Harnessing the Power of Artificial Intelligence

BCBA – August 19, 2024

Charles E. Potts, EVP and Chief Innovation Officer

Notes from Finovate Fall NYC 2023 *

* Tiffani Montez – Principal Analyst, Insider Intelligence

OpenAI brought GenAI into the mainstream. More than 100 million US consumers will be ChatGPT users by 2025.

GenAI will move from novelty to gamechanger. Retail will lead the charge, with other industries like financial service following suit.

Financial Services firms will need to overcome certain hurdles to win consumer trust and boost revenue.

Most people have known and or seen the use of "Predictive AI" which attempts to leverage historical data to forecast future outcomes by harnessing machine learning algorithms and deep learning to achieve their respective goals.

Agenda

AI - Background and Primer

Growth of AI in Banking

Implications for Community Banks

AI – Background and Primer

CBINSIGHTS

AI 100

2024

Vertical AI

Healthcare
OpenEvidence · Gesundai · BIOPTIMUS · Iambic · Genesis Therapeutics · CHARM Therapeutics · Isomorphic Labs

Gaming & virtual worlds
LUMA AI · inworld · CSM · Rosebud AI

Materials
DPTechnology 深势科技 · Orbital Materials · Cradle

Manufacturing
PHYSICSX · Atomic Industries · Retrocausal · Daedalus

Aerospace & defense
QUANTUM SYSTEMS · Shield AI · Helsing

Construction
MONUMENTAL · CANVAS

Education
Atypical AI

Mining
KoBold Metals

Waste management
greyparrot

Auto & mobility
Waabi · VAYU ROBOTICS

Finance & insurance
resistant.ai · EvolutionIQ

Film
FLAWLESS · Deepdub

Energy
AIONICS · Jua

Horizontal AI

Search
Academic Elicit · **Video** Twelve Labs · **Enterprise** Objective, Inc. · **General** perplexity

Computer vision
Groundlight

Data quality & analytics
lightup · numbers station

Enterprise agents
ADEPT

Sales & CRM
SIERRA · myko · Glyphic

Coding
Cognition · Magic · phind

Productivity & knowledge management
Ema · PRYON · WRITER

Warehouse management
GATHER AI

Creator tools
Image generation Ideogram · MidJourney · **Music & voice** IIElevenLabs · Suno · **Editing** modyfi · runway

Humanoids
FIGURE

DevOps
Flip AI · MECHANICAL ORCHARD

Cybersecurity
Binarly · WRAITHWATCH

AI infrastructure

Models
Open foundation MISTRAL AI_ · 01.AI · **Closed foundation (multimodal)** OpenAI · Reka · ANTHROP\C · **New architectures** sakana.ai · together.ai

Fine-tuned & local NOUS · NOMIC · **Local languages** sarvam.ai · LELAPA AI

AI development platforms
Virtual databases mindsdb · **Unified** databricks · Hugging Face · Adaptive ML · chalk

Small & task-specific Predibase · Glaive · **Agentic** SuperAGI

Versioning & experiment tracking
xethub · Weights & Biases

Machine learning security
TROJ.AI · PROTECT AI

Model deployment & serving
Modular

Chips
groq · EXTROPIC · LIGHTMATTER · tenstorrent · rebellions_ · XANADU

Data preparation & curation
Argilla · Cleanlab · UNSTRUCTURED · datologyai

Model routing
Martian

Accelerated computing
VOLTRON DATA

Note: Companies are private as of 3/20/24. Categories are not mutually exclusive.

CBINSIGHTS
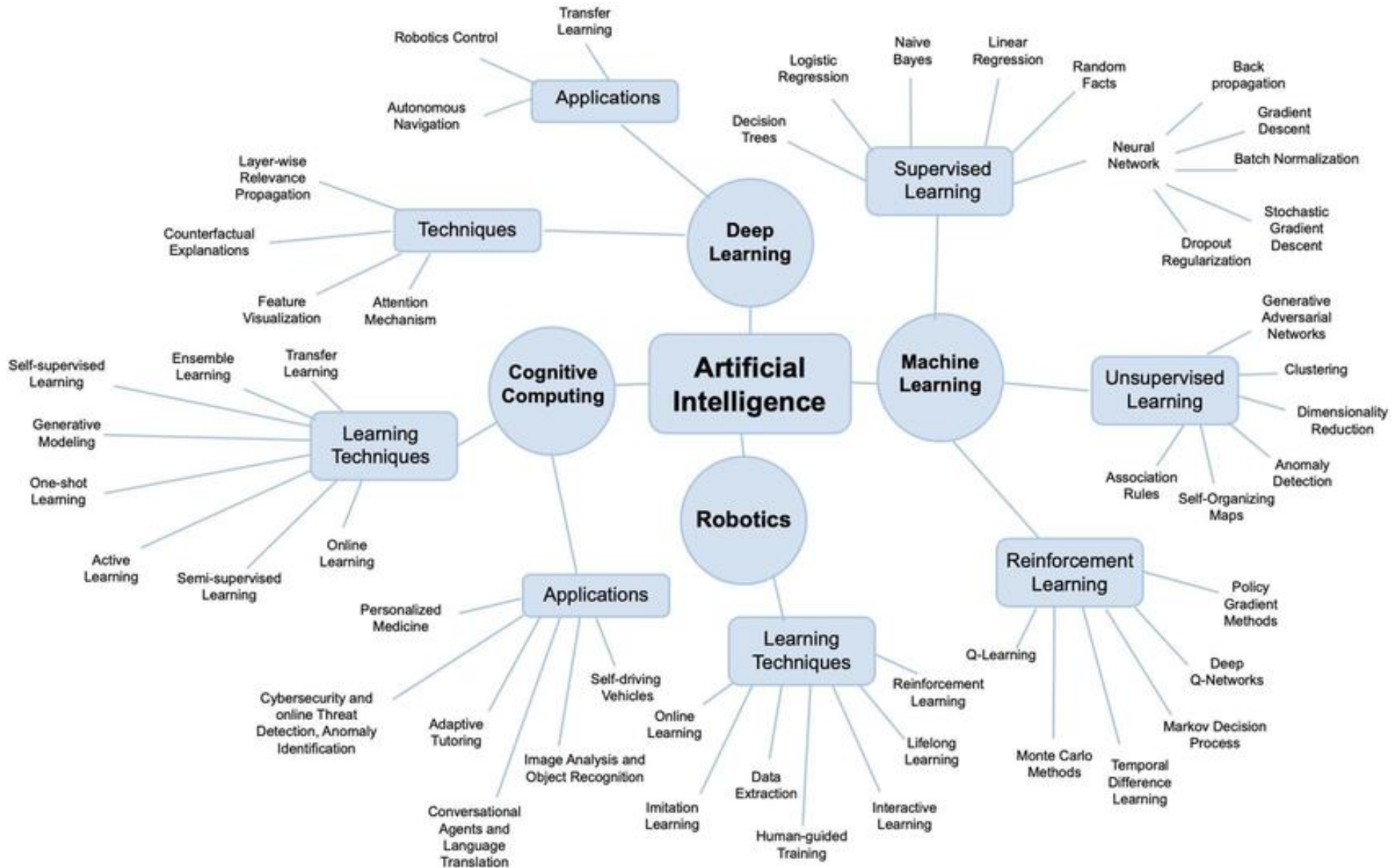
Hype Cycle for Artificial Intelligence, 2024

EXPECTATIONS

Innovation Trigger:
- Autonomic Systems
- Quantum AI
- First-Principles AI
- Embodied AI
- Multiagent Systems
- AI Simulation
- Causal AI
- AI-Ready Data
- Decision Intelligence
- Neuro-Symbolic AI
- Composite AI
- Artificial General Intelligence
- Sovereign AI
- AI TRiSM
- Prompt Engineering
- Responsible AI

Peak of Inflated Expectations:
- AI Engineering
- Edge AI
- Foundation Models
- Synthetic Data
- ModelOps
- Generative AI
- Neuromorphic Computing
- Smart Robots

Trough of Disillusionment:
- Cloud AI Services

Slope of Enlightenment:
- Autonomous Vehicles
- Knowledge Graphs
- Intelligent Applications

Plateau of Productivity:
- Computer Vision

TIME

Plateau will be reached: ○ <2 yrs. ○ 2–5 yrs. ● 5–10 yrs. ▲ >10 yrs. ⊗ Obsolete before plateau

As of June 2024

Gartner

What is Generative AI ?

- A type of artificial intelligence that creates new content based on what it's learned from existing content.

- The process of learning from existing content is called *training* which results in a statistical model.

- When given a prompt, GenAI uses this statistical model to predict what an expected response might be, and this generates new content.
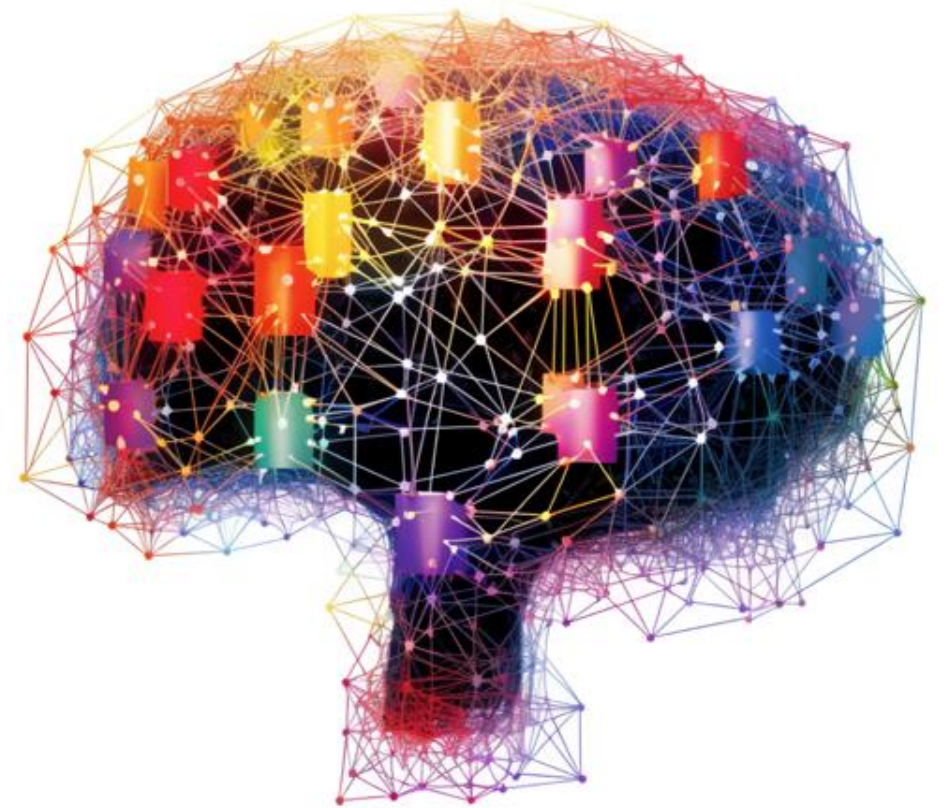
Generative AI vs Non-Generative AI

- Generative AI and non-generative AI differ primarily in their capabilities and objectives.

- **Generative AI refers to systems that can create new content or data that resembles human-created content, such as images, music, text, or even videos**. These systems learn patterns from existing data and can generate new outputs that mimic the style and characteristics of the training data.

- Non-generative AI typically focuses on tasks that involve recognizing patterns or making decisions based on existing data without necessarily creating new content. Non-generative AI includes classifiers, regression models, and rule-based systems **that perform specific tasks like image classification, prediction, or process automation.**

Thus, the key distinction lies in whether the AI system is primarily designed to generate novel content *or* to perform predefined tasks based on existing data.

LLM – Large Language Model

LLM's understand connections between text.

- They are trained, using a large dataset of text from the Internet, to predict the next word.

- When you provide ChatGPT with a prompt, it generates a response by predicting which words are most likely to follow the input you've provided using the vast corpus of text that it has been trained on.
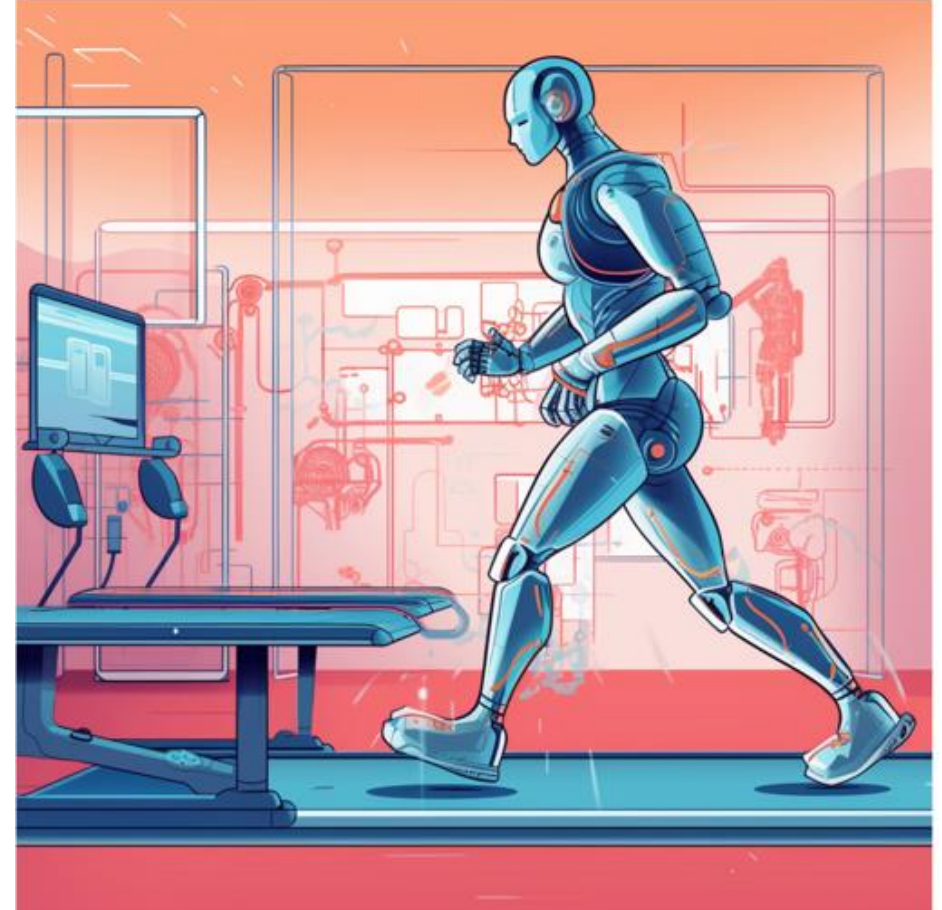
Benefits of AI in banking

Benefits of AI in banking

- **Personalized Customer Experience:** Tailoring services to individual preferences and needs. Data & Hyper-personalization

- **Operational Efficiency:** Automating routine tasks to increase speed and reduce errors. Repetitive tasks – increased resource utilization- improved competitive stance

- **Enhanced Risk Management:** Predictive analytics for better decision-making in lending and investments. Regulatory & Compliance

Key Applications in banking

- **Chatbots**: 24/7 customer service and instant query resolution.

- **Predictive Analytics**: Foreseeing market trends, customer preferences, and potential loan defaults.

- **Robo-Advisors**: Offering financial advice based on algorithms.

Fraud Detection & Prevention

- Real-time transaction monitoring.

- Predictive models to identify suspicious activities.

- Enhancing security protocols using AI-driven techniques.

- Centralization/Sharing of Data to more broadly define bad actors.

Credit Scoring & Risk Management

•Automated credit scoring using broader data sources, including social media and transaction history.

•AI models can provide a more nuanced understanding of a customer's financial health.

Operational Automation

- **Process Automation**: Using RPA (Robotic Process Automation) for routine tasks.

- **Trade Finance**: Automating trade finance documentation and verifications. FX, Escrow, faster payments.

- **Back-office Operations**: Streamlining administrative tasks, account maintenance, and report generation.

# Challenges and Considerations

Challenges and Considerations
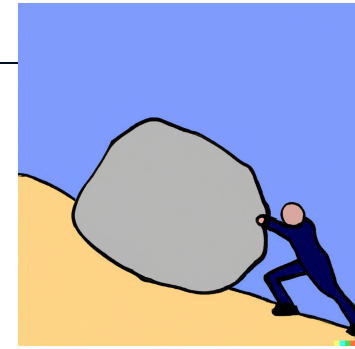
•**Data Privacy & Security:** Protecting sensitive information in an AI-driven environment.

•**Data Bias:** AI models are as good as the data they are trained on. Bias models = bias outcomes.

•**Ethical Considerations**: Ensuring AI doesn't inadvertently lead to unfair or biased decisions.

Challenges and Considerations
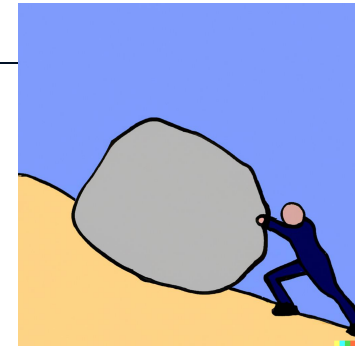
•**Over Reliance:** Relying too heavily on Ai without human oversight. Community banking is still and will remain a high touch world.

•**Cyber Security:** AI Solutions can be a target for hackers and Ai is enabling them to be more successful.

•**Model Drift:** Old data = old models. Retraining of old models is essential.

ICBA
Innovation

Challenges and Considerations
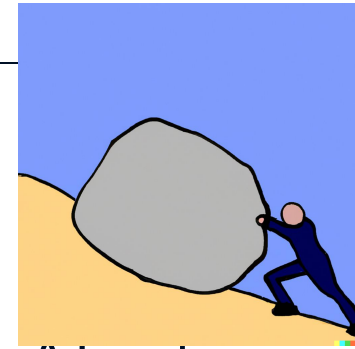
• **Skill Gaps**: Bank's staff may not be familiar with AI – training and education are vital. ICBA can and will be a resource.

• **Vendor Lock-In:** Being aware of how a specific or proprietary AI solutions "lock you in" to a vendor.

• **Scalability:** Will the AI solutions you select work for a branch, or can they traverse the enterprise?

• **Economic Factors:** Cost vs outcomes - Is the juice worth squeeze?

Challenges and Considerations
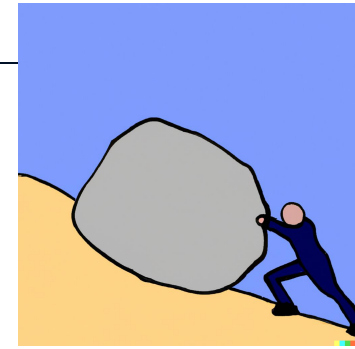
• **False Promises:** It won't always work! It's not always a magic solution – there will be success and failure!

• **Customer Trust:** Customers may be wary of how Ai is being used. Transparency will be a key to elevating their concerns – Regulators too.

•**Regulatory Compliance**: Meeting evolving regulatory standards....

Regulatory

- **Financial Stability and Model Risk**: Regulators are concerned about ensuring that banks using gen AI for critical functions **have rigorous model validation and risk management processes in place.**

- **Data Privacy and Security**: Generative AI models, particularly those like GPT or other deep learning architectures, require vast amounts of data for training. Banking regulators will be concerned about **ensuring that any data used respects data privacy regulations** (like GDPR in Europe, CCPA in California, etc.) and that the models themselves don't inadvertently generate or leak sensitive information.
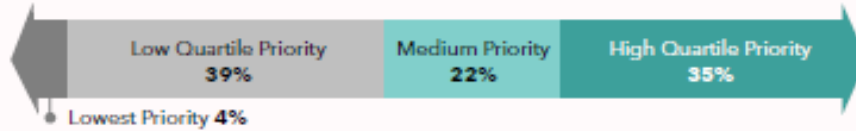
Regulatory

- **Ethical Concerns and Bias**: AI, including generative models, can unintentionally perpetuate or even **amplify biases** present in the training data. In a banking context, this could lead to unfair or discriminatory lending or service practices. Regulators will be keen to ensure that banks using these technologies are aware of and **actively mitigating these biases**.

- **Happening Now** – Banks are seeing intense scrutiny with anything labeled "AI". Putting on the "brakes"!

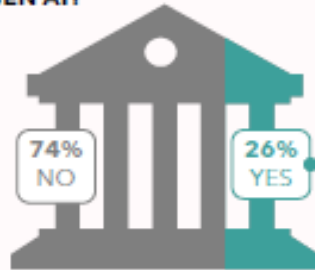# How are banks using Gen AI:

- 20% increase in efficiency
- Email Automation
- Proofreading
- Sales preparation
- Customer service – Chatbots
- Marketing
- Regulatory
- Platform for innovation

HOW DOES GENERATIVE AI RANK RELATIVE TO OTHER TECHNOLOGY PRIORITIES AT YOUR ORGANIZATION?
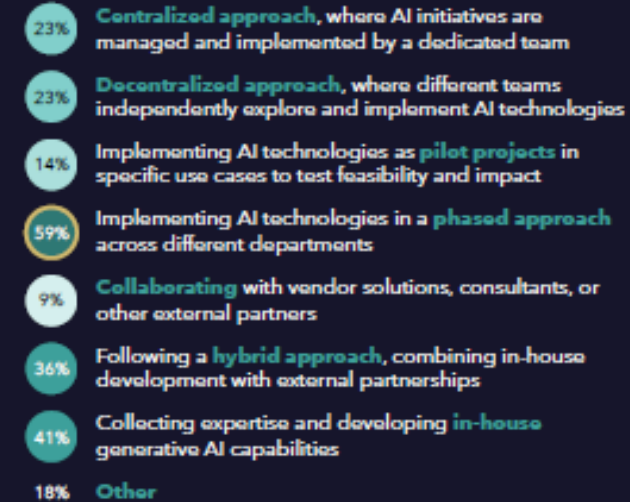
Low Quartile Priority 39%	Medium Priority 22%	High Quartile Priority 35%

Lowest Priority 4%

WHICH OF THE FOLLOWING BEST DESCRIBE YOUR ORGANIZATION'S APPROACH TO GEN AI ADOPTION AND ROLL OUT?

23% **Centralized approach**, where AI initiatives are managed and implemented by a dedicated team

23% **Decentralized approach**, where different teams independently explore and implement AI technologies

14% Implementing AI technologies as **pilot projects** in specific use cases to test feasibility and impact

59% Implementing AI technologies in a **phased approach** across different departments

9% **Collaborating** with vendor solutions, consultants, or other external partners

36% Following a **hybrid approach**, combining in-house development with external partnerships

41% Collecting expertise and developing **in-house** generative AI capabilities

18% **Other**

DO YOU CURRENTLY UTILIZE GEN AI?

74% NO **26% YES**

WHERE HAVE YOU EXPERIENCED THE MOST NOTICEABLE BENEFITS FROM GEN AI ADOPTION TO DATE?

66% Too early to say

50% Ops efficiency

17% Improved customer experience

17% Improved risk management

Cited use cases: POCs across various areas, chatbot, IT systems management, legal, human resources, individual productivity improvement, marketing, online banking, internal mortgage operations
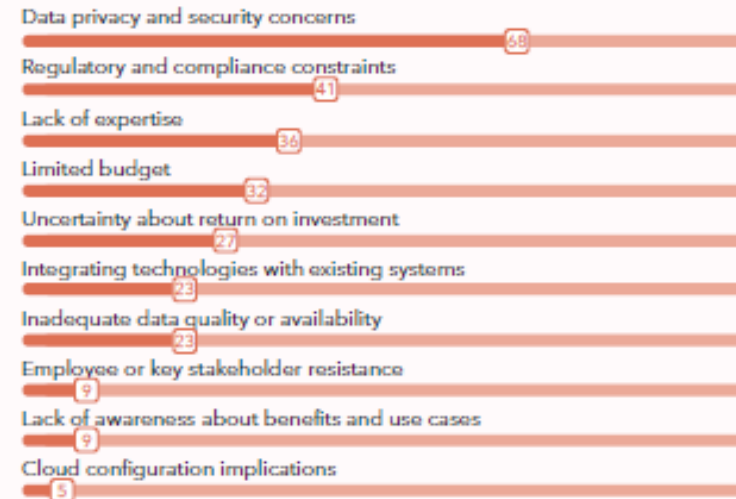
IN WHICH AREAS DO YOU ANTICIPATE THAT GEN AI WILL HAVE THE GREATEST IMPACT ON YOUR ORGANIZATION?

Customer service and support — 90

Employee productivity and internal process optimization — 59

Internal knowledge management — 59

AML, KYC, and fraud detection — 36

Sales and marketing — 32

Investment personalization and portfolio optimization — 5

Regulatory and legal compliance — 0

Risk assessment and management — 0

Loan underwriting and credit scoring — 0

Forecasting and reporting — 0

WHAT ARE THE BIGGEST CHALLENGES THAT YOUR ORGANIZATION FACES IN ADVANCING GEN AI ADOPTION?

Data privacy and security concerns — 68

Regulatory and compliance constraints — 41

Lack of expertise — 36

Limited budget — 32

Uncertainty about return on investment — 27

Integrating technologies with existing systems — 23

Inadequate data quality or availability — 23

Employee or key stakeholder resistance — 9

Lack of awareness about benefits and use cases — 9

Cloud configuration implications — 5

How are banks using it:

In place of search:
• The advantage of ChatGPT is the *aggregation and synthesis* of knowledge.

• For example: if a banker wanted to learn about how ISO20022 was going to impact their bank, they might do a Google search to return a bunch of webpages that now have to be sifted through and determine each page's efficacy. ChatGPT, on the other hand, *scours the web data to return a precise answer*.

How are banks using it:
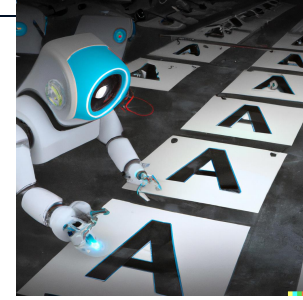
Copy and graphical work product: Using ChatGPT and Dall-E, you can prompt ChatGPT to generate images

- Design a lightning bolt icon for a loan sweep product.
- Make a mobile banking wireframe so a customer can report a problem at a specific branch.
- Create a photo of a banker talking about agriculture next to a car in a field of corn

How are banks using it (Geeky stuff):
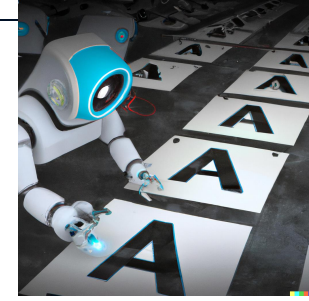
• **Create code**: One of the most amazing things that ChatGPT does is **analyze all open-source code and synthesize code** libraries to help create code capsules. For example:

•Write python code that you can use to create a graph of their current month's spending.
•Write C+ code that will match an email address to the one on file.
•Write Java code to create a poll for our website.

How are banks using it:
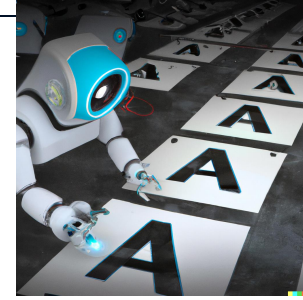
- **To aggregate emails**: You return from a vacation and find several long email threads in your inbox. Instead of reading through each one, you **provide the email thread to ChatGPT and ask it to summarize it.** Instantly, you have a three-sentence summary complete with prioritized action items.

How are banks using it:
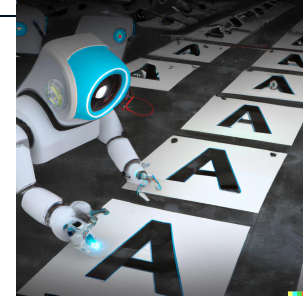
• **Write bank marketing copy:** ChatGPT excels at producing high-quality prose with moderate accuracy and **can hyper personalize** the copy at scale. Here are some prompts:

•**Re-write this IT job opening to appeal** to new college graduates, introverts, Aries, and employees who just got laid off at Google.

•**Write a button copy** that will get undecided customers to purchase a certificate of deposit.

•**Redesign this webpage** to better appeal to people with vision impairments.
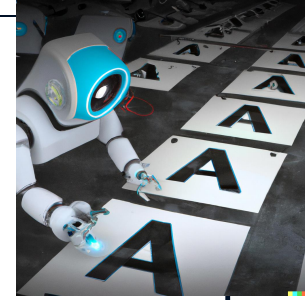
How are banks using it:

• **Automating customer service:** Automate responses to Yelp or Google reviews.

• Build chatbots that **answer common customer questions** and perform simple tasks, such as checking account balances or scheduling appointments. This can **free up time for human bankers to focus on more complex tasks.**

• ChatGPT can be used to **automate the process of onboarding** new customers by **guiding them through** the required paperwork and answering any questions they may have.
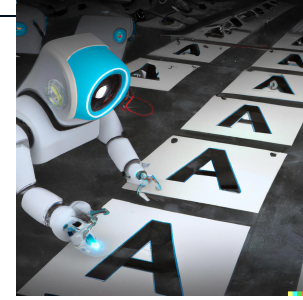
How are banks using it:

- Providing personalized financial advice: Bankers can use ChatGPT to analyze customer data and provide personalized financial advice.

- ChatGPT can be **embedded in a bank's online and mobile** application via API. For example, **the model can analyze a customer's spending habits and recommend ways to save money** at a level much more granular and helpful than most personal financial management (PFM) systems banks use today.

How are banks using it:
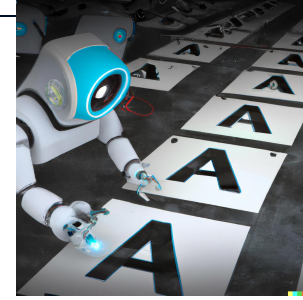
• **Legal Contracts:** While not at a point where ChatGPT can write and analyze legal contracts, it is almost there. **ChatGPT can generate legal prose** that is arguably better than many lawyers. Banks use it already to insert missing clauses about the return of information, venue, non-auto renewal, regulatory requests, and many other items into draft contracts to be reviewed by our legal team, thereby saving them time.

Growth of AI in Banking

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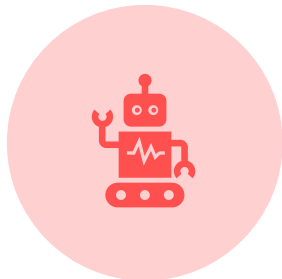
Enhanced Customer Experience: AI enables personalized customer service through chatbots, virtual assistants, and customized financial advice, improving customer satisfaction and engagement.

Fraud Detection and Prevention: AI systems are increasingly used to detect and prevent fraud through pattern recognition, real-time monitoring, and predictive analytics, significantly reducing financial crimes.

Risk Management: AI helps in better risk assessment and management by analyzing vast amounts of data to predict market trends, credit risk, and operational risks, leading to more informed decision-making.
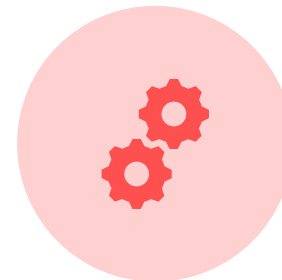
Regulatory Compliance: AI streamlines compliance processes by automating the tracking and reporting of regulatory requirements, ensuring adherence to legal standards and reducing the risk of non-compliance.

Growth of AI in Banking

Algorithmic Trading: AI-driven trading algorithms can analyze market data and execute trades at high speed and accuracy, providing a competitive edge in trading strategies and investment decisions.

Operational Efficiency: Automation of routine tasks and processes through AI reduces operational costs, increases efficiency, and allows financial institutions to focus on more strategic activities..

Data Analysis and Insights: AI enhances the ability to process and analyze large datasets to derive actionable insights, enabling better customer targeting, product development, and strategic planning.

Credit Scoring and Lending: AI improves the accuracy and fairness of credit scoring by analyzing non-traditional data sources, leading to more inclusive lending practices and better loan performance.

Growth of AI in Banking
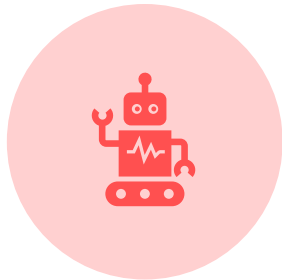
Cybersecurity: AI strengthens cybersecurity measures by detecting anomalies, predicting potential threats, and responding to security incidents in real time, safeguarding sensitive financial data.

Predictive Analytics: AI's predictive capabilities help financial institutions anticipate market trends, customer behavior, and economic shifts, enabling proactive strategies and decision-making

Implications for Community Banks

Implications for Community Banks

Competitive Advantage: Community banks can leverage AI to offer enhanced services, compete with larger institutions, and attract tech-savvy customers seeking modern banking solutions.

Cost Reduction: By automating routine tasks and processes, community banks can reduce operational costs, allowing them to allocate resources to more critical areas such as customer service and community engagement.

Improved Customer Service: AI-driven chatbots and virtual assistants can provide 24/7 customer support, improving customer satisfaction and freeing up staff to handle more complex queries.

Better Risk Management: AI tools can help community banks better assess and manage risks, ensuring more prudent lending and investment practices, which is crucial for their stability and growth.

Implications for Community Banks

Enhanced Fraud Detection: Community banks can implement AI-based fraud detection systems to protect their customers and themselves from financial crimes, enhancing trust and security.

Personalized Services: AI allows community banks to offer personalized financial advice and products tailored to individual customer needs, fostering stronger customer relationships and loyalty.

Regulatory Compliance: AI can help community banks stay compliant with regulations by automating compliance tasks, reducing the burden on staff, and minimizing the risk of regulatory penalties.

Data-Driven Decisions: AI empowers community banks to make data-driven decisions by providing deep insights into customer behavior, market trends, and operational performance.
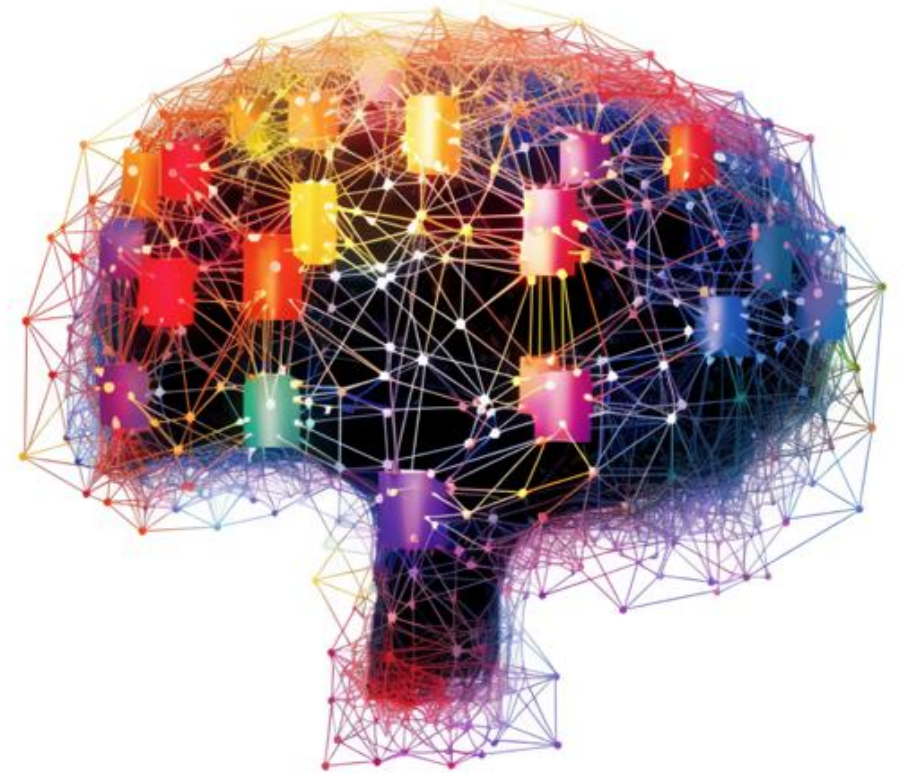
Implications for Community Banks

Access to New Markets: AI can help community banks identify and tap into new markets and customer segments, driving growth and expanding their reach.

Cybersecurity Enhancement: By adopting AI-based cybersecurity solutions, community banks can better protect their systems and customer data, maintaining trust and ensuring continuity of operations.

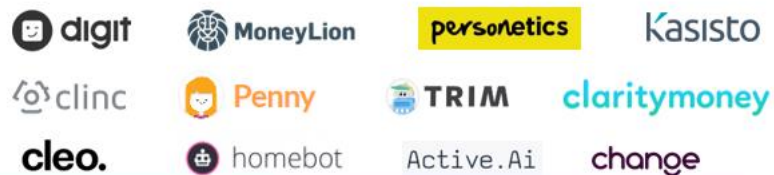# Conclusion & Call to Action Preparing for an AI-Driven Future

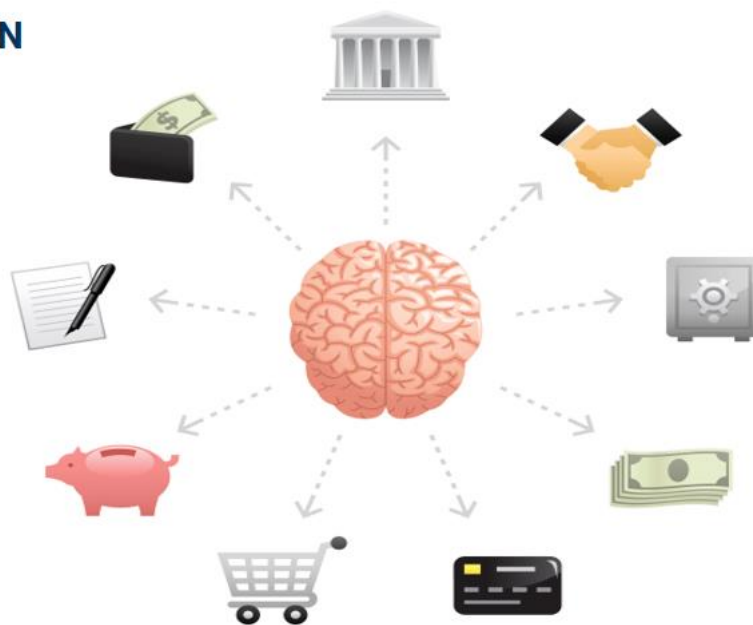# THE AI IN FINTECH MARKET MAP

CREDIT SCORING / DIRECT LENDING

Affirm AVANT zestfinance argon ADF APPLIED DATA FINANCE

habito CREAM FINANCE aire float naborly Upstart

creditvidya james Wecash闪银

ASSISTANTS / PERSONAL FINANCE

digit MoneyLion personetics Kasisto

clinc Penny TRIM claritymoney

cleo. homebot Active.Ai change

QUANTITATIVE & ASSET MANAGEMENT

wealthfront sentient technologies SIGOPT ALPINE DATA

Clone Algo NUMERAI WALNUT ALGORITHMS fount domeyard LP

Alpaca AIM ForwardLane TRUMID ALGORIZ

it.ai AIDYIA BINATIX

REGULATORY, COMPLIANCE, & FRAUD DETECTION

TRIFACTA Digital Reasoning WorkFusion Paxata

DataRobot sift science onfido feedzai

SKYTREE SOCURE bigstream trooly

BehavioSec ComplyAdvantage cortical.io

Dimebox Fraugster neurensic PredicSis

Jewel Paymentech CheckRecipient Fortia

INSURANCE

CAPE ANALYTICS Captricity TRACTABLE riskgenius CYENCE

Shift Technology Zendrive Lemonade UNDERSTORY

MARKET RESEARCH / SENTIMENT ANALYIS

Dataminr alphasense Orbital Insight

Descartes Labs iSENTIUM indico acuity TRADING SIGNAL

FeedStock Intelligent Information Management

GENERAL PURPOSE / PREDICTIVE ANALYTICS

OPERA AYASDI KENSHO NarrativeScience

context relevant H₂O.ai smartzip predictive marketing CognitiveScale

Anodot Lucena Quantitative Analytics Numenta

BUSINESS FINANCE & EXPENSE REPORTING

fyle NetChain² AppZen ZEITGOLD. WINT

DEBT COLLECTION

TrueAccord collectAI

CBINSIGHTS

Where to start...

Senso — Using AI for knowledge sharing for customer intelligence, Organizational intelligence self-service, boosting efficiency, etc.

SAVVI AI — Regulatory friendly AI for Financial Services with zero data scientists, infrastructure or experience required. ML to help with default rates, CECL, etc.

Agent IQ — Agent IQ offers a personal digital platform, supercharged with AI, that improves communication and engagement between banks and and their customers.
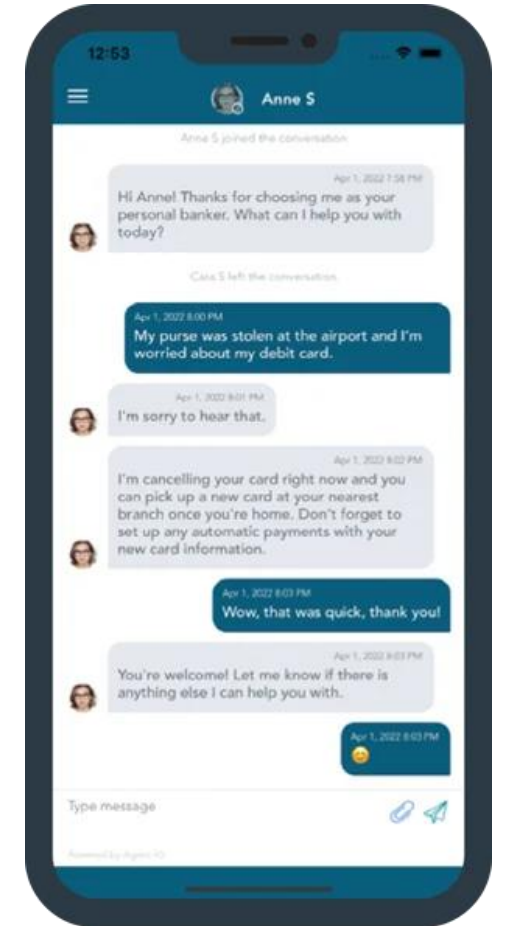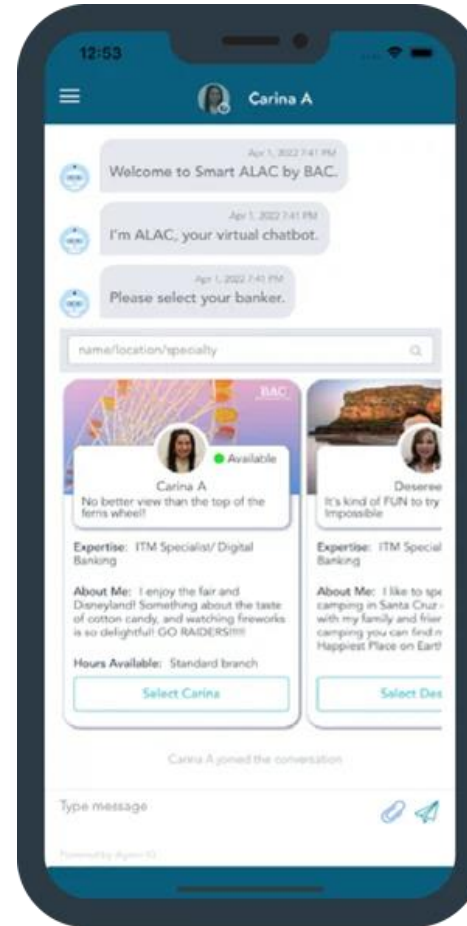
HuLoop — HuLoop platform creates, deploys and manages Intelligent Agents as a digital workforce to perform repetitive tasks your people should no longer do.
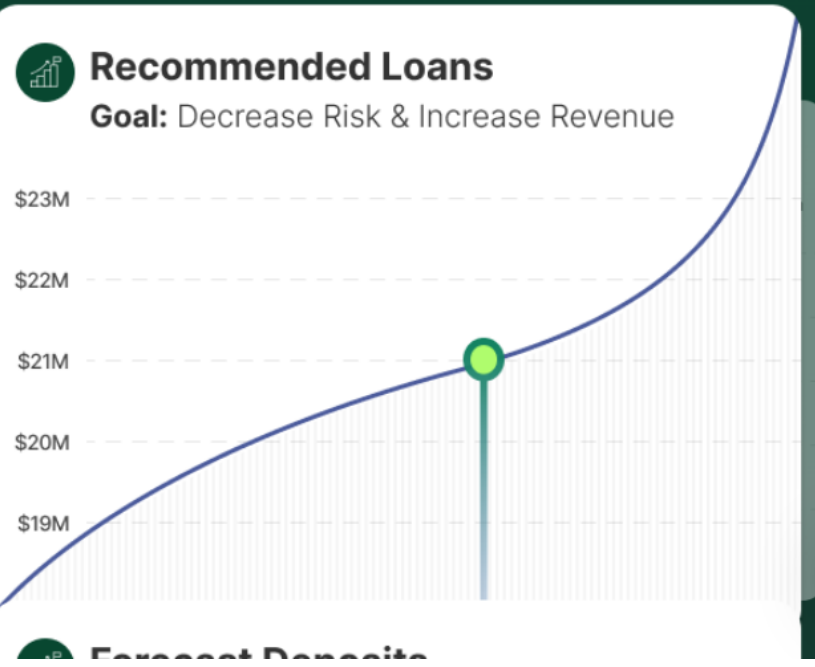
Before using Senso, finding job aids, guides and policies was a challenge. Now, everything's at our fingertips. Having this information be easily accessible has been imperative to support our staff and provide them the most current information.
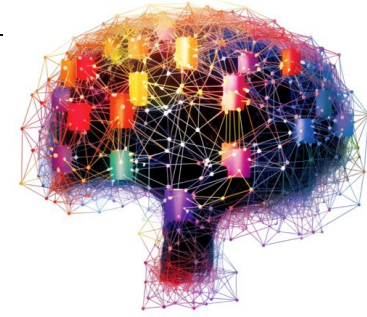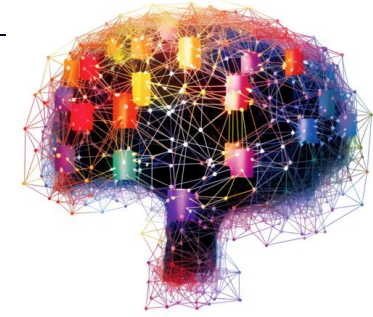
Whitney Hawks
Vice President of Mortgage Operations

Preparing for an AI-Driven Future

- **Invest in Training**: Upskill employees to work alongside AI tools.

- **Collaborate with Tech Firms**: Partner with AI innovators for best solutions.

- **Stay Updated**: Keep abreast of the latest AI trends and technologies.

Conclusion & Call to Action

• Embrace AI as a strategic imperative for modern banking.

• Prioritize customer-centric solutions.

• Include and consult regulatory bodies from the start.

• Encourage a culture of continuous learning and innovation – Innovation takes courage and leadership.

•Give it a go!

ICBA Innovation - How we serve

Thought Leadership

- Podcast
- Blog
- Speaking at conferences

ThinkTECH Accelerator

Two 10-week hybrid programs annually resulting in 12 new corporate members

Innovation Programming

- Demystify Webinar Series
- Solutions Forums
- ThinkTECH in an Instant
- ThinkTECH Connect

Strategic Solutions

- Preferred Service Provider
- Corporate Member
- Solutions Directory

Webinar On Demand

AI Demystified: Webinar Series Bundle

Everyone is talking about AI and how it is changing how people work, live—and bank. This webinar is designed to provide community bankers with a primer on artificial intelligence and the opportunities the future may hold for community banks. Gain a clear understanding of the strengths and weaknesses of this technology and its potential impact.

Learn how bankers like you are implementing AI at their banks to benefit customers, evolving their user experience, and augmenting existing resources to improve efficiency. Finally, understand the regulatory environment for banks adopting this new technology.

Members: $429
Non-members: $729
Unlimited Webinar Pass subscription: $0

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The New Home of Community Bank Innovation

Officially opened February 2024, The Independent Community Bankers of America established the *ICBA Center for Community Bank Innovation* at 999 Peachtree in Atlanta, Georgia.

For the first time, our ecosystem of community bankers, innovators, partners and fintechs will have a place to call home – "an environment where community banks *will* flourish"

2024

- AP6/AP7 – Two Accelerator Programs
- Bankers Bootcamps 2X
- ThinkTECH Connect 2X
- ThinkTECH Success
- ThinkTECH in an Instant
- Alumni Showcase 2X
- ThinkTECH Solutions Forums 4X
- Core Day
- Regulator Day

Get Involved

We host a variety of programs to help your bank advance. Join us for one or many and continue your innovation journey.

ICBA ThinkTECH Accelerator

A 10-week program providing connections to growth-stage fintech companies with community bank-focused solutions.

Two ways to participate:
Join a group session with other bankers from across the country on ThinkTECH Thursdays during AP6 or AP7 or schedule a private session with staff at your bank to meet with companies who have designed community bank solutions or products.

ICBA ThinkTECH Showcase

During this quick-hitting session at ICBA LIVE, see the companies that have participated in the last two accelerator programs share their solutions and how they evolved their product based on feedback from the 10-week program. Uncover new opportunities to help you and your bank thrive.

Alumni Showcase

Experience demonstrations from the latest solutions of 50+ ICBA ThinkTECH Accelerator alumni during this showcase. Learn about how these companies are helping community banks flourish.

Bankers Bootcamp

A series of educational peer roundtables that address the latest challenges and opportunities for bank leaders helping to shape the future of innovation in community banks.

ICBA Innovation Solutions Forum

Hear from several companies addressing common community bank challenges and learn how these solutions can help your bank keep pace with the competition. See five-minute pitches with five minutes of Q&A from our esteemed banker panel as they help distill the value these partners can bring to your bank.

ThinkTECH Connect

A fast, fun, informative session to explore fintech solutions designed for community banks like yours. Hear seven-minute pitches from emerging fintech companies designed to help your bank remain efficient, profitable, and competitive.

ICBA Solutions Directory

The marketplace is crowded with banking products and services, find trusted solutions on the ICBA Solutions Directory at solutions.icba.org.

- **ThinkTECH Accelerator** – Bringing "Bank ready" solution to market.
- **Alumni Showcase** – Making sure that our members are up to date with our 50+ accelerator alumni.
- **Bankers Bootcamps** – Innovation training and peer sharing.
- **Solutions Forums** – Single topic problem solving and exploration.
- **ThinkTECH Connect** – Routine review of interesting companies that want to do business with community banks.

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