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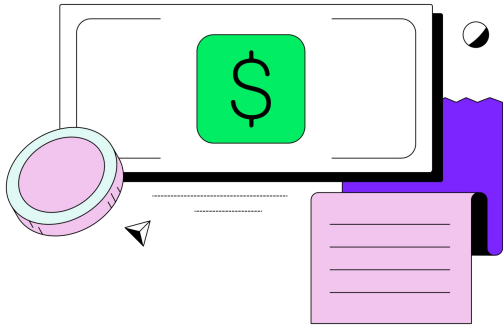
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FSI in General



The financial services industry plays a critical role in the global economy by facilitating the flow of capital, managing risk, and supporting individuals, businesses, and governments. It encompasses a wide range of services and institutions. Keep reading this guide for an overview of the financial services industry, its key institutions, major trends, and real-world success stories.

Key Institutions

Banking

Retail Banking: Services provided to individual consumers, such as savings and checking accounts, mortgages, personal loans, and credit cards.

Commercial Banking: Services provided to businesses, including business loans, credit, and treasury services.

Investment Banking: Services that help companies raise capital, such as underwriting, mergers and acquisitions (M&A), and advisory services.

Investment Services

Asset Management: Managing investments on behalf of clients, including mutual funds, pension funds, and hedge funds.

Brokerage Services: Facilitating the buying and selling of securities for clients.

Fintech

Digital Payments: Services like mobile wallets, online payment platforms, and peer-to-peer payment systems.

Blockchain and Cryptocurrencies: Decentralized digital currencies and the technology that supports them.

Robo-Advisors: Automated platforms that provide financial planning services with minimal human intervention.

Market Trends

Legacy Modernization to Improve Customer Experiences

Consumers primarily use digital channels for banking, yet many institutions still offer outdated experiences. Modernizing core systems by moving away from legacy architectures, leveraging the cloud, and adopting low-code platforms enables greater speed, agility, and customization, resulting in superior customer experiences with innovative digital features.

Banks are increasingly using data analytics, AI, and machine learning to gain deeper insights into customer habits and preferences, allowing for more personalized and tailored experiences.

Open Banking / Finance

Banks are partnering with fintech companies to accelerate innovation and enhance customer reach. Leveraging an open ecosystem allows companies to reimagine their products and services.

Collaborating with fintech providers enables banks to integrate innovations via APIs without extensive in-house development. These partnerships focus on speed and agility, allowing for quick deployment of new capabilities with modern, flexible architectures.

Generative AI and Machine Learning

AI, especially Generative AI (Gen AI), and machine learning (ML) are becoming crucial in digital banking. These technologies enable banks to:

- Process documents efficiently and avoid manual and error-prone tasks.
- Enhance customer experience with hyper-personalization.
- Conduct risk assessment and ensure compliance with greater accuracy.
- Stop fraud at the point of impact through real-time predictive analytics and innovative vectorized search
- Future-proof innovation by rapidly deploying and scaling new AI use cases without the complexity of managing siloed data environments.



Real-Time Payments

Real-time payment systems offer faster and safer processing. To benefit from RTP networks like FedNow and ISO 20022 standards, banks must upgrade legacy infrastructures and address system constraints.

Banks need to handle instant transactions, integrate APIs easily, and analyze large data volumes. AI enhances payments by increasing efficiency, accelerating workflows, improving customer service, and advancing fraud monitoring.

Financial Crime Prevention

With the rise of digital banking, cybersecurity is crucial. Banks are investing in advanced fraud detection solutions, including multi-factor authentication, biometric security, and real-time monitoring.

AI and ML enable scalable real-time data analysis and prediction, helping banks identify and flag potential threats, revolutionizing fraud prevention.

ESG Integration and Sustainability

ESG issues are increasingly relevant in banking and closely monitored by regulators. Customers seek banking solutions that align with their values, prompting banks to adopt environmentally friendly lending, green investments, and support for socially responsible enterprises.

The growth in ESG data reporting helps investors, employees, and customers assess risks and identify opportunities.

Data Privacy and Regulatory Compliance

Regulatory compliance and data privacy remain top priorities for banks. Constantly evolving regulations, like GDPR, PSD2, and ISO 20022, influence how banks handle client data and conduct business. Banks are investing in advanced compliance systems to meet these demanding standards.



Industry Pain Points

Managing Information Across Siloed Data

Outdated systems and core banking platforms hinder data accessibility and usability, especially after acquisitions. Multiple platforms create a complex, inefficient "spaghetti architecture," negatively impacting operational efficiency and customer experiences.

A single, unified platform can break down data silos, enabling personalized customer experiences and improving efficiency and speed.

Lack of Speed and Agility

To win and retain customers, financial institutions must quickly build new applications and functionalities.

Unlike nimble neobanks and fintechs, traditional banks often struggle with complex operations and siloed data, hindering real-time insights and rapid iteration.

Many still rely on on-premises infrastructure. Modernizing data architectures with flexible, modular, event-driven designs and cloud technologies can enhance speed and agility.

Real-time Analytics for Better Customer Engagement

Businesses must provide personalized experiences, quickly react to market trends, and prevent potential issues. Legacy systems often can't handle real-time data analysis needed for modern banking.

Real-time analytics enable businesses to analyze data in place and deliver insights instantly, addressing challenges such as:

- Personalization
- Fraud and error prevention
- Performance optimization
- Faster onboarding
- Compliance

Continued Need to Meet Compliance and Regulatory Requirements

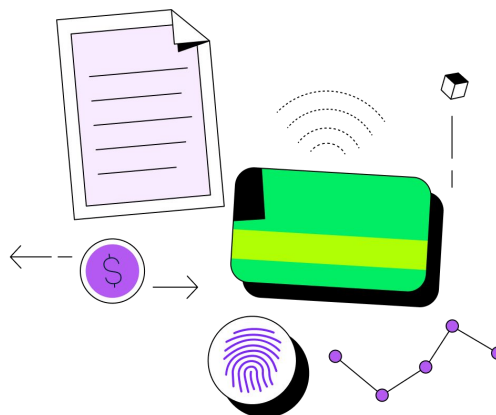
Adhering to evolving regulations across regions is challenging with outdated monitoring and reporting processes. Compliance involves managing large volumes of sensitive customer data, requiring robust data protection, secure storage, and sharing protocols.

Financial institutions must adopt new technologies to enhance compliance efficiency. Leveraging data and analytics can transform regulatory reporting, risk, and finance teams.

Continued Innovation

Traditional banks face competition from nimble, low-cost innovators and can't rely on customer loyalty. Legacy systems hinder innovation.

Successful banks must modernize tech stacks, enhance tech-planning, and reshape their organizations. This involves leveraging open banking ecosystems, adopting cloud-based technologies, and exploring emerging technologies like AI.



Customer Success Stories by Industry Domain

Payments

How Macquarie Bank Built a Real-Time Payments Platform in Weeks

Overview

Macquarie Bank's Banking and Financial Services Group (BFS) sought to implement a world-class real-time payments platform on Australia's New Payments Platform (NPP). Their goal: 24/7 instant money transfers with seamless customer experiences.

Challenges

Real-time processing, 24/7 availability, scalability, security, and the ability to adapt to evolving requirements.

Solution

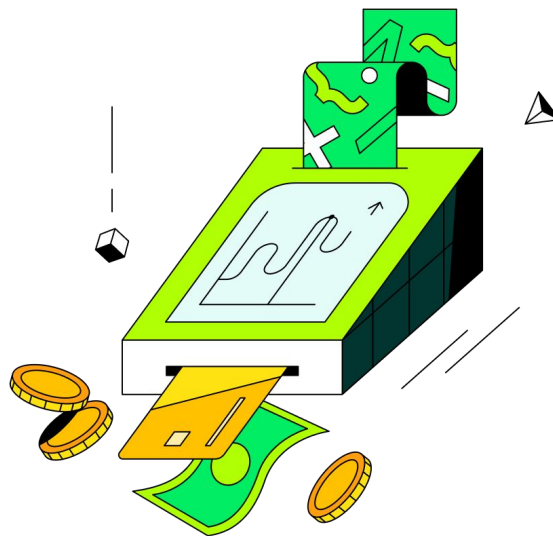
- MongoDB Atlas: Provided flexibility, agile development capability, scalability for peak transaction loads, and robust enterprise-grade security features.
- Microservices Architecture: Enabled independent scaling and system resilience.
- Multi-Cloud Strategy: Deployed workloads using AWS and Google Cloud to ensure vendor independence.

Results

NPP integration launched in weeks despite COVID-19 challenges, processing over 3 million transactions with zero disruptions. The architecture allows for daily feature releases without service downtime.

Conclusion

By leveraging MongoDB Atlas, microservices, Kubernetes, and a multi-cloud strategy, Macquarie Bank built a scalable, secure, and innovative payments platform suitable for continuous improvement.



[Read story: How Macquarie Bank built a real-time payments platform in weeks](#)

Core Banking

Bendigo and Adelaide Bank Modernize Core Banking Technology With Generative AI

- Overview** Bendigo and Adelaide Bank needed to modernize its rigid, traditional RDBMS systems to unlock scalability, accelerate development, and enable cloud-based operations for better customer-focused innovation.
- Challenges** The legacy systems were inflexible, blocked fast deployments, and lacked tools for future-proof scalability.
- Solution**
- Modernized its Agent Delivery System (retail teller app) using MongoDB Relational Migrator and Generative AI tools for faster migration, code refactoring, and automated development.
 - Partnered with MongoDB Professional Services to craft custom automation tools and Generative AI scripts to reduce repetitive tasks.
- Results**
- Developer productivity increased, slashing application test case execution from 80 hours to 5 minutes.
 - New features developed and rolled out faster due to cloud migration.
 - Reduced costs and decreased development time by up to 90%, accelerating project delivery.
- Conclusion** MongoDB's Application Modernization Platform (AMP) and Generative AI capabilities allowed Bendigo and Adelaide Bank to transition seamlessly to cloud-based systems, enhance agility, and cement its position as a progressive leader in the financial sector.



[Read story: Bendigo and Adelaide Bank modernize core banking technology with Gen AI](#)

FinCrime Prevention

Featurespace™, a Visa solution - Staying One Step Ahead of Payments Fraud (EMEA)

Overview

Featurespace™ a leader in fraud detection, needed a scalable platform to improve real-time insights and detection accuracy for countless transactions while addressing growing data volumes and fraud complexity.

Challenges

Legacy systems created latency issues, data silos, and lacked flexibility for AI/ML integration.

Solution

- MongoDB's Data Platform: Consolidated diverse data sources into a unified view and provided real-time processing for immediate fraud detection.
- Horizontal scaling handled growing data volumes effectively.

Results

- Reduced false positives and negatives, increasing fraud detection accuracy substantially.
- Enhanced agility with the ability to integrate new data sources and combat evolving fraud tactics.
- Improved operational efficiency and reduced costs.

Conclusion

MongoDB's scalable and secure technical foundation enabled Featurespace to deliver predictive, real-time fraud prevention at a global scale.



[Read story: Staying one step ahead of payments fraud with Featurespace and MongoDB](#)

Lending & Leasing

Base39 cuts loan analysis costs by 96% with MongoDB

Overview

Base39 is a São Paulo-based financial technology company focused on transforming credit and risk analysis. By combining artificial intelligence with a modern data platform built on MongoDB Atlas and Amazon Web Services, Base39 set out to dramatically reduce the time, cost, and complexity of loan assessments while improving decision quality for its customers.

Challenges

- Limited and fragmented data led to incomplete credit decisions
- Manual, subjective workflows slowed analysis (up to 10 days per loan)
- Heavy reliance on specialized data science talent
- Long model adaptation cycles and missed loan opportunities

Solution

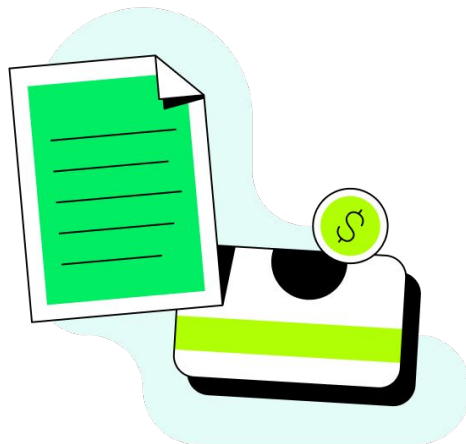
- MongoDB Atlas as a unified data platform with flexible schema and vector search
- Agentic AI orchestrated with LangGraph and LLMs via Amazon Bedrock
- Predictive ML for scoring combined with generative AI for data enrichment, reasoning, and scenario analysis (MongoDB as feature store)
- Serverless architecture to reduce operational complexity

Results

- 96% reduction in loan analysis costs
- 84% reduction in infrastructure costs
- Solution deployed in two weeks
- Faster, more scalable credit assessments

Conclusion

By modernizing its credit analysis platform with agentic AI and MongoDB Atlas, Base39 transformed a slow, manual, and costly process into a fast, scalable, and intelligent system. The combination of flexible data management, vector search, and generative AI allowed Base39 to drastically cut costs, accelerate decision-making, and position itself as a leader in AI-driven innovation within the financial services industry.



Overview

NatWest created its Bank of APIs to support B2B and open banking use cases, enabling partners to build value using shared customer data. In just a few years, the platform scaled from zero to nearly 1 billion API calls per month, connecting 270 companies, reaching around 4 million customers, and facilitating approximately £5 billion in customer transactions, with 10x growth expected.

Challenges

- Data locked in legacy systems, accessible to only 1% of developers.
- Rigid schemas unable to adapt to evolving open banking standards.
- Need for high performance, privacy, and GDPR compliance at scale.

Solution

NatWest adopted MongoDB to power its API ecosystem:

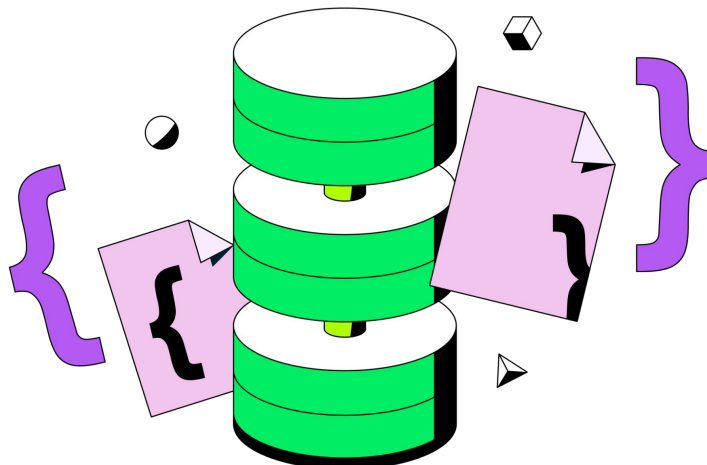
- NatWest began landing JSON-native API data in MongoDB, making it easy to move from raw data to insights without complex relational modeling.
- Sensitive fields are protected using encryption, masking, and access controls, while expanding internal access to data.

Results

- Developer access to data expanded from ~1% to ~95%, improving speed, autonomy, and productivity.
- API data is now used to generate merchant insights such as best sellers, customer value, spending patterns, discount timing, and journey performance.
- NatWest reports achieving ~80% of the value with ~20% of the effort so far.

Conclusion

MongoDB enabled NatWest to pull API data out of hard-to-reach systems and turn it into insight-driven experiences for developers, partners, and customers. Looking ahead, NatWest is SaaS-positive and aims to progress toward MongoDB Atlas, allowing teams to spend 80-90% of their time on customer problems rather than infrastructure, and further accelerating innovation as the Bank of APIs continues to scale.



ESG

Hydrus Helps Companies Improve ESG Performance

Overview

Hydrus, a startup enabling businesses to manage ESG (Environmental, Social, and Governance) metrics, needed a solution to streamline data collection, storage, and analysis across diverse ESG data categories.

Challenges

The wide range of ESG data types (e.g., energy consumption, governance policies) was a barrier for traditional SQL databases. Robust auditing capabilities were critical to maintaining transparency across changing ESG data.

Solution

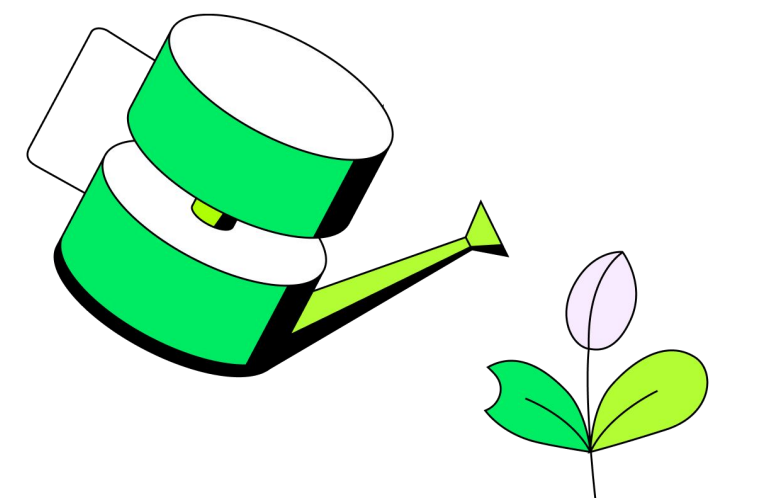
- MongoDB Atlas: Offered a flexible document model to handle diverse and unstructured ESG data and adapt quickly to evolving reporting requirements.
- MongoDB Charts: Empowered users with intuitive visualizations for deriving actionable analytics from ESG data.

Results

- Transparency with comprehensive auditing capabilities, fostering trust in ESG data.
- Enhanced operational improvements, including resource usage insights that supported informed decision-making.
- Ease-of-use enabled organizations to collect and report on ESG metrics effectively.

Conclusion

By using MongoDB Atlas and Charts, Hydrus offers a powerful solution for enterprises to meet growing ESG demands with flexibility, robust analytics, and scalable technology—helping drive sustainability.



Key Benefits of Using MongoDB

MongoDB empowers organizations across diverse industries—Financial Services, ESG, Fraud Prevention, and Lending—with the tools to innovate, scale, and transform customer experiences. Here’s what makes MongoDB essential for modern data solutions:

Scalability & Real-Time Data Processing



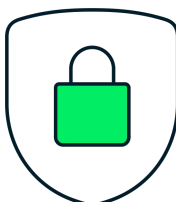
MongoDB’s ability to process large-scale data efficiently allows applications to handle spikes in traffic and support real-time decision-making. Whether ensuring rapid credit underwriting or immediate fraud detection, MongoDB’s scalable platform enables high transaction volumes seamlessly.

Flexible Data Model



The document-based model supports structured and unstructured data, making MongoDB ideal for consolidating diverse data sources—be it ESG metrics, financial transactions, or customer profiles—into holistic views. This flexibility allows organizations to innovate without being constrained by rigid schemas.

Advanced Security Features



MongoDB ensures robust security with built-in controls like end-to-end encryption, role-based access, multi-cloud support, and compliance capabilities. Sensitive financial data and ESG reporting remain safe, enabling organizations to meet governance requirements.

Cloud-Native Agility



With multi-cloud support, automatic sharding, and high availability, MongoDB enables financial services organizations to embrace the cloud securely and efficiently. Its advanced security, compliance features, and support for real-time analytics and large transaction volumes drive faster innovation and reduced infrastructure costs across key domains like payments, financial crime, wealth management, and more.

AI/ML Integration



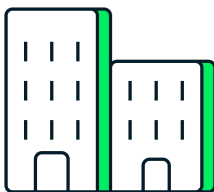
MongoDB integrates effortlessly with AI/ML technologies, supporting advanced solutions in predictive fraud prevention and lending automation. Real-time data provisioning and rapid analytics enable smarter, faster decisions across industries.

Accelerated Innovation



Through developer toolkits and professional services like App Mod Factory or Relational Migrator, MongoDB accelerates application modernization to simplify development efforts, reduce delivery timelines, and enhance product capabilities.

Use Cases Across Industries



MongoDB shines in applications like Legacy Modernization, Open APIs, Personalization, Analytics, Real-Time Payment Processing, ESG Scoring, Predictive Fraud Detection, and Automation.

Learn More

Financial Services Industry

Build AI-powered customer experiences at lower cost and at scale by unifying both structured and unstructured data with vector data.

→ [Go to page](#)



Customer Success Stories

Explore how our customers modernize legacy systems, scale to meet growing demand, and innovate faster with MongoDB.

→ [Read stories](#)

Atlas Architecture Center

Curious about how MongoDB can power your financial services applications? Learn how to leverage MongoDB with tutorials, templates, and guides in our [Atlas Architecture Center](#).

Contact us: <https://www.mongodb.com/company/contact>