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INSIGHT OUT™


# HARNESSING AI AND DATA ANALYTICS TO TRANSFORM FINANCIATION INSTITUTIONS

2025

# How Consumer Trends are Reshaping Banking

🧠 PERSONALIZATION Expected – Smart, tailored experiences

📱 Digital-First Behavior – Mobile-first, fast, frictionless, INTERACTIVE

🔐 Trust & TRANSPARENCY – Clear fees, ethical practices,

💰 Financial Wellness Tools – Budgeting & EDUCATION SUPPORT

🛡️ Control & SECURITY – Privacy drives trust

🏦 Loyalty Is Shifting – FINTECHS GAINING GROUND

Harris Poll n=1505 Individuals (taken online) 2024

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# What even is Artificial Intelligence?


SKYNET

# High-level Types of Artificial Intelligence

- Machine Learning
- Natural Language Processing
- Computer Vision
- Robotics Process Automation
- Generative AI
- Speech and Voice AI
- Expert and Decision Systems
- Predictive / Suggestive Analytics

# Detailed Examples of Artificial Intelligence

- **Machine Learning**
  - Supervised Learning - Predict outcomes based on **labeled data** (e.g. Credit Scoring)
  - Unsupervised Learning – Discover Patterns in unlabeled data (e.g. Customer Segmentation)
  - Reinforced Human Learning **RHL – Requires systems** – Learn optimal actions through trial and error
- **Natural Language Processing (NLP)**
  - Understands, generates, and interacts using human language
    - Text Classification and sentiment analysis – Classify Docs (governance) detects tone
    - Chatbots & Virtual Assistants – Answers questions via Chat or voice
    - Document Intelligence – Extract Structured data from contracts and forms
    - **LLMs –** GPT, Claude, Gemini, Capable of Summarizing generating, translating
- **Computer Vision**
  - Image Classification- Recognize objects in images (i.e. check fraud detection)
  - Facial Recognition - Biometric Identification
  - Document Scanning & OCR – Covert paper to machine readable text
- **Robotic Process Automation**
  - Automates rule-based tasks – potentially decision making
    - **AI – enhanced RPA –** Uses ML/NLP for semi-structured data (e.g. Invoice processing)
    - **Hyperautomation –** Combines AI, RPA, and orchestration platforms for end-to-end automation – **Starts with governance**
- **Generative AI**
  - Produces new content (text, code, images, video, audio from prompts
    - Text Generation – GPT models for writing emails, summaries, reports
    - Code Generation – Tools like GitHub and Copilot
    - Image and Video Synthesis – Midjourney, Dall-E, Sora
- **Speech and Voice AI**
  - Understands and Synthesizes human speech
    - Speech-to-text – transcribes calls (e.g. compliance and call center)
    - Voice Biometrics – Authenticate users
    - Text-to-speech (TTS) – Digital Assistants and Accessibility tools
- **Expert Systems and & Decision Systems**
  - Rule-based or probabilistic systems to make decisions
  - Underwriting Engines – Rules and risk models
- **Predictive Analytics**
  - Customer Segmentation, %like% data, personalization
  - Data Lakes / Data Warehouses / Data Lakehouse's

# Banking Use Cases for Artificial Intelligence

## 23. What use cases for artificial intelligence is your bank exploring?

*Respondents were asked to select all that apply. Question only asked of respondents who said their bank's leadership had discussed allocating budget or resources to AI over the past 18 months.*


Bank Director's 2024 Technology Survey sponsored by Jack Henry & Associates 111 Respondents

Top use Cases are Mostly Defensive Strategies

Offensive strategies are more complex but have a higher payoff

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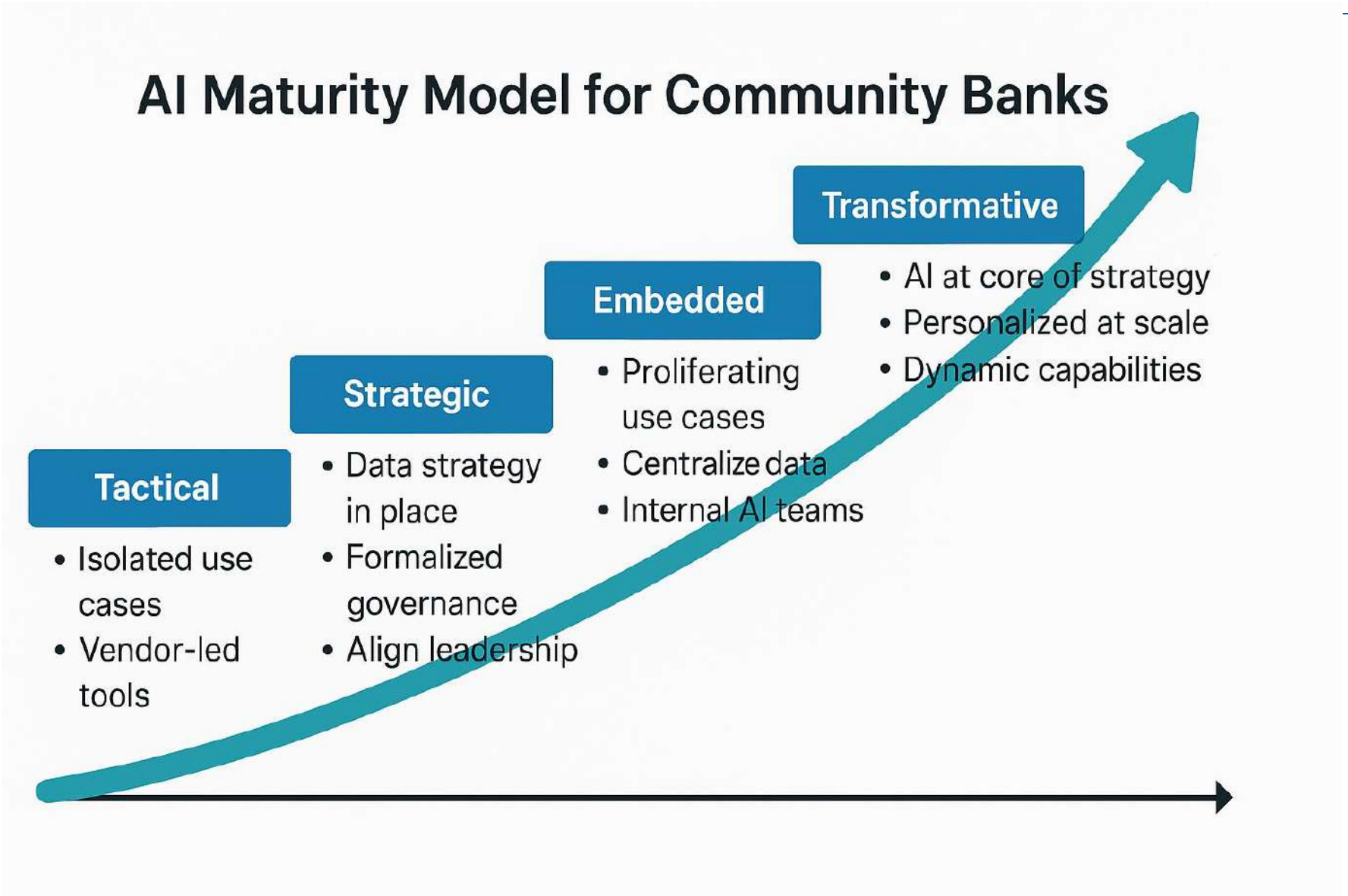
# AI Adoption Maturity Curve



# Artificial Intelligence Areas of Opportunity

| Bank Size | Short-Term | Medium-Term | Long-Term |
|---|---|---|---|
| $250M–$1B | Chatbots, fraud tools, credit APIs, OCR | Predictive lending, marketing AI, compliance tools | Digital lending, fintech AI, data foundations |
| $1B–$2.5B | AI underwriting, voice/chat bots, RPA | Delinquency prediction, cross-sell AI, call center speech AI | Custom ML, open APIs, NLP tools |
| $2.5B–$5B | Model validation, AI in ops/HR, voice fraud detection | Data science team, model ops, personalization | AI copilots, federated learning, LLM integration |
| $5B+ | AI Governance, NLP doc analysis, 360 Customer view, fraud biometrics | AI Advisors, Dynamic pricing, personalization engines | Custom LLMs (bank data), AI-Driven Strategic planning, autonomous LLM's, federated learnings |

# The Data Journey

## Data Maturity Journey

Where is your next checkpoint?

### Data Chaos

- Reports pulled manually from multiple systems *(core, GL, CRM)*
- No central data repository *Excel chaos*
- Regulatory and audit requests take days or weeks to compile

### Ad Hoc Strategy

- Data pulls and KPIs vary by department *no consistent definitions*
- One-off dashboards or reports built in Power BI or Tableau, often redundant
- Reliance on individual "data heroes" to retrieve key metrics

### Stalled Execution

- Data warehouse project started but not fully adopted
- Dashboards exist, but execs don't trust or use them consistently
- Line of business reporting still lives in silos (e.g., lending vs. deposits vs. operations)

### Structured Data Environment

- Systems like Fiserv, Jack Henry, or FIS are integrated into a centralized reporting layer
- Standardized definitions for NIM, ROA, deposit growth, loan portfolio mix
- Executives can access regular reporting on loan performance, branch profitability, etc.

### Strong Data Governance / Reliable Data Pipelines / Data Lake & Warehouse

- Data quality checks are in place; anomalies flagged before they hit reports
- Consistent KPIs across risk, finance, compliance, and lending teams
- Audit-ready documentation of where data comes from and how it's used

### Data-Driven Enterprise

- Branch managers receive performance dashboards weekly
- CFOs have real-time visibility into liquidity, ALM exposure, and earnings forecasts
- Executives can simulate the impact of rate changes, new loan products, or deposit shifts

### AI-Driven Enterprise

- Predictive models identify likely loan churn or deposit runoff
- AI suggests actions based on customer behavior (e.g., cross-sell opportunities, fraud alerts)
- Operations automated based on thresholds (e.g., liquidity triggers, portfolio alerts)

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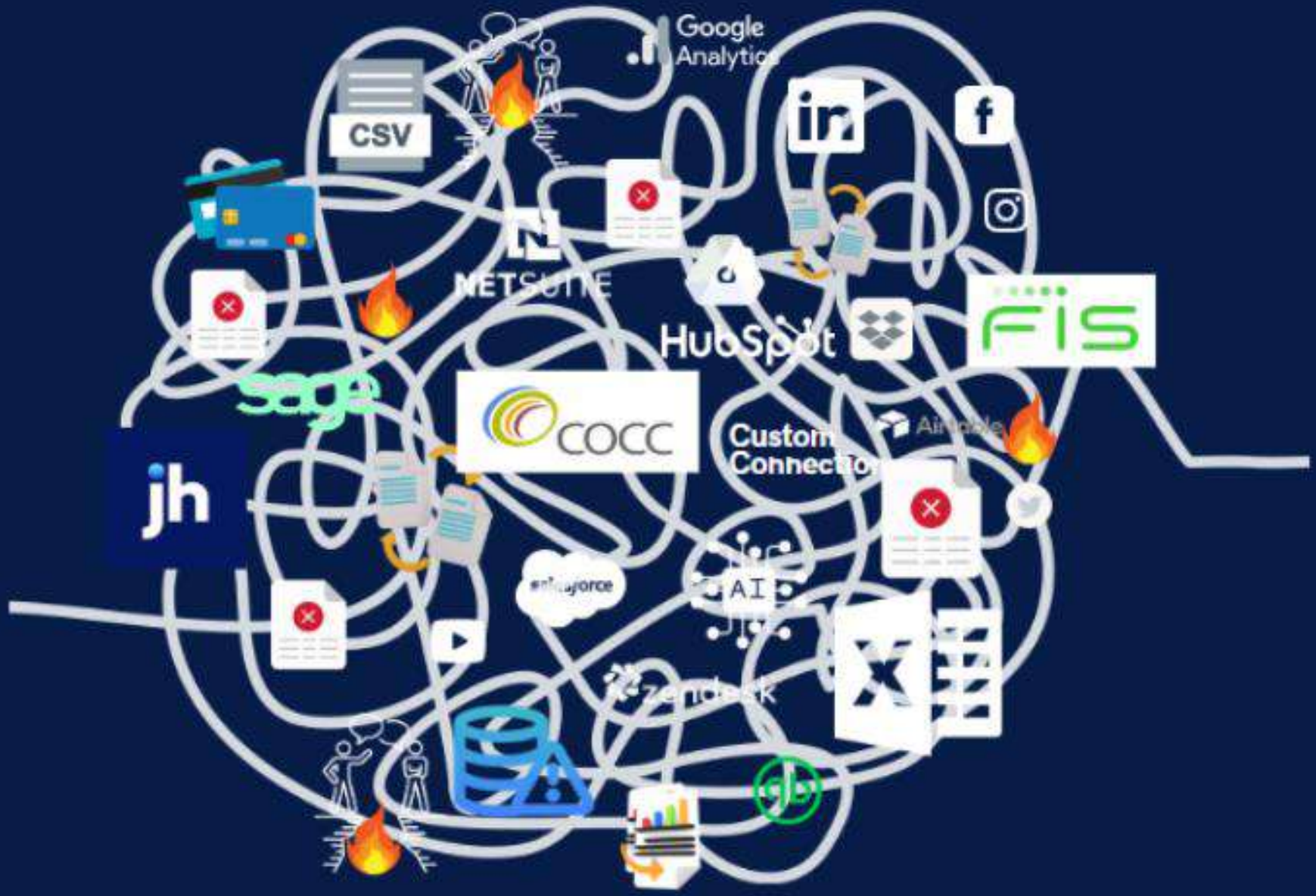
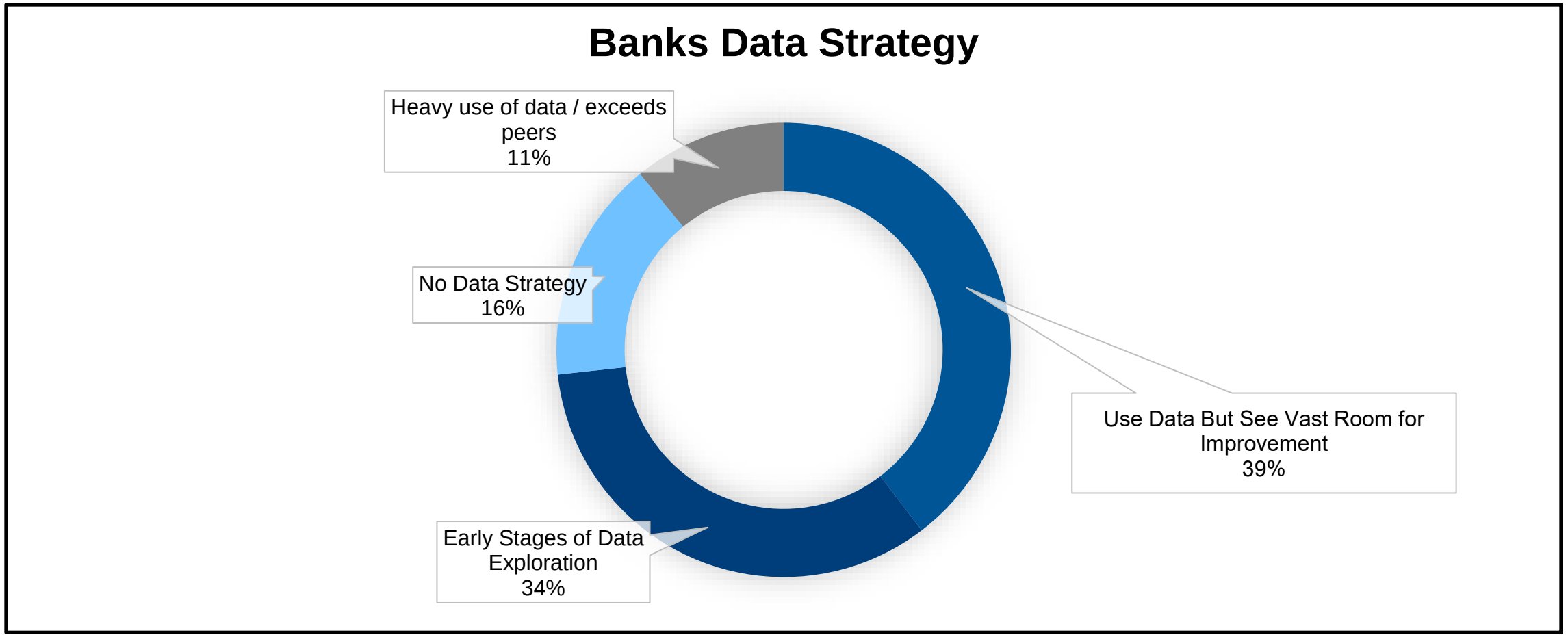
# The Current State Of Your Data



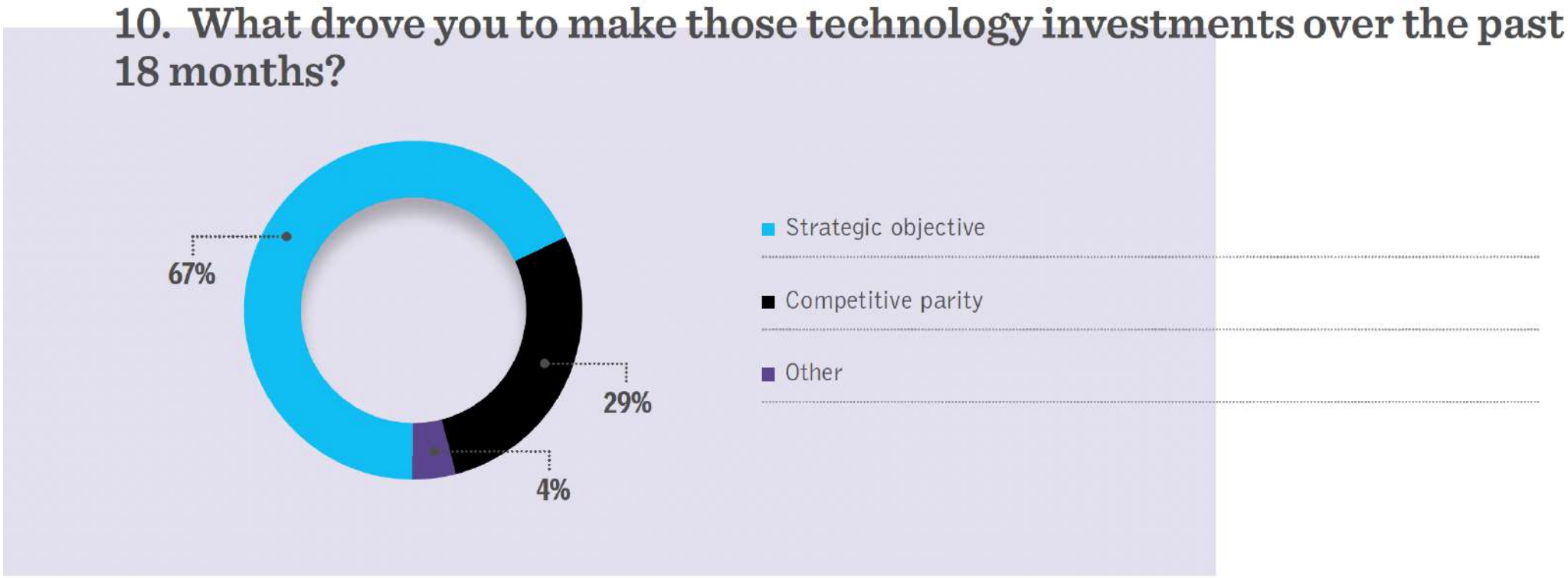
# Banks Perception on Use of Data

50% of Surveyed Banks have no strategy or are in the early stages n=111




Bank Director's 2024 Technology Survey sponsored by Jack Henry & Associates 111 Respondents

# Why Are Banks Investing in Technology?



# The Modern Banking Landscape: Key Data Challenges

- **Data Silos:** Fragmented systems hinder a 360-degree view of data.
- **Data Governance Concerns:** Lack of a coherent Data Governance process (just hire some data people and they will figure it out)
- **Manual Processes:** Reconciliation, data cleanup, and reporting drain resources.
- **Competitive Pressures:** Need for better customer experiences and faster decision-making.
- **Technology Gaps:** Legacy systems struggle to support data/AI-driven strategies.
- **Regulatory Pressures:** Struggle to keep up with ongoing and evolving compliance complexity, Basel III, AML, and KYC

# The Executive's Choice – How to Tackle Data in 2025

1. **Do nothing**
   - Postpone data initiatives and leave insights untapped.
   - Risk: Falling behind competitors, operational inefficiencies, and increased regulatory exposure.
   - 74% of banking executives say data is critical, but only 21% feel ready (Accenture).
2. **Build an Internal Team**
   - Hire data professionals to manage and analyze data in-house.
   - Challenge: High costs and difficulty attracting top talent – only 9% of data professionals prefer banking roles (McKinsey).
   - Average cost per Data hire is high
3. **Partner with Software and Service Providers**
   - Access experienced banking data professionals
   - Utilize targeted solutions so solved a specific pain point (Best in Breed) / Utilize all-in-one solution
   - Costs are higher for outsourced work and bespoke tools
4. **Hybrid – Get up to speed faster, but then take over | Partner with others**

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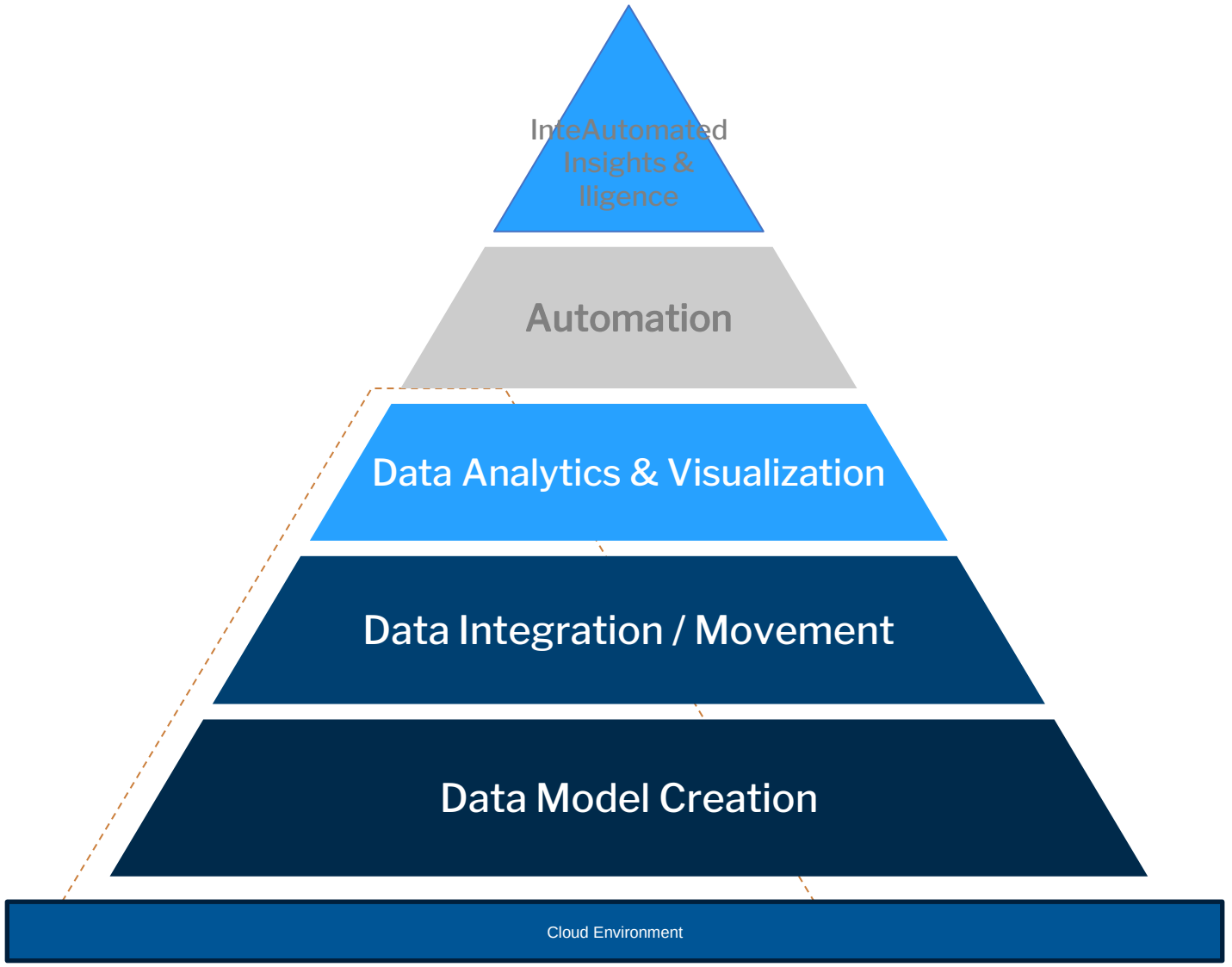
# Data Approach

- **Assessment:** Evaluate current data systems, business challenges, and data maturity to identify gaps hindering AI adoption.
- **Future State Planning:** Design a comprehensive data strategy that aligns with organizational goals, incorporating modern data architectures and technologies to support AI initiatives.
- **Data Governance:** Establish a robust data governance framework to ensure data quality, security, and compliance, forming the foundation for effective AI implementation.
- **Data Insights:** By analyzing customer behaviors, market trends, and operational metrics, community banks can make informed decisions that drive growth, enhance customer satisfaction, and identify new revenue opportunities.



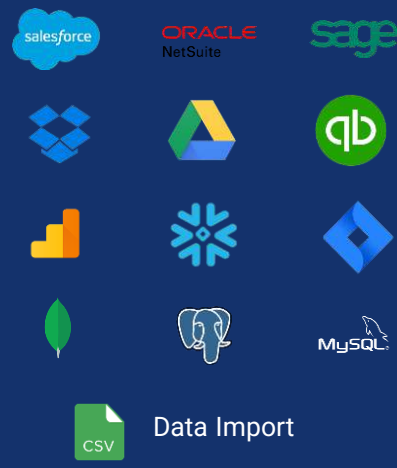
# Data Architecture

Data Governance

Data Management

Data Governance

Data Sources




Data Import

Data In

Enterprise Data Systems / Artificial Intelligence

Internal Institutional Data

3rd Party Data Sets

Data Out

- Content Generation
- Automated Insights
- Notifications & Alerts
- Reporting
- Predictive Analytics
- Customer Interactions

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# What Tools and Processes Help Enable Banks for Enterprise AI

## Tactical Steps

1. Enable banks to unify, cleanse, and analyze data.
2. Deliver actionable up-to-date AI driven insights for improved decision-making.

## Key Features:

1. Centralized Data Management (Integrate data access core banking systems, ERP's, CRM's, etc.)
2. Automated data ingestion, cleansing, and standardization.
3. AI-driven customer segmentation and risk scoring.
4. Real-time dashboards tailored for banking KPIs (Return on Equity, Net Interest Margin, Loan-to-Deposit)

## Improved Workflows:

1. Simplify complex workflows with dynamic, collaborative tools.
2. Enable real-time updates and approvals across teams.
3. Reduce manual errors through automated validation and data linking.
4. Enhance cross-departmental collaboration with centralized data management.

# A look at ROI for Banks

**Tangible Benefits:**

| Key Area | Benefit | Process | Example Impact | Enabler (AI) |
|---|---|---|---|---|
| Data Consolidation | 50% reduction in data aggregation time | Automates data collection from core banking, loan, CRM, and other systems into one platform | Saves 15-20 hours per week | Foundational Data Building |
| Revenue Growth | 25% increase in cross-sell and up-sell opportunities | AI-driven customer segmentation for personalized product offerings. | Boosts product penetration across key segments. Develops new products, Targeted offerings. Data driven Banks are 23% more profitable than their peers | Predictive Analytics Systems |
| Operational Efficiency | 40% efficiency gain in internal workflows | Automated manual reporting and enhances collaboration across departments. | Lowers operational costs and reduces human error. | RPA (AI Embedded Analytics) |
| Customer Service and Retention | 15% lift in customer engagement and retention | Provides a unified 360 customer view, enabling proactive engagement strategies. | Lowers churn and increases lifetime value (LTV). | NLP / Generative AI / Voice (IVR) |
| Regulatory Reporting | 30% faster report generation and submission | Pre-built reporting templates for CECL, Basel III, and stress testing. | Reduces annual compliance prep time by 200+ hours. | NLP / Generative AI |

# Future-Proof Your Business

## Adopt a Data-First Strategy & Position Your Bank for Long-Term Success

- **Why It Matters**: Banks that leverage data effectively outperform competitors by increasing customer retention, boosting profitability, and driving innovation.
- **Action Point**: Break down data silos and create a single source of truth across departments.
- **Result**: Enhanced customer experiences, faster decision-making, and new revenue streams.

## Leverage AI and Predictive Analytics

- **Why It Matters:** AI-driven insights provide a deeper understanding of customer needs, enabling banks to offer tailored products, proactive support, and upsell opportunities.
- **Action Point:** Use predictive models to analyze customer behavior, detect life-cycle changes, and recommend relevant financial products at the right time.
- **Result:** Increased cross-sell rates, higher customer retention, and stronger customer relationships.

## Achieve Operational Excellence Through Automation

- **Why It Matters**: Manual processes limit growth and scalability. Automation increases efficiency and minimizes human error.
- **Action Point**: Automate reconciliation, data entry, and compliance workflows to save time and resources.
- **Result**: Up to **30% reduction in operational costs** and increased staff productivity.

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Bank Demo

bank-demo.insightoutdata.com/dashboard/branch-performance-overview-dashboard

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BANK DEMO

Vladimir Tobias

CUSTOMER TYPE

BRANCH NAME

BRANCH CITY

BRANCH STATE

DATE

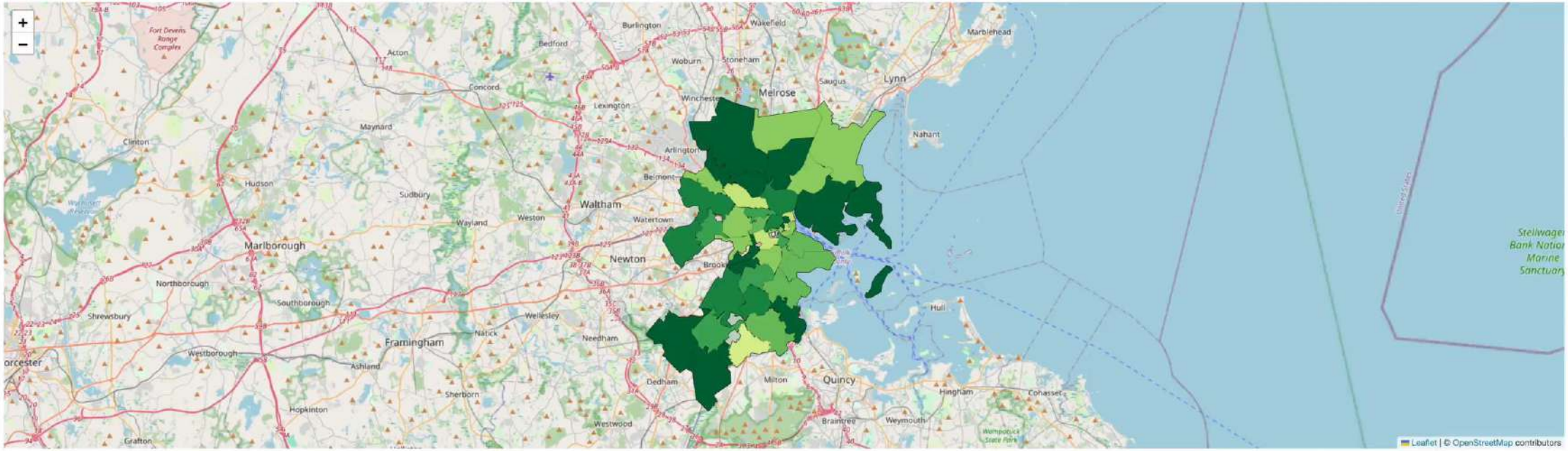
12/12/2022

06/15/2025

CLEAR FILTERS

Branch Performance Overview Dashboard | Loan Executive Summary Dashboard | Loan Performance Dashboard | Loan Risk Assessment Dashboard | Know Your Customer | Householding

## Branch Service Area Coverage




Export | Full Details

### Average Loan Growth Rate per Branch

Average Loan Growth Rate
**5.99%**

### Average Interest Income per Branch

Average Interest Income
**$10,871,529**

### Average Loan Charge-off Rate per Branch

Loan Charge-off Rate
**1.10%**

### Average Deposit Account Growth Rate per Branch

Deposit Accts Growth Rate
**4.02%**

### Average Fee Income per Branch

Fee Income
**$3,188,705**

### Average Expense per Branch

Branch Expense
**$13,109,265**

REMEMBER SETTINGS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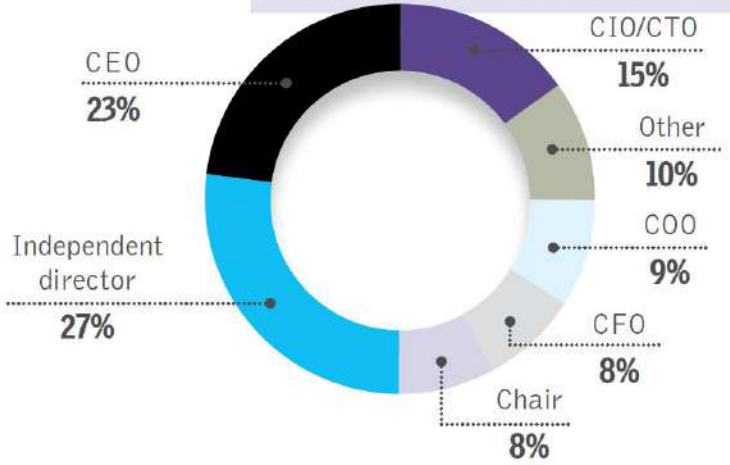
# Survey Description

## ABOUT THE SURVEY

**Bank Director's 2024 Technology Survey, sponsored by Jack Henry & Associates, surveyed 111 independent directors, chief executive officers, chief operating officers and senior technology executives of U.S. banks below $100 billion in assets to understand how these institutions approach data, staffing and new technologies. The survey was conducted in June and July 2024. More than half of respondents represented financial institutions with over $1 billion in assets.**

### TITLE




### ASSET SIZE