

Data Innovation Opportunities in Banking and Finance

How data layer technologies can position financial institutions to succeed in a marketplace that is getting tougher.



Executive summary

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The financial services sector faces serious challenges around strained margins, changing customer behavior, and competition from digital-native market entrants. Not surprisingly, these challenges have been exacerbated by the Covid-19 pandemic. However, tackling these challenges offers the sector an opportunity to expand its reach and launch new products and services. This report looks at four areas where data-layer technologies in particular can help traditional financial services firms overcome the challenges and profit from new opportunities.

First, customers increasingly demand an omnichannel experience from their financial services providers. Traditional banks that successfully implement such a strategy can turn their physical branches into a competitive advantage, see improved recommendation rates, and encourage customers to take on more products and services.

Second, regulatory changes are requiring financial institutions to share customer data through open banking processes. But meeting these standards is not just a cost. In the UK, which was one of the first countries to adopt open banking, the measures have been shown to unlock new revenue opportunities.

Third, financial institutions face a growing threat from fraud and cybercrime. Data layer technologies can help finserve companies meet these challenges, giving customers confidence that their financial security is in good hands.

Finally, availability and scalability are vital to ensuring that new and innovative services can actually be delivered to customers, providing banks with the flexibility to meet changing conditions and build customer trust.

Data is vital to meeting all of these challenges. Financial services companies that flourish in the coming years will be those that are able to make the most of that data.

Introduction

The banking and financial services sectors face complex challenges ranging from historically low interest rates depressing the top line to a tough regulatory environment in the wake of the 2008 financial crisis. Meanwhile, a shift in both consumer and industry behavior is changing expectations. Younger generations, who represent a large and growing portion of consumers, are demanding a better digital experience, while business customers' expectations are being set by their experience as digital consumers. Increased costs from things like cybersecurity are further squeezing margins. Large traditional financial institutions don't have the luxury of time to cope with these challenges as they also face growing legions of new, digital-native challengers.

To compete, traditional financial services companies are moving away from legacy, on-premises IT systems and embracing cloud architectures, artificial intelligence (AI), and the increased use of analytics. Every single middle-market asset management, insurance, and financial institution surveyed by BDO in 2020 said they have developed, or are planning to develop, a digital strategy. But despite the fact that literally everyone is working on a digital strategy, only a quarter (27%) of those institutions are executing their strategies.

The challenges have only been heightened, and the pace of change accelerated, by the Covid-19 pandemic. PwC has warned that credit quality could deteriorate rapidly and markets are likely to be volatile, affecting business stability, while warning that dealing with customers with cash-flow problems could "damage your public image if not handled well." The ongoing effects of 2020, like those from the 2008 crash, will likely persist for years.

Concerted efforts are required to handle the disruption, such as staying close contact to business partners and regulators, reviewing portfolios to identify potential risks, and developing realistic yet compassionate guidelines for late or missed payments. But this is no time to despair. These daunting challenges are also opportunities to grow your market share, develop new services, and reach new customers. The companies able to do this most effectively are the ones that will flourish in the decade ahead.

Fortunately, there are technological solutions that can increase resilience and flexibility, such as a best-in-class data layer that can enable key organizational objectives while also improving operational efficiency. That's what Redis Enterprise can offer. This paper considers examples of how Redis can be an essential element in helping banks and financial institutions meet today's challenges and unlock the associated opportunities.



1. Omnichannel

Customer expectations have changed. Younger generations—Millennials and Generation Z—who have grown up with digital technology now make up a large portion of the customer base for financial institutions. These customers expect online and mobile banking and they want their account details to be accessible on every platform at any time. If they start a transaction on their laptop, for example, they expect to be able to continue it seamlessly by phone or at a branch. While 17% of over-55s expect to bank more online over the next 1-2 years, according to an EY survey, more than a quarter (28%) of under 35s do.

An omnichannel platform is an opportunity to transform customer experience, which brings significant benefits. According to Kantar research, banks that lead in customer experience have a higher recommendation rate and their customers are more likely to try new products and services. In contrast, banks that offer a poor experience typically see their share of deposits decline.

For older customers and those with less access to digital tools, face-to-face interactions in bank branches remain important. The costs of maintaining a branch network has been a burden for many financial services firms, but an omnichannel strategy can transform those branches into an advantage. Retailers have already embraced the omnichannel trend and banks have the opportunity to follow suit. In this model, face-to-face becomes just one of a range of connected channels—one that digital challengers cannot match.

However, as many physical branches have been forced to close or reduce hours and capacity during the Covid-19 pandemic, the need to rely on other parts of the omnichannel strategy has been accelerated. Many call centers have also been affected, with reduced capacity due to staff working from home. In a Harvard Business Review study, the percentage of customer service calls rated as “difficult” have more than doubled during the pandemic. That can put an extra burden on digital channels, which companies must account for.

At the heart of an omnichannel strategy is the need to put the customer at the center of the experience. A 2020 PwC study found that 75% of banks are investing in a more customer-centric experience, but just 17% say that they are “very prepared.”

Companies often focus on optimizing application response times as the first step, and Redis Enterprise is used by many as a high performing in-memory data layer that ensures consistently low latency for users. But banks shouldn't stop there. Redis Enterprise has also been used in other ways that improve the customer experience—for instance as a session store to more intelligently manage interaction history during customer service calls, and as a secondary indexing engine to help customers search through their account-transaction history. The high write throughput and low latency required to update customer profiles in real time for tasks like credit-risk analysis and identity verification make Redis Enterprise an ideal choice for retail banks building an omnichannel experience.



2. Open banking and regulation

"Data is now driving the global economy—just look at [...] the world's most valuable companies. They collect and exploit the information that users generate," wrote BBVA group executive chairman Carlos Torres Villa, in the Financial Times. "But companies are hoarding data too, preventing others, including the users to whom the data relates, from accessing and using it."

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Open banking is a regulatory attempt to address data hoarding in financial services by making it easier for customers to share their data with other providers. Early movers on open banking include the US; the UK, where usage of open banking functionality doubled in the first half of 2020; and other European countries. More recently countries across the world, from Hong Kong to Canada, have begun to move toward open banking.

The idea is that customers should be able to easily move their money between different providers, use third-party tools such as money-management apps, and combine all their various services—no matter who provides them, from checking accounts to store loyalty cards—in one place. As open banking becomes a requirement in more and more jurisdictions, financial services companies need to make sure it is secure and works as intended.

Although regulatory changes are an obligation, they can also create big opportunities for new services. This starts by giving users more of what they want and providing a better service. Beyond that comes an opportunity for the entire sector to become more collaborative and less siloed, opening the way for new products and services. In the UK alone, for example, research suggests that open banking represents an estimated £7.2bn revenue opportunity in terms of new services that can be offered and greater use of existing services.

Even though the US has shown little sign of open banking laws that would oblige businesses to implement particular standards, there is still a good reason for banks to pay attention. First, as with European rules such as GDPR, banks that operate in Europe or elsewhere in the world must be prepared to comply with local open-banking rules. Second, in the absence of regulatory moves, the market is driving some of these changes. Financial apps like Mint were early proponents of data sharing, for example, and as companies like these introduce a better customer experience, companies that can't keep up risk being excluded from growing markets.

As demand for data increases, so does the need for a platform that can scale elastically on demand in response to traffic. Solutions to ensuring the scalability of open banking platforms can perhaps be found in other areas, such as the realm of securities trading. In the case of international exchange organization Deutsche Börse, Redis Enterprise helped ensure timely data reporting to both regulators and customers. The company relies on Redis Enterprise as a cache for a data warehouse used for regulatory compliance, ensuring that every quote and trade is processed in Redis with low latency while also guaranteeing on-demand scaling, high availability, and automated deployment.

As regulators in the UK and Europe seek to drive increased competition and innovation by opening up customer banking data to third parties.

Redis Enterprise can enable banks to deliver a full range of services using APIs based on a microservices architecture.



3. Security

Open banking and omnichannel approaches can make financial services companies even more tempting targets for cybercriminals and fraudsters. But there are also opportunities to be found amid the threats. Handling risk more efficiently brings cost savings and frees development teams to work on revenue generating tasks. There is also a reputational bonus to companies that can boast of paying extra attention to security of personal data.

Even the best companies must stay ahead of security challenges or risk catastrophic consequences. However, detecting fraud is becoming more difficult in a world where applications and customer data are more distributed than ever. Security is a constantly shifting problem, as new tools bring new weaknesses and evolving tactics by bad actors create new challenges.

Thankfully, there are powerful options for companies that want to deliver responsive applications and websites without compromising security. Security tools deployed in the data layer can increase responsiveness, thus improving customer experience, and can be more cost effective than the alternatives, which is important when margins are under pressure. For instance, Redis Enterprise provides the highest level of data security in Redis by providing access control lists (ACLs) and role-based access control (RBAC) so that access to database keys and commands are limited to specific groups of users.

Companies are also leveraging Redis Enterprise's sub-millisecond latency to power real-time fraud detection systems. One such example is Simility, a PayPal service that provides cloud-based fraud detection combining machine learning (ML) with human intelligence. The company chose Redis Enterprise as a database supporting its fraud detection service so that it could continue guaranteeing low latency to its users while processing millions of connections and billions of transactions per day.

Redis Enterprise can also bring the power of in-memory processing to other components of a fraud detection system. The RedisGraph module enables fast graph processing that can be used to detect synthetic fraud. RedisAI brings real-time AI model serving to power more efficient transaction analysis.



The costs of fraud and cybercrime

It's estimated that cybercrime could cost banks as much as \$350 million over the next five years. That's because many organizations simply aren't ready for the threat. Financial services companies need to manage the risk to their data from accidental breaches to cyber attacks and fraud. A significant amount of the threat is automated, with bot attacks increasing by 19% between 2019 and 2020.

The consequences can be enormous, from reputational damage that can negatively affect customer loyalty to stock depreciation as investors jump ship in reaction to bad publicity. Direct financial losses can be compounded by heavy fines from regulators and settlements with affected customers.

Put it all together and the price tag can reach into the billions. The 2019 Capital One data breach, for example, saw the bank's share price fall 5.9%, while the cost of the 2017 Equifax breach has already cost almost \$2 billion and the final cost, depending on customer settlements, could approach \$10 billion.

4. Availability and scalability

All these drivers of change can be the springboard to new partnerships, service offerings, and products, but only if there is a robust and reliable system underpinning it all.

It's not optional. The increased demand from customers has been matched by a growing convergence of B2C and B2B expectations. Customers now expect financial service providers to offer experiences that match the best consumer-digital services available—that means being fast and always available, even during planned and unplanned traffic surges. Similarly, business customers now expect the same standard of service as consumers.

In addition to reliability, financial services companies need the flexibility to cope with the unexpected. The Covid-19 pandemic is a brutal reminder of the need for crisis management plans, including the ability to direct customers to alternate channels or, better still, make seamless backend adjustments so consumers never even see the problem.

Too often, companies plan for things like uninterrupted services based on previous crises. But that's not always how it works. The pandemic has been unusual in that it is not a threat to infrastructure like a hurricane or an earthquake might be, but it is still a global crisis that has upended customer behavior, reshaped demand, and deeply disrupted business-as-usual.



Companies have had to navigate this period while supporting customer channels that might not be their usual priority, providing emergency products and services to struggling customers, and maintaining momentum on their existing digital transformation efforts. You need the technological capacity in place to increase capacity or direct users to a different channel when the need arises. If you don't have that in place ahead of time, then by the time you need it, it will be too late. Many companies are turning to the cloud or managed services approaches in order to reduce time to market for new applications by freeing IT teams from day-to-day management to focus on R&D.

3 Ways Redis Enterprise supports the financial services data layer

1. Whether as a cache, session store, or fast in-memory database, Redis Enterprise delivers a great user experience by consistently providing high throughput and sub-millisecond latency.

2. Building innovative solutions in financial services involves a wide variety of data types—Redis Enterprise supports full-text search, graph processing, Bloom filters, and more so that developers can meet the real-time requirements of today's applications.

3. As artificial intelligence and machine learning become more widely adopted, efficient AI model serving has emerged as a challenge for organizations trying to run ML pipelines in production. RedisAI enables significantly faster AI inferencing by serving both machine-learning and deep-learning models directly where data is stored in Redis, avoiding delays traditionally caused by the need to query reference data stored in a separate database.

Redis Enterprise offers both high availability in any scenario and the flexibility developers need to rapidly deploy in any environment. Using Active-Active geo-distributed technology, Redis Enterprise allows Redis databases to be replicated across multiple geographic regions, enabling local latencies, rapid automated failover, and data consistency for globally distributed applications. Redis Enterprise is also available as a managed service via all three major cloud providers, enabling developers to reduce time to market by quickly launching databases in the cloud.

Conclusion

Data is key to addressing these challenges. Financial services companies that want to stay relevant must manage and use data in ways that benefit their customers, enable agile business processes, and support new products and services.

The squeeze on financial services margins will continue, as will regulatory oversight—exacerbated by the ongoing effects of the Covid-19 pandemic. However, this turmoil can be an opportunity for smart organizations able to transform their businesses to meet the needs of today's customers.

With multiple data models, financial institutions can leverage Redis Enterprise to bring real-time performance to use cases like identity verification, transaction scoring, fraud detection, and more. Furthermore, Redis Enterprise Cloud and tiered storage options in Redis Enterprise offer an attractive TCO by eliminating data center-related spending and improving IT productivity to let your organization focus on rapid innovation, rather than just keeping the lights on.

Finally, Redis Enterprise provides enterprise-grade reliability, performance, and availability for mission-critical financial applications. It ensures five-nines (99.999%) availability around the world with Active-Active Geo-Distribution across regions, and provides an in-memory data layer that delivers sub-millisecond latency at virtually any scale.



To learn more about how financial services firms drive data innovation with Redis Enterprise, visit our page on [Redis Enterprise for Financial Services](#).

To get started, try Redis Enterprise in the cloud or download Redis Enterprise software for a [free trial now](#).