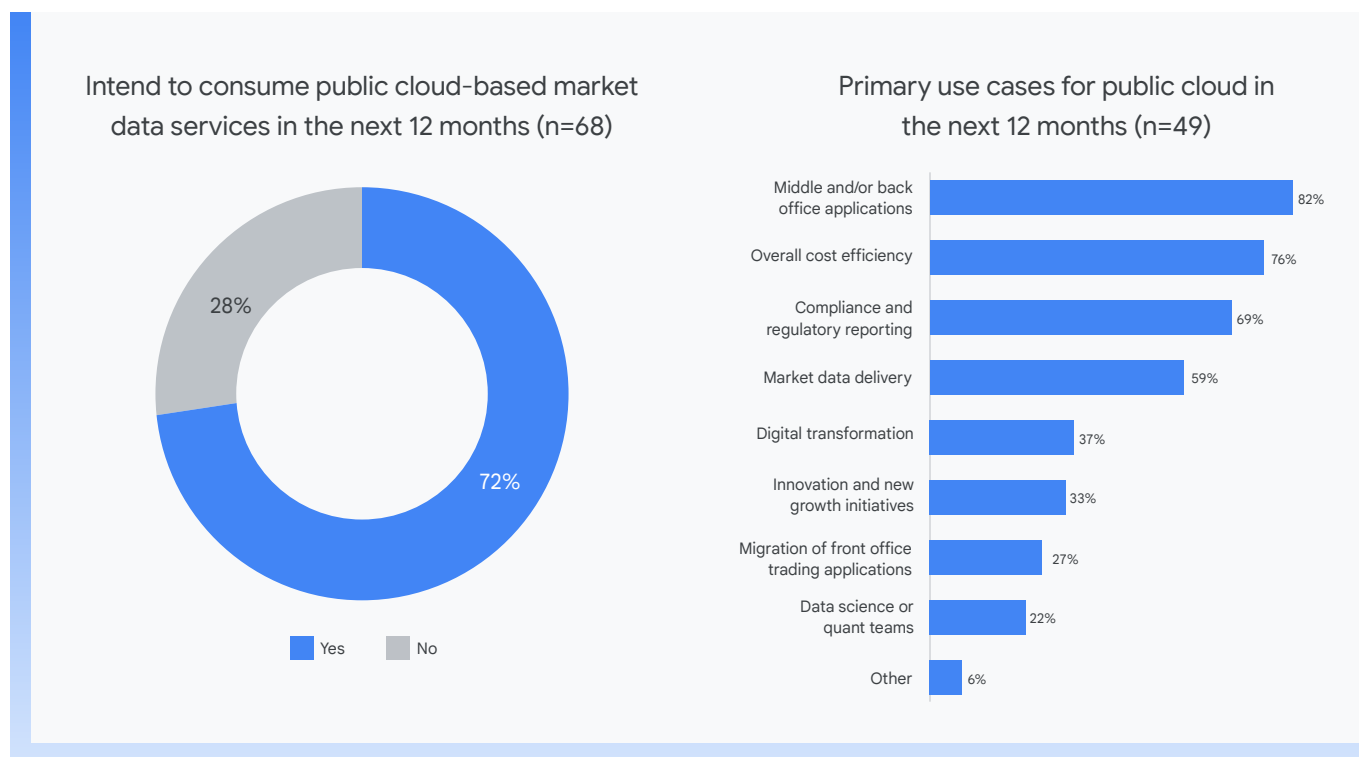Yes   No
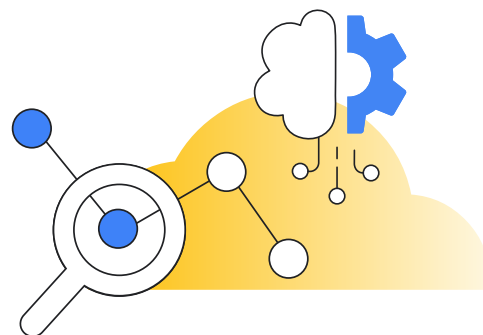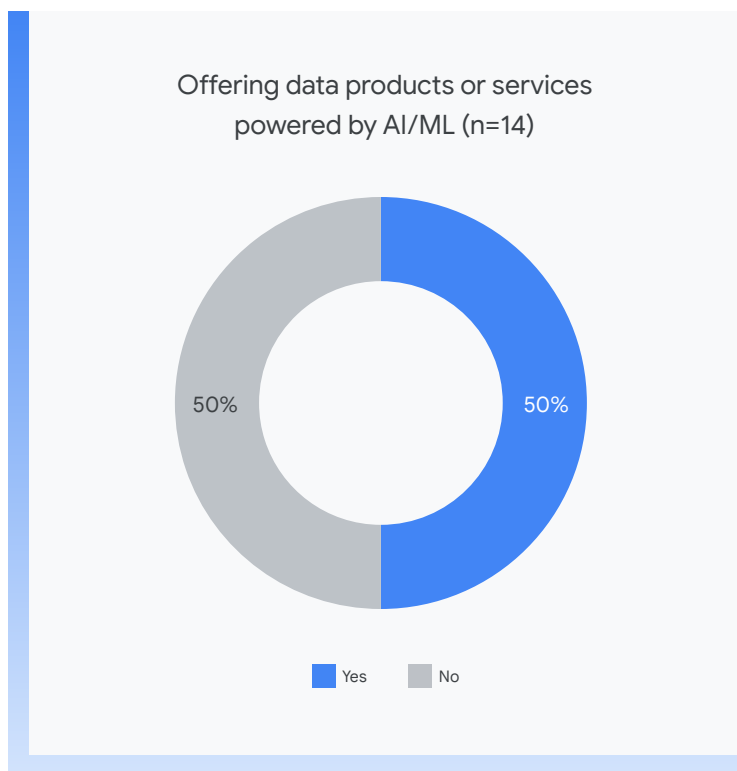
Public cloud adoption to accelerate

The market participants we surveyed are using both private cloud environments and public cloud platforms. With the existence of private cloud, hybrid cloud, and multicloud strategies, the use of public cloud for market data stands out as a distinct strategy for distributors due to its multi-tenant, hyperscale, and embedded AI/ML capabilities.

According to our study, 70% of surveyed buy side users intend to consume public cloud-based market data services in the next 12 months. This is a significant change from three to five years ago, when cloud computing was not used in live trading environments, and instead was used mostly by development teams.

As for the sell side, 88% intend to consume public cloud-based market data services in the next twelve months, with digital transformation, data science, and quantitative research as the top use cases.

Across all buy side and sell side users, 72% intend to consume public cloud-based market data services in the next 12 months. Middle- and/or back-office applications are cited as the top use case. Interestingly, driving cost efficiency isn't the primary use case for public cloud. These users reported compliance and regulatory reporting as a top three use case.

Figure 8. Public cloud growing in importance across buy side and sell side users

Intend to consume public cloud-based market data services in the next 12 months (n=68)

- Yes — 72%
- No — 28%

Primary use cases for public cloud in the next 12 months (n=49)

Use case	%
Middle and/or back office applications	82%
Overall cost efficiency	76%
Compliance and regulatory reporting	69%
Market data delivery	59%
Digital transformation	37%
Innovation and new growth initiatives	33%
Migration of front office trading applications	27%
Data science or quant teams	22%
Other	6%

Predictions

Coalition Greenwich sees new, dramatic shifts in the adoption of cloud across market data. The presence of cloud is increasing across the sell side, and ubiquitous among the surveyed large buy side firms. As adoption increases further across the long tail of asset managers, so do additional use cases. For instance, we observe new use cases for public cloud in areas like investment research, trading analytics and risk analytics, and see AI/ML being adopted further across public cloud workloads.

Importantly, the industry has come a long way in reducing the cost and complexity of the transition to cloud to improve accessibility.

Based on a continuation and likely acceleration of these trends, we expect the following in the next 12 months

Exchanges and trading systems will continue to launch a wide array of new cloud-based and possibly cloud-exclusive data services across derived data, end of day data, reference data, and pricing data.

Data providers will launch new data products such as pre-trade analytics powered by AI/ML in the cloud.

Commercial and investment banks will offer additional connectivity, real-time data feeds, and trading applications delivered via the cloud.

Buy side firms will consume even more cloud-deployed data, including real-time market data, portfolio management data, and risk analytics.

Overall, Coalition Greenwich expects further proliferation of cloud-based services and greater consumption by users across the trading and investing lifecycle.
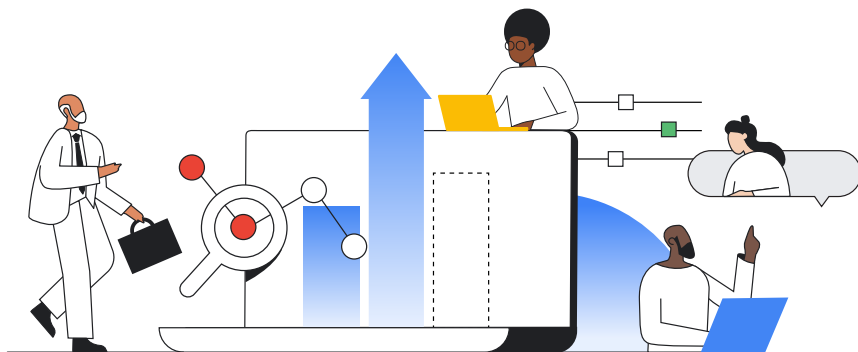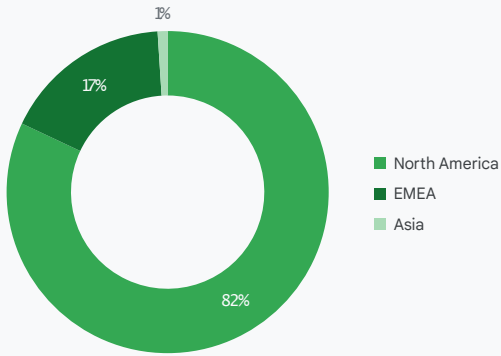
Overall demographics

Between February and April of 2021, Coalition Greenwich conducted online interviews with 102 executives at exchanges, trading systems, information providers, aggregators, hedge funds, asset managers, investment managers, commercial banks, and investment banks to better understand their approaches to market data consumption and distribution in the cloud, as well as the consumption of trading systems in the cloud. Coalition Greenwich also asked them about the specific use of public cloud in their market data and trading operations.
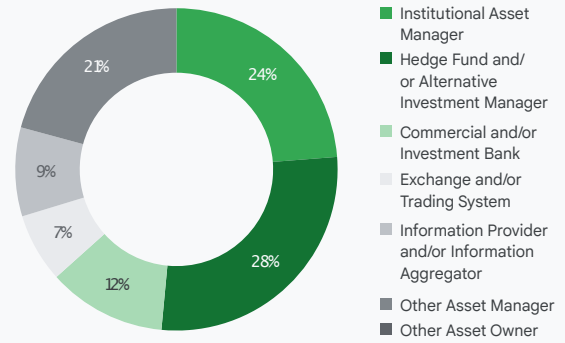
Interviews included a variety of market data professionals across the front-, middle-, and back-office, and the executive suite.

The vast majority of respondents were located in North America and Europe. The respondents were also spread out among different firm sizes, asset-class focus, and roles with respect to market data.
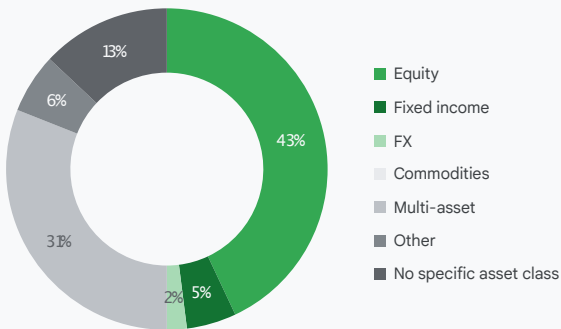
Google Cloud

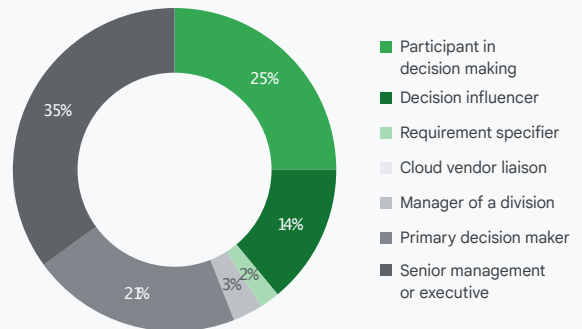## Region (n=102)

- North America
- EMEA
- Asia

1%
17%
82%

Organization type (n=102)

- Institutional Asset Manager
- Hedge Fund and/or Alternative Investment Manager
- Commercial and/or Investment Bank
- Exchange and/or Trading System
- Information Provider and/or Information Aggregator
- Other Asset Manager
- Other Asset Owner

24%
28%
12%
7%
9%
21%

Asset class focus (n=102)

- Equity
- Fixed income
- FX
- Commodities
- Multi-asset
- Other
- No specific asset class

43%
5%
2%
31%
6%
13%

Respondent job roles (n=102)

- Participant in decision making
- Decision influencer
- Requirement specifier
- Cloud vendor liaison
- Manager of a division
- Primary decision maker
- Senior management or executive

25%
14%
2%
3%
21%
35%

Employee count (n=102)

- Fewer than 100
- 100-999
- 1,000-9,999
- Greater than 10,000

18%
8%
8%
67%