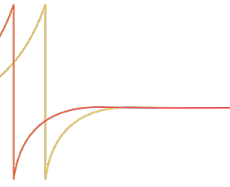


Operational excellence and hybrid cloud

How financial services firms are sustainably transforming their operations.

September 2023

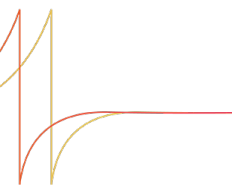


The cloud experience thus far

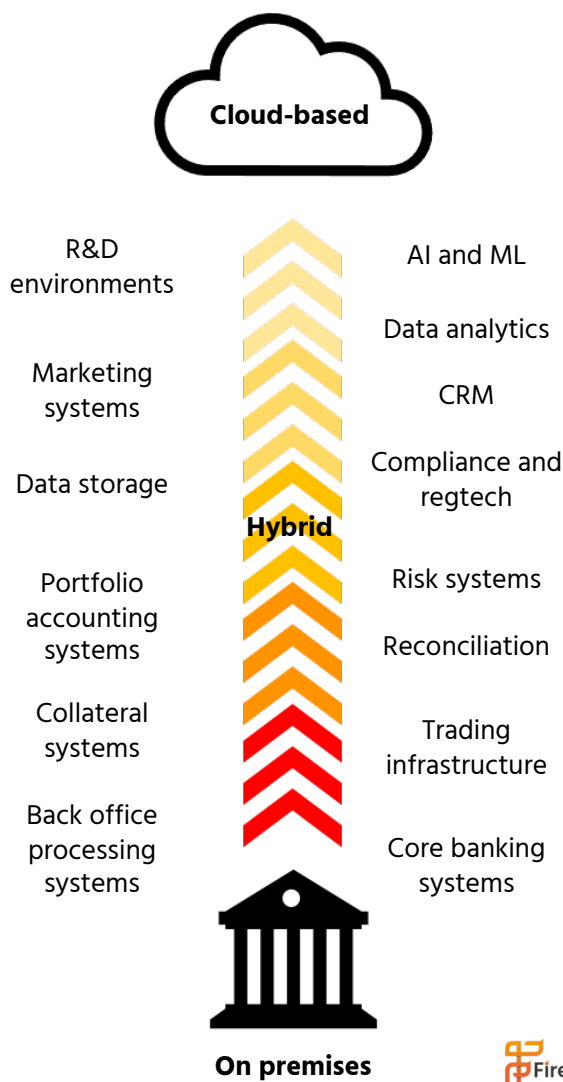
The adoption of cloud-hosted technology within the financial services sector has been gradual and relatively slow-paced, but many important lessons have been learned as the industry has transitioned various functions and technologies to cloud environments. The post-pandemic market volatility and the increased need to support hybrid working across various demographics in the industry have both enabled cloud environments to prove their worth. Cloud environments can reduce the time taken to scale up and down to accommodate large workloads from weeks to minutes, for example, which was beneficial for firms struggling with increased workloads as markets experienced extremely volatile conditions. Establishing remote access for employees working out of the office is also much quicker and often easier with a cloud-based set-up.

Cloud-hosted platforms are perfect environments for testing next generation technology because of their elasticity in terms of compute power, they can be spun up and down as required. Their separation from other internal systems and technologies means these experiments can be conducted in a secure environment without impacting business as usual in terms of capacity. This is important as the financial services industry continues on its digital transformation path and banks trial new technologies such as artificial intelligence (AI) or machine learning (ML), both of which require high volumes of data.

The below graphic highlights a functional view of cloud adoption in financial services, indicating that as well as research and development environments, analytics tools, client relationship management (CRM) and marketing tools are often cloud hosted. These functions are more client facing, often providing a web-based front-end, and less sensitive in terms of data privacy in the case of marketing information. As long as regulatory obligations such as those under the EU's General Data Protection Regulation (GDPR) are met in terms of data location and security, cloud environments can play host to sensitive client data.



A functional view of cloud adoption



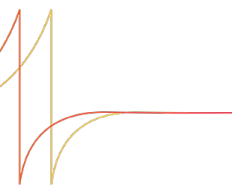
The more embedded legacy systems such as those focused on core banking or back office processing support tend to remain on premises. Though some firms have engaged in a 'lift-and-shift' approach with legacy technologies, these strategies have tended to deliver poor results in terms of cost savings. Given that these functions are frequently viewed as cost centres rather than revenue generators, there is less incentive for firms to move these environments to the cloud.

Lessons learned

Of course, cloud does come with numerous challenges and risks attached. The failure of many cloud projects to deliver expected cost savings has been much discussed within the financial services sector over recent years, particularly if the implementation doesn't involve an

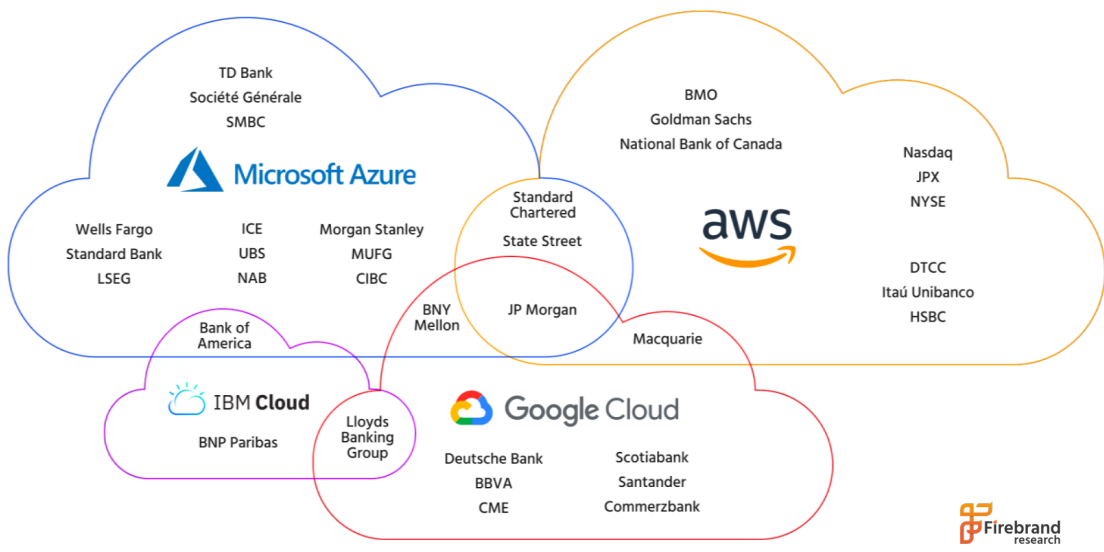
aspect of technology transformation to cloud native systems. The rising costs of datacentres due to the changing environmental considerations and sustainability requirements in various jurisdictions that are compelling datacentre providers to rebuild and significantly alter their premises have contributed to this dynamic. Some banks have been compelled to bring cloud-hosted systems back onto their own premises, especially in-house builds with predictable workloads that can be more cost-effectively serviced by existing bank infrastructure. The economics of lift-and-shift don't often stack up against retaining legacy infrastructure on premises.



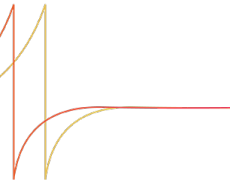


Regulators have regularly emphasised the importance of ensuring operational resilience within the financial services sector post-pandemic, particularly for large banking organisations and market infrastructures. The current geopolitical environment has also influenced the regulatory desire for firms to bolster their cybersecurity measures, including their business continuity arrangements. This, in turn, has compelled many firms to evaluate the benefits of a multi-cloud set-up. However, as indicated by the Firebrand graphic below, the majority of banks and market infrastructures have yet to establish strategic relationships with more than one cloud provider.

Strategic cloud partnerships in financial services



The lack of a multi-cloud set-up effectively means that firms must retain certain capabilities on premises to ensure that if and when a cybersecurity or operational resilience issue occurs, the firm can resume and maintain critical operations. The Digital Operational Resilience Act (DORA) in Europe and the various Securities and Exchange Commission (SEC) regulations such as the update to Reg SCI in the United States reflect the global regulatory focus on cybersecurity and operational risk mitigation to this end. Regulators are encouraging the mirroring of critical operations to ensure that the industry



can remain online even if cyber-attacks are successful or operational outages occur at cloud data centres.

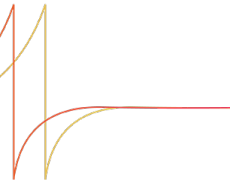
The US Federal Reserve, the Federal Deposit Insurance Corporation (FDIC), the Department of the Treasury and the Office of the Comptroller of the Currency (OCC) also updated their interagency guidance on third party risk management in June 2023¹ to stress the need for greater oversight of third party dependencies. This focus on third parties is common across numerous regulatory guidelines including those published by the UK's Financial Conduct Authority (FCA) and the Monetary Authority of Singapore (MAS). These regulators are keen for firms to mitigate their risk exposure to third parties and at an industry level, monitor the concentration risk posed by dependencies on a small number of cloud providers.

Another key lesson learned by the industry over the last decade is that the transition to cloud can take a lot longer than anticipated. Cloud native technology capabilities have come a long way during that time and the lack of availability of experts that have kept pace with the rate of change is a challenge for firms. The transition to cloud technology must also be carefully implemented to avoid adding potential cybersecurity weaknesses. Expertise is necessary to ensure successful and secure implementations, but attracting and retaining technology talent internally is increasingly difficult.

The path to operational excellence

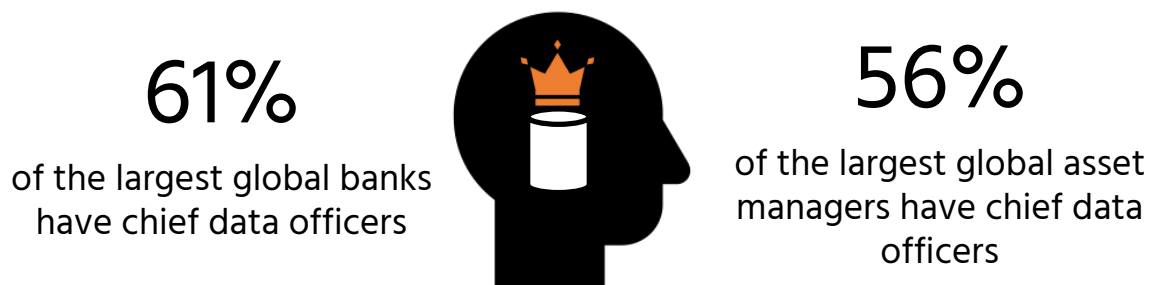
Much like overcoming the wider challenges that face firms in attempting to digitally transform their businesses, the cloud transition requires firms to bear in mind several factors. Not every firm is at the same stage of evolution in its move to the cloud and 100% cloud hosting isn't going to be the end goal for every firm. It may be suitable for a hedge fund, but is unlikely to be appropriate for a large, global bank, for example. Determining the requisite model for operational excellence requires consideration of all

¹ [Interagency Guidance on Third-Party Relationships: Risk Management](#), Federal Register, June 2023.

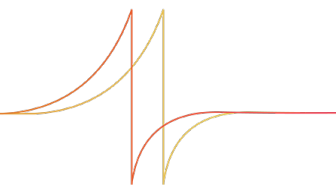


of the available and suitable options, including multicloud environments and hybrid cloud.

One of the defining characteristics of a modern financial services transformation strategy is the recognition that data is at the heart of the business, which requires moving from a siloed product-centric view of the business to a more data-centric view. One of the ways to successfully support such a transition is the installation of a chief data officer to lead and coordinate the business, technology and operations changes. As indicated by the Firebrand graphic below, a significant number of the top 100 global banks have chief data officers in place and over half of the largest asset managers also have a C-suite data-focused executive.



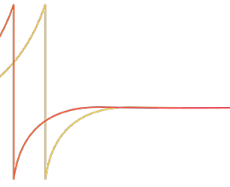
Enabling the business to access data seamlessly from wherever it is stored within an organisation as and when it is required is a key priority for chief data officers and their teams. This has led to the introduction of new data tools and technologies including platforms such as Snowflake to increase data storage capabilities in the cloud, or the addition of data lakes and data fabrics. The goal of these efforts is often also tied to building out new data services for existing and prospective clients and allowing incumbent financial institutions to keep pace with nimbler and more digitally native new market entrants from the fintech sector. It is also tied to the deployment of next generation technologies that are data-intensive such as AI and ML.



Another important aspect to the transformation of the financial services industry is the move to a more sustainable business model in the face of climate change. Banks, market infrastructures and asset managers are all under increased scrutiny around their plans to reach net zero by a defined date and the increased popularity of environmental, social and governance (ESG) strategies within the investor community has raised the stakes even further. ESG scores can impact the share price of financial institutions and negative publicity around environmental issues can have a damaging impact on client relationships. This means that sustainability has become a core part of the business decision-making process when it comes to the deployment of new technology or infrastructure.


There is a renewed industry focus on hybrid cloud because of the benefits of containing cost where necessary and building in scalability and transforming technology where required. Some of the aspects to bear in mind in this endeavour include:

- **Resilience is of paramount importance:** Firms need to demonstrate to regulators and their clients that they are able to bounce back from an operational outage or a cybersecurity breach. Understanding and mitigating dependencies on single providers for critical functions is one aspect of this, but so is having a game plan in place for how to respond if and when these incidents occur.
- **A gradual approach is necessary and high availability must be maintained:** The retirement of legacy systems and the transition to cloud-native technologies cannot usually be done in a 'big bang' manner, especially for large firms. It necessarily entails maintaining business as usual for clients while transforming core operations and modernising systems, which is similar to changing a plane engine while in flight. This is more effectively achieved in a gradual, phased manner, where implementations can also deliver key changes and prove their worth back to the business heads incrementally. High availability of data must be supported throughout the whole process.
- **It's important to plan for future scalability:** The current market volatility and the huge number of black swan events over the last five years have demonstrated



that firms can't plan for everything. However, building in the ability to scale to meet the requirements of the business as it grows, both organically and inorganically, is important. Cloud environments are perfectly designed to scale to the requirements of unpredictable workloads. This doesn't necessarily entail placing an entire environment in the cloud, it could be achieved via cloud bursting, where extra capacity is added, when necessary, in the cloud.

- **Not everything necessarily needs to move to the cloud:** Firms have spent a lot of time and effort building out their own on premises capabilities. For functions with predictable and stable workloads, these environments are likely to be cheaper on premises than in a cloud environment. Prioritising the functions that are most in need of transformation with next generation technology and transitioning those to the cloud is a much more sensible option than a full lift and shift.
- **Cyber-threats will evolve, which means expertise is important:** Transitioning to a new technology environment always involves some degree of project risk, but cyber-threats can be mitigated by working with experts that understand both the new technologies and their potential cybersecurity gaps and risks. Cybercriminals continue to innovate, so keeping pace with these changes is important over time.
- **Over-dependency on IT teams should be avoided:** One of the lessons the banks that have typically been builders have learned over the recent decades is that the more bespoke the technology, the higher the key person risk. IT bottlenecks can also slow down development and support if these teams have a high number of bespoke systems to support. This is why many firms have adopted a buy and build approach, where external providers can assist these firms in keeping pace with necessary changes.
- **Bear in mind regulatory constraints on data location and processing:** GDPR may have been the first major regional regulation to dictate the location of data



processing activities, but it certainly isn't the only such regulation in place globally. Firms need to keep a close handle on where and how data is being stored and maintained, including ensuring that it is deleted as dictated by regulatory requirements.

- **Sustainability criteria should be part of any assessment:** ESG scores can have a big impact on share prices and client relationships, so financial institutions need to consider the environmental impact of any of their digitalisation choices. Being able to assess and monitor carbon emissions so that these can be reported to regulators and clients as necessary is table stakes.

Cloud technology is a key component within the financial services sector's digital transformation journey but it is far from the only component and its deployment needs to be considered carefully in terms of cost and ongoing requirements. Firms need to right-size their approach to cloud environments as dictated by clients, business needs and regulatory requirements. Resilience and cybersecurity must also be at the forefront of any of these plans, only then can firms successfully modernise their infrastructures for the future.



Key Takeaways

- **It has been a slow journey thus far:** The adoption of cloud-hosted technology within the financial services sector has been gradual and relatively slow-paced.
- **Cloud can be a great environment for next generation technology:** Cloud-hosted platforms are perfect environments for testing next generation technology because of their elasticity in terms of compute power, they can be spun up and down as required.
- **Cloud doesn't always deliver cost savings:** Though some firms have engaged in a 'lift-and-shift' approach with legacy technologies, these strategies have tended to deliver poor results in terms of cost savings. Hybrid cloud options may be a more cost-effective approach to supporting operations in the medium term.
- **Operational resilience is front of mind for regulators:** Regulators have regularly emphasised the importance of ensuring operational resilience within the financial services sector post-pandemic. The current geopolitical environment has also influenced the regulatory desire for firms to bolster their cybersecurity measures, including their business continuity arrangements.
- **Expertise is important to avoid cybersecurity pitfalls:** The transition to cloud technology must be carefully implemented to avoid adding potential cybersecurity weaknesses. Expertise is necessary to ensure successful and secure implementations, but attracting and retaining technology talent internally is increasingly difficult.
- **Data is at the heart of digital transformation:** One of the defining characteristics of a modern financial services transformation strategy is the recognition that data is at the heart of the business, which requires moving from a siloed product-centric view of the business to a more data-centric view.



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