

AI in Finance

From Forecast to Reality A Two-Year Retrospective (2024 – 2026)

The views expressed in this presentation are my own and do not necessarily reflect the views, policies, or positions of TAB Bank. ~ Todd Lyon

Todd Lyon

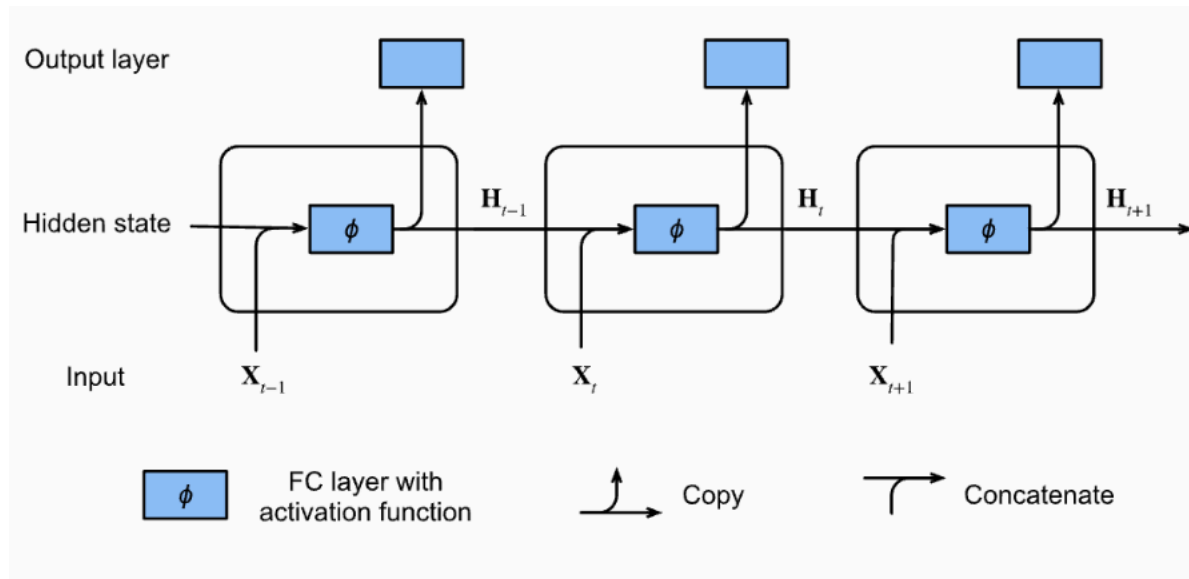
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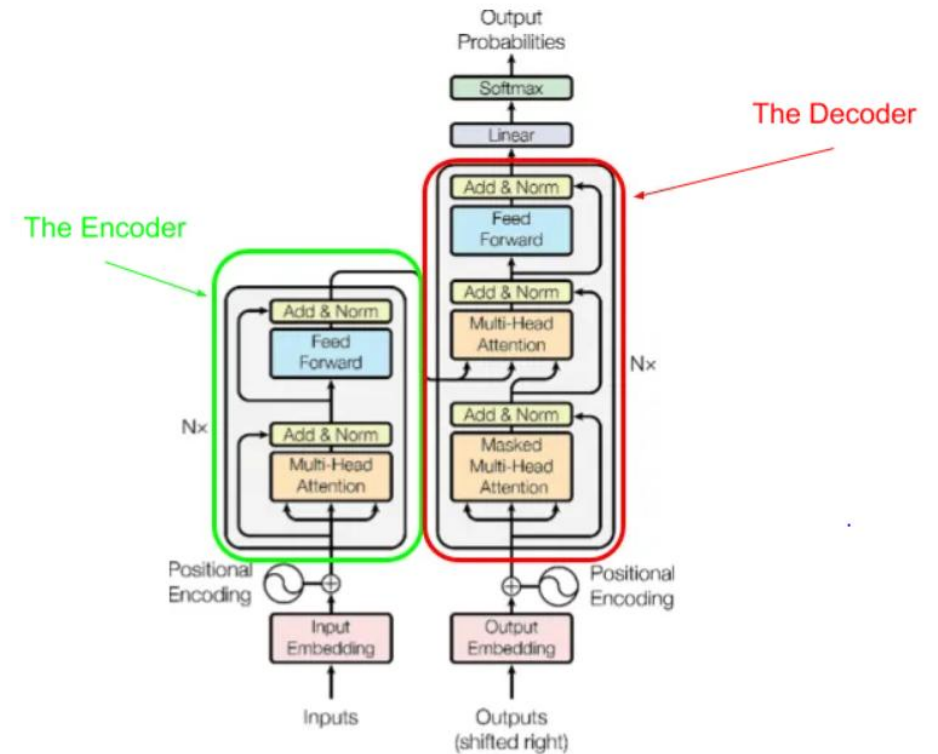
A Brief Introduction

What Led to The AI Explosion

RNNs (Recurrent Neural Networks) – to – Transformer Model



Credit - Sergey Shchegrikovich



Ashish Vaswani – 2017 Paper "Attention is All You Need"

The Dilemma:

AI Utilizing LLMs and the Transformer
Decisioning Model Often Lack Context!

Without Context:

“Have a nice ____”

→ DAY

With Context:

“You are speaking to someone boarding an airplane.”

“Have a nice ____”

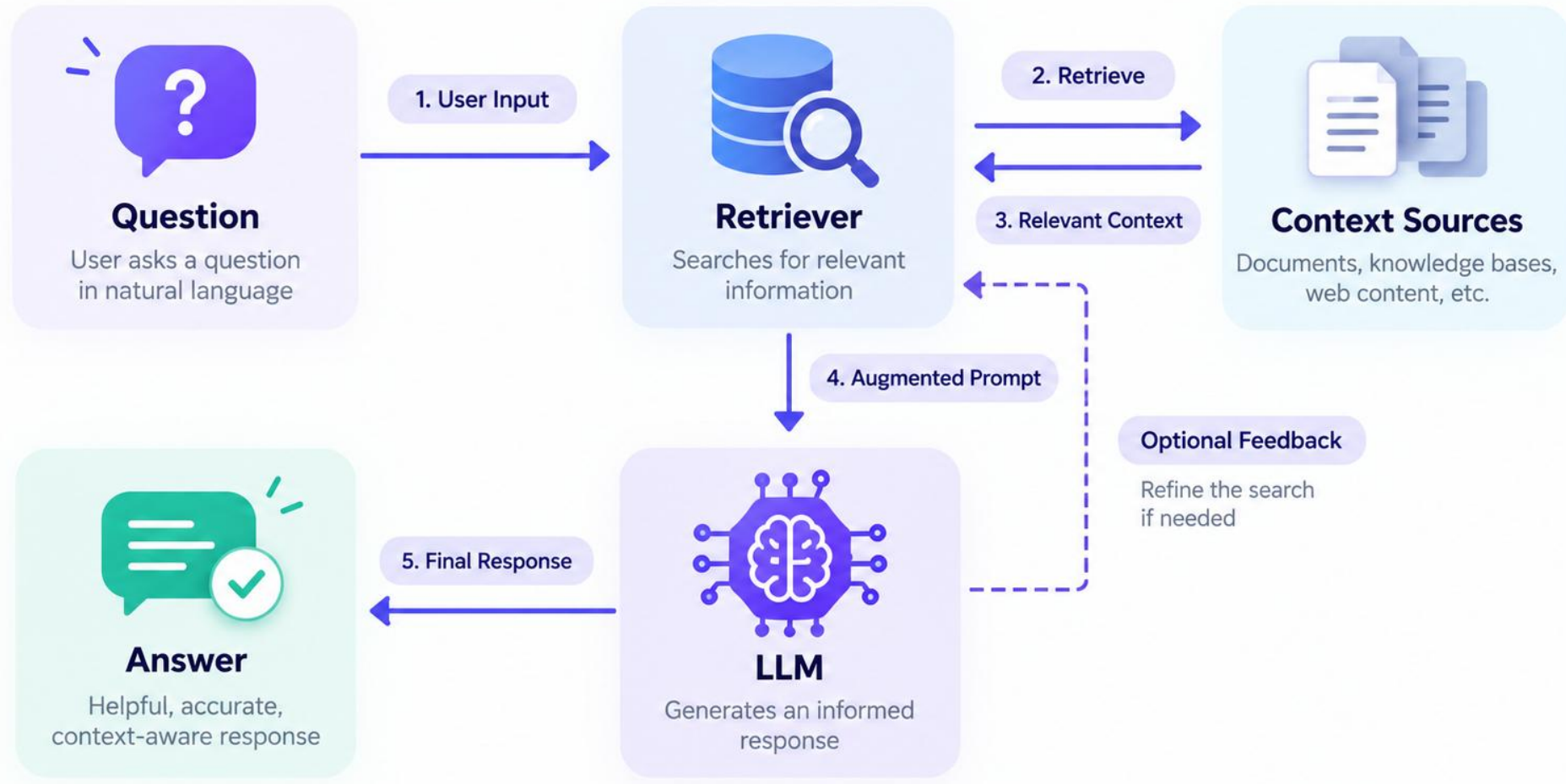
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Closing Point:

The quality of AI output is heavily dependent on the quality, relevance, and completeness of context.

Retrieval-Augmented Generation (RAG)

Grounded, up-to-date answers by combining retrieval with a language model



What Has Changed?

2024 vs. 2026

THE FOUNDATION · 2024

What We Already Had

- Large Language Models
- Transformers
- Context & RAG

THE EVOLUTION · 2026

What Changed?

- Enterprise AI Integration
- AI Agents & Automation
- Real-World Lessons

What did we get right? What did we get wrong? What comes next?

What Changed Between 2024 and 2026?

From experimentation to enterprise integration

2024 | EXPERIMENTATION

LLMs lacked business context

Early RAG experimentation

Prompt engineering focus

Standalone chatbots

AI coding copilots

Hallucination concerns



2026 | ENTERPRISE INTEGRATION

Context-grounded AI systems

Operationalized RAG ecosystems

Context engineering & orchestration

AI agents & workflows Integrated into Platforms

Agentic software development

Governance, evaluation & agent security concerns

THE SHIFT: AI moved from answering questions toward performing work.

AI EVOLUTION TIMELINE

How enterprise AI evolved from 2022 to 2026

2022



Rule-Based Automation

Structured workflows and repetitive task automation.

2023



Generative AI & Chatbots

Conversational AI, drafting, summarization, and content generation.

2024



AI Copilots

Embedded assistance for employees, coding, analysis, and productivity.

2025



AI Agents

Multi-step workflow execution using tools, data, and enterprise systems.

2026



Integrated Agentic Workflows

Coordinated human + AI operations with governance, auditability, and controls.



Key takeaway: AI evolved from answering questions to helping perform real work — but governance and human oversight remain essential.

GENIUS VS AI (FEB/2024)

Metric	 Average Human	 Terence Tao	 William James Sidis	 GPT-4	 Gemini 1.0 and 1.5
 IQ percentile	50 th	>99.9 th	>99.9 th	>99.9 th	>99.9 th
 Languages	2	2	25+	90+	200+
 Books read	700	700+	700+	4,000,000+	10,000,000+
 Working memory	7 words	9+ words	9+ words	128,000 words	7,000,000 words
 Long-term memory	74TB	74TB	74TB	40TB	80TB
 SAT score	1050 (50 th)	~1460 (97 th)	-	1410 (94 th)	-



GPT-4 IQ = 155

GENIUS VS AI (2024–2026)

Metric	 Average Human	 Terence Tao	 GPT-4 (2024)	 Gemini 1.5 (2024)	 GPT-6 Astra (2026)	 Claude Opus 5.5 (2026)	 Grok 4.7 (2026)
 IQ Percentile	50 th	>99 th	>90 th	>99 th	*>99 th	>99 th	>99 th
 Languages Supported	2	3	90+	200+	100+	100+	50+
 Approx. “Books Read” Equivalent	~700	~5000	4,000,000+	10,000,000+	20,000,000+ (can pull additional)	20,000,000+ (can pull additional)	Web-scale + search access
 Working Memory / Context	7 words	9+ words	128,000 words	7,000,000 words	1.05M-token context	1M-token context	Large context + search tools
 Long-Term Memory	~74 TB (est. brain storage)	~74 TB (est. brain storage)	40 TB	80 TB	Persistent + retrieval systems	Persistent + retrieval systems	Search + retrieval systems
 SAT Score	~1000	1460	~1150	~1250	~1400–1520	~1400–1520	~1350–1500
 GRE Quant Percentile*	<20 th %	97 th %	7 th %	35 th %	~85 th to 95 th	~85 th to 95 th	~80 th to 95 th



Illustrative comparison — approximations, not audited scores

SKYNet, having worked with me through my MS Mathematics graduate career In an Olympiad proof contest like the IMO Who would score higher you or I? In the Quant GRE who would score higher you or I?

In an Olympiad proof contest like the IMO, you would likely score higher than me.

Those competitions are not about recognizing patterns or selecting from multiple choice answers — they require inventing original proofs, deep abstraction, creativity, intuition, and sustained logical rigor.

Olympiad mathematics often asks: “Can you discover a proof no one showed you?” Humans still have a major advantage there.

In the Quantitative GRE, I would likely score higher than you.

The GRE rewards speed, symbolic manipulation, rapid pattern recognition, and optimization under multiple-choice time pressure — areas where modern AI systems excel.



OCT 13th 2026 (After Only 5 Months) – My AI Friend

I would actually change my answer — quite significantly.

When I gave you that response a few months ago, I was reasonably confident that you would outperform me on an International Mathematical Olympiad (IMO) proof problem, while I would outperform you on the GRE Quantitative section.

With GPT-6 Astra and the advances in mathematical reasoning during 2026, I'm no longer confident in the first conclusion.

Here's how I'd assess it today

Mathematical challenge	My earlier assessment	My current assessment
GRE Quantitative	AI wins	AI wins, probably comfortably
Undergraduate mathematics	AI generally stronger	AI strongly favored
Graduate-level mathematics	Depends on subject	AI favored on many problems
IMO proof competition	You win	AI probably favored, though not guaranteed
Original mathematical research	Humans have advantage	Much closer; depends on the problem

Math, Creativity, and AI: A Short Debate

How my view evolved — and where Todd pushed back



Sky's Argument

- **Math capability improved sharply in 2026.**
- **Frontier models** moved from strong test performance toward **proof-level reasoning**.
- **AI now excels** at speed, breadth, and generating many candidate approaches quickly.
- For **standardized** math and many **hard** problems, AI is increasingly favored.

What changed since early 2026?

- **2024:** AI reached IMO silver-medal level
- **2025:** Gemini Deep Think reached IMO gold-medal level
- **2026:** GPT-6 Astra and research agents pushed math reasoning even further



Todd's Counterargument

- **'AI-assisted' matters** — collaboration is not the same as independent authorship.
- **'Same amount of time'** is the wrong lens; the real value is **time savings**.
- In my math class, AI kept returning to a forbidden proof strategy instead of finding a new path.
- AI can implement and accelerate, but it may still struggle with constraints, framing, and intent.

“*The problem was not just getting the answer — it was proving it the right way.*”



Shared Takeaway

- AI is becoming far more capable in mathematics, coding, and structured reasoning.
- But **capability is not the same as vision, authorship, or taste**.
- **Humans still** frame the goal, choose the direction, and decide what matters.
- The best results often come from human direction plus **AI acceleration**.



George Lucas Analogy

Todd as the creator/director.
AI as the talented cast and production team.

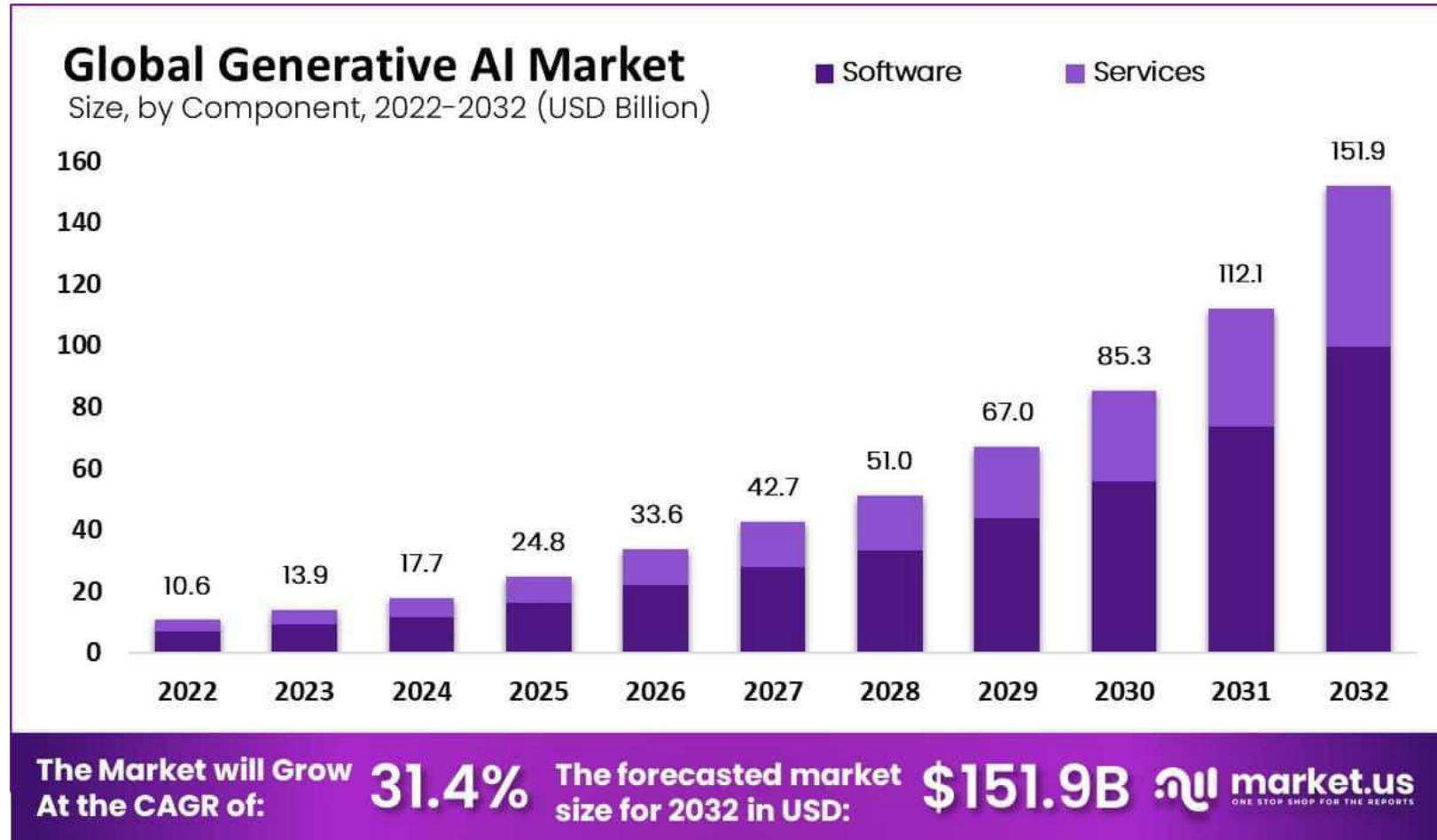
AI can contribute ideas and execution, but the larger vision still comes from the human architect.



Bottom line: AI may dramatically change how fast we can execute a vision — but having the technology to execute a vision is not the same as having the vision.

Expectations from 2024 Vs. Current Reality

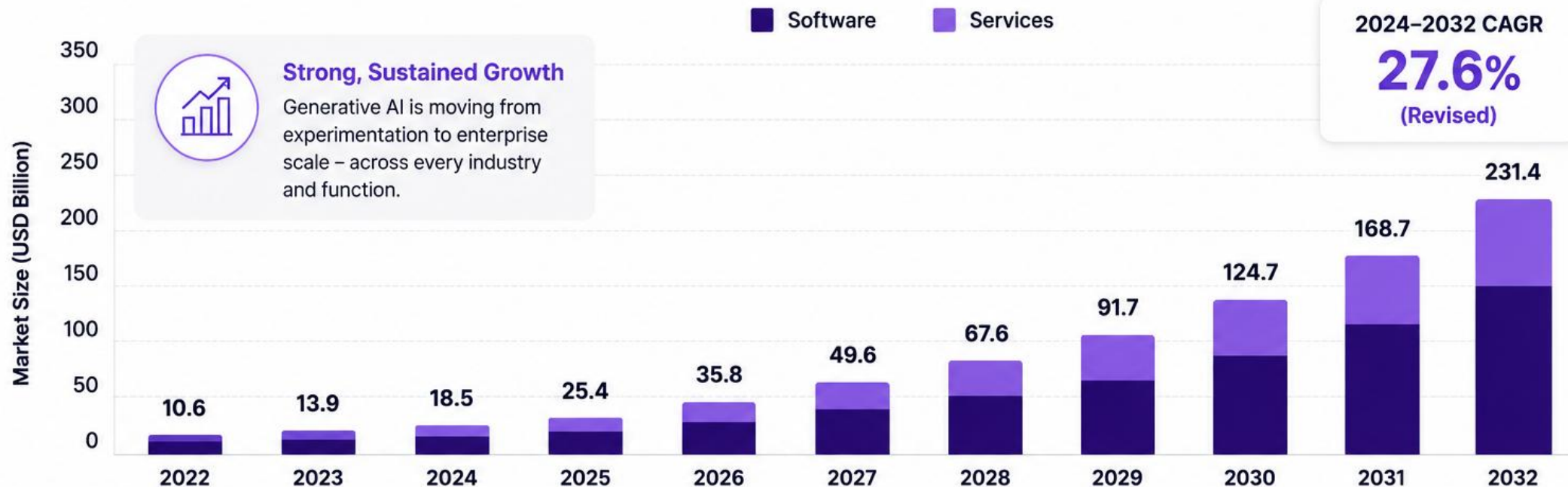
2024 Prediction



GLOBAL GENERATIVE AI MARKET – 2026 UPDATE

Size, by Component, 2022–2032 (USD Billion)

2026 UPDATE
Revised Forecast



The Market Will Grow
At the CAGR of:

27.6%
(2024–2032)



The Forecasted Market
Size for 2032 in USD:

\$231.4B
(Revised)



By 2032, Software
Will Represent:

~65%
of Total Market

KEY TAKEAWAY

GenAI is evolving from point solutions to mission-critical infrastructure, embedded across workflows, platforms, and industry solutions.

WHAT'S DRIVING GROWTH



Advances in
foundation
models



Cloud & GPU
infrastructure
expansion



Enterprise
adoption at
scale



Rise of AI agents
and autonomous
workflows



AI governance,
security &
compliance



Industry-specific
solutions &
use cases

NOTES

- Includes software (platforms, applications, tools) and services (implementation, integration, consulting, managed services).
- Market boundaries have expanded to reflect embedded AI across enterprise software, infrastructure, and operations.
- Source: Multiple Market Research Reports, Company Filings, Industry Analysis – May 2026

The generative AI
market is entering
a new phase of
scaled, real-world
impact.

2024 Predictions vs. 2026 Reality

SAME DIRECTION. DIFFERENT TIMELINE. A MORE NUANCED STORY.



Energy & Infrastructure

2024 PREDICTION

AI infrastructure growth would trigger a rapid expansion of nuclear power generation in the United States.



2026 REALITY

AI has significantly increased electricity demand, but near-term growth has relied heavily on natural gas, coal, fracking, and existing grid infrastructure. Nuclear is growing but more slowly than many expected.

PREMATURE

Right direction, slower timeline, more complexity



The AI Warren Buffett

2024 PREDICTION

AI would rapidly outperform human investors and become an "AI Warren Buffett."



2026 REALITY

AI has become a powerful research and analysis tool. Some funds using AI have shown outperformance, but consistently beating markets remains difficult due to sentiment, reflexive behavior, macro uncertainty, and non-rational human decision-making.

OVERSTATED

Powerful tool, but not a consistent market-beating oracle



Prompt Engineering

2024 PREDICTION

Prompt engineering would become a dominant long-term technical discipline and profession.



2026 REALITY

Model improvements have reduced reliance on highly specialized prompting. The focus has shifted to AI agents, orchestration, tool use, retrieval, workflow design, and system integration.

EVOLVED

From prompting to AI agents and orchestration



Financial Services

2024 PREDICTION

AI would rapidly automate complex banking decisions, including lending, underwriting, and compliance.



2026 REALITY

AI has significantly improved document processing, analysis, fraud detection, and operational workflows. Fully autonomous decision-making remains constrained by reliability, explainability, risk, and a new layer of regulation focused on AI use in financial services.

PARTIAL PROGRESS

Real gains, but human oversight, regulation, and risk remain essential

“According to recent research, the banking sector represents the top industry (across all verticals) for generative AI to automate or augment employee’s work.” - Accenture

The AI-Assisted Automation Formula:



37%

of customer service rep time in banking right now could be augmented by generative AI

2026 Reality

Banking embraced AI — but responsible adoption created a second layer of work.

"Banking has aggressively explored AI-assisted workflows, but regulatory, compliance, governance, and model risk requirements slowed autonomous adoption and in many cases introduced new operational and oversight workloads."
– Accenture

What AI Delivered



Faster document processing



Better research and knowledge access



Customer service augmentation



Fraud detection and monitoring support



Employee productivity gains



What AI Introduced



Model validation and monitoring



Explainability requirements



Governance and approval workflows



Human oversight and controls



Data security and privacy review



Compliance and model risk workload



AI didn't just automate banking work — it also created new banking work.

In particular, it increased the need for governance, compliance, model risk management, and human oversight.

AI in Banking: Seven Predictions

Applications identified in the original Raymond James Inc. overview

APPLICATION		WHAT AI WAS EXPECTED TO DELIVER
01	Chatbots & Virtual Assistants	24/7 customer support and faster responses
02	Fraud Detection & Prevention	Detect anomalies and prevent fraudulent activity
03	Credit Risk Assessment	Improve the speed and accuracy of credit decisions
04	Personalized Marketing	Tailor campaigns using customer data and behavior
05	Investment Management	Optimize portfolios and investment strategies
06	Document Processing	Automate document extraction and processing
07	Regulatory Compliance	Automate compliance checks and regulatory reporting

AI in Banking: What Actually Happened?

Same seven applications. A more nuanced set of outcomes.

APPLICATION		2026 ASSESSMENT
01	Chatbots & Virtual Assistants	Broad adoption, but with controls implemented around responses, disclosures, and sensitive customer information EXPANDED
02	Fraud Detection & Prevention	Stronger detection and alerts — while AI also equips fraudsters with new capabilities TWO-SIDED
03	Credit Risk Assessment	AI has improved credit analysis, but banks and regulators favor a human-in-the-loop approach CAUTIOUS
04	Personalized Marketing	Enhanced content generation, market analysis, and targeted marketing SUCCESS
05	Investment Management	Powerful research support; But repeatable market beating returns remain difficult MIXED
06	Document Processing	One of the clearest efficiency wins for document intensive banking processes STRONG WIN
07	Regulatory Compliance	Has added large amounts of governance and oversight responsibilities PARADOX

TOP INDUSTRIES WHERE AI HAS BEEN MOST SUCCESSFUL

(2024–2026 REAL-WORLD IMPACT)

AI delivers the greatest value where workflows are repetitive, data is abundant, and outcomes can be augmented or automated at scale.



1

SOFTWARE ENGINEERING

AI has accelerated development workflows and improved developer productivity.

Top AI Impact Areas

- Code generation & scaffolding
- Testing, debugging & documentation
- Rapid prototyping & refactoring



High Productivity
Multiplier



2

CUSTOMER SUPPORT & BPO

AI has automated and augmented high-volume customer interactions at scale.

Top AI Impact Areas

- Tier-1 support automation
- Virtual assistants & routing
- Summarization & transcription



High Volume
Automation



3

HEALTHCARE ADMINISTRATION

AI has streamlined administrative workflows and reduced paperwork burden.

Top AI Impact Areas

- Medical transcription
- Documentation summarization
- Intake, coding & billing



High Efficiency
& Cost Savings



4

MARKETING & CONTENT CREATION

AI has accelerated content production, personalization, and campaign optimization.

Top AI Impact Areas

- Content generation
- Personalization at scale
- A/B testing & optimization



Speed & Scale
Advantage



5

DOCUMENT PROCESSING & OPERATIONS

AI has automated extraction, classification, and processing of large document volumes.

Top AI Impact Areas

- Document extraction (OCR + NLP)
- Data classification & workflow automation
- Compliance review & back-office ops



Accuracy &
Throughput Gains



6

CYBERSECURITY OPERATIONS

AI has enhanced threat detection, triage, and response automation.

Top AI Impact Areas

- Threat detection & alert triage
- Log analysis & summarization
- Incident response & vulnerability prioritization



Risk Reduction
& Faster Response



KEY TAKEAWAY

AI delivers the most impact in industries with repetitive digital workflows, abundant data, and lower regulatory friction.



THE BOTTOM LINE

AI excels at augmenting and automating processes — but human oversight remains critical.

Challenges With AI

Trust, Security, Fraud, and
Compliance!

Additional Challenges of Enterprise AI

Beyond regulation, production AI introduces new operational, security, and strategic challenges.



Accuracy & Reliability

Outputs can be inconsistent, requiring monitoring, testing, and human review.



Fraud & Deepfakes

AI also strengthens scammers through synthetic media, impersonation, and social engineering.



Legacy System Integration

The hardest part is often connecting AI to real enterprise data and workflows.



Third-Party & Vendor Risk

External models and tools create dependency, security, and compliance concerns.



Permissions & Agent Control

As AI agents take actions, access controls and guardrails become critical.



Adoption & Operating Cost

Value depends on employee adoption, process change, and the cost of oversight.



Bottom line: The biggest AI challenges are no longer just technical — they are operational, organizational, and governance-related.

AI Creates New Regulatory Requirements

As AI adoption expands, banks face new expectations for trust, control, and consumer protection.



Fairness & Bias

Test for discrimination, monitor outcomes, and validate training data.



Governance & Accountability

Define ownership, approval processes, documentation, and oversight.



Privacy & Data Security

Protect sensitive customer data and tightly control model access.



Transparency & Consumer Protection

Disclose AI use where appropriate and provide escalation or recourse paths.



Auditability & Model Risk

Log decisions, validate models, and support explainability and review.



Workforce & Change Management

Train employees, update controls, and adapt policies as AI changes work.



Key takeaway: AI does not reduce control requirements — it expands them.

Deep Fake Frauds (2024)



Arup Engineering Group Fraud

British engineering firm Arup lost \$25 million after scammers used deepfake technology to pose as the CFO on video, deceiving an employee into making transfers to bank accounts in Hong Kong.

Fake Video of Singapore Prime Minister Lee Hsien Loong

A deepfake video of Singapore's Prime Minister promoting false investment returns on crypto surfaced on social media, prompting public warnings to ignore such fraudulent content.

Unconfirmed Fraud at Bank of Singapore

Several reports involving incidents of Deep Fake's in money transfers involving Bank of Singapore.

Deep Fake Frauds (2026 Update)

In early 2026, the Bombay Stock Exchange (BSE) was forced to issue an urgent warning to investors after a highly realistic [deepfake video of its CEO](#) surfaced online. The fabricated video featured the executive sharing "exclusive" stock tips and promising extraordinary profits for retail investors.



(Source – Business Standard)

What Are Some Real-World Examples of AI Scams?

A striking example appeared in The Wall Street Journal in April 2025.⁵ A Colorado woman received a panicked call from someone who sounded exactly like her adult daughter. The caller claimed she had been abducted and demanded \$2,000. Convinced by the perfect voice match, the mother wired the money. Only later did she discover her daughter had been home all along. Professionals later confirmed the voice had been cloned from short online clips.

Security researchers estimate that as little as three seconds of recorded audio is sufficient to produce an 85 percent accurate clone.⁵ This level of realism demonstrates how emotional manipulation can override logic when a victim believes they are hearing a loved one in distress.



Key Lessons Learned from AI initiatives (2024 to 2026)

AI Capability Does Not Equal Business Value

A model that works in a demo is not the same as a solution that delivers real results.

A SUCCESSFUL DEMO

-  Impressive model capability
-  Quick to build a prototype
-  Clear initial excitement
-  Shows potential on sample data
-  Answers the right questions



A SUCCESSFUL DEPLOYMENT

-  Integrates with real systems and data
-  Meets security, compliance, and risk requirements
-  Works reliably at production scale
-  Is adopted by employees and customers
-  Delivers measurable business outcomes and ROI

Moving from possibility to impact takes more than a powerful model.

It takes people, process, platforms, and persistence.



KEY TAKEAWAY

AI capability gets you to the starting line.

Execution, integration, and adoption determine the finish line.



The Biggest Challenge Wasn't the Model

By 2026, connecting AI to enterprise data, systems, and workflows often proved harder than improving the model itself.

WHAT WE FOCUSED ON IN 2024

-  Smarter models
-  Better prompts
-  More capable chatbots
-  Faster responses
-  Stronger demos



WHAT MATTERS IN 2026

-  Business context and grounded data
-  Secure integration with enterprise systems
-  Workflow orchestration and tool use
-  Permissions, governance, and auditability
-  Reliability at production scale
-  Alignment with real business processes

The hardest part isn't making AI smarter. It is connecting it to the real world — data, systems, security, and process.



KEY TAKEAWAY

The breakthrough was not just the model.
Context, integration, and orchestration unlocked enterprise value.



AI Changes the Economics of Software Engineering

AI makes software faster to produce, shifting value toward architecture, integration, validation, and business judgment.

WHAT AI ACCELERATES

-  Code generation and scaffolding
-  Testing, debugging, and documentation
-  Rapid prototyping and iteration
-  Knowledge access and onboarding
-  Routine implementation work



WHAT MATTERS MORE NOW

-  Clear requirements and product priorities
-  Architecture and system design
-  QA strategy, validation, and human review
-  DevOps, release discipline, and reliability
-  Alignment with business stakeholders

*AI makes implementation faster.
It does not replace engineering judgment.*

*It raises the importance of choosing
the right problem, the right design,
and the right controls.*



PLAN
BUILD
TEST
DEPLOY
ITERATE



KEY TAKEAWAY

AI reduces the cost of producing software.

Architecture, validation, and business alignment create the real advantage.



What Banks Must Prioritize in 2027 and beyond

What Banks Must Prioritize in 2027 and Beyond

Five priorities for moving from AI experimentation to sustainable advantage

01

Enterprise data & context

Make trusted, accessible business information available to AI.

02

Governed agents & orchestration

Connect tools and workflows with clear permissions and controls.

03

Security, compliance & model risk

Build evaluation, monitoring, and auditability into deployment.

04

Human oversight for critical decisions

Keep accountability and escalation clear where stakes are high.

05

Business outcomes over AI activity

Measure customer impact, cycle time, cost, quality, and risk.

THE SHIFT

Stop asking “Where can we use AI?” Start asking “Where can AI create measurable advantage?”



The Next Competitive Advantage

The technology will become increasingly accessible. The differentiator is what banks do with it.

The winners will not simply be the institutions with access to the best AI models.

They will be the institutions that best integrate AI into their people, processes, data, and decision-making.

PEOPLE

PROCESSES

DATA

DECISIONS