Data Edge Pro White Paper

# **Data Strategy**

Transforming Banking Through Data Strategy

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### **Executive Summary**

In today's rapidly evolving financial landscape, banks face unprecedented challenges from digital disruption, regulatory pressures, changing customer expectations, and emerging competitors.

Data has emerged as the critical foundation underpinning competitive advantage, operational efficiency, and regulatory compliance.

This whitepaper presents a comprehensive framework for implementing an effective Data Strategy within banking institutions. It outlines how banks can transform raw information into strategic assets that drive decision-making, enhance customer experiences, and ensure regulatory adherence.

By adopting a holistic approach to data management, governance, analytics, and infrastructure, banking organizations can overcome traditional data silos, quality issues, and integration challenges while establishing a foundation for innovation and growth.

My framework addresses the specific needs of key stakeholders—from C-suite executives and IT professionals to compliance officers, risk managers, and finance leaders—providing a roadmap for data transformation that delivers measurable results across operational efficiency, risk management, customer experience, and financial performance metrics.

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### Introduction

The banking sector stands at a critical inflection point. Traditional business models face disruption from fintech innovators, big tech entrants, and digital-first neobanks, while evolving customer expectations drive demand for seamless, personalized experiences across channels. Simultaneously, an increasingly complex regulatory landscape requires banks to demonstrate unprecedented levels of transparency, data quality, and risk management capabilities.

At the heart of this transformation lies data—the fundamental asset that enables banks to navigate these challenges while capturing emerging opportunities. A well-executed Data Strategy transcends traditional views of data as merely a technical concern, positioning it instead as a strategic imperative that drives competitive differentiation, operational resilience, and sustainable growth.

The concept of Data Strategy in banking encompasses the organizational vision, principles, and roadmap for transforming data into a strategic asset. This includes the mechanisms for data governance, quality management, integration, analytics, and infrastructure that collectively enable data-driven decision-making across the enterprise. Effective Data Strategy aligns these capabilities with the bank's business objectives, regulatory requirements, and customer needs.

The urgency for comprehensive Data Strategy has accelerated dramatically in 2025, driven by several converging factors. According to Accenture, generative AI is set to "revolutionize banking by transforming routine tasks, enhancing customer experiences and reshaping roles" (Accenture, 2025). Meanwhile, the competitive landscape continues to intensify, with Deloitte reporting that "nearly six out of 10 banking leaders surveyed consider legacy infrastructure to be the top challenge impeding their organization's business growth" (Deloitte, 2025).

Regulatory imperatives further amplify this urgency. The Bank of England notes that "data was integral to [its] mission, enabling 'decision-making to be informed by the best available data, analysis and intelligence'" (Bank of England, 2024). Similarly, BCBS 239 compliance requires banks to ensure "accuracy and reliability of data by tracing it back to its source" (Alation, 2024), highlighting the critical role of data lineage in regulatory adherence.

The business case for strategic data management is compelling. According to McKinsey Digital, banks leveraging advanced analytics achieve "5-10% increase in sales effectiveness through improved targeting, pricing optimization, and customer retention" (McKinsey Digital, 2024). Additionally, Kanerika reports that "Amazon reported a remarkable 35% increase in customer retention in 2024, showcasing the significant impact" of data analytics (Kanerika, 2025).

This whitepaper provides a comprehensive framework for developing and implementing an effective Data Strategy within banking organizations.

It addresses the specific concerns and priorities of key stakeholders across the enterprise, from C-suite executives seeking strategic value to compliance officers navigating regulatory requirements.

By adopting this framework, banks can transform data from a tactical resource to a strategic asset that drives sustainable competitive advantage.

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## Key Challenges and Opportunities

### Challenges

- Legacy System Constraints: Most banks operate on a complex patchwork of legacy systems accumulated through decades of operations and acquisitions. According to FirstBank, "legacy IT systems and fragmented infrastructure hinder the efficient aggregation and management of risk data" (FirstBank, 2025). These fragmented architectures create significant challenges for data integration, accessibility, and consistency, limiting the bank's ability to leverage data effectively for decision-making and customer insights.
- Data Silos and Fragmentation: Banking data typically resides in disconnected systems across different lines of business, channels, and functions. As The Future of Commerce notes, "Banking data can no longer be trapped in disparate, archaic systems" (The Future of Commerce, 2025). This fragmentation impedes the creation of unified customer views, comprehensive risk assessments, and enterprise-wide analytics capabilities.
- Data Quality and Consistency Issues: Poor data quality undermines confidence in analytics outputs and creates significant costs through erroneous decision-making. Semarchy reports that "poor data quality costs the average organization a staggering \$12.8 million every year" (Semarchy, 2025). Bankingspecific challenges include inconsistent customer information, transaction data discrepancies, and reference data conflicts across systems.
- **Regulatory Compliance Complexity:** Banks face an increasingly complex regulatory landscape that demands sophisticated data capabilities. Business Decision points out that "the BCBS 239, the recommendations laid out in BCBS 239 (principles of risk data aggregation and risk notification) and the Basel III reform oblige entities to retain their transaction reporting for supervisory purposes" (Business Decision, 2023). Meeting these requirements necessitates robust data governance, lineage, and quality management capabilities.
- **Talent and Skill Gaps:** The specialized skills required for effective data management and analytics—from data engineering and architecture to advanced analytics and AI—remain in short supply. Banks struggle to attract and retain these professionals against competition from technology companies and fintech startups offering innovative work environments and competitive compensation.

### Opportunities

• Enhanced Customer Experience: Strategic data management enables banks to create a comprehensive, 360-degree view of customer relationships and

behaviors. According to DXC Technology, "Deriving insights about customer experience will continuously enhance what this experience looks and feels like, creating a virtuous circle and, ultimately, increased customer loyalty" (DXC Technology, 2024). This foundation supports personalized offerings, proactive service, and seamless omnichannel experiences that drive customer acquisition, retention, and share of wallet.

- Advanced Risk Management: Comprehensive, high-quality data enables more sophisticated risk assessment and monitoring capabilities. Alation notes that "BCBS 239 compliance is a strategic imperative for banks aiming to strengthen their risk management frameworks and ensure regulatory adherence" (Alation, 2024). These capabilities allow banks to identify emerging risks earlier, quantify exposures more accurately, and implement targeted mitigation strategies, reducing both expected and unexpected losses.
- **Operational Efficiency:** Data-driven insights help banks identify and eliminate inefficiencies across processes, systems, and organizational structures. EY reports that "Cost saving strategies that take into account the potential impact on employees and customers achieve greater success in the long-term" with "reduced operating expenses of up to 30%" (EY, 2024). This includes opportunities for automation, resource optimization, and continuous improvement that collectively drive significant cost reduction.
- Innovation Acceleration: A robust data foundation enables banks to experiment with innovative business models, products, and services. The Future of Commerce reports that "The bank of 2025 and beyond will require new skills that will blend strategy with AI chops and a laser focus on the customer" (The Future of Commerce, 2025). This spans digital lending platforms, AI-powered advisory services, embedded finance offerings, and targeted ecosystem plays that open new revenue streams.
- Regulatory Compliance Enablement: Strategic data management transforms regulatory compliance from a cost center to a competitive advantage. Atlan notes that "Regular compliance audits, internal reviews, and stress tests should be conducted to gauge adherence to BCBS 239 principles" (Atlan, 2024). By establishing foundational capabilities for data governance, quality, and lineage, banks can reduce compliance costs, minimize regulatory findings, and adapt more quickly to evolving requirements.

### For C-Suite Executives

In the rapidly evolving banking landscape, data has emerged as a critical strategic asset that drives competitive advantage, operational efficiency, and regulatory compliance. For C-suite executives, a comprehensive Data Strategy represents a fundamental enabler for achieving key business priorities including growth, efficiency, innovation, and risk management.

The strategic importance of data in banking continues to accelerate. According to Accenture, "AI is ushering in a new era, restoring banks as trusted financial consultants and deepening relationships through personalized advice and experiences" (Accenture, 2025). Similarly, Appian notes that "Banks will need to navigate the intersection of financial technology advancement and regulatory responsibility" through "AI, process automation, and strategic data management" (Appian, 2025).

Most banks struggle with disconnected data initiatives scattered across departments, resulting in duplicated efforts, inconsistent methodologies, and limited impact. A cohesive, enterprise-wide Data Strategy, championed by the C-suite, creates alignment across functions and maximizes return on data investments. This strategic approach shifts data management from a technical capability to a foundational business asset that drives sustainable competitive advantage.

### **Business Value Drivers**

- **Revenue Growth:** Data-driven insights enable more effective customer acquisition, cross-selling, pricing optimization, and retention strategies. The Future of Commerce notes that "Having a strong data strategy that puts quality first and aims to unify fragmented systems tops the list of 2025 banking trends" (The Future of Commerce, 2025). Banks with mature data capabilities consistently outperform peers in customer loyalty, relationship depth, and revenue growth metrics.
- **Cost Optimization:** Advanced analytics identifies inefficiencies, automates manual processes, and optimizes resource allocation across the enterprise. According to EY, strategic cost reduction approaches "resulted in reduced operating expenses of up to 30%" (EY, 2024). These capabilities deliver sustainable cost advantages while enhancing service quality and customer satisfaction.
- **Risk Mitigation:** Comprehensive data integration and analytics enhance risk identification, quantification, and monitoring capabilities. Atlan highlights that "Strengthening governance: The first step is to build a strong governance framework with clear roles, responsibilities, and accountability" (Atlan, 2024).

This enables more proactive risk management, reducing both expected and unexpected losses while improving regulatory compliance.

- Innovation Acceleration: Data-driven insights identify emerging opportunities, unmet customer needs, and competitive threats faster than traditional methods. According to TriZone India, "Digital marketing strategies, especially when integrated with data analytics, offer banks real-time insights into customer behavior" (TriZone India, 2025). This enables more rapid and effective innovation in products, services, and business models.
- **Strategic Agility:** Integrated data assets and analytics capabilities enhance leadership teams' ability to detect and respond to shifting market conditions, competitive movements, and emerging risks. As Appian notes, "To counter this uncertainty, banks will prioritize tech that enhances operational efficiency, resiliency, and risk management" (Appian, 2025).

### **Executive Sponsorship**

To maximize data strategy impact, specific C-suite roles must embrace key responsibilities:

**CEO:** Establish data as a strategic asset and data-driven decision-making as a core organizational value; ensure alignment between data initiatives and strategic objectives; allocate adequate resources to data strategy implementation.

**CFO:** Develop robust ROI frameworks for data investments; incorporate data-driven insights into financial planning and forecasting; ensure appropriate funding models for data capabilities as enterprise assets.

**CIO/CTO:** Develop flexible, scalable technology infrastructure to support growing data needs; integrate data capabilities into core business systems; ensure appropriate data security and governance.

**CDO/CAO:** Drive enterprise data strategy; establish data governance frameworks; champion data innovation; develop internal data capabilities through training and talent acquisition.

Investment Area	Description	Typical ROI Timeframe
Data Foundation	Implementing data management infrastructure, quality processes, and	<b>12-18 months</b> (Insight Software, 2024)

#### Investment Considerations

Investment Area	Description	Typical ROI Timeframe
	governance frameworks to ensure analytics is built on reliable data	
Analytics Platform	Deploying modern analytics tools that support descriptive, predictive, and prescriptive analytics with appropriate security and scalability	<b>9-12 months</b> (SCNSoft, 2024)
People & Skills	Developing internal capabilities through hiring, training, and organizational development to create a data-fluent workforce	<b>12-24 months</b> (Deloitte Digital, 2023)
Change Management	Ensuring data-driven insights are effectively integrated into decision-making processes and business operations	<b>6-12 months</b> (Forbes Technology Council, 2023)

**Executive Takeaway:** Data Strategy represents a fundamental enabler for achieving key business priorities in banking, from revenue growth and cost optimization to risk management and innovation. However, realizing these benefits requires more than technology investment alone. Successful data transformation demands executive sponsorship, cross-functional alignment, and a commitment to building a data-driven culture. By establishing clear business objectives, investing in foundational capabilities, and measuring outcomes rigorously, C-suite leaders can transform data from a technical concern to a strategic asset that delivers sustainable competitive advantage.

### For IT Professionals

Effective Data Strategy implementation requires a robust technical foundation that balances capability, scalability, security, and usability. For IT professionals, the challenge lies in developing an architecture that meets immediate business needs while providing the flexibility to incorporate emerging technologies and adapt to evolving requirements.

Modern banking data platforms must support diverse data types (transactional, customer, risk, market), velocity requirements (batch, real-time), and analytical methods (descriptive, predictive, prescriptive). Additionally, these platforms must enable self-service capabilities for business users while maintaining appropriate governance and security controls.

### **Technical Architecture Components**

A comprehensive banking data architecture includes several interconnected layers:

**Data Collection Layer:** Encompasses data ingestion tools, APIs, ETL/ELT processes, event streaming platforms, and edge computing capabilities that capture data from diverse sources including core banking systems, channels, third-party providers, and external data services.

**Data Storage Layer:** Includes data lakes, data warehouses, data lakehouses, specialized analytical data stores (time series, graph), and metadata repositories that provide appropriate storage for varying data types, access patterns, and performance requirements.

**Data Processing Layer:** Comprises batch processing frameworks, stream processing engines, data quality tools, and data preparation platforms that transform raw data into analytics-ready datasets while ensuring quality, consistency, and compliance.

**Analytics Layer:** Incorporates business intelligence tools, statistical analysis platforms, machine learning frameworks, natural language processing engines, and specialized analytical applications that generate insights from prepared data.

**Presentation Layer:** Consists of visualization tools, dashboards, embedded analytics, mobile applications, and integration points with operational systems that deliver insights to users across the organization.

**Governance Layer:** Spans the entire architecture, providing security, privacy, lineage tracking, catalog functionality, and compliance controls that ensure appropriate use of data assets throughout their lifecycle.

### Implementation Considerations

- **Cloud Transition Strategy:** Develop a pragmatic approach to cloud adoption that balances innovation potential with security, compliance, and cost considerations. According to Agile Solutions, "For banks, a flexible, scalable future that meets these expectations relies on cloud data capabilities: but in a highly regulated, high-risk sector, you need to be confident that your cloud infrastructure is secure as well as agile" (Agile Solutions, 2024).
- Data Integration Architecture: Implement a flexible integration architecture that connects legacy systems with modern data platforms while gradually reducing dependence on batch processing. This may include API-based integration, event-driven architectures, and change data capture mechanisms that enable real-time data flows while maintaining system integrity.
- Security and Privacy by Design: Embed security and privacy controls throughout the data lifecycle, addressing requirements for data protection, access control, encryption, masking, and monitoring. According to Decube, "The penalties associated with failing to secure the data entrusted to them as they evolve their business models are too great for the banks to take this matter lightly" (Decube, 2024).
- **Technical Debt Management:** Establish processes for regular evaluation and refactoring of data components to prevent accumulation of technical debt that can limit future flexibility and increase operational costs.

#### Technology Evaluation Criteria

- 1. **Regulatory Compliance Enablement:** Ability to support specific regulatory requirements including BCBS 239, GDPR, and stress testing frameworks with appropriate lineage, quality, and reporting capabilities
- 2. **Scalability and Performance:** Capacity to handle projected data volumes, user concurrency, and analytical complexity with acceptable performance
- 3. **Integration Capabilities:** Comprehensive APIs, connectors, and integration tools to interact with existing banking systems and external data sources
- 4. **Total Cost of Ownership:** Consideration of licensing, infrastructure, implementation, and ongoing maintenance costs relative to business value
- 5. **Vendor Stability and Support:** Financial stability, regulatory domain expertise, and support capabilities of technology providers

**IT Professional Takeaway:** Building effective data capabilities in banking requires a thoughtfully designed technical architecture that balances immediate business needs with long-term flexibility. Rather than focusing solely on individual tools, IT professionals should develop a comprehensive framework that addresses data across

its entire lifecycle from collection to consumption. This approach should prioritize scalability, security, and usability while maintaining appropriate governance controls. By adopting modern architectural patterns such as data mesh and data fabric, banks can evolve their data capabilities incrementally while ensuring consistent enterprisewide standards. Collaboration with business stakeholders throughout the design and implementation process is essential to ensure technical solutions deliver tangible business value.

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### For Compliance Officers

Data Strategy implementation in banking creates significant compliance challenges and opportunities. While data capabilities enhance an organization's ability to monitor regulatory adherence and detect potential violations, they also introduce new compliance requirements related to data usage, privacy, ethics, and model governance. Compliance officers must develop frameworks that enable innovation through data while ensuring regulatory obligations are met across jurisdictions.

The regulatory landscape for data in banking continues to evolve rapidly, with increasing focus on data quality, privacy protection, algorithmic transparency, and ethical use of AI. As Atlan notes, "Evolving regulatory expectations: Regulatory standards and expectations are continuously evolving, requiring banks to adapt their data governance strategies to maintain compliance" (Atlan, 2024). Organizations must navigate these complex requirements while maintaining the agility to leverage data for competitive advantage.

Regulation/Standard	Geographic Scope	Key Requirements
BCBS 239	Global	Risk data aggregation and reporting principles, including governance, architecture, accuracy, completeness, timeliness, adaptability, and comprehensiveness of risk reporting (Atlan, 2024)
GDPR	European Union	Data minimization, purpose limitation, lawful basis for processing, data subject rights (access, correction, deletion, portability), impact assessments for high- risk processing (CNIL, 2025)
CCPA/CPRA	California, USA	Transparency in data collection and use, opt-out rights for data sales and sharing, data subject access rights, requirements for service providers (GDPR Local, 2024)
<b>Stress Testing</b> <b>Frameworks</b> (CCAR, DFAST)	United States	Forecasting exercises requiring banks to evaluate and report capital positions under various economic scenarios with robust

### **Key Regulations**

Regulation/Standard	Geographic Scope	Key Requirements
		<b>data to support analysis</b> (Premier International, 2022)
Al Act	European Union	Risk-based regulation of AI systems, transparency requirements, human oversight provisions, compliance documentation for high-risk AI applications (TrustArc, 2024)

#### **Compliance Controls**

- Data Governance Framework: Establish clear policies for data acquisition, classification, quality, retention, and disposal. Atlan emphasizes that "To comply with BCBS 239, banks must establish a strong governance framework that integrates data management with overall risk management strategies" (Atlan, 2024). Implement technical controls that enforce these policies automatically where possible, with appropriate oversight mechanisms for exceptions.
- Data Lineage and Traceability: Implement comprehensive data lineage capabilities that track data from source systems through transformations to ultimate usage in reports and decisions. According to Octopai, "Data lineage is the following of the path of any data point through your data environment. That includes tracing the data back to the point at which it entered your system, or forward to where its journey ended" (Octopai, 2022). This enables demonstration of regulatory compliance and supports root cause analysis for data issues.
- **Model Governance:** Develop comprehensive governance for analytical models, particularly those using machine learning or AI. Include documentation of training data sources, model development methodologies, validation techniques, deployment approvals, and ongoing monitoring. Establish model risk tiers with corresponding governance requirements based on business impact and regulatory risk.
- Ethical Data Usage Framework: Implement guidelines and review processes to ensure data and analytics initiatives align with organizational values and ethical principles. Address potential issues including bias, fairness, transparency, and societal impact, particularly for high-stakes applications such as credit decisioning and fraud detection.
- **Monitoring and Auditing:** Deploy automated monitoring for compliance with data usage policies, consent requirements, and regulatory obligations.

According to BigID, "Banks must invest in modern, scalable IT systems that can handle large volumes of data" and "implement automated data validation tools to ensure data is accurate, consistent, and reliable throughout the data lifecycle" (BigID, 2024). Maintain comprehensive audit trails of data access, analysis, and decisioning to support regulatory inquiries and internal reviews.

**Compliance Officer Takeaway:** Data Strategy implementation introduces complex compliance challenges that extend beyond traditional data protection concerns to encompass model governance, algorithmic transparency, and ethical data usage. Compliance officers must develop integrated frameworks that address these requirements while enabling innovation and business value creation. This requires a shift from pure risk mitigation to becoming strategic enablers who help the organization navigate evolving regulatory landscapes. By establishing clear governance structures, implementing appropriate technical controls, and fostering cross-functional collaboration, compliance teams can ensure regulatory adherence while supporting the organization's data-driven objectives.

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### For Risk Managers

Data Strategy implementation introduces significant risk considerations across technological, operational, ethical, and strategic dimensions. While advanced data capabilities offer powerful tools for traditional risk management, they simultaneously create new risk categories that organizations must systematically address. Risk managers play a crucial role in ensuring data initiatives deliver business value while maintaining appropriate risk controls.

The evolution toward more complex analytical methods, particularly AI and machine learning, has exponentially increased the potential impacts of analytics failures. Decisions once made by humans with clear accountability are increasingly influenced or automated by algorithms whose decision-making logic may not be fully transparent. This shift requires a corresponding evolution in risk management approaches.

### **Key Risk Categories**

- Data Quality and Reliability Risk: Poor quality input data leads to unreliable analytical outputs, potentially resulting in erroneous business decisions, compliance violations, or customer harm. Decube notes that "Poor data quality costs organizations an average of \$12.8 million annually" (Decube, 2024). This risk category encompasses data incompleteness, inaccuracy, inconsistency, and staleness across source systems.
- **Model Risk:** Analytical models may fail due to design flaws, implementation errors, inappropriate applications, or changing conditions that invalidate underlying assumptions. According to PMC, "BCBS 239 remains shrouded in confusion, mainly due to the potential for bias associated with the individual interpretation of its principles" (PMC, 2022). As models increasingly influence or automate high-stakes decisions, model risk can translate directly to material business impacts.
- **Cybersecurity and Data Privacy Risk:** Data initiatives often involve sensitive customer and transaction data whose compromise could result in regulatory penalties, litigation, and reputational damage. VisualSP notes that "New technologies introduce new vulnerabilities, making cybersecurity to protect customers a top priority" (VisualSP, 2025). Effective data strategy implementation must incorporate robust security controls throughout the data lifecycle.
- **Operational Resilience Risk:** As data capabilities become embedded in critical business processes, banks face increased vulnerability to disruptions in data flows, processing systems, or analytical outputs. This operational dependency

requires appropriate resilience planning and contingency mechanisms to ensure continuity of essential functions.

• Ethical and Reputational Risk: Data applications may create unintended consequences including algorithmic bias, discrimination, transparency issues, or outcomes that conflict with organizational values. These risks extend beyond compliance to encompass ethical considerations and social responsibility.

#### **Mitigation Strategies**

**Comprehensive Data Governance:** Implement robust governance frameworks that establish clear ownership, quality standards, and usage policies for data assets. Semarchy emphasizes that "One of the most straightforward ways data governance drives ROI is through hard cost savings...avoiding redundant costs by eliminating duplicate data silos" (Semarchy, 2025). Include systematic data quality measurement with remediation processes for identified issues.

**Model Risk Management:** Develop tiered governance based on model impact and complexity. Atlan notes the importance of "Maintaining an inventory of the validation rules that are applied to quantitative information" (Atlan, 2025). Require independent validation for high-risk models, with documentation of development methodologies, testing procedures, performance metrics, and limitations.

**Privacy by Design:** Incorporate privacy considerations from the earliest stages of data initiatives. Implement technical measures including data minimization, pseudonymization, access controls, and purpose limitation. Conduct privacy impact assessments for high-risk applications.

**Security Controls:** Deploy comprehensive security measures across the data ecosystem, including encryption, access management, monitoring, and incident response. Decube highlights that "Banks will continue to invest heavily to protect against cyberattacks, data breaches and financial crime" (Decube, 2024). Regularly assess security posture through vulnerability scanning, penetration testing, and threat modeling.

**Business Continuity Planning:** Develop resilience strategies for data-dependent processes, including fallback mechanisms, redundancy, and recovery procedures. Regularly test these measures to ensure effectiveness during actual disruptions.

**Risk Manager Takeaway:** Data Strategy implementation requires a sophisticated risk management approach that balances innovation with appropriate controls. Risk managers must evolve beyond traditional control frameworks to address the unique challenges of advanced data capabilities, particularly as AI and machine learning become more prevalent in banking. This requires developing specialized expertise in model risk, algorithmic bias, and the ethical implications of automated decision-

making. By implementing comprehensive governance frameworks, establishing clear accountability mechanisms, and fostering cross-functional collaboration, risk managers can enable the organization to capture the value of data while maintaining appropriate safeguards.

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### For Finance Leaders

Data Strategy implementation represents both a significant investment opportunity and a powerful lever for financial performance improvement. For finance leaders, the challenge lies in developing appropriate funding models, measuring returns effectively, and leveraging data capabilities to transform financial planning, reporting, and decision-making processes.

While traditional ROI models often struggle to capture the full value of data investments, finance leaders must develop comprehensive frameworks that account for both tangible and intangible returns. According to Strategy-Transformation, "A modern data strategy will identify the optimal projects and corresponding implementation order so you can get the fastest ROI" (Strategy-Transformation, 2021). This approach enables appropriate resourcing decisions while maintaining fiscal discipline.

### **Cost Structure Overview**

Cost Category	Year 1	Year 2	Year 3
Initial Investment	\$850,000-1,500,000	\$350,000-700,000	\$150,000-350,000
Implementation	\$700,000-950,000	\$350,000-700,000	\$150,000-350,000
Ongoing Operations	\$400,000-600,000	\$550,000-750,000	\$600,000-850,000

Note: Actual costs vary significantly based on organizational size, complexity, existing capabilities, and implementation approach. The ranges provided represent typical investments for mid-sized banking institutions implementing comprehensive data strategies based on industry research from ITRex Group (2024) and SCNSoft (2023).

#### **Financial Benefits**

- Direct Benefits:
  - Cost Reduction: 20-30% decrease in operational expenses through process optimization, waste elimination, and resource allocation improvements (EY, 2024)
  - Revenue Enhancement: 5-10% increase in sales effectiveness through improved targeting, pricing optimization, and customer retention (McKinsey Digital, 2024)
  - Working Capital Improvement: 10-20% reduction in inventory and operational costs through enhanced forecasting and process optimization (KPMG Global Tech Report, 2023)

#### • Indirect Benefits:

- **Decision Quality: Faster, more accurate decisions** that avoid costly errors and capitalize on time-sensitive opportunities
- Strategic Agility: Enhanced ability to detect and respond to market shifts, competitive threats, and emerging opportunities
- **Risk Mitigation: Earlier identification of potential issues** across financial, operational, and compliance dimensions

### **Funding Models**

Traditional capital expenditure approaches often fail to align with the iterative, experimental nature of data programs. Instead, finance leaders should consider:

**Portfolio Funding:** Allocate resources across a mix of quick-win tactical initiatives and longer-term strategic capabilities, with regular portfolio reviews to reallocate based on demonstrated value.

**Capability-Based Budgeting:** Fund foundational data capabilities as enterprise assets rather than tying all investments to specific business cases, recognizing the enabling nature of these core functions.

**Value-Based Financing:** Implement chargeback or benefit-sharing mechanisms that allocate costs based on value received, creating appropriate incentives for business units to leverage data capabilities effectively.

### Measuring Data Strategy ROL

Establishing effective ROI measurement for data initiatives requires a comprehensive approach:

**Benefit Tracking Framework:** Develop clear methodologies for quantifying both direct benefits (cost savings, revenue increases) and indirect benefits (risk reduction, decision quality) of data initiatives.

**KPI Definition:** Establish specific key performance indicators tied to business outcomes rather than technical metrics, ensuring alignment between data investments and strategic priorities.

**Baseline Measurement:** Capture current-state performance metrics before implementation to enable accurate quantification of improvements and benefits attribution.

**Finance Leader Takeaway:** Data Strategy implementation requires a sophisticated approach to financial management that balances appropriate investment with measurable returns. Finance leaders must develop funding models that accommodate

the iterative nature of data programs while maintaining fiscal discipline. By implementing comprehensive value tracking methodologies that capture both direct and indirect benefits, finance organizations can demonstrate the full impact of data investments and make informed decisions about future resource allocation. Additionally, finance leaders should leverage data capabilities to transform their own functions, enhancing forecasting accuracy, improving financial controls, and delivering more actionable insights to business partners.

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### Strategic Framework

Effective Data Strategy implementation requires a cohesive framework that integrates technology, people, processes, and governance to deliver sustained business value. Rather than treating data initiatives as disconnected projects, banks must develop a comprehensive approach that addresses fundamental capabilities while enabling specific business use cases.

The Banking Data Strategy Framework presented below provides a structured methodology for developing mature data capabilities across five interconnected domains. This framework enables organizations to assess current maturity, identify critical gaps, and develop roadmaps that systematically enhance data capabilities aligned with business priorities.

### **Framework Components**

- 1. **Data Governance:** Establishes the policies, standards, roles, and processes for effective data management across the organization.
  - Data Ownership and Stewardship: Defines clear accountability for data quality, accessibility, and usage across domains and systems. According to Atlan, "Banks should establish distinct ownership and accountability for data quality by designating data owners and fostering an enterprisewide data culture" (Atlan, 2025).
  - Policies and Standards: Develops enterprise-wide policies for data management, quality, privacy, security, and retention that balance regulatory requirements with business needs.
  - Metadata Management: Implements consistent approaches for documenting data definitions, relationships, quality rules, and lineage to enhance understanding and trust.
  - **Data Ethics:** Establishes principles and review mechanisms for ethical use of data, particularly for AI applications and automated decisioning.
- 2. **Data Architecture:** Designs the technical foundations for capturing, storing, integrating, and delivering data across the enterprise.
  - **Enterprise Data Model:** Creates a comprehensive view of key data domains, their relationships, and authoritative sources that guides integration and development efforts.
  - Integration Architecture: Designs mechanisms for connecting disparate systems and data sources while reducing manual processes and inconsistencies.

- **Data Platform Strategy:** Develops approaches for modernizing data infrastructure through cloud adoption, API enablement, and componentized architecture.
- Reference Data Management: Implements consistent management of critical reference data including product codes, customer segments, and risk classifications.
- 3. **Data Quality:** Ensures data is accurate, complete, consistent, and timely across systems and use cases.
  - **Quality Measurement:** Implements systematic approaches for assessing data quality against defined standards and business requirements.
  - **Remediation Processes:** Establishes mechanisms for addressing quality issues at both source systems and during integration processes.
  - **Data Controls:** Develops preventive, detective, and corrective controls that maintain quality throughout the data lifecycle.
  - **Quality Monitoring:** Creates dashboards and alerts that provide visibility into quality metrics and trends across key data domains.
- 4. **Analytics Capabilities:** Develops the technical tools, methodologies, and expertise required to transform data into actionable insights.
  - Self-Service Analytics: Implements business-friendly tools and interfaces that enable non-technical users to access, analyze, and visualize data independently. According to TriZone India, banks can achieve "improved ROI on marketing spends" through "real-time insights into customer behavior" (TriZone India, 2025).
  - Advanced Analytics: Develops capabilities for statistical analysis, predictive modeling, and machine learning that enhance decision-making and process optimization. Appian notes that "AI and automation will help banks make better data-driven decisions to navigate economic fluctuations more nimbly" (Appian, 2025).
  - **Embedded Analytics:** Integrates analytical capabilities directly into operational systems and business processes, enabling real-time decisioning and automated actions based on data insights.
  - **Analytics Governance:** Establishes frameworks for managing analytical assets including models, algorithms, and visualizations to ensure consistency, reusability, and compliance.

- 5. **Data Culture & Skills:** Builds the human capabilities required to leverage data effectively across the organization.
  - Data Literacy: Develops training programs that enhance understanding of data concepts, analytical methods, and appropriate usage across all levels of the organization.
  - **Specialized Expertise:** Builds or acquires advanced skills in data engineering, data science, and analytics to support complex use cases and innovation.
  - **Organizational Structure:** Designs effective operating models that balance centralized expertise with embedded business unit capabilities.
  - **Change Management:** Implements methodologies for driving adoption of data-driven approaches across business processes and decision points.

These framework components interact continuously rather than sequentially. For example, governance policies shape architectural decisions, while quality capabilities enable more sophisticated analytics. This integrated approach ensures all elements of the Data Strategy program remain aligned with business objectives while addressing interdependencies appropriately.

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### Implementation Approach

Successful implementation of Data Strategy capabilities requires a structured yet flexible approach that delivers incremental value while building toward a comprehensive vision. The phased roadmap below provides a practical framework for banking organizations at varying maturity levels, balancing quick wins with foundational capability development.

This implementation approach emphasizes three core principles: business-driven prioritization, iterative delivery, and foundational enablement. By focusing initial efforts on high-value use cases while simultaneously developing core capabilities, banks can demonstrate tangible ROI while creating the infrastructure for sustainable data excellence.

### **Implementation Phases**

### Phase 1: Foundation & Initial Value (3-6 months)

- Focus Areas:
  - o Establish data vision and strategy aligned with business priorities
  - Develop initial data governance framework and operating model
  - Launch 2-3 high-value analytics use cases with measurable business impact
  - o Conduct enterprise data maturity assessment and capability gap analysis
- Key Deliverables:
  - Enterprise data strategy and roadmap
  - o Initial data governance policies and standards
  - Business value assessment framework
  - Completed proof-of-concept analytics initiatives
  - o Data maturity baseline and capability development plan

This initial phase establishes the strategic direction for the Data Strategy program while delivering early wins that demonstrate value and build momentum. The maturity assessment provides a comprehensive view of current capabilities and gaps across all framework components, enabling targeted investments in subsequent phases.

### Phase 2: Scale & Industrialize (6-12 months)

• Focus Areas:

- o Implement core data management infrastructure and quality processes
- Develop self-service analytics capabilities for business users
- Expand analytics use cases across additional business functions
- o Build internal data competency center and skills development program

### • Key Deliverables:

- Enterprise data platform with appropriate security and governance
- Business-friendly analytics tools and interfaces
- o Cross-functional analytics use case portfolio
- Data training and certification program
- Data quality monitoring and remediation processes

Phase 2 focuses on scaling initial successes while developing the infrastructure and capabilities needed for broader data adoption. According to the Bank of England, this includes building and deploying "an enterprise data platform...to support a small number of priority use cases, including modernising statistical production, macroeconomic data for monetary policy and transforming regulatory data collections" (Bank of England, 2024). The expanded use case portfolio demonstrates value across diverse business functions, building broader stakeholder support.

### Phase 3: Transform & Embed (12-24 months)

- Focus Areas:
  - o Integrate advanced analytics into core business processes and workflows
  - o Implement AI and machine learning capabilities for selected use cases
  - o Develop comprehensive model governance and risk management
  - o Create closed-loop learning mechanisms for continuous improvement
  - Establish data-driven performance management across the enterprise

#### • Key Deliverables:

- Process redesigns incorporating analytics into decision workflows
- Advanced analytics capabilities including AI/ML models
- Model governance framework and supporting tools
- Analytics-driven performance metrics and dashboards
- Continuous improvement methodology for data initiatives

The transformation phase embeds data deeply into organizational decision-making and operations, moving beyond isolated use cases to fundamentally change how the bank functions. According to Accenture, "Generative AI is set to revolutionize banking by transforming routine tasks, enhancing customer experiences and reshaping roles. It introduces new era of continuous change and human + machine collaboration" (Accenture, 2025). Advanced capabilities including AI and machine learning enable new use cases with greater impact, while governance frameworks ensure appropriate controls for these more sophisticated approaches.

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### **Best Practices and Recommendations**

Organizations that successfully implement Data Strategy in banking consistently demonstrate several best practices that differentiate them from their peers. The following recommendations synthesize these approaches into actionable guidance across strategic, operational, and technical dimensions.

### 1. Align Data Strategy with Business Objectives

Begin with clear business priorities rather than technology capabilities. Define specific, measurable objectives that data will address, and develop use cases directly tied to these outcomes. Establish value measurement frameworks before implementation, ensuring alignment between data investments and strategic priorities.

### Implementation Guidance:

- Conduct structured workshops with business leaders to identify and prioritize data opportunities
- Develop business value estimates for each potential use case using consistent methodology
- Create a balanced portfolio of quick wins and strategic capabilities based on value potential
- Establish clear success metrics before implementation, with regular measurement and reporting

### 2. Build a Robust Data Foundation

Ensure data initiatives are built on reliable, accessible data assets. Implement systematic data quality management processes across the data lifecycle. According to Semarchy, "poor data quality costs the average organization a staggering \$12.8 million every year" (Semarchy, 2025). Develop appropriate governance mechanisms that balance control with agility, focusing most stringent oversight on high-risk data elements.

#### Implementation Guidance:

- Implement data profiling and quality scoring across critical data domains
- Establish data ownership and stewardship responsibilities with clear accountability
- Develop metadata management capabilities that enhance data discovery and understanding

• Implement graduated governance controls based on data sensitivity and business impact

### 3. Prioritize Regulatory Compliance

Integrate regulatory requirements into the core of data strategy rather than treating compliance as a separate workstream. According to Atlan, "BCBS 239 compliance is a strategic imperative for banks aiming to strengthen their risk management frameworks and ensure regulatory adherence" (Atlan, 2024). Leverage compliance investments to enhance overall data capabilities, particularly in areas such as data lineage, quality, and governance.

### Implementation Guidance:

- Map regulatory requirements to specific data capabilities and design patterns
- Implement robust data lineage capabilities that support both compliance and business needs
- Develop integrated approaches for model governance that address both risk and innovation
- Establish compliance "by design" principles that embed requirements into data processes

### 4. Foster a Data-Driven Culture

Create a balanced operating model that combines centralized expertise with embedded business unit capabilities. The Future of Commerce notes that "The bank of 2025 and beyond will require new skills that will blend strategy with AI chops and a laser focus on the customer" (The Future of Commerce, 2025). Implement structured skills development programs that address both specialized analytics roles and broader workforce data literacy.

#### Implementation Guidance:

- Establish a Data Center of Excellence that provides shared services, standards, and expertise
- Embed data professionals within business units to ensure domain knowledge and relevance
- Develop tiered training programs addressing different roles and skill requirements
- Create career paths and advancement opportunities for data professionals

#### 5. Implement Appropriate Technology Architecture

Develop a flexible, scalable technology foundation that accommodates diverse analytical needs while maintaining appropriate security and governance. Balance enterprise standardization with use case-specific capabilities to maximize both efficiency and effectiveness.

#### Implementation Guidance:

• Implement a layered architecture separating data management from analytical capabilities

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- Adopt cloud-based platforms to enhance scalability and flexibility
- Establish clear standards for technology selection and integration
- Balance self-service tools with enterprise platforms based on use case requirements

#### Key Performance Indicators

Category	Metric	Description	Target
Business Impact	Value Realization Rate	Financial benefits delivered as percentage of data investment	<b>300%+</b> (SCNSoft, 2024)
Business Impact	Decision Cycle Time	Time required to make key decisions using data inputs	<b>30% reduction</b> (Gartner, 2024)
Data Quality	Critical Data Element Accuracy	Percentage of critical data meeting defined quality thresholds	<b>95%+</b> (DAMA, 2023)
Data Quality	Data Integration Cycle Time	Time required to integrate new data sources into analytics platform	<b>50% reduction</b> (Forrester, 2024)
User Adoption	Analytics Utilization Rate	Percentage of target users actively using analytics tools monthly	<b>70%+</b> (MIT Sloan, 2025)
User Adoption	Self-Service Analytics Ratio	Percentage of analytics needs met through self-service vs. specialized resources	<b>60%+</b> (Tableau, 2023)

Category	Metric	Description	Target
Operational Efficiency	Analytics Delivery Cycle Time	Time required to develop and deploy new analytics use cases	<b>40% reduction</b> (McKinsey Digital, 2024)
Regulatory Compliance	Regulatory Finding Rate	Number of data-related regulatory findings or issues	<b>75% reduction</b> (Deloitte, 2024)

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### Conclusion

In today's rapidly evolving banking landscape, a comprehensive Data Strategy has emerged as a critical driver of competitive advantage, operational excellence, and regulatory compliance. The financial institutions that succeed in the years ahead will be those that effectively transform data from a technical resource to a strategic asset that informs decision-making across all levels of the organization.

This whitepaper has outlined a strategic framework for implementing Data Strategy in banking that addresses the specific needs and priorities of key stakeholders across the enterprise. For C-suite executives, it offers powerful levers for achieving strategic objectives while creating sustainable competitive advantages. For IT professionals, it provides guidance on building robust technical foundations that balance capability, security, and usability. For compliance officers and risk managers, it outlines comprehensive governance frameworks that enable innovation while maintaining appropriate controls. And for finance leaders, it presents sophisticated approaches to investment and value measurement.

The implementation roadmap presented here acknowledges that data transformation is a journey rather than a destination. By adopting a phased approach that balances quick wins with foundational capability development, banks can demonstrate tangible value while building toward a comprehensive vision. This balance is essential for maintaining momentum and stakeholder support throughout the transformation journey.

As generative AI, cloud computing, and real-time analytics continue to reshape the competitive landscape, the strategic importance of data will only increase. According to Accenture, "By 2030, generative AI will be fully integrated into every aspect of banking, automating routine tasks and fostering seamless collaboration between AI and human employees" (Accenture, 2025). Organizations that establish robust data foundations today will be well-positioned to capitalize on these emerging technologies tomorrow.

The most successful banking institutions will be those that recognize data as not merely a technical asset but as a fundamental driver of business strategy and competitive differentiation. By implementing the frameworks and approaches outlined in this whitepaper, organizations can transform their Data Strategy from isolated technical initiatives to enterprise-wide capabilities that drive sustained business success.

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