Cloud as an Innovation Platform in Capital Markets

Lessons learned from the Innovators

Google Cloud
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Executive Summary

Public cloud, big data, and AI technologies offer competitive advantages and cost savings for capital markets firms ready to make the transition. This paper discusses the three phases capital markets firms go through in transitioning to public cloud, and the workloads, benefits, and cultural changes that characterize the three phases:

**Infrastructure Optimizers:** The first step on the public cloud journey, where firms focus on migrating specific workloads to save costs.

**Cautious Strategists:** Firms build on the success of their first public cloud migrations, and begin to change the way they develop technology to increase cost savings and start taking advantage of capabilities only available on public cloud.

**Transformative Innovators:** Firms shift to a fully public cloud-enabled mentality, and fully leverage the flexibility and agility of the public cloud to build industry-changing solutions and attract top IT talent.

Additionally, we reveal the five things that capital markets innovators who have advanced to the transformation phase do well in their adoption of cloud, big data, and AI technologies across the front, middle, and back office functions.
Introduction

The complexity of the technology and operational environments in which capital markets firms exist is continually increasing due to ongoing regulatory and market practice changes. The internet, the proliferation of content, the democratization of data and analytics, and the abundance of internet-connected devices and sensors have transformed information access and delivery. Firms are collecting more data than ever, both proprietary and external. Aite Group expects spending on alternative data sets to continue to grow at approximately a 20 percent CAGR, exceeding US$901 million by 2021.1

C-suite executives are therefore constantly seeking ways to keep operations lean and to gain a competitive edge by becoming smarter about new technologies, such as cloud, APIs, Machine Learning (ML), and Artificial Intelligence (AI). Hence, cloud has come into frame as a platform for innovation in capital markets.

Cloud Adoption Framework

The Google Cloud Adoption Framework—a streamlined framework for adopting the cloud—evaluates current business practices at the firm and suggests moving beyond the familiar people, process, and technology lens and looking deeper into how they work together. **Why?**

- Because it is only when firms bring people and technology together, that they create the skills and experience to thrive in a cloud-first world.

- Firms only drive meaningful change by bringing people and process together with a strong mandate top-down and the momentum bottom-up - where they have both leadership and employees across the organization evangelizing and taking on cloud.

- It is only when process and technology fit together that firms can scale - and see real improvements across their IT operations.

- In the center of everything is security. The move to the cloud for all companies always starts with security. In the cloud, it’s less about shielding off the outside world and more about the right person having access to the right resources from the right devices.

Fundamentally, the adoption journey is about firm's ability to continuously learn, effectively lead, efficiently scale, and comprehensively secure its environment.

*Figure 1. The Google Cloud Adoption Framework - learn, lead, scale, and secure*
Cloud Adoption Framework

According to the framework, current business practices in how firms approach learning, leading, scaling, and security, fall into three phases of cloud adoption: tactical, strategic, and transformational.

Each phase has distinct characteristics that define the firms operating in each of those phases. For the purposes of this paper, we identified the participants in each phase as Infrastructure Optimizers, Cautious Strategists, and Transformative Innovators.

Google Cloud commissioned Aite Group to survey 19 capital market firms to:

• See how the Google Cloud Adoption Framework is playing out at those firms.

• Identify what best practices the Transformative Innovators—the group at the forefront of change—adhere to today.

• Chart what the industry can learn from each group across these stages of adoption.

Figure 2. The Cloud Adoption Framework in capital markets
Methodology

This white paper is based on Aite Group’s conversations with executives with knowledge of their firm’s cloud technology adoption strategy at 19 global capital markets firms. It also includes proprietary Aite Group data gathered during research across the capital markets community during 2018.

The Infrastructure Optimizers

Infrastructure Optimizers display the characteristics of the tactical cloud adoption phase (see characteristics on page 14 here). Firms in this group primarily focus on reducing operational costs by migrating select functional areas to the public cloud. Typical migration targets are systems that underutilize internal compute and storage resources, or compute-intensive workloads such as research, risk modelling/stress testing, and scenario simulations. Infrastructure optimization through tactical migrations of select functions and workloads is an important part in the cloud adoption journey and should not be undervalued.

![Figure 3. The Infrastructure Optimizers in the Cloud Adoption Framework](image-url)
The C-suite is keen to eliminate large, upfront payments and shift to a flexible, pay-as-you-go subscription model—provided there is some predictability of cost on an annual or monthly basis. This includes the Tier-1 banking community, which has traditionally focused on building out hardware and data center capabilities. Not every bank has gone all-in on this move to the public cloud. Still, even stalwart data center builders are evaluating ongoing costs to reduce the technology footprint long-term. A chief technology officer for a Tier-1 global bank notes that his firm has built out a cloud-bursting environment to tackle on-demand capacity requirements of high-performance computing functions, such as regulatory data requests and stress testing. The cloud environment is also used for business-as-usual tasks, such as processing end-of-month, buy-side client accounting data. The firm is now better positioned to deal with the peaks and troughs of processing requirements on a daily basis.

A first step for capital markets firms on the cloud journey generally involves pushing development and test environments into the cloud, rather than mission-critical, core operating functions. A chief technology officer at a top-tier investment bank notes that a cloud environment can be a less vulnerable, low-risk zone for trialing new technologies, away from live data environments. Tactical migrations and cloud-as-a-sandbox is a well-trodden path for starting the public cloud adoption journey.
Moving to the Next Phase of Cloud Adoption

A number of business cases exist to convince internal stakeholders to move beyond a tactical approach to cloud adoption.

01 Embracing cloud partnerships to help foster and retain talent.

Capital markets firms have been struggling to attract and retain top technology talent over the last few years. One investment bank respondent notes that the firm’s IT department staff comprises individuals with more of a background in legacy technology support than next-gen tech development; this firm’s C-suite is keen to ensure there is more diversity in the future to mitigate key-person risk. The volatility of the markets, the backlash after the banking crisis that left banking jobs looking significantly less appealing for the younger generation, and the highly competitive environment for technology jobs across sectors have resulted in a dearth of talent in the pipeline.

And even once a financial institution manages to attract tech talent, retaining that talent may be difficult. The next generation of graduates has different working environment expectations, such as more open collaboration across organizations in business and technology development. The shine of employment with a capital markets firm can quickly wear off for recent graduates once they confront the reality of working in an environment where legacy technology and data silos lurk around every corner, and where corporate policies prohibit the use of many open-source tools developers rely on.

02 Focusing tech talent on solving core business problems.

The majority of capital markets participants recognize technology is not their core business. But the effort required to support in-house software builds hampers their ability to grow, and the resources required to keep pace with technology increase daily. Further, support for internal builds and heavily customized vendor technology often relies on IT staff that have deep understanding of the system architecture and technology environment; hence, key-person risk is high.

A third party’s ability to invest in technology and support operations at scale is one reason why some respondent firms have opted to work with cloud providers. Rather than relying solely on internal resources, firms are leveraging cloud resources to achieve faster time-to-market, especially regarding initial implementation and upgrades.

Their rationale is this: the move to cloud can be low-friction and offer quick benefits. A cloud environment can run in parallel with a firm’s on-premises technology environment, and firms don’t need to replace one for the other. A cloud environment enables business agility at a lower cost than on-premises deployment. It also reduces delays in decision costs by enabling pre-built services, and thus, a faster rate to adapt to new capabilities. IT and business resources can instead focus their efforts on building products and tools to support current and future client requirements.

Avoiding new software builds on legacy environments.

Legacy technology environments do not mix well with innovation; hence, cloud hosted environments have come into frame over recent years as a means to avoid building upon technology that is long overdue for retirement. These more flexible environments enable innovation- and digital transformation-focused teams to sidestep the large on-premises infrastructure investments required to support proof-of-concept (POC) work, while simultaneously developing cloud-native capabilities that position the firm more competitively for the future. Firms can spin cloud-hosted research and development environments up and down when required, better supporting business-as-usual alongside new business and technology initiatives. The introduction of a consistent DevOps layer across legacy technology and next-gen technology, via application programming interfaces (APIs), also facilitates experience consistency, both internally for the business and externally for clients down the road.
The Cautious Strategists

Cautious Strategists display the characteristics of the strategic cloud adoption phase (see characteristics on page 15 here). In this phase, firms shift their focus beyond immediate cost benefits to starting to change the way their teams develop and operate software solutions. This may include some degree of change to their teams, their applications and software tools, and their operating models.

These firms have already shifted key assets to the cloud and are now expanding their initial investments to pursue new customers and markets. Having advanced beyond the tactical cost optimization phase of moving discrete workloads into the cloud, they begin to embrace the broader vision: harnessing the public cloud to streamline operations, increase value across the enterprise, and transform their organizations to expand revenue growth in key areas. For instance, instead of building a data center in every country, forward-thinking capital markets firms can partner with a cloud provider to set-up operations and service clients in new geographic regions, rapidly and at little cost. This translates into greater speed-to-market and a lower total cost of ownership (TCO) for operations in those locations, with cloud vendors serving as key partners in their business development playbooks.
Building on Successes

How can Cautious Strategists move from the strategic phase to the transformation stage? First, firms should identify success stories from internal teams that have gone through the significant adoption changes regarding people, technology, and processes, then build on these experiences as the firm moves to the next cloud adoption phase. Firms should examine development efforts where business-line champions have implemented necessary changes to support cloud and next-gen technology adoption, leveling silos on the way toward true business agility.

01 Pivoting from tactical cost-saving projects to data transformation efforts.

The savviest Cautious Strategists have turned must-do tactical projects into more transformative efforts. Around seven years ago, a large investment bank moved its risk data store to a next-gen technology, public cloud-based environment with a view to reducing costs and increasing scalability. Since then, it has recognized additional, more strategic cloud environment benefits. While it has more work to do before moving all data flows from the legacy environment to the cloud, the C-suite has already apportioned funds for a data-cataloguing and workflow-support tool to load data onto the bank’s cloud-based, NoSQL platform. This effort is focused on building digital fingerprints of the firm’s data to automatically identify and track it over time, which could enable significant benefits to the firm’s ability to make strategic business decisions and improve its trading flows in the future.
Connecting the business to innovation and bringing startups in-house.

Some large investment banks have established on-premises startup accelerator hubs where entrepreneurs work alongside in-house innovation teams and benefit from hands-on mentorship. A chief innovation officer explains that the firm’s innovation and IT teams work hand-in-hand with startups to develop new processes and technology prototypes. A logical extension to this work is bringing these startups into the business units to better connect business lines to the development of technology solutions and services. This would enable firms to benefit from business- and function-specific sandbox capabilities, and reduce hurdles that innovation teams face in convincing the business to engage in transformational activities.

Moving beyond cloud computing to ML and analytics tools.

A Tier-1 investment bank’s fixed income, currencies, and commodities (FICC) trading IT head indicates that the firm has deployed cloud for its compute-intensive processes, but is now considering extending the environment to support ML for trading data analytics over the next couple of years. The firm is currently in the earliest testing and pilot phases for these capabilities, but the FICC team believes the cloud environment will provide benefits quicker than solely building capabilities and expertise on-premises.
The Transformative Innovators

Transformative Innovators display the characteristics of the transformational cloud adoption phase (see characteristics on page 15 here). In this phase, firms focus on the long-term objective of becoming a sustainable engine of innovation that powers business transformation.

![Figure 5. The Transformative Innovators in the Cloud Adoption Framework](image)

Public cloud offers flexibility and continued rollout of new features compatible with the tech stack, but the key to sustainable innovation is the right talent. Thus, if firms are to retain top tech talent and carve a competitive edge over their peers, they need to appeal to developers by embracing open-source development practices, including sometimes giving code back to open-source projects. Next-generation technologists are keen to work in a collaborative environment where they can benefit from the knowledge and experience of others, both inside and outside the financial services industry. Software development doesn’t have to happen in a vacuum, as long as the firm is able to closely track the use of code and ensure that risks related to cybersecurity and intellectual property are mitigated. Aite Group expects much more progress toward adoption of open source development in the capital markets in the next few years.
What Are Innovators Doing Well?

Learning from the tech industry.

As technology becomes more vital to non-tech companies, innovation can stall without a fundamental change in attitudes to building software. Adopting engineering-driven software operations methodologies from organizations that operate entirely in the cloud—continuous integration and continuous delivery (CI/CD), code reviews, unit and integration testing, source control, build systems, incremental rollout, reliability engineering, blameless post-mortems⁴, and others—accelerates payback while helping innovation to stay on track.

A key reason the tech industry builds software more effectively than other industries is their adoption of these practices. Tech industry leaders understand that while following these practices may slow down new code development in the short-term, it significantly reduces time spent on code maintenance down the road. As a result, these practices free people with valuable technical skills to continue to innovate. Cloud native technologies, such as Kubernetes and other “infrastructure as code” offerings enable these best practices more effectively than their on-premises counterparts.

Tech companies are also further along in adopting a “training first” or “lifelong learning” attitude. A few weeks of training can save months of ramp-up time and help to keep an organization up-to-date with the fast-changing world of cloud, especially in new managed services. According to McKinsey⁵, adapting to changing technology by finding new people every nine to 18 months who bring new skills isn’t enough: “There is a kind of Moore’s law at work, in which the capacities of these information tools are doubling every couple of years or less.” Continued training is also seen as more and more important to tech workers, who are coming to expect their employers to invest in keeping them current.

⁵https://www.mckinsey.com/business-functions/organization/our-insights/putting-lifelong-learning-on-the-ceo-agenda
Finally, tech companies understand that in the modern workplace, everyone is already a cloud worker, as everyone is connected\(^6\). 94 percent of survey respondents use laptop, smartphone, tablet, or wearable device while commuting, traveling, or at home. Meanwhile, cloud workers spend 4.6 hours of their day on average in a web browser\(^7\). Investment in security upgrades and a refresh of workplace policies is essential. Tech companies have recognized that valuable knowledge workers can be productive from many places— in the office, on the train, at home, and even on the beach. Remote work is still rare at capital markets firms, but occasional-to-semi-regular remote work has become table stakes for attracting top talent.

**Fostering an “everyone is a programmer” culture in the front office and bringing AI to the middle and back office.**

By democratizing the ability to build solutions across the business, rather than isolating those capabilities in innovation labs, firms can build better products for their clients. Code is easier to follow and more auditable and testable than traditional tools such as spreadsheets\(^8\). The front office may finally be less wedded to management via a spreadsheet, if the tools are more fit for purpose. To this end, the chief operations officer at a large global asset manager indicates that the firm is natively building its new applications for funds distribution and marketing in the cloud. This encompasses methodologies that enable a user-driven approach to delivering software, rather than building monolithic applications the firm has focused on in the past. It also means that the business has direct access to more tools for development.

Using sophisticated data analytics tools and ML to make better investment decisions and to build better products is becoming standard practice across the industry. Indeed, 77 percent of buy-side firms surveyed by Aite Group in 2018\(^9\) on the subject of alternative data indicated that they were in the process of establishing, or had already established, a strategy to use this data to inform their investment process. A chief data scientist from a midsize hedge fund (with less than US$100 million in AUM) indicates that although the firm does not manage a huge amount of client assets, it has spent more than US$5 million so far acquiring alternative data sources and building out related internal analytics tools. The firm has always been a quant-driven shop, relying heavily on unique data inputs and sophisticated analysis engines to build predictive models.

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\(^6\)https://cloud.google.com/chrome-enterprise/cloudworker/
\(^7\)A commissioned study conducted by Forrester Consulting on behalf of Google, Rethink Technology in the Age of the Cloud Worker, 2018.
\(^8\)https://www.bbc.com/news/magazine-22223190
The next big gains in AI are more inward-facing. These include areas such as trade surveillance, where the evolving sophistication of refined malicious behaviors makes identifying breaches increasingly challenging, especially without advanced tools that can isolate the urgent from the irrelevant. Moving from a rules-based review of electronic communications and compliance data to natural language processing refines data results and allows firms to more seamlessly integrate e-communications flags within the overall surveillance infrastructure. Similarly, cybersecurity could also benefit from more comprehensive and proactive activity monitoring by way of ML and AI-based tools.

Distilling insights from client communications more accurately is also on the radar for Innovators. A Tier-1 asset manager notes that her firm has already invested in data analytics tools to query client data, including unstructured information such as chat logs and terms and conditions documents. The firm has invested in data scientists and engineers with a view of building reporting and trend analysis tools using ML technology.

**Using data openly with strong controls and security.**

A chief information security officer at a Tier-1 global bank explains that regulations, such as GDPR, signal that the future of capital markets is in data access being granted by the end client—whether a retail investor or a large pension fund. Storing data in a manner where access can be granted or revoked easily across service providers—from large custodians through small service providers—will be essential to retaining business in the future. Firms simply must make data available to all areas of the business, where it is expressly permitted. Regulatory risks are minimized when data is securely stored, and business value can be unlocked from combining data across the silos that currently exist in nearly every large capital markets firm. Cloud-based services, such as advanced tools for data loss prevention, obfuscation, tokenization, encryption, and logging enables firms to secure, track, and monitor data stored in the cloud. This enables firms to meet the security, privacy and data lineage requirements of various data-related regulations and their users.
04  Adopting production ML systems.

There's more to ML than implementing an ML algorithm. A production ML system involves a significant number of components, such as data collection, data verification, machine resource management, analysis tools, feature extraction, process management tools, configuration, monitoring, and serving infrastructure. These components make up a large ecosystem; the model is only a single part. Firms need to fully adopt tools such as Kubeflow, CMLE, and TensorFlow, not because they build better models, but because the ecosystems they offer include model monitoring, prediction scaling, model rebuilding, error diagnosis, reporting, logging, and other functionality.

To support its trading operations, Grasshopper, a proprietary trading firm based in Singapore, has been using the Tensorflow open-source ML framework (originally developed within the Google AI organization), and the Cloud Bigtable NoSQL database service (optimized for large analytical and operational workloads). "The result for us is a distilled dataset that we push into our own servers, where another machine learning bot or process listens to live market data and makes decisions while we trade," explains Tan T-Kiang, chief investment officer at Grasshopper.

The Nimble Buy-Side Case: Mana Partners

• **Overview:** High-performance trading, asset management, and technology firm Mana Partners hosts many of its capabilities on the Google Cloud Platform.

• **The driver:** Rather than build anything on-premises, the equities and statistical arbitrage-focused firm chose to build nearly everything it required on the cloud, and benefit from the developer and data analytics tools offered by Google Cloud.

• **The result:** The cloud environment has been beneficial for the firm's flexible working environment. Data sharing across the team is easy and permissioning is maintained to ensure that the right people are receiving the right data.

"We've been on the cloud since we started, as we adopted the frame of mind early. We focus on our own specialization rather than trying to do things that have already been done by Google—they have the scale, why would we try and duplicate it? Plus, data encryption in the cloud environment means our data is secure." - Vitaly Dukhon, Senior Vice President of Equities Strategy, Mana Partners

10https://developers.google.com/machine-learning/crash-course/production-ml-systems
11https://cloud.google.com/customers/grasshopper/
Committing to open-source software with serverless applications.

Time is money, and not having to provision, manage, tune, and support infrastructure—such as virtual machines, Hadoop/Spark clusters, and databases—allows employees to focus on building systems and learning from data while improving time-to-market and project ROI. Using open-source code rather than starting all software projects from scratch also enables faster innovation, provides tighter security, and offers freedom from vendor lock-in. Sharing changes to open-source software with the public permits a richness of thought and a continuous feedback loop with users. Numerous capital markets firms, such as JP Morgan, Goldman Sachs, and Bank of New York Mellon, have begun to champion open-source development and participate in related industry groups, such as the Fintech Open Source Foundation (FINOS).

A Tier-1 investment bank currently working on open-source projects indicates that the key benefits recognized by the firm’s C-suite are less dependency on vendors and the ability to run systems at lower cost. The move is not without risk, however, as the firm has to keep a close handle on the source code underlying each of its development efforts. To this end, the legal team has gained expertise in tracking intellectual property in this area.

Another Tier-1 bank champion notes that his firm used managed services to develop a more sophisticated client support system to connect all of its communication channels to a data visualization tool, which has improved the bank’s sales and client relationship management. The development process was much quicker than its previous efforts, and the business has benefited accordingly.
The MiFID II RegTech Case: AppsBroker and Project Sentinel

- **Overview:** At the start of 2017, a consortium of capital markets firms united to partner with Appsbroker and Google Cloud to address MiFID II reporting requirements under the banner of Project Sentinel.

- **The driver:** A significant part of MiFID II focused on client management - requiring firms to identify traders and salespeople, capturing their interactions with clients around a wide range of asset classes, for both electronic and voice-based trading activities. A viable platform was required to capture the necessary data points and timestamps for MiFID II's increasingly demanding reports, such as best execution (RTS 27/28) and transparency, and to mutualize the cost of implementation across the consortium of firms.

- **The result:** These firms can now quote and trade with clients, safe in the knowledge that they are compliant, flagging trade and transaction reporting requirements in real-time as the trade is negotiated with the client. In addition to using it for MiFID II compliance, they can also track sales activity at the desk level, and can more closely tailor their approaches to client requirements. The project has therefore enabled a return on regulatory compliance investment by providing intelligence back to the business.

> “Working with Google Cloud allowed us to build the functionality required in a more dynamic and cost-efficient manner. Google’s strength is enabling data analytics at scale in a secure environment with data storage tracking and encryption capabilities as standard.” - Alex Wolcough, Director, Appsbroker

The Next-Gen Case: Digital Asset

- **Overview:** Distributed ledger technology (DLT) platform provider Digital Asset has been working within a cloud environment since it first established operations four years ago.

- **The driver:** Digital Asset opted not to build its own infrastructure and has been able to benefit from a development and testing environment that can be spun up and down as required. As a Kubernetes-based developer, Digital Asset felt it was most practical to move from its incumbent provider to Google Cloud. Digital Asset’s client base may be keen for on-premises deployments of DLT, but clients are happy to work in the cloud for demonstration and testing purposes.

- **The result:** The DLT platform could now potentially benefit from adjacent ML capabilities in the future.

> “Last year, Google also offered a bespoke partnership approach to the vendor, rather than a standard software-as-a-service package, and workload costs were considerably more cost efficient.” - Dan O’Prey, Chief Marketing Officer, Digital Asset
Outlook for the Future

Although there are no investment bank or institutional broker startups on the scene, the traditional ways of making margins have thinned, as electronic trading has increased and front office services have become commoditized. Differentiating between providers has become more challenging for buy-siders, who face pressure to improve services and stave off negative impacts of the rise of passive investment and zero-fee products. Future growth requires a re-evaluation of current market practices. A change in the way firms navigate cloud and next-gen technology adoption will be necessary.

Firms may be at varying stages of the cloud journey, but lessons can be learned at each stage.

**Communication and transparency remain key:** By communicating the progress being made, teams working on next-gen tech projects gain more business buy-in for their innovation efforts, making the goal of changing the firm’s DNA to become more innovative ultimately possible. Making sure the team retains C-suite interest and support is predicated on continued and transparent communication and dialogue, even if change arises along the way.

**Measuring and monitoring progress in a formalized manner is important:** Proper evaluation of what went right and what went wrong in various programs of work is necessary to prevent firms from duplicating errors. Monitored findings need to be fed back into a formalized review, where the business and technology teams learn from failures and successes together. Teams may not wish to share their experiences outside the firm’s walls, but if the industry wants to keep pace with technology change, then the shared fail-fast mindset, done securely and without exposing existing assets to undue risk, needs to be adopted eventually.
Firms can learn a lot from looking outside the industry: Capital markets firms can learn a lot from what the technology sector started a decade ago in terms of software development methods and fostering and governing innovation. A growing number of financial institutions are applying AI to customer advice and interactions, laying the groundwork for self-driving finance. Consider healthcare’s use of the cloud to integrate disparate computing platforms and aggregate fragmented data for the sake of improving provider, hospital, and patient collaboration. Or the insurance industry’s rapid expansion of cloud to improve business processes, such as claims handling, while core resources focus on new products, service enhancements, and business growth. Even old-line energy and utilities companies are turning to the cloud to enable global smart-grid-as-a-service capabilities through fully managed services.

No matter where you are on the cloud adoption continuum—from Optimizer to Strategist to Innovator—there is much to gain from advancing your own cloud agenda. Take a few cues from what those ahead of you have already learned, find a willing partner who understands your business and has the resources to support your vision long-term, and leverage today’s evolving cloud environment to your business advantage.

The Front Office Data Analytics Case: Kx

- **Overview:** In-memory, time-series database technology provider Kx works with all of the main cloud providers.
- **The driver:** The rising pressure to store high volumes of data over time creates a real desire to reduce TCO for storing decades’ worth of information.
- **The result:** Once in the cloud, firms acquire an unlimited amount of technology power to develop new classes of applications for market data and compliance activities.

“To help with the data migration, Google Cloud offers tools for data ingestion. It also owns significant infrastructure, which is important to investment banks that manage data in a lot of regions, especially in light of regulations, such as GDPR,” said **Glenn Wright**, Systems Architect, Kx
About Aite Group

Aite Group is a global research and advisory firm delivering comprehensive, actionable advice on business, technology, and regulatory issues and their impact on the financial services industry. With expertise in banking, payments, insurance, wealth management, and the capital markets, we guide financial institutions, technology providers, and consulting firms worldwide. We partner with our clients, revealing their blind spots and delivering insights to make their businesses smarter and stronger.

About Google Cloud

Google Cloud is widely recognized as a global leader in delivering a secure, open, intelligent, and transformative enterprise cloud platform. Our technology is built on Google’s private network and is the product of nearly 20 years of innovation in security, network architecture, collaboration, artificial intelligence, and open-source software. We offer a simply engineered set of tools and unparalleled technology across Google Cloud Platform and G Suite that help bring people, insights, and ideas together. Customers across more than 150 countries trust Google Cloud to modernize their computing environment for today’s digital world.
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If you’re interested in learning more about Google Cloud, have a look at our solutions for the financial services industry.