

Championing Innovation: **RACE**

Resource Allocation and
Coordination Environment

**Developed and Presented by
Theta Tau Consulting
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Executive Summary

Goal: Providing a strategic roadmap for developing a market-competitive artificial intelligence system for CBC to improve employee efficiency, enhance client-facing features, and operational performance.

Consolidate

Reorganize systems via the deployment of an AI integrated call center

Establish

Develop innovative, streamlined, and foundational features for CBC marketing and client-side usage.

Grow

Outline strategy for expanding the market reach to non-target demographics, and nationwide clientele.

Key Performance Indicators

Support Wait Times	Client Asset Valuations	Feature Utilization
See a reduction in wait times to below 10 minutes on average	See statistical asset growth of clients that regularly utilize introduced resources	Observe a feature utilization percentage of 75% among target demographics and 30% among non-target demographics



Agenda



Analysis

Needs
HDMI
Overview

1



Solution

Introduce
RACE Model

2



Execution

Phased
Implementation
of AI

3



Results

Financials and
Timeline

4



Risks

Risks

5



Our Understanding of Your Needs

How can Carolina Banking Corporation integrate AI into features and processes to improve employee efficiency, client-side features, and maintain market relevancy?

Internal Problems:



Employee Coordination Complications



Inefficient Documentation Processing



Long Support Responses

External Factors:

Customer Support Backlogs

Account Setup Delays

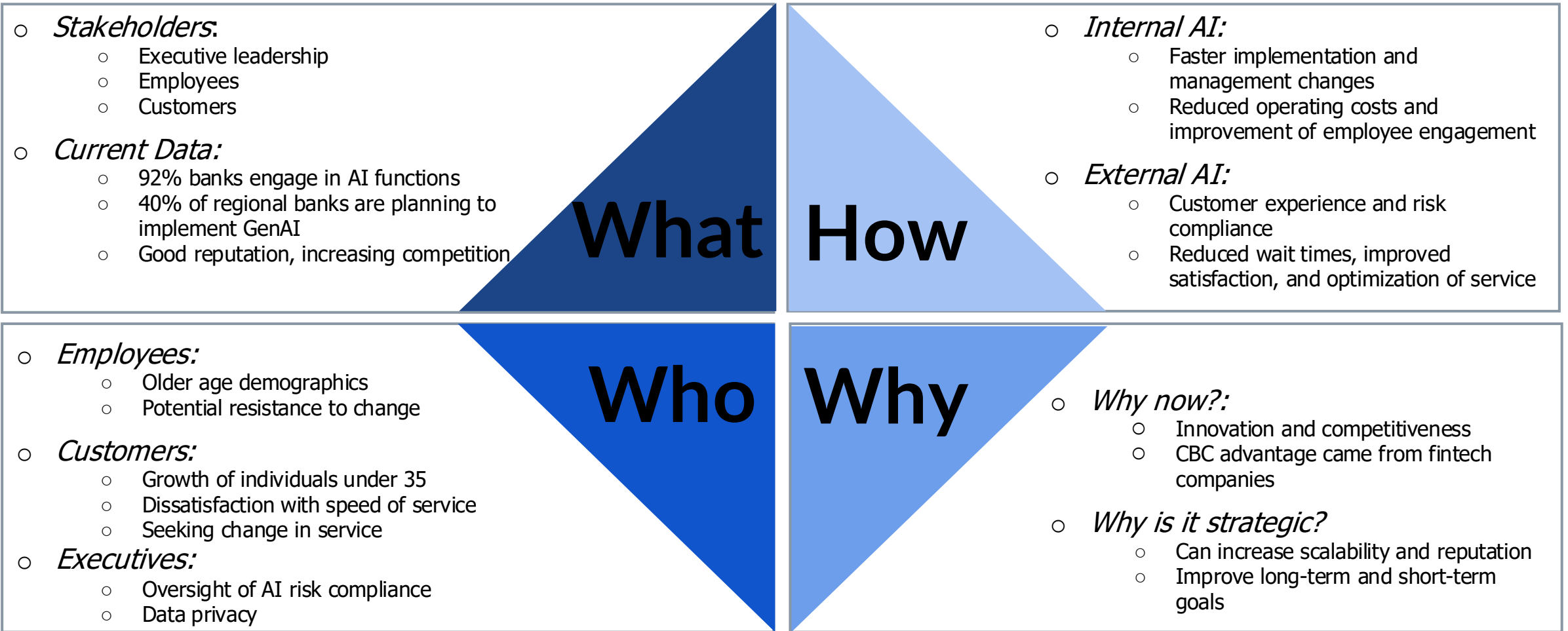
Limited Feature Availability

Fraud Recognition Process

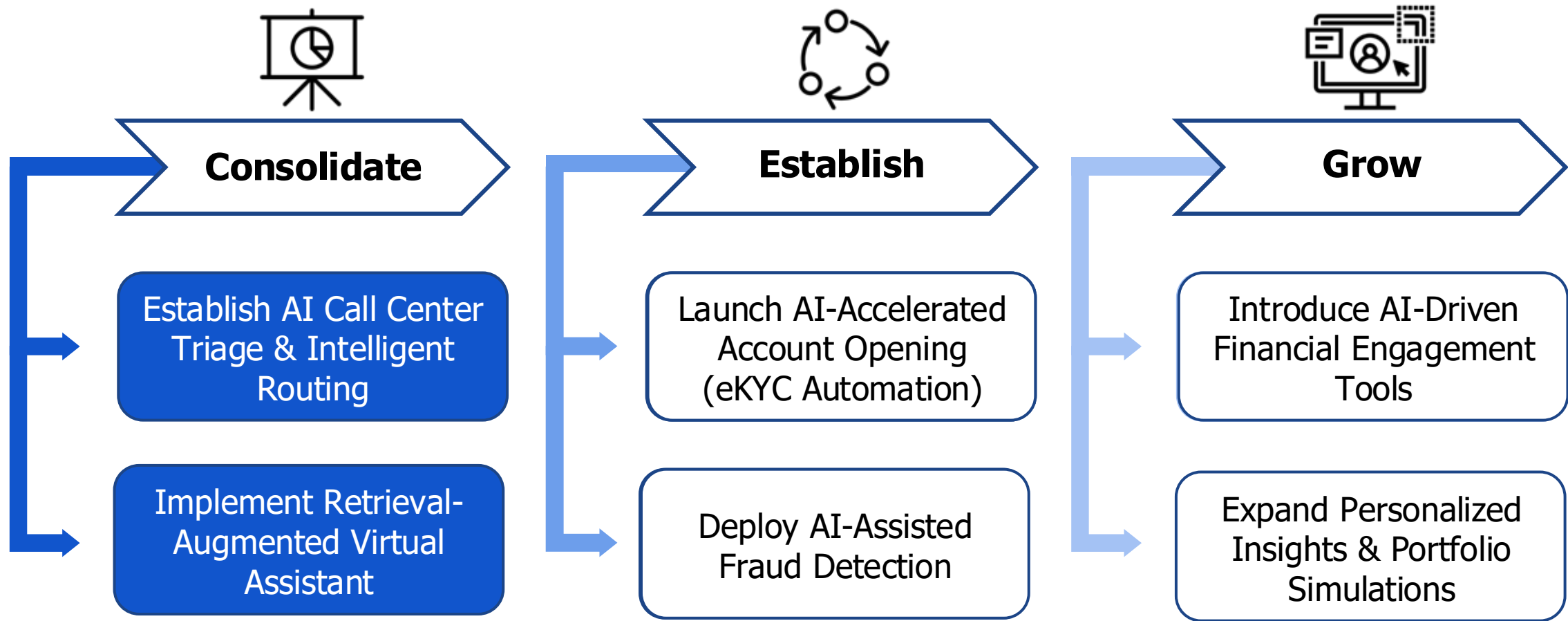
Under-Developed Virtual Assistant

HBDI Analysis

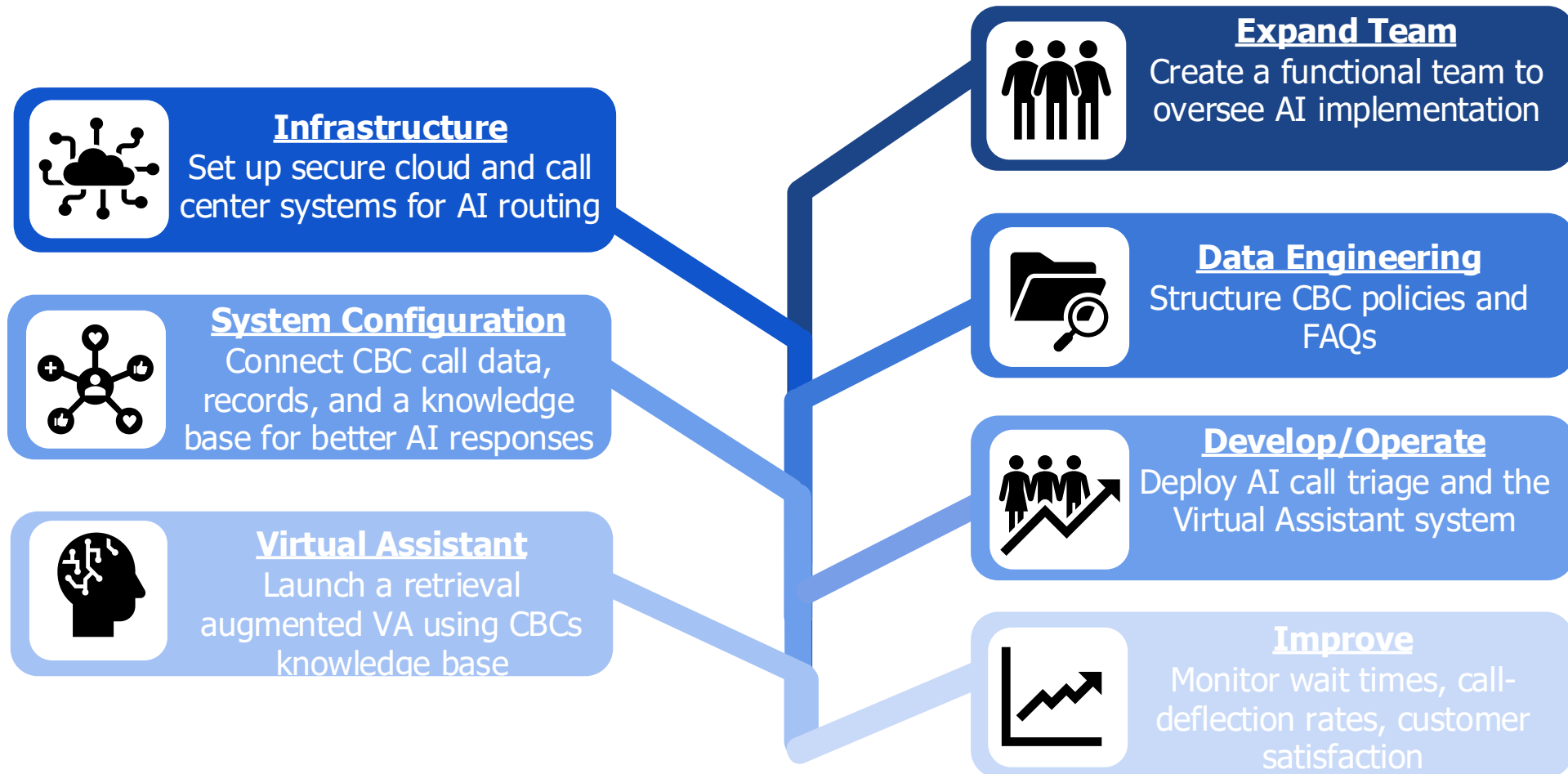
Herrmann Brain Dominance Instrument



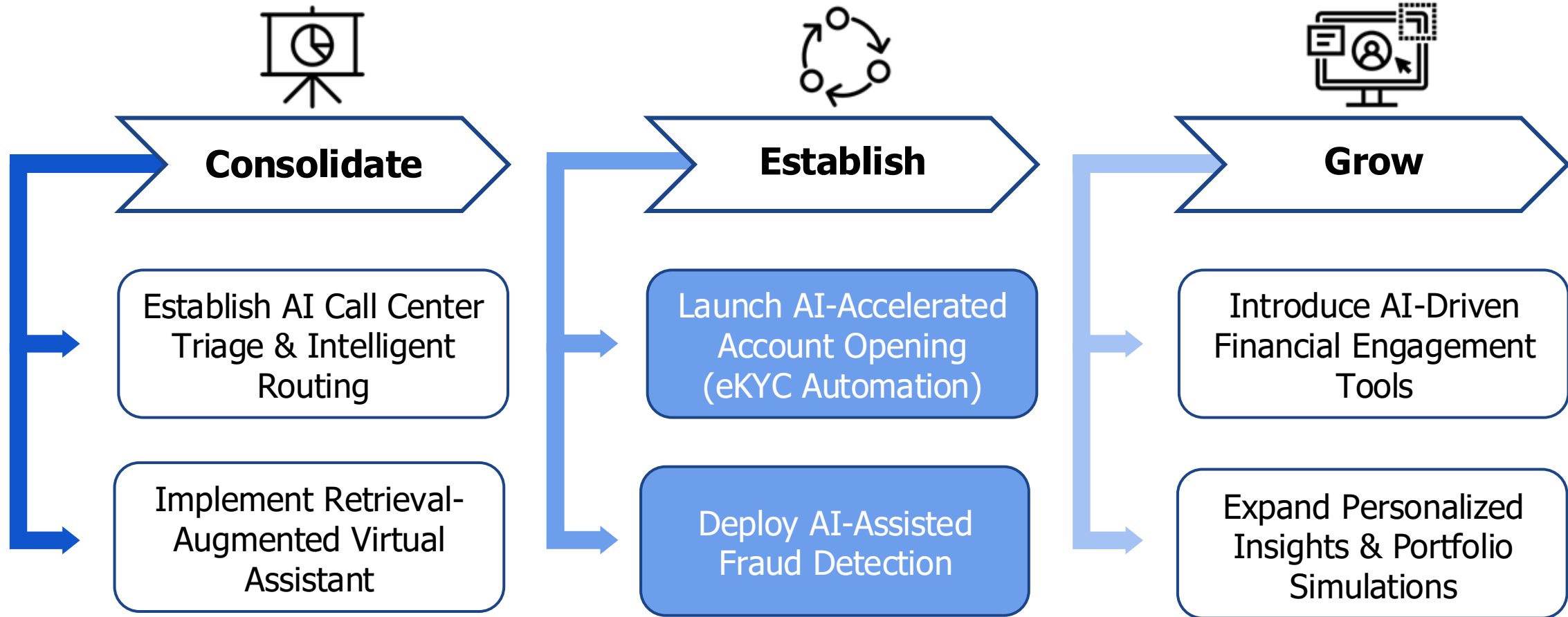
Overview



Phase 1 – Consolidate



Overview



Phase 2 – Establish

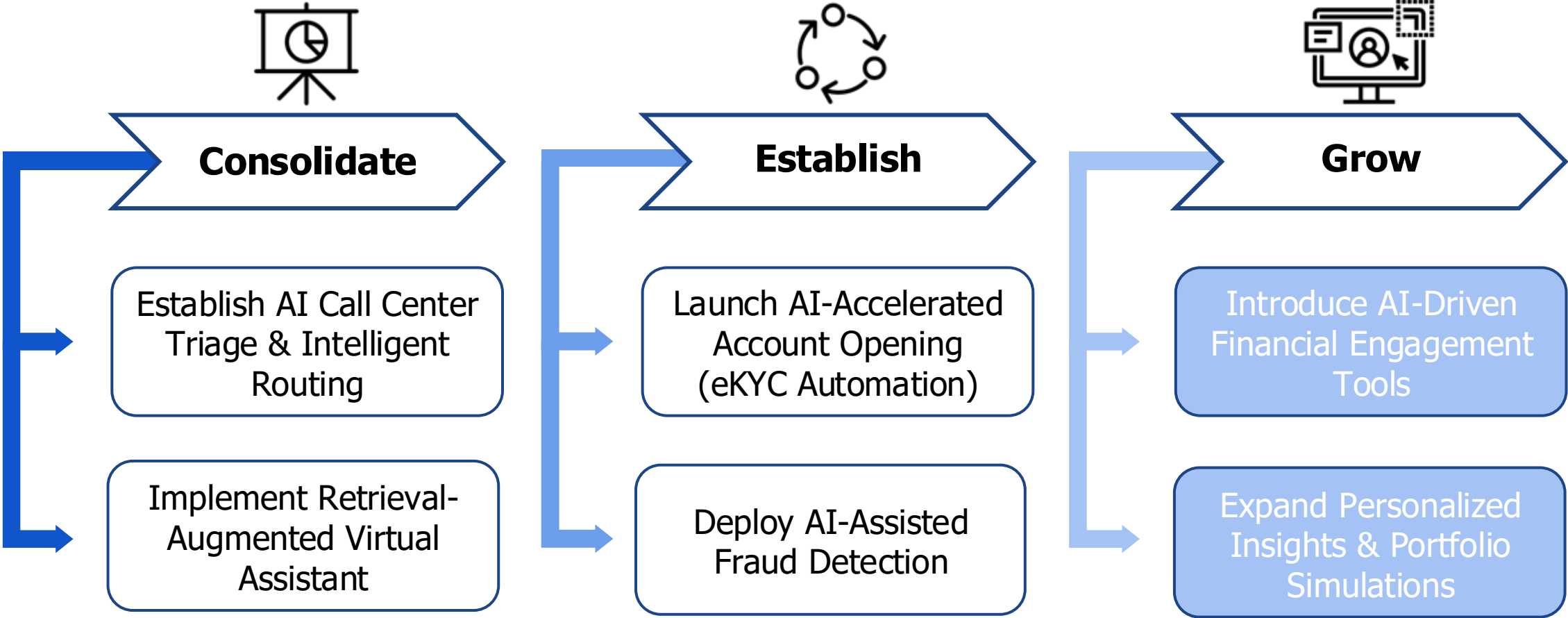
Account Opening (eKYC)

- **What:** Digital account openings with biometric matches and automatic screenings
- **Impact:** Reduces manual document review and settlement delays
- **Customers:** Decrease account openings to less than 24 hours and uplift of customer base

Fraud Detection

- **What:** Real-time behavioral, device, and biometric analysis for fraud detection
- **Industry:** Fraud is increasing and impacting reputations and loss risk
- **Operational:** 10-20% decrease in fraud and 30-50% faster case resolution when integrated

Overview



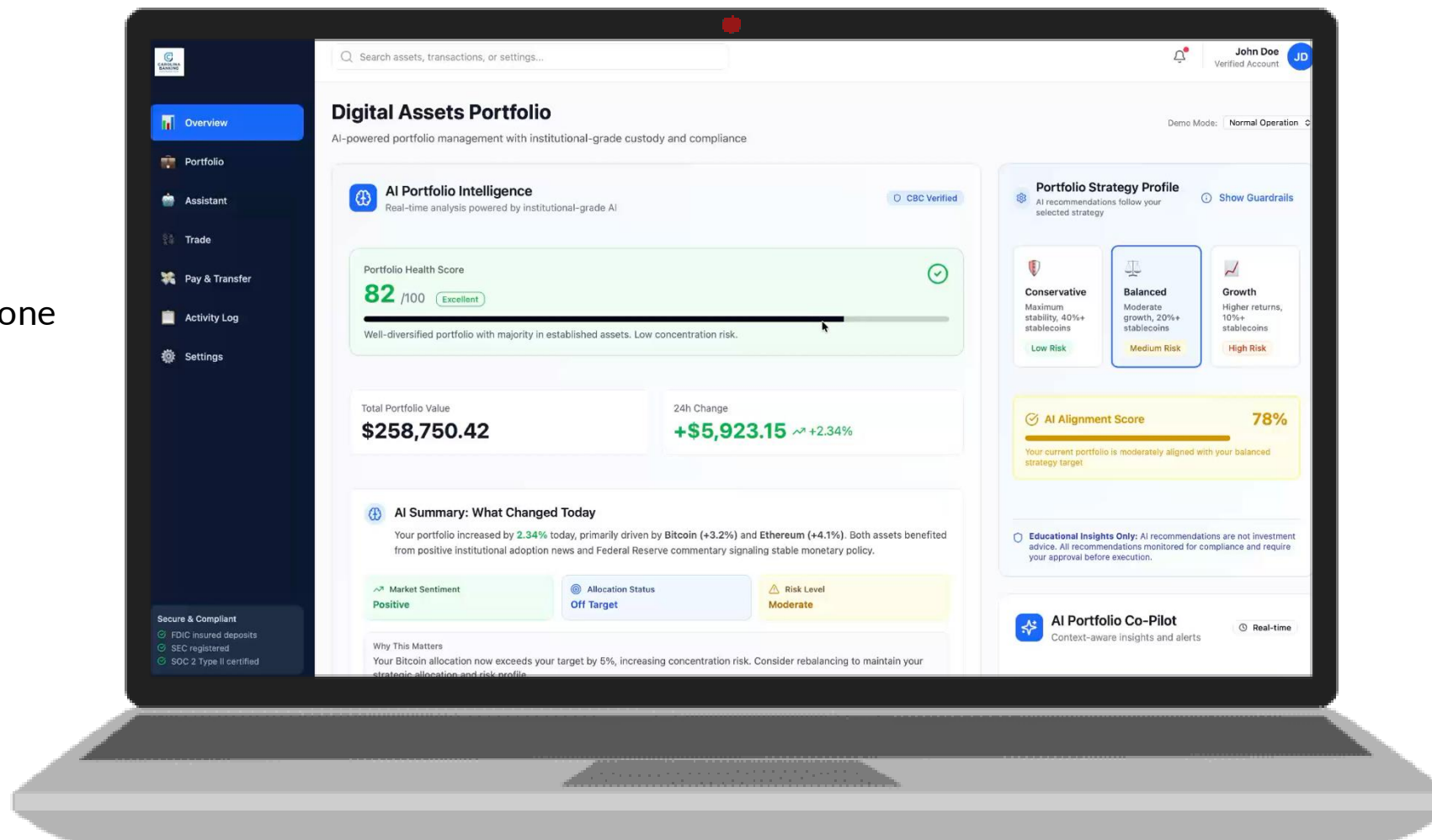
Phase 3 – Grow

Portfolio

Holdings, performance, allocation, and custody status in one clean dashboard.

Assistant

Explains daily moves, flags risk, and suggests a rebalance before you confirm.



Trade

Simple buy/sell with transparent fees, confirmations, and expected settlement time.

Pay

Send stablecoins with safety prompts, whitelist options, and a final confirmation.



Timeline

	2026			2027				2028				Ongoing
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Data Collection												
DevOps Recruitment												
Business API Negotiation												
Call Center AI												
R.A.G AI												
Account Creation AI												
Fraud Detection												
Targeted Banking												
Internal AI Center												

Note: This timeline is a rough estimate, and a more in-depth timeline would be created upon proposal acceptance



Financial Implications of External AI Investment

*More information available in the appendices

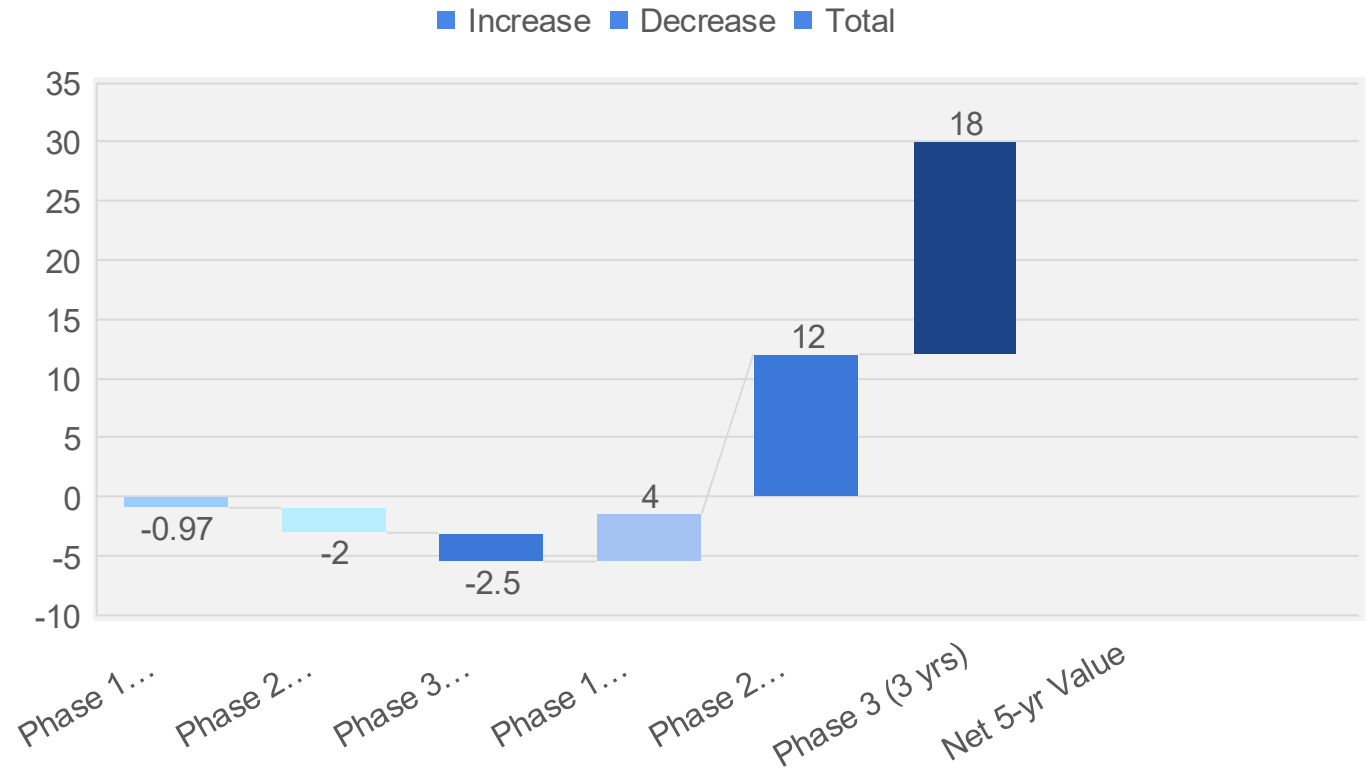
Financial Breakdown

- Total Investment (3 phase rollout): \$5.6M
- Total Gains (Conservatively): \$34M
- Net 5-Year Value: \$28M
- 5x Return on Capital

Why this Investment Benefits CBC:

- It address 35-min wait times
- Converts \$425-450M annual tech spending into measurable growth
- Ensures long-term growth
- Low capital risk relative to assets

Projected Expenses and Savings of Each Phase (\$M)



Financial Implications

Financial Implications

- Savings scale linearly when efficiency increases
- Recurring annual benefit keeps compounding over time
- Low execution risk when compared to the potential return

Savings Calculations:

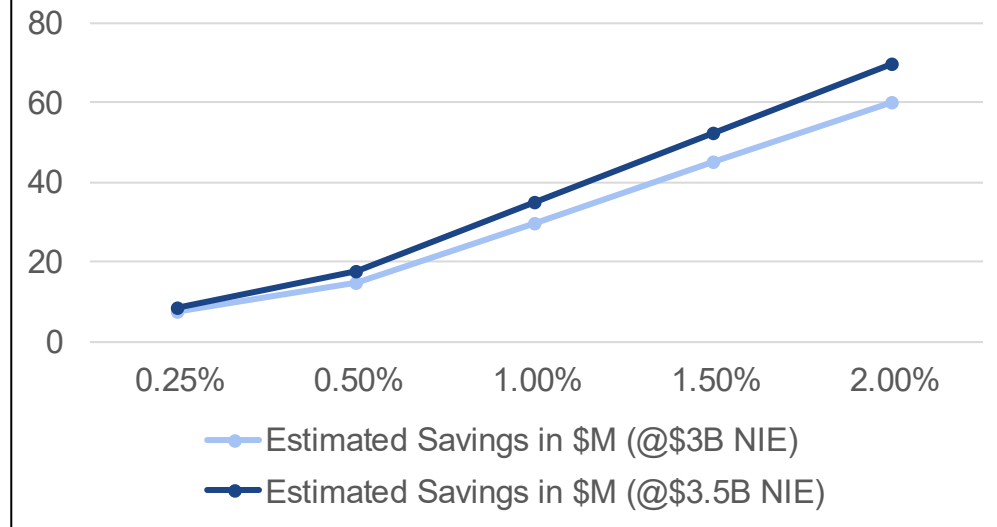
Regional peer ratios estimate \$3.0-\$3.5B annual Noninterest Expense (estimate for CBC)

Annual Savings = Operating expense x Efficiency Improvement (%)

Ex: \$3.5B x 1% = \$35 M Annual Savings

*More information available in the appendices

Projected Savings at Two Noninterest Expense Investments at Varying Efficiency Percentages



Risk & Mitigation

Risk	Description	Mitigation	Likelihood	Impact
Regulatory and Compliance	AI may violate privacy and regulatory laws if not checked upon.	Strong governance, enforcement of AI policy, and compliance checks	High	High
Fraud and Scams	Cybercriminals usage of deepfakes and identification theft to commit fraud.	Increase fraud and anomaly detection, continuous monitoring, and education on scams	Medium	High
Bias	AI models may be biased based on preexisting data leading to incorrect assessments.	Model governance, bias testing, integration of diverse datasets, and third-party validation	Medium	Medium
Customer Adoption	Customers may not trust or utilize AI tools	Customer education on AI benefits, phased rollout of features, and intuitive for users	High	Medium



Thank you!

Any questions?



Appendices

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Risk Mitigation

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Age Demographics Historical Data

Age Bucket	2019	2020	2021	2022	2023	2024	2025	2026
Under 25	15.0%	15.5%	29.0%	30.0%	31.0%	32.0%	33.0%	34.0%
25–34	20.0%	20.5%	27.0%	27.5%	28.0%	28.5%	30.0%	30.5%
35–44	25.0%	24.5%	15.0%	14.5%	14.0%	13.5%	13.0%	12.5%
45–54	22.0%	22.0%	17.0%	16.5%	16.0%	15.5%	15.0%	14.5%
55+	18.0%	17.5%	12.0%	11.5%	11.0%	10.5%	9.0%	8.5%



Markov Transition Projection (2027–2031)

Age Bucket	2027	2028	2029	2030	2031
Under 25	35.2%	36.0%	36.6%	37.0%	37.2%
25–34	31.1%	31.8%	32.5%	33.1%	33.6%
35–44	13.2%	14.0%	14.8%	15.6%	16.3%
45–54	12.9%	11.6%	10.6%	9.9%	9.4%
55+	7.6%	6.6%	5.5%	4.4%	3.5%

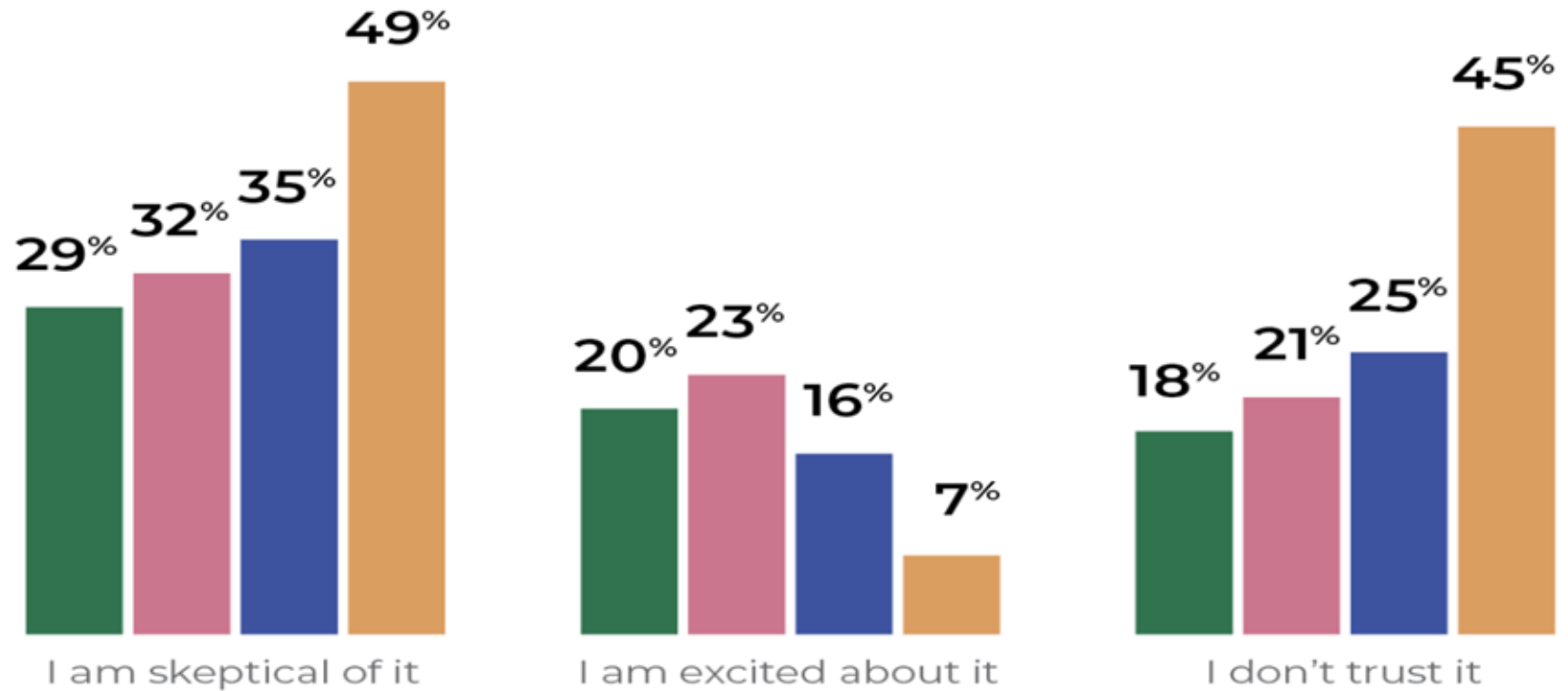


Generations & AI

U.S. Generations Have Mixed Feelings About AI

How do you feel about AI today?

● Gen Z ● Millennials ● Gen X ● Boomers



AI Hallucinations

AI Chatbots (LLM*) can observe patterns or objects that are nonexistent to humans, creating outputs that are nonsensical or altogether inaccurate.

Some of the key factors behind AI hallucinations are:

- Outdated or low-quality training data
- Incorrectly classified or labeled data
- Factual errors, inconsistencies, or biases in the training data
- Insufficient programming to interpret information correctly
- Lack of context provided by the user
- Struggle to infer the intent of colloquialisms, slang expressions, or sarcasm.

***Large Language Models**

Implementation Savings Calculations

Phase	Savings Breakdown	Calculation	Source
Phase 1	Call Deflection	800,000 (est. annual calls) x 25% (call deflection) x \$5 (cost per call) =\$1,000,000	Gartner/McKinsey Contact Center Automation Data
	Time Reduction	\$4,000,000 call center costs x 15% x 50% =\$300,000	Deloitte Digital Contact Center Reports (AHT Reduction %)
	Total Savings	Deflection + Time Reduction = \$1,300,000	Industry Standard: \$4-\$6 per call (ICMI, McKinsey)
Phase 2	Loan Processing	\$5,000,000 loan operations costs x 20% (automation gains) = \$1,000,000	Deloitte Banking Operations Reports (automation gains %)
	Loan Approval Increase	20,000 loans (est.) x 5% (digital conversion lift) x \$1,200 profit = \$1,200,000	Bain Digital Banking Studies (digital conversion lift)
	Total Savings	Loan Processing + Loan Approval Increase = \$2,200,000	Using Conservative average assumptions
Phase 3	Customer Retention	400,000 customers (industry midpoint) x 1% (lift) x \$250 profit (est.)	Harvard Business Review
	Customer Growth	400,000 customers x 2% (increase in customers) x \$250 profit = \$2,000,000	BCG Digital Banking
	Deposit revenue growth	\$4B (Industry average) x 2% (deposit increase) x 3% (net interest margin) = \$2,400,000	FDIC regional Bank averages
	Total Savings	Customer and revenue Increases = \$5,400,000	Using conservative average assumptions



TD Bank: Open Banking Model (Benchmark)

Technologies
Used by TD

- Plaid (North American Data-Access Agreement)
- Akoya API Network
- Mastercard Open Banking (previously Finicity)
- Investnet/Yodlee
- FDX Standards Compliance

Core
Structural
Controls

- Customer Consent required
- Tokenized API access
- Defined third-party contracts
- Continuous monitoring and oversight

(TD Bank, 2026)

TD uses controlled APIs that prevent password sharing to maintain their regulatory obligations



TD Bank: Regulations Framework

GLBA
(Gramm-
Leach-Bliley
Act)

- Banks can share non-public info by fulfilling these requirements:
 - Obtain customer authorization
 - Provide required privacy disclosures
 - Maintain safeguards with third-party contracts

OCC &
Federal
Reserve
Expectations

- OCC & Federal Reserve Expectations
 - Annual privacy disclosures
 - Opt-out systems
 - Defined limitations of shared data
 - Third-party management

(TD Bank, 2026)



Customer consent + controlled APIs + Oversight → How TD maintains regulatory compliance



eKYC Security Risks

Identity Fraud

Overview: Attackers use forged documentation or fabricated identity to bypass the onboarding process.

Impact: Fraudulent account openings and financial loss occurs.

Mitigation: Use multi-layered identification processes such as document verification, database checks, device intelligence to confirm identity of individuals.

AI Algorithms

Overview: AI identity verification can produce inaccurate or incorrect decisions.

Impact: This leads to compromising security and reliability, false approvals, and reputational damage.

Mitigation: Utilize model validation, performance monitoring techniques, and human oversight.

Third Parties

Overview: Reliance on external sources introduces operational, compliance, and data security dependencies.

Impact: Compliance failures, service disruptions, and inaccurate identity decisions can occur.

Mitigation: Strong third-part risk management, performance reviews, and contingency plans.

Security Breach

Overview: Sensitive identification data could be exposed or retained by external personnel.

Impact: Regulatory violations, fines customer and identity theft would negatively harm the reputation of the company.

Mitigation: Encryption implementation, retention policies, vendor compliance, and regular data testing.

Compliance

Overview: eKYC fail to satisfy Customer Identification Program, ownership, or identification screenings.

Impact: Regulatory penalties and remediation programs impact the bank.

Mitigation: Updating digital verification, monitoring, and maintain audit logs.



Existential Risk

Bank Secrecy Act/USA PATRIOT Act

- Customer Identification Program
- Collection of identification information
- Risk-based identity verification
- Record keeping of data

OFAC Sanctions Compliance

- Customer screening against sanctions list
- Screening effectiveness
- Maintaining screening procedures

High Risk

FinCEN Customer Due Diligence Rule

- Identification and verification of owners
- Risk based customer profiling
- Monitoring and updating customer information

Interagency Third-Party Risk Management

- Pre-engagement due diligence
- Protections through contracts
- Continuous monitoring of vendors
- Exit and contingency planning

Emerging Risk

Model Risk Management

- Monitoring and independent validation of AI models
- Model documentation

Gramm-Leach-Bliley

- Risk assessment of security program
- Encryption controls
- Oversight of vendors for data protection
- Incident planning



Phase 1 Cost Breakdown

Agent Licensing

- Formula: Agents $\times$ Cost per Agent per Month $\times$ 12
- Calculation: 125 agents $\times$ \$100 $\times$ 12 = \$150,000 annually
- Source: Enterprise contact center pricing benchmarks (Genesys, NICE CXone, Five9)

Voice AI Usage

- Formula: Total Calls $\times$ Avg AI Minutes $\times$ Cost per Minute
- Calculation: 800,000 $\times$ 3 $\times$ \$0.08 = \$192,000 annually
- Source: Amazon Connect Pricing Documentation (2024)

RAG Development

- Estimated one-time enterprise build = \$200,000
- Source: Enterprise RAG deployment cost analyses (2023–2024)

Integration (CRM + Core + Security)

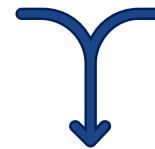
- Estimated one-time integration cost = \$375,000
- Source: Enterprise IT integration benchmarking studies (2023–2024)

Vector Database Infrastructure

- Formula: Monthly Hosting $\times$ 12
- Calculation: \$4,000 $\times$ 12 = \$48,000 annually
- Source: Pinecone enterprise pricing guides (2024)

LLM API Usage

- Formula: (Total Tokens $\div$ 1,000,000) $\times$ Cost per 1M Tokens
- Calculation: 300M tokens $\times$ \$20 = \$6,000 annually
- Source: OpenAI API Pricing Documentation (2024)



• Phase 1 Total Estimated Cost: $\approx$ \$971,000



Phase 2 Cost Breakdown

Fraud Detection AI Deployment

- Estimated cost $\approx$ \$1,200,000
- Includes model development, risk scoring, compliance integration
- Source: Financial fraud AI implementation case studies (2023–2024)

AI eKYC / Onboarding Automation

- Estimated cost $\approx$ \$800,000
- Includes identity verification integration and workflow automation
- Source: Digital onboarding modernization case studies (2023–2024)



Phase 2 Total Estimated Cost: $\approx$ \$2,000,00



Phase 3 Cost Breakdown

AI Personalization & Targeted Banking

- Estimated cost $\approx$ \$1,500,000
- Includes analytics build, CRM AI integration, personalization engines
- Source: CRM AI transformation case studies (2023–2024)

Internal AI Center / Expansion

- Estimated cost $\approx$ \$1,000,000
- Includes framework, data engineering expansion, staff
- Source: Enterprise AI operating model reports (2023–2024)

Phase 3 Total Estimated Cost: $\approx$ \$2,500,00



Phase 2 Total Estimated Cost: $\approx$ \$2,000,00



Regional Bank Tech Investment Proxies

Bank	Total Assets	Annual Revenue	Tech Expense Investment	Tech as Percent of Revenue	Reported Year
CBC (Case Info)	\$75B	(Not disclosed in case materials)	\$450M annual tech investment (Appendix E)	0.6% of assets	2025 Case
Regions Financial	\$154B	\$7.1B	\$4.5B noninterest expense (includes tech)	60% cost-to-income (typical for industry)	2024 10-K
Fifth Third Bancorp	\$219B	\$8.4B	\$5.3B noninterest expense (includes tech)	63% cost-to-income	2024 10-K
KeyCorp	\$187B	\$6.7B	\$4.7B noninterest expense (includes tech)	70% cost-to-income	2024 10-K



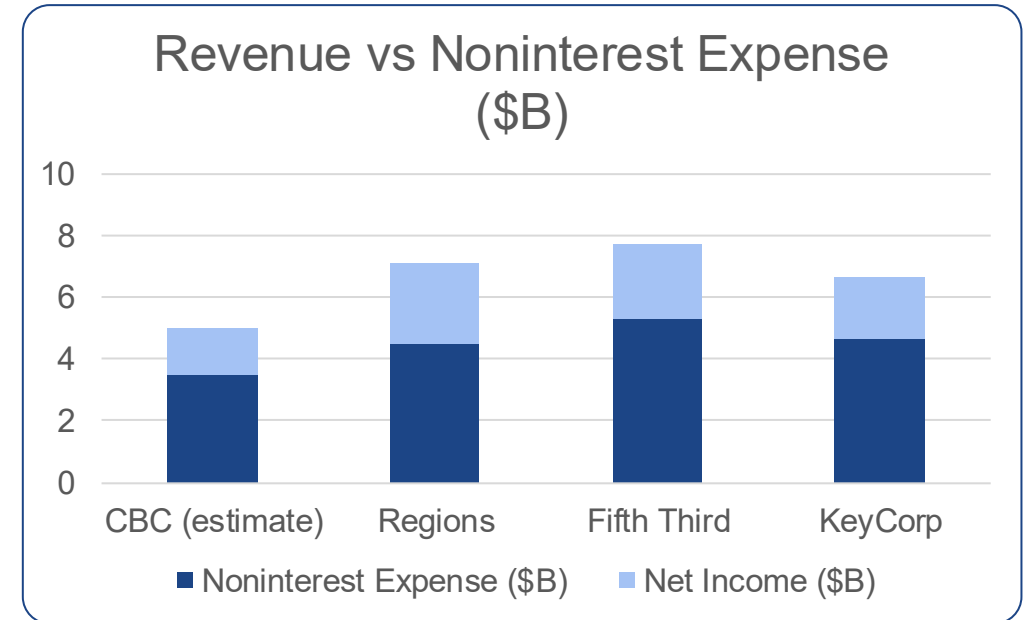
Regional Bank Proxies' Cost-To-Gain Impacts

Bank	Total Assets	Current Tech Focus	Reported Impact
Regions Financial	\$154B	Cloud modernization and expanding digital banking	10% YoY revenue growth
Fifth Third Bancorp	\$219B	Data analytics, integrating AI, digital engagement strategies	30-40% YoY growth in digital transaction volumes
KeyCorp	\$187B	Risk analytics and transforming their digital environment	Improved operational efficiency

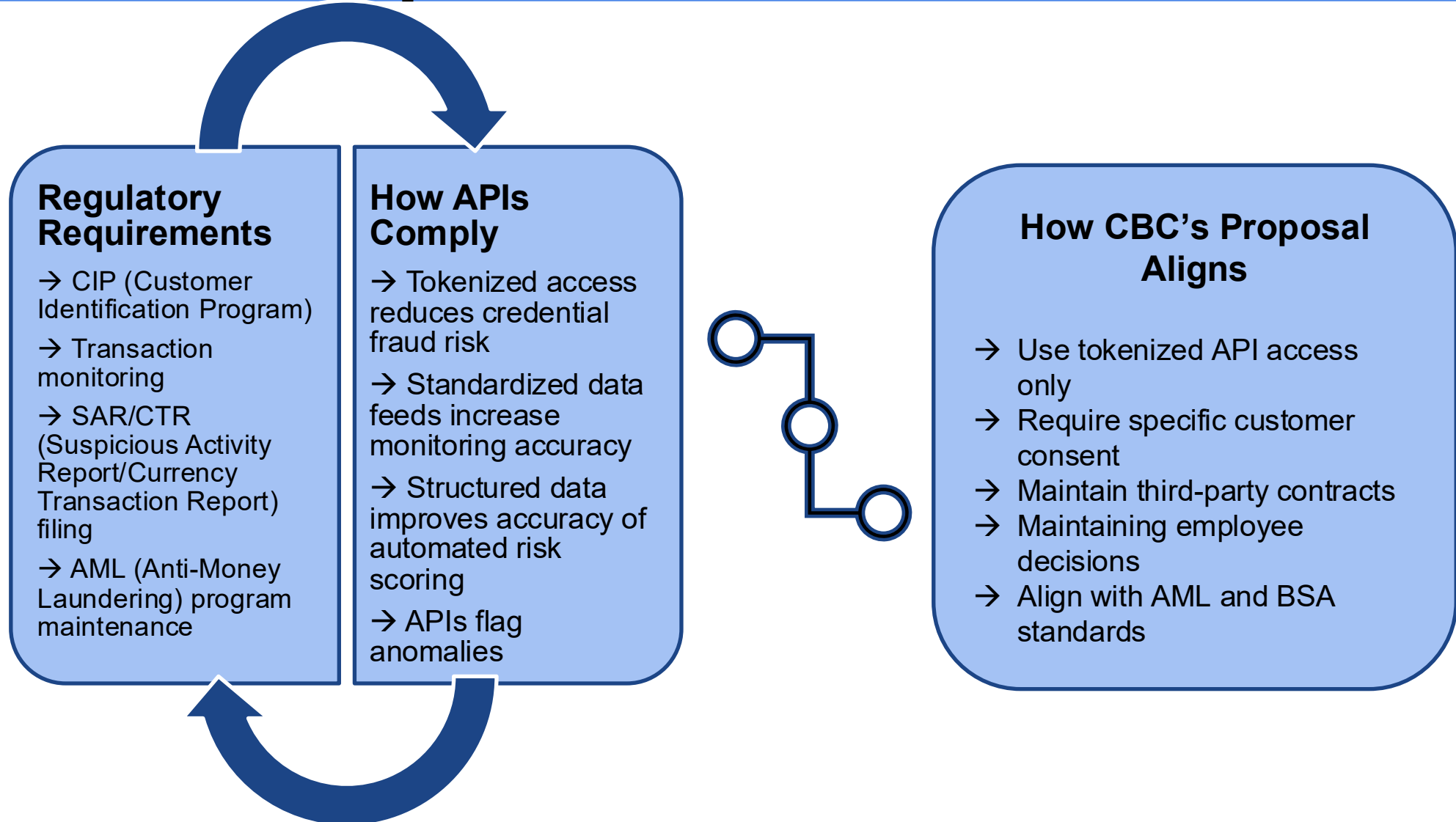


Financial Analysis

- Regional Banks operate at 60-70% cost-to-income ratios
 - a 1% efficiency improvement would result in millions of annual savings



AML & BSA Compliance



(TD Bank, 2026)



Regulatory Concerns for Building AI

In-house AI allows for specific tweaking of code that can adapt and change based on regional laws and regulations.

State Regulations

CA: Option to opt out of the use of client's personal information by automated decision-making technology

CO, VA: Option to opt out profiling

CT: Option to opt out of sole automated decision making

NYC: Automated employment tools need to be annually audited for bias

IL: Requirements surrounding AI analysis of video interviews

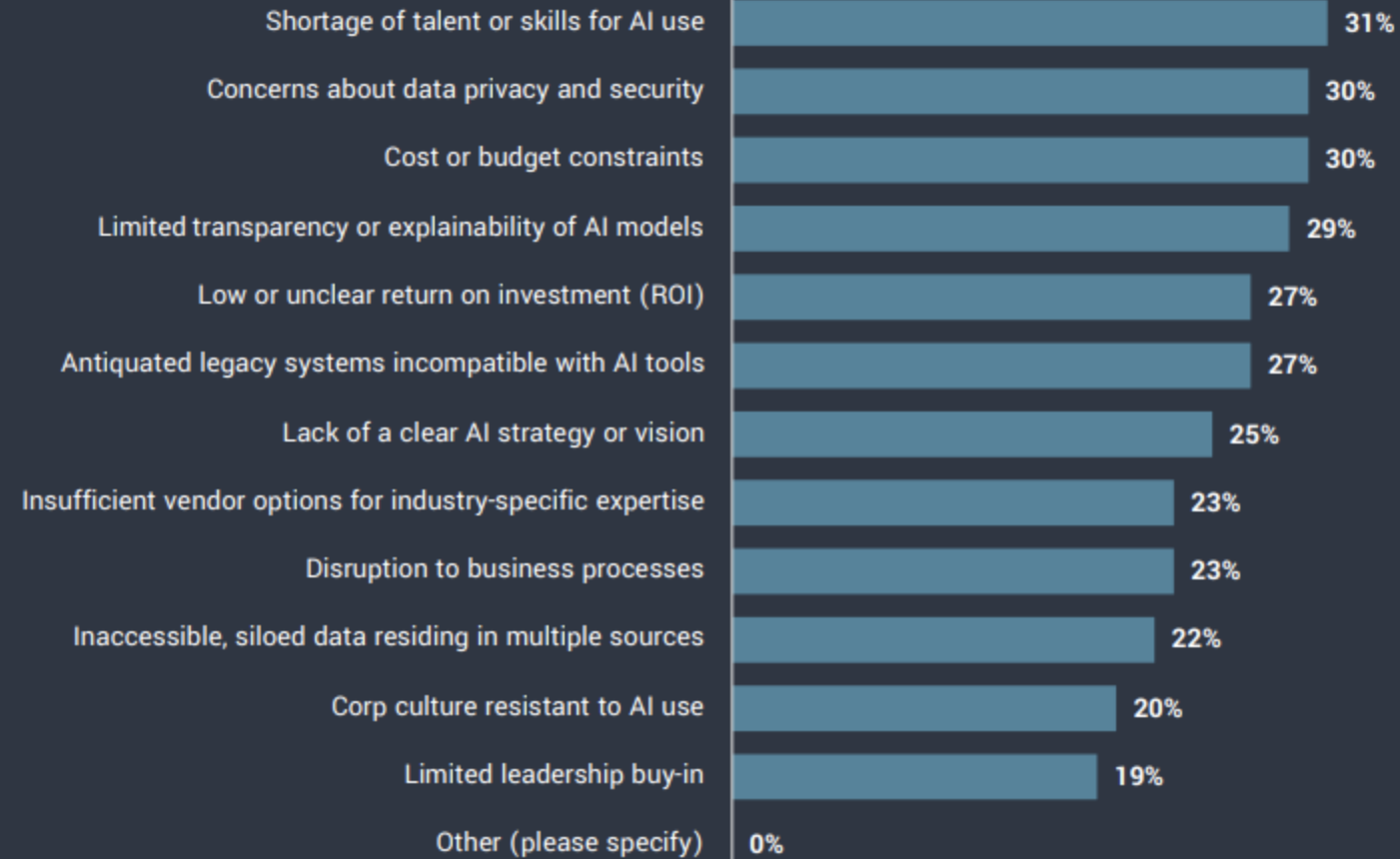
CA, NJ, NY, VT, D.C: Proposed legislation surrounding AI in hiring and promotion



AI Market Barriers

Barriers to AI implementation

(n=290)



Projected Growth for AI

AI (Banking and Finance):

Current Value

\$19.84 Billion

Projected in 2032

\$200-\$340 Billion

Asset Management
value created from AI

\$59 Billion

Wealth Management
value created from AI

\$45 Billion

22%

Cost reduction in operating
expenses due to AI

AI (General):

General AI could add

\$2.6 T

to

\$4.4 T

annually
to the global economy

14.5%

Boost to North
America's GDP

Potential to Automate

60-70%

of current employees' time by

2030-2060

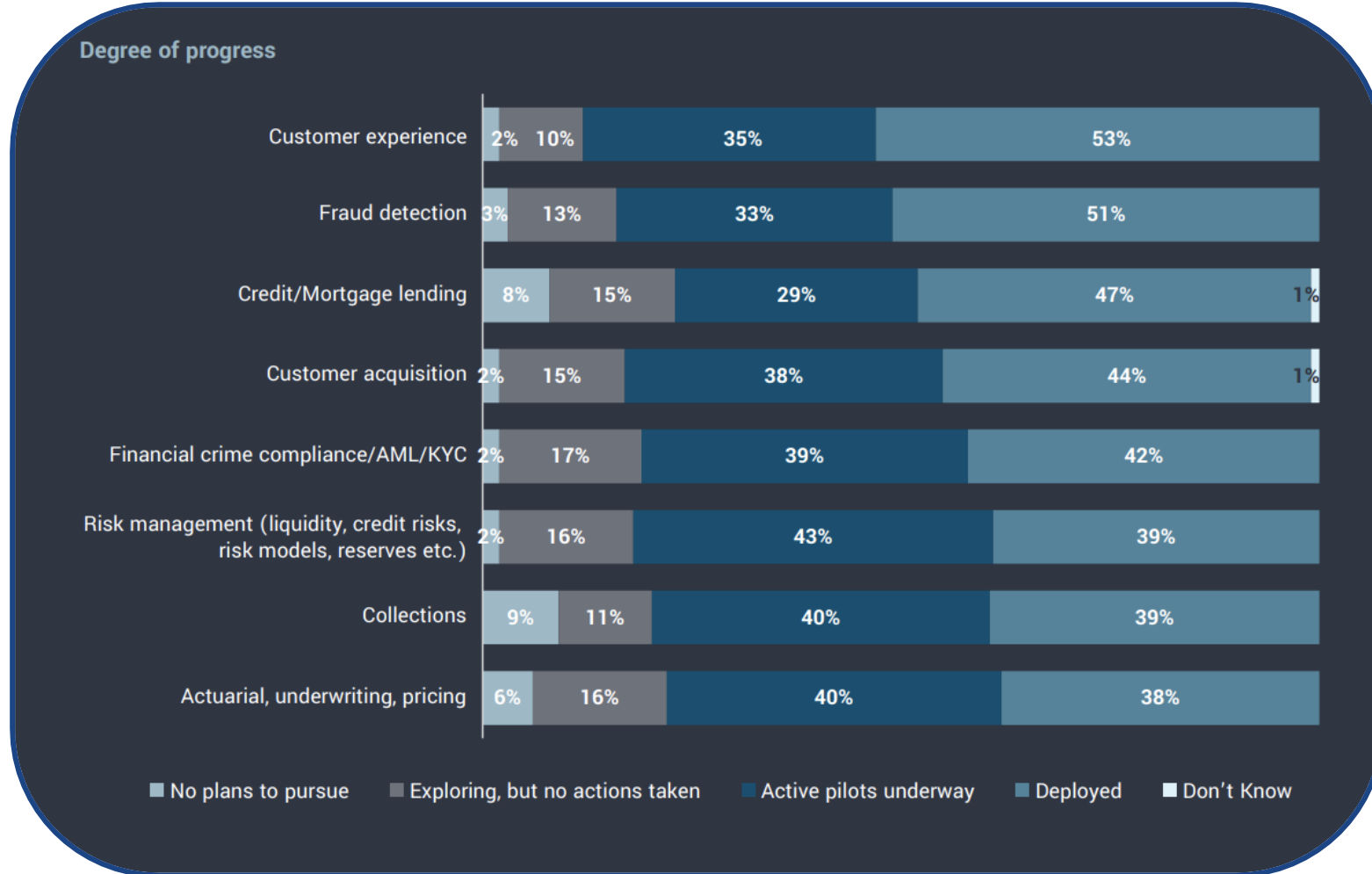


Industry Trends

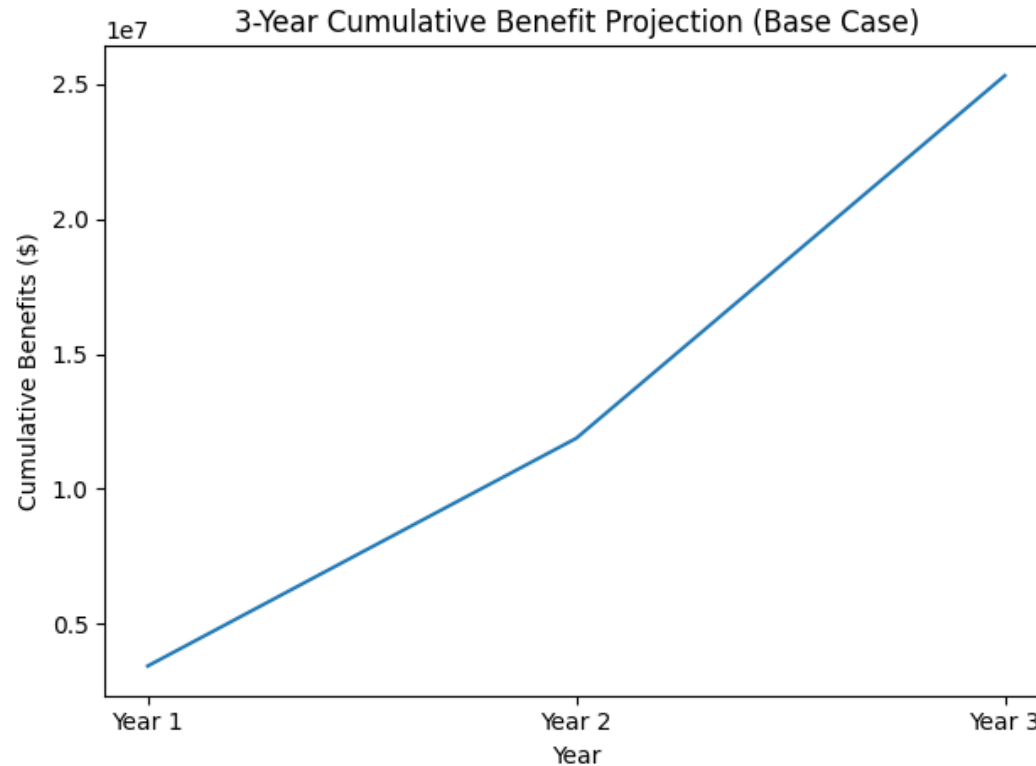
Company	J.P. Morgan	Morgan Stanley	Wells Fargo	Charles Schwab	Goldman Sachs
AI Type	LLM (IndexGPT)	LLM (OpenAI)	LLM (DialogFlow)	LLM	LLM
AI Use	Investment Advisor	AI Assistant (AI Bot)	Virtual Assistant	Robo-Advisors	Document Generation and Code Writing
Investment	\$1 Billion in 2023	Unknown	Unknown	Unknown	Unknown
Risks	Data Security, Hallucinations, Bias, Energy Impacts, Workforce Concerns, Missing Information			No human element, Hallucinations	Copyright Infringement, Hallucinations



Banking Market Investing



ROI on Fraud and eKYC



- **Digital onboarding conversion uplift (industry benchmark):** Conservative industry benchmarks show 3–10% increase in new-account completion when onboarding friction is removed via eKYC
- **Call center deflection & fraud-reduction potential (benchmarks):** Well-executed chatbot deliver ~10–30% call deflection

FTC (2025); McKinsey (2023); Federal Reserve / ABA Fraud Survey (2024); SR 11-7 (Federal Reserve).



Digital Customer Account Opening

Consumer Expectation Data

- 76.6% of consumers expect account opening to take less than 1 day CCG
- Younger customers dislike digital friction become impatient when onboarding is slow

CCG Catalyst – Account Opening Expectations Study.
JD Power – Direct Banking Satisfaction Study.

Quantified Impact

- Digital onboarding improvements typically produce 3–10% increase in new-accounts
- Decreased technological struggles lowers abandonment of bank and improves first-year impact

Source: McKinsey – Digital Banking & Payments Research

CBC Revenue Example

Assumptions:

- 75,000 annual new account applications
- 5% conversion uplift
- \$330 average first-year revenue per customer

Calculation:

- $75,000 \times 5\% = 3,750$ additional accounts
- $3,750 \times \$330 = \$1,237,500$ annual revenue
- Impact: $3,750 \times \$2,500$ average deposit = \$9.4M additional deposits

