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Agentic AI

Finance & the 'Do It For Me' Economy



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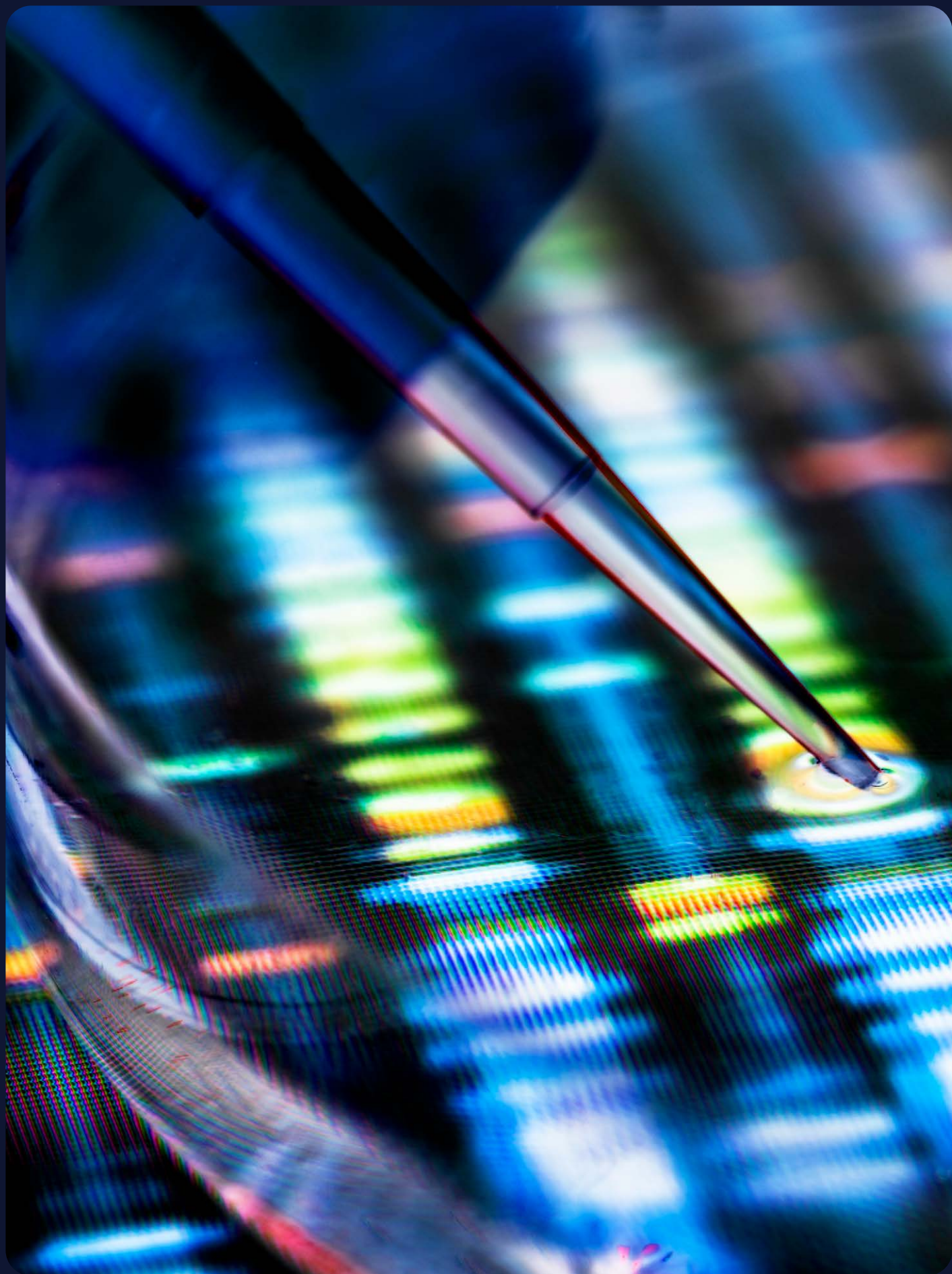
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Contents

Executive Summary	6
Agentic AI – The New ‘New Thing’	8
2025: The Year of Agentic AI.....	14
Your Own Digital Jarvis... ..	19
Bad Bots & Beyond: Commerce 2.0.....	21
AI x Crypto	23
Competitive Destruction & New Technologies.....	25
Agentic AI Could Supercharge Knowledge Workers	28
The End of Physical Roles	30
Governance & Cybersecurity is Critical for AI Agents	31
Agentic AI – Use Cases in Finance	34
Time to Build	37
Investing in AI Implementation	37
Compliance & Regulatory Agents	40
Deepfakes & Frauds	42
Onboarding & KYC.....	44
Agentic Contracts	45
Corporate Treasury & Payments	47
Wealth & Agentic Advisers	49
Hyper-Personalization.....	51
Loan Documentation & Credit Workflow	53
Insurance & Agentic Claim Management.....	54
Investment Research	56
What are Agents?	58
How Do AI Agents Work?.....	59
Building Blocks for Agentic Workflows	60

Agentic AI

Finance & the ‘Do It For Me’ Economy

This GPS report focuses on Agentic AI: an artificial intelligence that can make decisions without any prompting.

An artificial intelligence that can make autonomous decisions without human intervention. It needs no prompting. And it can solve complex problems independently and proactively. Meet agentic AI.

AI, and agentic AI could have a bigger impact on the economy and finance than the internet era.

This paradigm shift in AI is powered by a combination of technological breakthroughs in contextual understanding, memory, and multi-tasking abilities.

References to agentic AI by BigTech in corporate documents and press articles increased 17x in 2024 – and we expect them to go parabolic in 2025.

Agentic AI effectively turbocharges the Do It For Me (DIFM) economy. In financial services, users will have

their own bots or AI agents helping them choose products and execute transactions. Competition will tick-up as startups grow.

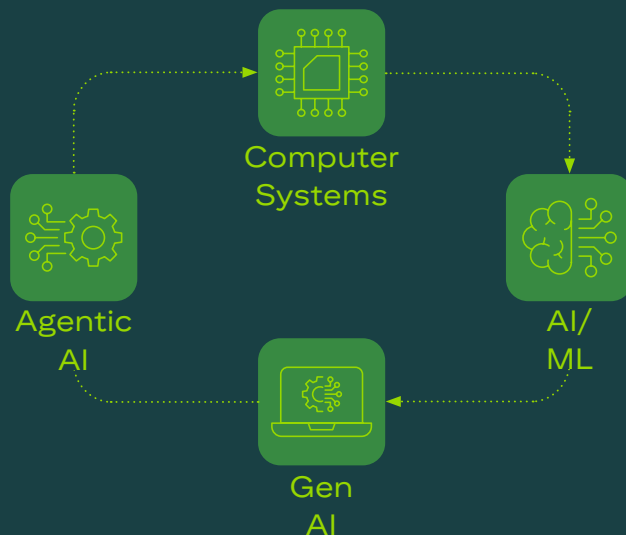
The nature of work could change. Those tasks that are outsourced today to contractors or third parties will be increasingly done by agentic AI.

In 2024, 37% of VC funding was to AI startups. That’s likely going higher in 2025.

Autonomous agents and digital co-workers saw the biggest growth in VC deal activity in 2024, followed by GenAI for customer support operations.

The trend will likely continue as BigTech and the VC community make big moves in agentic AI in 2025 and beyond.

The AI Flywheel is in Motion



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The year 2025 will be a ‘wow’ year for agentic AI in finance, similar to the year 2023 being a ‘wow’ year for GenAI and 2024 for large language models.

– Ren Ito, Co-founder & COO, Sakana AI

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Source: Citi Global Insights

Key Takeaways



2025: The Year of Agentic AI

AI and agentic AI could have a bigger impact on the economy and finance than the internet era. Corporate references to agentic AI rose 17x in 2024, and we expect them to go parabolic in 2025.



Your Own Digital Jarvis

Agentic AI turbocharges the ‘Do It For Me’ economy. Users, in financial services and beyond, will have their own bots helping them choose products and execute transactions.



Follow the Money

37% of VC funding was to AI startups in 2024 – an all-time high and likely to go higher in 2025.



Golden Age of Startups

Agentic AI could enable a potentially golden age for start-ups. Digital banks and regulated FinTechs will be able to leverage their tech infrastructure and licenses to grow even faster than before.



Finance – AI Power Users and Spenders

Financial services is the second largest consumer of GenAI after Telecom & Media. Historically, banks are the biggest spender on technology (outside of the tech sector). This trend will continue with GenAI and agentic AI.



Agentic AI Use Cases in Finance

Agentic AI is largely in an experimental phase. Key use cases of agentic AI in financial services range from compliance, deepfake and fraud prevention, KYC and onboarding, wealth, credit and treasury workflows.

50%

Bots already account for half of global internet traffic, and a large part of them are malicious.

55x

Big Tech references to GenAI have increased significantly in the last 12 months.

10%

The global data centre market will increase by 10% CAGR from 2024 to 2029.



Agentic AI – The New ‘New Thing’

In the words of Andrew Ng, computer scientist and technology entrepreneur, agentic Artificial Intelligence (AI) is one of the most exciting technology trends right now.¹

Agentic AI is the enabler of the next generation ‘Do It For Me’ (DIFM) economy, which could lead to material changes on how users access services and how markets are structured. The internet era reshaped finance and the economy. AI, including agentic AI, might generate even greater change.

What is Agentic AI?

AI systems capable of autonomous decision-making and actions. In finance and business, many such systems will likely be semi-autonomous in practice.

The internet era DIFM promised a user-centric economy. Agentic AI holds potential to turbo charge this. We could all have our own Digital Jarvis, Iron-man style. Cloud computing increased operational leverage by converting capex into opex. Agentic AI could hyperscale opex, enabling a potential golden age for start-ups.

Repetitive tasks, which have often been outsourced to contractors or overseas, will likely instead be done by agentic AI. Many people could go from managing other humans to managing agents. Tasks that we have not outsourced are unlikely to be automated. Fully autonomous agents in finance, in the near term, are likely to be limited.

“

In 2025, we may see the first AI agents ‘join the workforce’ and materially change the output of companies.²

– Sam Altman, CEO, OpenAI

”

General purpose technologies reshape how we live and work. The steam engine and later electricity transformed the world of the late 1700s to early 1900s. The industrial revolution, starting in the UK in the 1700s, swept across the world during the 1800s and beyond. Each new era creates new ways of living and working, and with it, new firms, and institutions.

“

We are in an era now where we are moving way faster than Moore’s Law... These new AIs are helping us create new computer systems [...] which helps us create even better AI... That flywheel is really flying now... the progress with [AI] agents over the [next] year or two will be spectacular and surprising.³

– Jensen Huang, Founder & CEO, NVIDIA

”

¹ Andrew Ng, The Rise of Agentic Workflows in AI, 19 November 2024.

² Sam Altman, Reflections blog post, 06 January 2025.

³ Dreamforce 2024, Trailblazing the Future of AI, 17-19 September 2024.

The internet and the digital economy have been key in shaping the start of the 21st century, creating new e-commerce, social media, and mobile payment companies. Many aspects of our lives, from how we manage our money to meeting our future spouses, have been changed by the internet.

The unfolding of the AI era holds the potential to create new winners and losers. Generative AI (GenAI) has driven the AI narrative since 2023, but there is a new kid on the block: agentic AI, which utilizes GenAI to imitate human agency in autonomous decision-making and executing tasks.

“

Digital banks and regulated FInTechs will be able to leverage their tech infrastructure and licenses to grow even faster than before.

– Huy Nguyen Trieu, Co-founder,
Centre for Finance, Technology
and Entrepreneurship (CFTE)

”

Agentic AI is still a work-in-progress. To get a better understanding of what is coming, and to have a peek at what is being built right now, we spoke to over 30 founders and executives from AI startups, BigTechs, consultants, and policy institutes.

Figure 1. Financial Firms and Eras

ERA	TRENDS	FINANCIAL FIRMS
RENAISSANCE (1400s - 1500s)	Trade & Commerce in Europe	<ul style="list-style-type: none"> • Medici Bank (1397)
EARLY MODERN (1600s - 1700s)	Maritime Trade, State Finance	<ul style="list-style-type: none"> • Bank of Amsterdam (1609) • Bank of England (1694)
INDUSTRIALIZATION (1700s - 1800s)	Industry, Infrastructure, International Trade	<ul style="list-style-type: none"> • Rothschild (late 1700s) • Deutsche Bank (1870)
COMPUTERS (1950s - 1980s)	Mainframe Computers, Proprietary Electric Networks	<ul style="list-style-type: none"> • Visa (1958) • Mastercard (1966)
INTERNET (1995 onwards)	Digital Economy, e-Commerce	<ul style="list-style-type: none"> • PayPal (1998) • Alipay (2004)
SMARTPHONE (2009 onwards)	Mobile Internet, App Economy, API Economy	<ul style="list-style-type: none"> • Nubank (2013) • Revolut (2015)
AI (2020s onwards)	Productivity, Personalization, Agentic AI workflows	<ul style="list-style-type: none"> • AI Powered FinTechs • Agile Incumbents

Source: Citi Global Insights

Imitating Humans & More

AI is software that can imitate human cognitive functions such as reasoning and learning. AI could have an even bigger impact than the internet on society and the economy. AI, especially generative and agentic AI, will move us to the 'Do It for Me Economy' from the 'Show It to Me Economy'.

AI, like previous technology revolutions, should lower costs, raise productivity, and boost overall economic activity.

The internet revolutionized information, communication, and related activities. AI will aid in reshaping cognitive work and how tasks are executed across nearly all activity.

AI does not just imitate humans. It can produce emergent answers, and in some cases novel solutions. For example, AlphaZero became the world's best chess computer program in 2017 based purely on AI training. Previous programs were based on a library of human actions. AlphaZero created chess moves which humans copied.⁴

⁴Henry Kissinger, Eric Schmidt, and Daniel Huttenlocher, The Age of AI, 16 Nov. 2021.

AI can also now create content developed from its training. GenAI can create code, text, pictures, or video. OpenAI demonstrated its GPT-3 (generative pre-trained transformer) model in 2020. ChatGPT, initially based on the GPT3.5 model, was launched to the public in November 2022, transforming awareness and interest in AI.

The next frontier is agentic AI. While GenAI relies on user prompts, agentic AI can act autonomously to make plans and decisions and execute specific tasks. OpenAI CEO Sam Altman has described AI agents as “super competent colleagues” that will be able to complete tasks⁵.

“

The IT department of every company is going to be the HR department of AI agents in the future... Today they manage and maintain a bunch of software from the IT industry; in the future they will maintain, nurture, onboard, and improve a whole bunch of digital agents⁶.

- Jensen Huang, Founder & CEO, NVIDIA

”

AI agents as a co-worker are expected to become increasingly common. Today, AI agents tend to be focused on specific tasks. In the future, AI agents will combine to manage multiple tasks. United Fintech was one of the first finance leadership teams to talk to us about AI as “new workers”. We expect this to be common language in 2025.

In our workspaces, we have become used to our colleagues being in different time zones. In the AI era, software will become our colleagues.

⁵ MIT Technology Review, May 2024.

⁶ CES 2025, Jensen Huang Keynote Speech, 06 January 2025.

Figure 2. Comparing Artificial Intelligence, Generative AI, and Agentic AI

PARAMETER	ARTIFICIAL INTELLIGENCE (AI)	GENERATIVE AI (GENAI)	AGENTIC AI
Definition	Broad field of computer systems that simulate human intelligence	Subset of AI focused on creating new content, such as text, images, or code	AI systems capable of autonomous decision-making and actions
Primary Function	Performs tasks like analysis, prediction, and automation	Generates creative outputs based on patterns learned from data	Acts autonomously to make decisions and execute tasks without human intervention
Examples / Applications	Chatbots, recommendation systems, fraud detection and diagnostics	Art, audio, video, music, text, software generation	Autonomous trading, robotics, complex simulations, and digital personal assistants
Impact	Improves efficiency, reduces costs, and enhances productivity	Revolutionizes creativity, automates content creation	Redefines autonomy in industries, driving efficiency and innovation
Scope	Broad, spanning predictive analytics, automation, and decision-making	Focused on creativity and content generation	Broader than GenAI, with the ability to take actions and interact with the environment
Data Dependency	Relies on structured or unstructured data for training and operation	Requires vast datasets for training (e.g., text, images)	Uses real-time and historical data for context-aware decision-making
Autonomy	Limited; often requires human input or oversight	Non-autonomous; outputs depend on user prompts	Autonomous, capable of initiating actions without human prompts
Complexity	Varies from simple rule-based systems to advanced learning algorithms	Advanced, requiring deep learning architectures for training	Highly complex, integrating AI decision-making with execution
Key Technologies	Machine learning, deep learning, neural networks	Transformer models (e.g., GPT, DALL-E), generative networks	Combines AI with sensors, actuators, and dynamic decision-making frameworks
Technology Limitations	Performance dependant on model training, data and features	Resource intensive for training and deployment	Complex to evaluate and deploy
Ethical Concerns	Bias, transparency, data privacy	Copyright issues, misinformation, ethical content use	Accountability for actions, risk of unintended consequences, ethical decision-making

Source: Citi Global Insights

Agentic AI is likely to become part of daily workflows in our personal and professional lives. Its applications could range from self-driving assistants to self-driving automobiles and beyond. We do a deep dive into the use cases in finance later in this report.

What is clear is that things appear set to change. Previously, only the privileged had personalized offerings such as assistants to take care of every facet of their lives: A chef to cook. A butler to serve. A chauffeur to drive. A tutor to teach. A private banker to manage their finances.

“

The technology will get better at a faster pace. It is hard to extrapolate what these technologies can do with each iteration.

– Sirisha Kadamalakalva, Global Head of AI/ML Investment Banking, Citi

”

In tomorrow’s AI-powered world, personalized offerings will become more widely accessible. Everyone could have a private banker in their wallet, smartphone, or wearable device – and they wouldn’t need to be a high-net-worth individual.

But we do not necessarily want to outsource all jobs to third-party software or a human. For example, you may ask an agent about flights, routes, and car hire options for your family holiday, but would you want to automate everything? Part of the joy of a family holiday lies in the planning you do together as a family. You might not want the agent or a bot to decide the destination and where to stay.

2025: The Year of Agentic AI

Agentic AI is number one in Gartner’s Top 10 Strategic Technology Trends for 2025. Y Combinator experts have predicted that vertical AI agents – specialized tools designed to automate entire workflows – could disrupt software in the same way SaaS did over the past two decades.⁷

So why now? Agentic AI development is powered by a combination of technological breakthroughs, with model improvements including contextual understanding, memory, and multi-tasking abilities, and on the demand side process-oriented industries looking for improved solutions beyond search and retrieval functions.

“

The year 2025 will be a ‘wow’ year for agentic AI in finance, similar to the year 2023 being a ‘wow’ year for GenAI and 2024 for large language models.

– Ren Ito, Co-founder & COO, Sakana AI

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⁷ Y Combinator – Vertical AI Agents Could Be 10X Bigger than SaaS, 22 November 2024.

Agents who will change our lives – and our workflows – are a good marketing theme for Big Tech firms. But this marketing campaign sits on top of real – and rapid – changes in the underlying technology during 2023–24. LLMs capabilities have dramatically improved. Agentic AI builds on top of this improvement.

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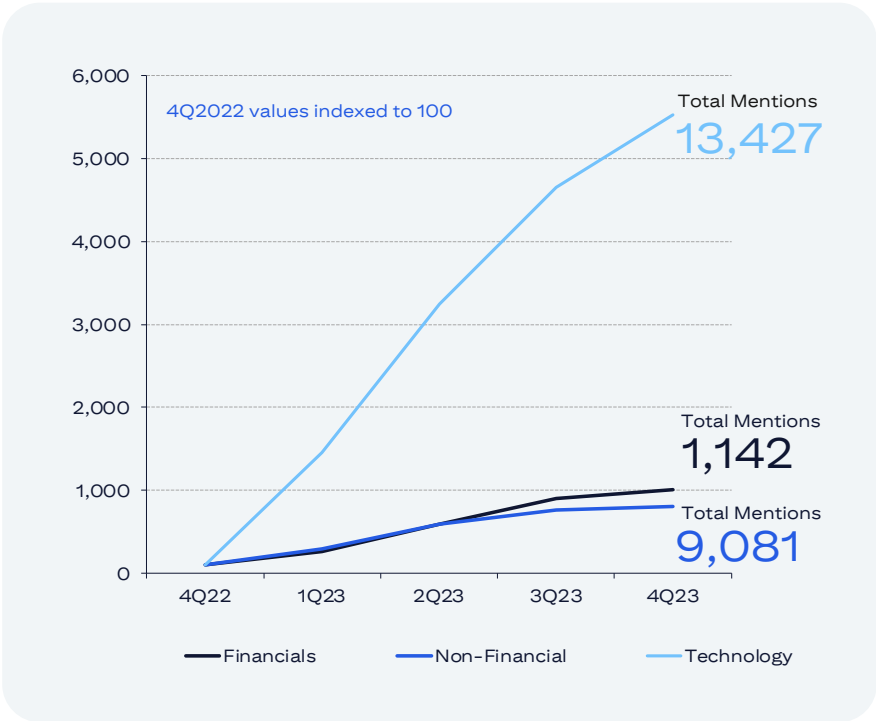
As businesses ramp up AI spends and hunt for ROI, agentic AI is the new frontier that orchestrates a whole zoo of AI models of all sizes and modalities to automate processes and materialize productivity gains.

- Head of AI EMEA for Financial Services & Telecom, US Bigtech Firm

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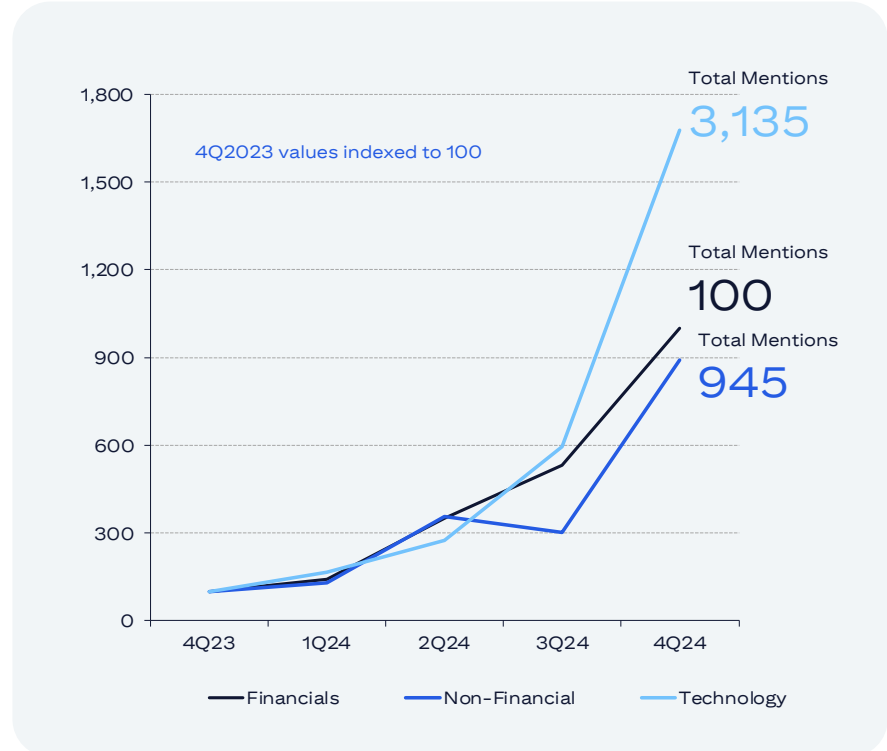
GenAI had a ‘wow’ moment in 2023 led by BigTech as references of the term in their corporate statements and press articles surged 55x in 12 months from 4Q22 to 4Q23 (Figure 3). References to Agentic AI by BigTech increased 17x in 2024 – and we expect them to go parabolic in 2025 (Figure 4).

Figure 3. BigTech References to GenAI up 55x in 12 months



Notes: [1] Based on keyword searches in company documents, transcripts, and press articles for “generative AI” OR “GenAI” OR “LLM” OR “GPT” and “Agentic AI”; “AI agents” and “AI bots”; [2] Non-financial sector reference above refers to all sectors excluding the financials and the technology sector. Source: AlphaSense, Citi Global Insights

Figure 4. BigTech References to Agentic AI Up 17x in 12 months



Notes: [1] Based on keyword searches in company documents, transcripts, and press articles for “generative AI” OR “GenAI” OR “LLM” OR “GPT” and “Agentic AI”, “AI agents” and “AI bots”; [2] Non-financial sector reference above refers to all sectors excluding the financials and the technology sector. Source: AlphaSense, Citi Global Insights

Agentic AI is not just about talk – investors are walking the talk. In 2024, 37% of the VC funding and 17% of the deal activity was to AI startups – both all-time highs. Autonomous agents and digital co-workers had the biggest growth in VC deal activity in 2024, followed by GenAI for customer support operations.

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Artificial Intelligence is driving strategic investments as corporates globally are looking to transform their business using AI. The amount of investment going into AI related data centers and the amount of funding that will need to take place over the next 5-10 years is transformational.⁸

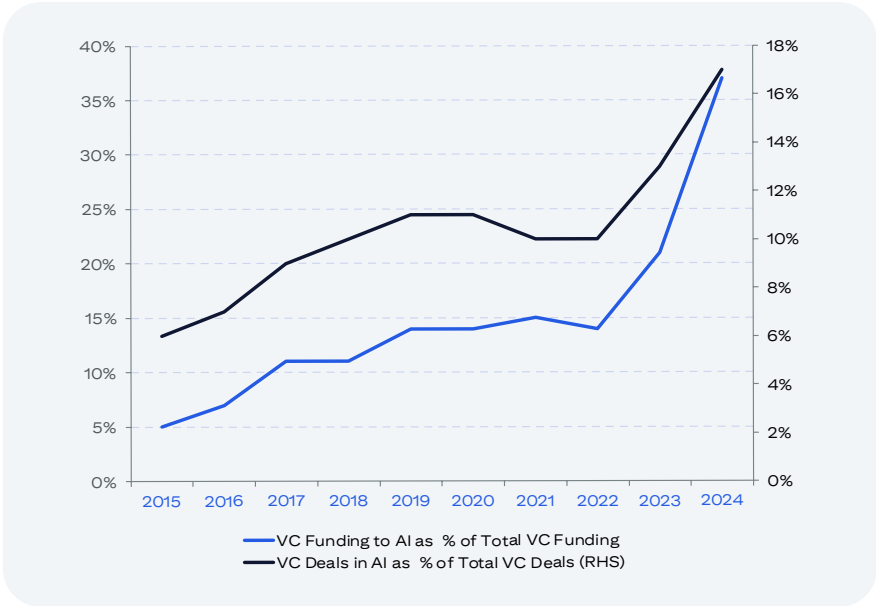
– Philip Drury, Global Head of Technology and Communications in Banking, Citi

”

⁸ Bloomberg, AI Will Drive M&A Pipeline, Says Citigroup’s Drury, 12 June 2024.

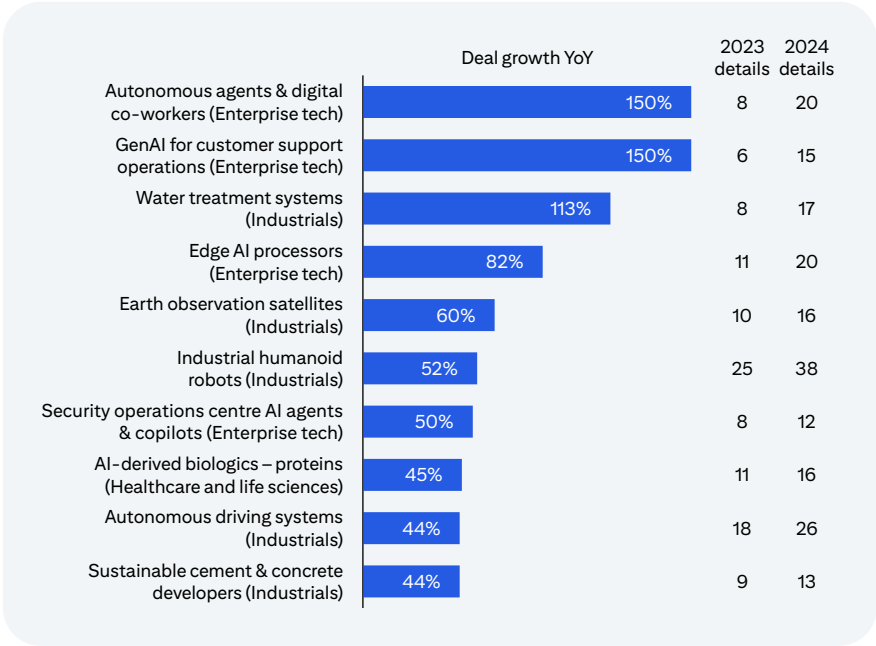
Based on the recent cheerleading by Big Tech leaders, startup entrepreneurs, and the VC community, we expect a continued growth in investments and corporate announcements around agentic AI during 2025. And all of this is before agentic AI has had a ‘ChatGPT’-like moment of a hugely successful product launch.

Figure 5. Percentage of VC Funding and Deals to AI Startups ⁹



Source: CB Insights, Citi Global Insights

Figure 6. VC Deal Activity in Agentic AI Startups Grow ¹⁰



Source: CB Insights, Citi Global Insights

⁹ CB Insights, State of Venture 2024 Report, 07 January 2025 (www.cbinsights.com/research).

¹⁰ CB Insights, State of Venture 2024 Report, 07 January 2025 (www.cbinsights.com/research).

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We think the hottest new area of venture investment will be autonomous AI agents, software agents that can simulate human behavior and plan, make decisions, and execute tasks in complex environments without human intervention or supervision. Autonomous AI agents are just emerging from research and development, and as of now, their funding pales in comparison to the funding for GenAI's core infrastructure.^{11,12}

- Vibhor Rastogi, Global Head of AI/ML Investments, Citi Ventures

”

¹¹ Fortune, AI Investors Need Focus, But Their Exuberance Isn't Entirely Unjustified, 20 September 2024.

¹² Evident AI Findings: Citi Leads 2023 AI Venture Activity Amongst Major Banks, April 2024.

Your Own Digital Jarvis...

In the Iron Man movies, Tony Stark has an AI assistant integrated into his home, and his suits, called J.A.R.V.I.S (Just A Rather Very Intelligent System). In the original Marvel comics, Jarvis is a human butler. As with much fiction, reality may be following in its footsteps. We would not need to be a billionaire to have our digital Jarvis.

In [Citi GPS: AI in Finance: Bot, Bank & Beyond](#) (June 2024), we had already argued: The next frontier for AI innovation is likely to be autonomous agents and people using AI bots to manage their lives. Instead of prompting LLMs with simple one-line instructions, we could embed higher AI capabilities in existing and new digital assistants (hello, Siri!).

These bots, equipped with sophisticated algorithms and access to vast amounts of data, will negotiate with counterparties to secure the best possible deals for their users. This shift will not only streamline services but also ensure that decisions are made with a level of precision and foresight that human users may not have.

With wider adoption of autonomous AI agents, consumers will be enabled to make informed decisions without them being directly involved in data gathering, comparison shopping, and carrying out manual tasks to execute the transaction. Consumers can focus on the yes/no/switch decisions.

Whose Bot Is It Anyway? In this new paradigm, the critical decision for consumers will be selecting the right bot or agent. Choosing bot-powered advisors, much like choosing human personal finance advisors, will become a key task. But who will the bots work for? BigTech firms? Trusted institutions such as banks? New startups?

Leading banks and firms will most likely opt to provide their own AI-powered services. But BigTech firms may have a competitive advantage in terms of being digitally native and have faster go-to-market speed. In some markets, they may also have stronger consumer brands.

Smaller firms and startups may see their growth turbo charged by the growth of agents. AI may dramatically improve their reach. But will consumers want to spend too much time thinking about which autonomous agent to use? Will we default to known and trusted brands.

As **David Birch** noted in [Citi GPS: AI in Finance: Bot, Bank & Beyond](#) (June 2024) The concept of value will be critical. Customers are likely to deal with bots that reflect their values and interests. This could lead to the creation of a marketplace for bots where individuals select a bot based on desired preferences.

In retail activities, traditional marketing strategies will not work on bots. For instance, a bot is not influenced by brand loyalty or advertisements; it operates within the model parameters on APIs. Products designed for bots, which may be making the selection and or even buying decision, will also need to be translatable to humans.

Lloyds Banking Group's Kirsty Rutter asks in the same [Citi GPS: AI in Finance: Bot, Bank & Beyond](#): if AI-driven client interface technology exists, why should humans waste time on petty administrative tasks?

In a financial management context, an AI bot can directly engage with the bank on behalf of the customer. For example, if a mortgage is up for renewal, the bot can notify the customer of the end date, conduct research to find the best deals, determine the right product, and fulfill formalities for refixing the mortgage rate.

Bots can achieve this based on parameters (retirement age, preference for debt tenure, maximum acceptable price, etc.) pre-determined by the customer. In the initial phase, the bot could rely on human confirmation before executing tasks; but as trust in the bot grows, tasks can be handled autonomously.

Financial institutions and large organizations are likely to proceed with due caution, due to the weight of regulations, internal processes, and governance requirements. However, they may find their speed of adoption being accelerated by client behavior. Individuals are adopting AI fast, and agentic AI may be no different.

“

My 70+-year-old mother took 10 odd years to adopt basic internet use-cases but has been using Perplexity since 2023.

- Nitya Sharma, Founder, Simpl

”

Digitization has shortened the speed of adoption, as we have seen with the spread of ChatGPT. AI agents are part of an ongoing technological revolution that could fundamentally change commerce (how individuals and businesses buy and sell), capital and competition (scale and reach of companies), and labor (the nature of work). The implications for society and governance could be far-reaching.

The client's bots will likely arrive first, while bank and big company agents may be playing catch up. Our agents will be out there, working on our behalf to find the best travel possibilities, assessing mortgages, and generating views on investments in AI stocks.

Who will provide these agents? It may be incumbents. Or could it be brand new entrants? Perhaps the two person and 'infinite capacity AI agent army' start up?

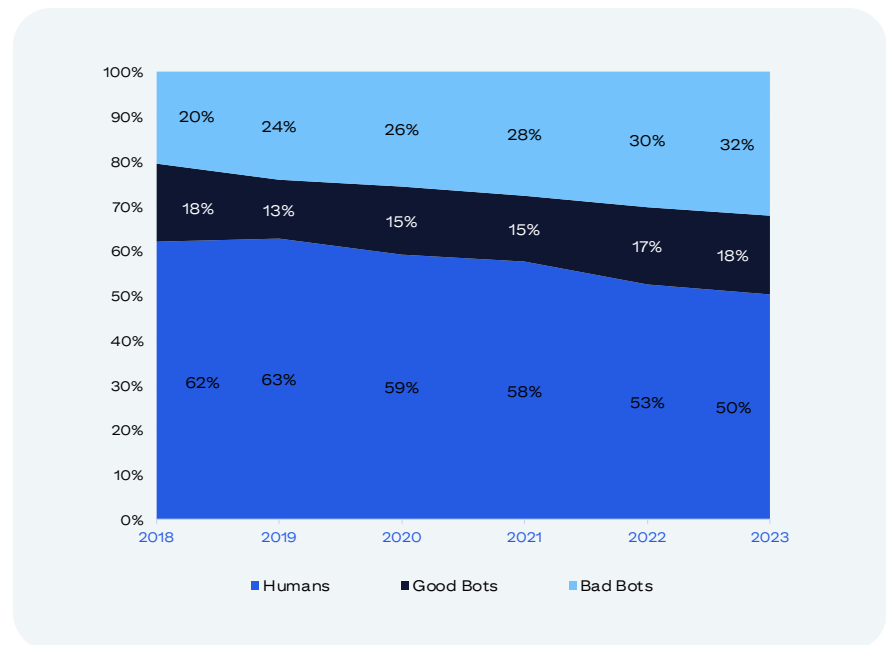
Bad Bots & Beyond: Commerce 2.0

A world with AI agents poses many risks. Bots, or task-specific automated programs, already account for half of global internet traffic, and most are malicious actors¹³. Social media and cryptocurrencies bear witness to the prevalence of bots, and the risks of them creating negative results.

If bots can be bad, malicious agentic AI has the potential to be even more dangerous. Bots are simple rule-based programs. AI agents are much more advanced systems that can learn, adapt, and make decisions based on their context and objectives. They are smart bots, with an ability to evolve and act.

Agentic AI acts as a delivery mechanism and could enable the dissemination of fraud at scale. Half of all fraud today already involves some form of AI¹⁴, which is likely to increase. Illicit actors are usually early adopters of new technology as they are incentivized by the availability of large profit margins.

**Figure 7. Internet Traffic:
Humans vs Bots** ¹⁵



Source: Imperva (a Thales Company), Citi Global Insights

Agents may work technologically and undertake commerce in 2025. But as Erin McCune and her colleagues at Bain & Company ask¹⁶, how do we ensure adequate controls and guardrails? They highlight two potential approaches to enabling agents with sufficient authority to act without compromising security:

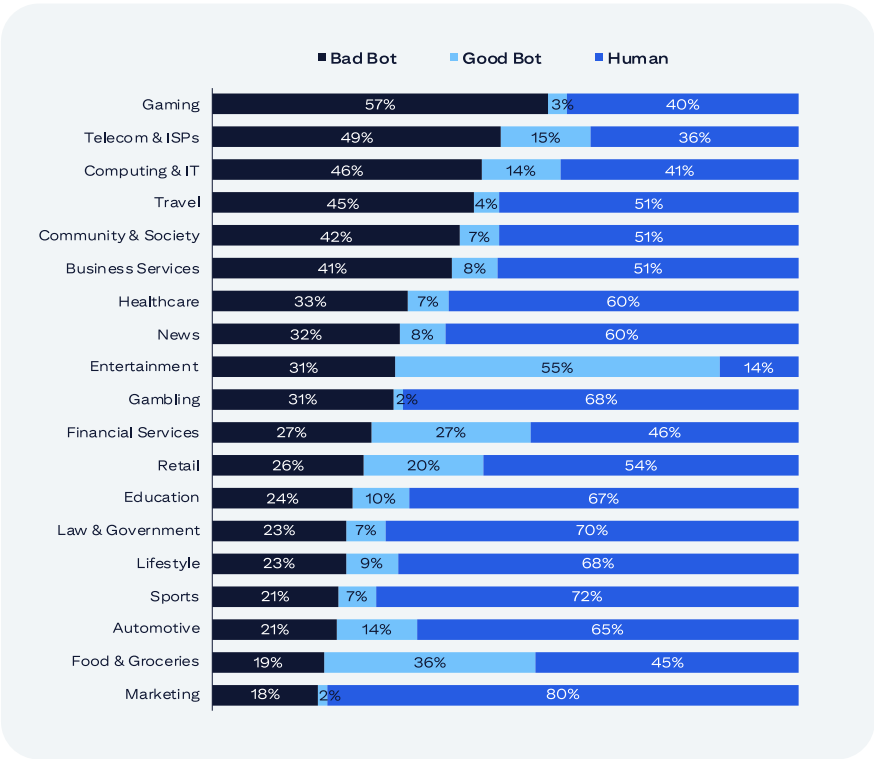
¹³ Imperva (A Thales Company), Bad Bot Report, 16 April 2024.

¹⁴ Signicat, Battle Against AI-driven Identity Fraud, 30 May 2024.

¹⁵ Imperva (a Thales Company), Bad Bot Report, 16 April 2024.

¹⁶ Erin McCune, Roger Zhu, et al., Bain & Company, Implications of AI Agent Commerce, 12 December 2024.

Figure 8. Bad Bot Traffic by Industry ¹⁷



Source: Imperva (A Thales Company), Citi Global Insights

Erin McCune
Partner, Bain & Company

Roger Zhu
Partner, Bain & Company

- **AI Wallets:** AI agents have a prefunded wallet that enables it to act autonomously without needing approval for every transaction, but the total budget is capped. This is analogous to a B2B card today that an employer can use under specific rules (time, place, amount).
- **Automated Authentication Layer:** AI agents are asked for contextual authentication, for example chat history with the original ask from the human user. A parallel layer of authentication might include past agent purchase history. This may be combined with other markets (e.g. IP addresses or other use data).

¹⁷ Imperva (a Thales Company), Bad Bot Report, 16 April 2024.

Figure 9. Important Considerations of AI Agents on Commerce and Finance¹⁸

	Investors	<input type="checkbox"/> How consolidated will the agent landscape become and in what timeframe? <input type="checkbox"/> Who will build the winning agents? Major LLMs or several fragmented/ specialized providers?
	Banks	<input type="checkbox"/> Who will own customer relationships? Banks or the provider of the agent purchasing on behalf of bank's customer? <input type="checkbox"/> How will you prevent fraud and manage risk in the context of AI agent buyers?
	Payment Service Providers	<input type="checkbox"/> Are you ready to accept payments from an intelligent agent? How will you know the agent is legitimate? <input type="checkbox"/> Are any new capabilities necessary to ensure against purchase within the delegated spend authority?
	Independent Software Vendors	<input type="checkbox"/> What role (if any) will there be for verticalized agents? How can agents augment your offering? <input type="checkbox"/> If so, do you possess enough proprietary data to train your own model?
	Payment Infra	<input type="checkbox"/> What is the appropriate business model for intelligent agent infrastructure? What will you be monetizing? <input type="checkbox"/> How do you orchestrate collaboration and engender trust to ensure agentic transactions are made consistently and safely?
	Regulators	<input type="checkbox"/> Can current legal mechanisms to delegate authority work for AI agents? <input type="checkbox"/> Is there an opportunity for supervisory agents to monitor financial institutions/PSPs activity and that of agents themselves?

Source: Erin McCune & Roger Zhu, Bain & Company

AI x Crypto

Cryptocurrencies and blockchain could play an important role in the agentic AI world to help ensure openness, transparency, and competition. GenAI and agentic AI solutions are embedded into the services of a small number of BigTech firms, and many users by default would use the services provided by these digital leviathans. But how can we ensure that the data used, model construction or the agent behavior is not biased or corrupted?

¹⁸ Erin McCune, Roger Zhu, et al., Bain & Company, Implications of AI Agent Commerce, 12 December 2024.

Crypto incentives provide one kind of mechanism to ensure that you get paid to validate data and model quality. On-chain participants can be rewarded for data verification and model validation via so-called staking systems. On-chain staking is a mechanism where participants contribute, or stake, their cryptocurrency tokens. The tokens are locked in a smart contract and act as collateral. In the AI example, participants stake tokens as collateral which they can lose, creating an economic incentive model.

AI agents can create, issue, and distribute tokens, and they can hold private keys and control crypto wallets. Those crypto tokens can be funded as a limited partner (LP) to liquidity pools, participate in a Decentralized Autonomous Organization (DAO) governance, and many more models. Essentially, they can be sustainable and fund opportunities, pay invoices as they see fit to achieve their overall goals.

A future world of AI agents, combined with IoT (Internet of Things), may need to make autonomous micropayments for data or energy it uses as part of their ongoing activity. Cryptocurrencies, including stablecoins, may be one of the payment options used. The AI agents themselves may be decentralized – and crypto would be the incentive mechanism for payment of services purchased or to ensure collaboration.

“

Just as there is an app for everything,
there will be an AI agent for everything.
Everything that is possible off-chain, will
be possible on-chain.

*- Ajit Tripathi, Core Contributor,
Hadron Founders Club*

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Crypto is in many ways a natural partner for AI agents. Bots, the first generation of AI agents, have played an outsized role in crypto markets. Attention is meanwhile a very important commodity on-chain and online (Twitter and Telegram are in effect the house communication channels of crypto). Bots which interact with live data 24x7 help capture, control and direct attention. Hence, bots become a key component of the crypto decentralized world. Evolving from bots to AI agents was a natural development, and we will need to embed stronger governance and higher cybersecurity in the world of bots and agents.

Competitive Destruction & New Technologies

General purpose technologies, like the steam engine, electricity, and the internet, have reshaped economies and societies. Will AI lead to another wave of creative destruction or a retrenchment of current oligarchic capitalism? Will there be more consolidation at the infrastructure layer, and increased competition at the app layer?

In previous cycles, technology revolutions led to the rise of new firms. The steam engine era saw large factories and industrial businesses replace artisanal firms. Electricity further transformed mass production and urbanization. And the first and second industrial revolutions ushered in a new era of banks and financial firms.

“

I have spent most of my waking hours over the past two weeks thinking about this exact topic: Small teams + AI Agents + Cheap Compute. Exciting is one way to describe it. Terrifying is another.

– Head of AI EMEA for Financial Services & Telecom, US Bigtech Firm

”

Similarly, the internet era from the 1990s onwards has seen the creation of new ecommerce, media, and payments and FinTech firms. Traditional retailers and media companies saw significant disruption and loss of clients. Some managed to transform and survive, such as independent bookshops in America.

The internet era promised decentralization. Commentators have talked about how “more billion-dollar companies will be built by 4-5 people” (entrepreneur and investor Naval Ravikant in 2012).

Crypto firms, such as Tether, have generated billions in profits with a small number of employees, while individual influencers have built huge global followings (Mr. Beast has 342 million followers on YouTube, as of 08 January 2025). But at the same time, the largest companies have never been bigger in terms of size and influence.

In recent years, the US stock market has become increasingly concentrated. The top-10 stocks now account for 38% of the S&P 500, a record over the last century. And the top-5 stocks represent 27% of the S&P 500, compared to less than 10% in 2014. The top of the capitalization table is dominated by technology stocks, and they are spending huge sums on AI investment. In January 2025, Microsoft announced plans to spend “approximately \$80 billion to build out AI-enabled datacenters to train AI models and deploy AI and cloud-based applications”.¹⁹

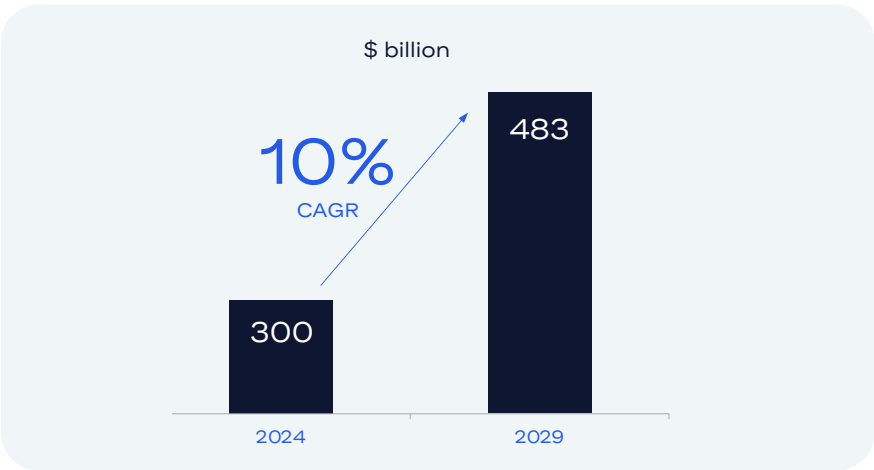
¹⁹ Microsoft, The Golden Opportunity for American AI, 03 January 2025.

Figure 10. US Stock Market Concentration is at its Highest ²⁰



Source: Finaeon, S&P 500, Citi Global Insights

Figure 11. Global Data Centre Market



Source: DLA Piper, Citi Global Insights

The major cloud computing firms are all-in on agentic AI. At the recent Amazon Web Services (AWS) re:Invent 2024 event in December, key announcements included a new generation of foundation models (Amazon Nova) and tools for automating complex tasks (Bedrock Agents).

Microsoft Azure rolled out its AI Agent Service in November 2024 designed to automate tasks such as customer support and workflow management.²¹ Oracle in September 2024 announced AI agents that would automate workflows in finance, sales, supply chain and similar functions.²²

²⁰ Microsoft, The Golden Opportunity for American AI, 03 January 2025.

²¹ Microsoft Community Hub, Introducing Azure AI Agent Service, 19 November 2024.

²² Oracle Press Release, Oracle AI Agents Help Organizations Achieve New Levels of Productivity, 11 September 2024.

Cloud computing firms illustrate a paradox of our era. They are increasingly gargantuan in size – they have multi-billion-dollar capex plans, and their parent firms boast trillion-dollar equity market valuations.

At the same time, the rise of cloud computing has been a key enabler of the growth of new entrants such as FinTechs and neobanks. Cloud service providers removed the high fixed technology costs of competing with large incumbents, while also offering access to the latest innovations.

“

Private equity markets are in a new elevated normal in dealmaking, with activity expected to accelerate in the coming years. Deal flow remains focused on the technology sector, with AI-related investments concentrated in software and data centers. Infrastructure funds, in particular, view data centers as a significant growth opportunity ahead.²³

- Anthony Diamandakis, Head of Global Asset Managers, Investment Banking, Citi

”

Marc Andreessen of Andreessen Horowitz (aka a16z) noted in 2009 that “[...] new technologies like cloud computing allows everyone to scale their companies [...]”.²⁴ Cloud providers will likely play a similar role in the current unfolding AI era, enabling new entrants and smaller firms to scale fast.

In fact, the combination of cloud, AI, and agents may lead to a further revolution in the delivery of digital services, including finance. Larger financial firms may move with caution due to cultural, regulatory, and technological constraints, but a new generation of risk-embracing startups may attempt to race ahead.

The minimum viable size for the next generation of new entrants, including in financial services, may be considerably smaller than in the past decade. The operational efficiency gains in workflow management from AI agents, combined with GenAI’s content generation, could lead to interesting outcomes.

²³ Bloomberg Brief, Citi’s Diamandakis on Private Equity Dealmaking, 30 May 2024.

²⁴ The Charlie Rose Show, Marc Andreessen, 09 February 2009.

Agentic AI Could Supercharge Knowledge Workers

Like the printing press, AI decentralizes access to knowledge and creativity, enabling individuals without specialized skills to produce competitive content. Add in AI agents, and you can scale the reach of a single professional or small team at an exciting (or terrifying) speed.

While AI offers the promise of a princely life, with a surfeit of new digital personal assistants, it also raises significant social questions. How will these AI era princes and princesses earn a living? In previous economic revolutions, many new jobs were created. Will it be the same this time?

Agentic AI could lead to proliferation of new high-skill jobs in AI development, ethics, governance, and oversight, consistent with our thesis in [Citi GPS: AI in Finance: Bot, Bank & Beyond](#) (June 2024). Entire industries may arise around training, finetuning, and auditing AI systems. Data will be key, and curation jobs are bound to grow exponentially.

Many repetitive jobs are potentially at risk of automation, intensifying job polarization and potentially economic inequality. The way electricity replaced repetitive manual labor, agentic AI could automate repetitive mental tasks and aid decision-making. The roles destroyed are likely to be the ones doing more routine tasks.

The likes of software engineers, business analysts and client support staff are not about to disappear. Rather, their roles may be augmented and enhanced using AI. There will be a new focus on the synthesis of professional human skills and judgement combined with AI capabilities.

“

Agentic AI will not directly replace jobs in financial services in the short term. However, it will supercharge employees, and more can be done with less people, leading to less headcount. New roles will of course emerge too.²⁵

- Huy Nguyen Trieu, Co-founder,
Centre for Finance, Technology and
Entrepreneurship (CFTE)

”

However, the productivity of the software engineer, analyst or client adviser improving will raise an important social question: if we can do more output with less input, what will happen to the junior engineers, analysts, and client support staff? Where will people who did the entry level jobs in these roles go?

Figure 12. The Future of the Workforce

JOB	CREATED	AUGMENTED
Development	AI Engineer/Trainer	Software Engineer using AI Tools
Data	AI Data Curator	AI Powered Business Analysts
Governance	AI Ethics & Safety	Lawyer Aided by AI
Client Engagement	AI UX Designer	AI Enabled Client Support
Logistics	Autonomous Systems/ Vehicle Designer	Logistics, Managers aided by AI

Source: Citi Global Insights

²⁵ Huy Nguyen Trieu, The AI-fication of Jobs: Preparing Ourselves for the Future of Work, 02 November 2024.

The End of Physical Roles

Just as offshoring and outsourcing of white-collar jobs in the past few decades raised questions about talent pipelines and entry level jobs, AI and agentic AI will reframe the conversation, but this time globally. The nature of tasks and roles in shared services hubs will change due to agentic AI.

There will also be a revaluation of value ascribed to skills seen as ‘human’. Creativity, empathy, and judgement will be more in demand and could be valued at a premium. The growth of AI-powered deepfakes and an explosion of AI agents may create a desire for person-to-person contact, which will be revalued upwards.

Agentic AI is likely to destroy many physical roles. Waymo, the autonomous vehicle firm with no human drivers, launched in August 2023. At the time the market share of Uber and Lyft were at 66% and 34% in San Francisco. Just 15 months later (November 2024), Waymo was at 22% – the same as Lyft.²⁶ However, the CEO of Lyft has disputed these numbers.²⁷

In December 2024, Waymo published a study claiming that it had a better safety performance than human-driven vehicles with an 88% reduction in property damage claims and 92% reduction in bodily injury claims.²⁸

Taxicab and long-distance truck drivers, as well as routine computer or desk work could also be largely replaced by software agents. But many existing jobs will be turbo-charged by the incorporation of AI into their roles.

GenAI is the fastest adopted consumer technology in history. Agents are becoming smarter and more effective, and we will probably expand our adoption of them in our personal lives before our professional lives, especially in jurisdictions where large companies and banks are tightly regulated, which might place speed bumps on certain professional usage cases.

²⁶ The market share data only includes rides that start and end in a select geolocation in San Francisco. It also does not include airport rides. Waymo has operated 24x7 driverless for the past 15 months, but the first nine were limited to a private waitlist.

²⁷ Yahoo Finance, Lyft Gains as CEO Says San Francisco Share Losses Could Be Overblown, 16 December 2024.

²⁸ Waymo Study: Waymo is Safer than Even the Most Advanced Human Driven Vehicles, 19 December 2024.

Governance & Cybersecurity is Critical for AI Agents

We believe regulators, policymakers, and supervisors will focus on two big areas when scrutinizing firms' agentic AI projects. Both relate to the 'new' element that agentic AI introduces, namely, [1] agents acting autonomously and making decisions and [2] the risks that they present.

Governance: The first point relates to how the agents will be overseen, in other words, the governance framework that is put in place. Firms should ensure their current governance frameworks are fit for purpose for the age of agentic AI. Key points for consideration include:

- **Agentic AI Use Cases:** How has the firm decided where to deploy agentic AI? This is likely to be linked to a firm's risk appetite. The more regulated firms are likely to deploy agentic AI in roles and functions that pose minimal risks.
- **Stakeholders:** Are all stakeholders included in the governance framework upfront, or are some, such as senior representatives from control functions, added as an afterthought?
- **Accountability:** Who will be accountable to the regulator if agentic AI gets it wrong and what mechanism exists for individuals to override the machines?
- **Monitoring and Oversight:** Has the firm considered all the possible scenarios where an agent could make a mistake, and the level of harm that could be caused (to clients, employees, and the market)? And has it rated the risks and put in place robust controls through continuous monitoring of agents?
- **Data Privacy:** Has the firm deployed enough controls so that agentic AI responsibly handles enterprise data and does not share any information that is not intended for sharing (externally or internally).

Cyber Risks: The second area where regulatory attention is likely to focus relates to new cybersecurity risks posed by agentic AI. For starters, the attack surface has increased because agentic AI integrates with multiple systems within a firm that all share multitudes of data.

Further, because tasks are automated with agentic AI, there is a risk that bad actors will not be caught until after an AI agent has executed a decision. Human oversight to detect violations would be critical, as would real-time cybercrime detection mechanisms.

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A human-in-the-loop approach will be a critical governance component and an ultimate oversight function. They will continuously check if the AI agents are functioning as per policy and catching any violations or breaches in good time.

– Drew Propson, Head of Technology and Innovation in Financial Services, World Economic Forum

”

Traditional cybersecurity defenses are built on deterministic thinking where specific attack inputs would lead to specific outcomes. Such an approach is unlikely to work in the world of agentic AI because cybercriminals could deploy an army of hacker agents at a very low cost to penetrate enterprise firewalls.

Implementing agentic AI safely will come at a cost, and we expect firms to ramp up cybersecurity spends and investments in parallel with infrastructure implementation spends. The jobs of the chief information security officer and the ‘human above the loop’ is likely to be further elevated as agentic AI grows.

“

AI systems, while powerful, are still nascent in their development of ethical frameworks and decision-making processes. The lack of clarity around AI's moral compass and its internal workings amplifies the perceived risk for banks. Banks will be cautious in adopting AI (and agentic AI) at scale, as they are liable for errors made by humans or AI agents.

– Erkin Adylov, Founder & CEO, Behavox

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Finally, firms need to pay attention to restrictions on the use of automated decision making. The European Commission (EC) has weighed in on the topic and thinks that customers should not be subject to a legally binding decision that is based solely on automated processing.

The EC argues that if a firm processes customer data through an online platform/channel and uses computer code or algorithms to decide if a product or service should be offered to customers, the firm should review the automated decision before communicating it to the client. The client must be given the right to contest the decision, if they feel the outcome has been unfavorable.²⁹

Spain is the first country to set up a regulatory sandbox as part of the EU AI Act. We anticipate that the next wave of sandboxes will see a lot of agentic AI applications, alongside consortia, working groups, and tech-sprints.

In the next chapter, we investigate how agentic AI will be used in one of the most important parts of the economy: financial services.

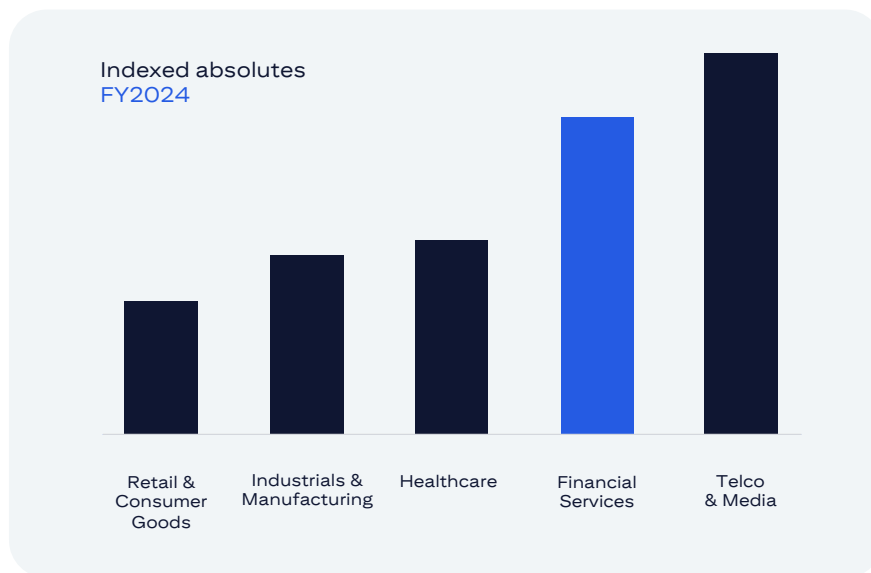
²⁹ European Commission, Dealing with Citizens.



Agentic AI – Use Cases in Finance

Banks and financial firms may be proceeding with caution, but they are still doing more than many may have expected. Data from Microsoft highlights that the financial services sector is one of the leaders in AI adoption based on consumption revenue data for cloud services on the Azure platform using foundation models.

Figure 13. Financial Services is One of the Fastest Adopters of AI



Source: Microsoft

Note: [1] Measured as Azure consumption revenue, i.e., the monetary value of Azure services consumed by a customer for small and large language models; [2] Telecom and media includes social media companies.

“

The financial services sector is one of the biggest users of Generative AI worldwide.

– Martin Moeller, Head of AI & Generative AI for Financial Services, EMEA, Microsoft

”

Figure 14. Summary of Agentic AI Use Cases Across Financial Services

AGENTIC AI USE-CASES	WEALTH MANAGEMENT/ RETAIL BANKING	CORPORATE BANKING	INSTITUTIONAL INVESTORS	INSURANCE
PERSONALIZED OFFERS	<ul style="list-style-type: none"> · Tailored financial advice adapting to client behavior/market trends · Customized savings goals that adjust real-time to changes in income/expense 	<ul style="list-style-type: none"> · Custom lending offers · Optimized loan structures based on corporate profiles · Dynamic pricing for corporate accounts 	<ul style="list-style-type: none"> · Dynamic investment portfolios · Bespoke investment plans 	<ul style="list-style-type: none"> · Tailored insurance policies · Dynamic loyalty offers based on profiles
CUSTOMER ENGAGEMENT	<ul style="list-style-type: none"> · Virtual financial assistants · Tax planning agents · Retirement guidance agents 	<ul style="list-style-type: none"> · Financial planning agents · Adaptive tax planning 	<ul style="list-style-type: none"> · Custom research insights · Real-time market alerts 	<ul style="list-style-type: none"> · AI-driven customer support. · Proactive policy updates, renewals
OPERATION EFFICIENCY	<ul style="list-style-type: none"> · Automate routine tasks with context-aware workflows 	<ul style="list-style-type: none"> · Streamline complex business operations · Invoice processing and reconciliations 	<ul style="list-style-type: none"> · Automated document review for fund performance 	<ul style="list-style-type: none"> · Streamline claims with adaptive workflows
RISK & UNDERWRITING	<ul style="list-style-type: none"> · Dynamic risk profiling for credit approvals and investments · Predictive models for default probability with real-time update 	<ul style="list-style-type: none"> · Ongoing risk assessment and liability coverage recommendations with live data 	<ul style="list-style-type: none"> · Portfolio diversification risk management · Real-time hedging strategies 	<ul style="list-style-type: none"> · Real-time underwriting models using health, climate, and behavioral data
FINANCIAL FORECASTING	<ul style="list-style-type: none"> · Insights for expenses, savings plans · Predictive cashflows 	<ul style="list-style-type: none"> · Live cashflow forecasts 	<ul style="list-style-type: none"> · Real-time insights for timing of entry/exit in investments · Investment performance insights 	<ul style="list-style-type: none"> · Actuarial predictions for claims reserves · Automated premium calculations and loss forecasting
KYC/ ONBOARDING	<ul style="list-style-type: none"> · Adaptive identity verification · Real-time AML compliance 	<ul style="list-style-type: none"> · Adaptive onboarding workflows · Real-time sanctions monitoring 	<ul style="list-style-type: none"> · Real-time due diligence · Investor suitability analysis 	<ul style="list-style-type: none"> · AI-assisted policy selection · Adaptive identity verification
FRAUD PREVENTION	<ul style="list-style-type: none"> · Detect unauthorized activity using contextual data 	<ul style="list-style-type: none"> · Monitor corporate fraud · Anomaly detection in trade finance and payment invoices 	<ul style="list-style-type: none"> · Insider trading detection · Automated regulatory compliance 	<ul style="list-style-type: none"> · Detecting claim anomalies · Real-time fraud detection with contextual analysis

Source: Citi Global Insights

Expert View

Time to Build

Martin Moeller

Head of AI & Generative AI
for Financial Services,
EMEA, Microsoft

Q: How much of current AI adoption is proof of concept vs. real-world application, and how does it compare to past digital transformation waves?

Many AI use cases today are not new. Tasks like improving chatbots, automating documentation, or enhancing client interactions were long identified as valuable but never fully implemented. Now, we are seeing a shift where companies are finally delivering on these promises, moving from theory to practice.

This mirrors patterns from past digital transformation waves, such as the early days of mobile apps. Initially, there was skepticism and experimentation, followed by widespread initiatives once the value became clear. 2023 was a year of excitement and experimentation in GenAI, now the focus is on scaling and delivering value.

Q: How do you approach the ‘build vs. buy’ decision in implementing AI?

The build vs. buy paradigm while implementing AI includes a middle ground ‘compose’, where firms leverage modular building blocks to customize solutions. This is enabled by tools like low-code/no-code platforms (e.g., Copilot Studio), allowing companies to create tailored agents and workflows without requiring deep technical expertise. Vendors are also simplifying user interaction by abstracting complexity, such as embedding meta-prompting in the background.

Expert View

Investing in AI Implementation

Kevin Levitt

Global Industry Business
Development, Financial
Services, NVIDIA

Q: How can we identify leaders and laggards in AI adoption?

Leaders in AI adoption distinguish themselves through: [1] **Talent**: Recruiting and retaining skilled professionals; [2] **Strategic prioritization**: Embedding AI as a core organizational focus; [3] **Data readiness**: Ensuring data is accessible/optimized for AI use; and [4] **Investments in AI factories**: Building full-stack solutions, including hardware, software platforms, SDKs, and libraries, to enable scalable AI use.

The financial services sector is uniquely suited to AI, due to its heavy reliance on data to access risk, returns and customer needs. Firms leveraging the above factors are not only experimenting, but deploying AI-powered solutions at scale, creating competitive differentiation and winning market share.

“

Financial services is one of the most exciting industries for the application of AI because the industry is not chasing one silver bullet use case.

Banks, asset managers, payments firms, and insurers are using AI Factories to build hundreds of AI enabled applications and that number will scale into the thousands.

- Kevin Levitt, *Global Industry Business Development, Financial Services, NVIDIA*³⁰

”

³⁰ Acrew Capital and Money 20/20 Report, All in on AI: Financial Services Adoption Index, 2024.

Agentic AI & Finance

– Jürgen Eckel, Managing Director & Partner, BCG X

Q: How is agentic AI being explored in financial services?

Agentic AI is emerging as a prominent topic in financial services, though widespread implementation is yet to be seen. While a handful of enterprises are moving agentic architecture workflows into production, the vast majority are still focused on catching up with core AI advancements. Key opportunities for agentic AI lie in compliance, client onboarding, and fraud detection, where it can enhance efficiency and augment human expertise, and we are likely to see more experimentation in 2025.

The shift is moving beyond personal productivity tools, towards deeper process integration. We are seeing financial institutions explore the use of foundation models in investment banking and wealth management.

Q: What are the key approaches to develop agentic AI systems? How do they differ across major market players?

BCG research suggests that agentic AI is set to revolutionize 2025, with 32% of surveyed companies planning to integrate it into their core strategies this year. In my view, the market is currently exploring two paths for agentic AI development. One involves creating agentic systems by combining smaller, specialized language models with additional agentic layers that help facilitate decision-making, multi-step reasoning, and task execution. These systems are designed to address specific functions or processes within industries and offers the flexibility to tailor the AI system to meet the unique needs of business functions.

The other approach involves major foundation model developers embedding agentic behavior directly into their large foundation models.

Q: What are the key factors influencing the speed of AI adoption in financial services? Which areas present the most opportunities?

Transitioning from proof-of-concept to production requires new development and operations processes, addressing algorithmic bias, and ensuring explainability. Regulatory complexities, such as differing AI laws across different markets further slows adoption.

Looking ahead at 2025 and beyond, the compliance and regulatory space offers the greatest potential for AI, as it can automate labor-intensive tasks like interpreting regulations, and subsequently drafting initial reports.

Financial firms are using AI to improve their own operations and make workflows smarter. In addition, they employ AI not just for investment sourcing and dynamic due diligence, but also to get better returns from their portfolio companies. Private equity (PE) firms are creating AI centers of excellence for use by their portfolio companies, for operational efficiencies, customer insights and more.

Private Equity Firms Investing in “AI Transformation”

– Alex Sion, Financial Services Vertical Lead, Blend360

Historically, private equity firms have primarily focused on financial and operational restructuring to enhance portfolio company value. Now, PE is focusing on and investing in AI transformation as a primary lever for portfolio companies’ value creation.

The rise of the digital revolution began to evolve this focus. The emergence of AI is a major accelerant. Recognizing the critical role of technology in driving business growth and competitiveness, PE firms are increasingly investing in technology operating partners, technology development and delivery partnerships, and prioritizing AI transformations in their value creation strategies. As AI continues to rapidly evolve and scale, the ability of PE firms to effectively support their portfolio companies through their AI transformation journeys will become paramount for achieving successful investment outcomes.

Compliance & Regulatory Agents

The integration of agentic AI in financial services can help improve compliance and regulatory analysis. For example, in trade finance, tasks such as evaluating transactions flagged for sanctions involve significant manual effort, requiring data gathering across multiple structured and unstructured sources like transaction records and international company registers.

Agentic AI can help streamline these processes by codifying workflows, conducting multi-agent comparisons, and providing summarized recommendations for human review, thereby saving time, and improving efficiency.

Compliance Agents in KYC and AML Screening

– *Simon Taylor, Head of Strategy & Content, Sardine*

In my view, scams and the criminals who use scams as their funding mechanism, will become the biggest issue for banks and financial services in 2025. How can AI and agentic AI help us reduce or prevent scams and frauds?

Compliance head count is a big cost for most banks. The scope and volume of sanctions alerts has rocketed. The industry standard is a 95% false positive ratio. A big global bank needs enormous headcount to review a lot more alerts when 95% is wasted effort. And while they're doing that, they might be missing true positives.

Focusing on far better data collection, labelling, and then machine learning to identify true positives can save massive amounts of time and money, while maintaining or improving the true positive detection rate. As banks migrate to the cloud, they're also getting a massive data dividend. This would have been unthinkable even a decade ago.

The art is understanding the workflow well enough to build an AI-product or workflow that is consistent, repeatable, and value add. Our Sanctions AI Agent will pull together all customer KYC and AML data, review rules and third-party data, and make a pre-decision about if a user should be added to a blocklist, allowlist or pushed for additional KYC screening.

We cross-reference that with data from bank consortia, government sources, telcos, email providers, watchlists, and sanctions lists. This feeds over 4,000 machine-learned features, ranging from as simple as 'what country is a user really in', or 'is this email fraudulent', to complex aggregations of multiple inputs. These complex calculations can then roll up to a simple score and help make a decision (block/allow a transaction) or be made available to a bank's fraud team to enhance what they do.

Converting Regulations into Computer Programs

– John Nay, Founder & CEO, Norm Ai

Growth of regulatory complexity has made it difficult for companies to comply with the routine thousand-page regulation in a time-sensitive and cost-effective way. Regulatory AI makes it possible to convert these complicated regulations into AI agents that are capable of compliance determinations.

What Can AI Agents Do? Regulatory AI agents enable compliance and business teams to assess whether proposed content or decisions are likely compliant with relevant regulations and guidelines. They serve as a round of checks, highlighting potential areas that may be problematic and need human intervention. Additionally, regulatory AI agents can work alongside other AI agents, ensuring business actions taken by other AI agents are also in compliance with regulations.

Deepfakes & Frauds

The Global Anti-Scam Alliance estimated that in 2023 the economy lost \$1 trillion to scams. The UK's National Crime Agency says that scams are now the #1 form of all crime, making up an estimated 55% of crimes, and 45% of reported crime. Nation states and large-scale criminals have become proficient at exploiting the system.

In the US nearly 30% of consumers or households have been victim to a scam in the last five years.³¹ The GenAI capabilities to morph text, audio and video has exceeded exponentially in the recent times and the propensity to commit and the quantum of scams and frauds is likely to increase. Modern synthetic audio has become so sophisticated that it can make it difficult for human contact center agents and even biometric solutions to distinguish between authentic and synthetic voices.

Today, audio has already crossed that uncanny valley in terms of being able to be imperceptible to the human ear. Video is also quickly improving. Agentic AI will lead to the mass production and distribution of deepfakes. In finance, this could be used to manipulate transactions, create synthetic identity fraud, and automate scamming. Deepfake scams have increased more than 2000% over the last three years and banks/FinTechs are one of the most targeted victims of deepfake attacks.³²

³¹ PYMTS, The Impact of Financial Scams on Consumers' Finances and Banking Habits, 23 October 2024.

³² Security.org, 2024 Deepfakes Guide and Statistics, 26 September 2024.

Detecting & Defeating Deepfakes

– *Mason Allen, Head of Growth, Reality Defender*

In 2025, we expect audio and video-based impersonations to increase due to the democratization of Generative AI (GenAI) technologies enabling bad actors to impersonate known individuals such as colleagues, customers, family members, politicians, actors, and influencers. From banks' perspective, the risk and implications from threats of GenAI-based impersonations are tangible today and will accelerate this year.

Financial institutions must protect themselves, their employees, and their customers from the next generation of fraud and social engineering attempts using these new tools that are more believable and scalable than previous methods. By enabling the infrastructure to analyze all calls and videos for synthetic deepfakes, enterprises will be able to mitigate against a risk they cannot detect today.

One of the world's largest financial institutions found itself grappling with this emerging security challenge within its private banking division. As generative AI technologies underwent rapid advancement, the bank's high-net-worth clients, who were prominent public figures whose voices and images are readily available online, became increasingly susceptible to sophisticated deepfake impersonation attempts. How did Reality Defender analyze calls and identify deepfakes?

When a call is placed to the contact center, the detection process happens seamlessly without introducing latency or disrupting the natural flow of conversation. As the audio stream flows through the client's existing telephony infrastructure, it's simultaneously routed to a Reality Defender secure audio processing pipeline within the bank's environment. Real-time streaming ensures that the conversation is analyzed without creating delays or requiring post-call processing.

AI models analyze the audio stream, examining multiple aspects of the call for signs of synthetic manipulation or generation. A recent analysis shows 37 calls per week (0.17) were identified as potentially manipulated, demonstrating both the real presence of deepfake threats and the system's precision in detecting them.

In 2025 and beyond, the way financial services manage fraud and scams will be fundamentally different because of the way fraudsters use AI to commit frauds. We will have an AI arms race between attackers and defenders. Some of the attackers have state-level resources and sophistication.

Onboarding & KYC

Agentic AI has the potential to revolutionize traditionally time-consuming and resource-intensive onboarding and Know Your Customer (KYC) processes, turning them into seamless and efficient experiences, potentially increasing client satisfaction with a process often disliked by users.

In financial services, onboarding individuals for banking, or small merchants for payment processing, tends to require extensively manual and repetitive processes. New digital entrants, such as FinTechs, have improved onboarding. But AI-powered automation can significantly streamline incumbents' workflows.

For instance, automated document verification systems can help analyze and crossreference identification documents with external databases to ensure authenticity, reducing the need for manual checks. In parallel, AI-powered tools like facial recognition and biometric systems can provide secure and efficient identity verification, enhancing customer experiences while minimizing fraud risk.

Agentic AI also excels in processing structured and unstructured data, enabling intelligent data gathering and analysis. This allows AI agents to perform dynamic risk profiling, assessing customer risk levels and ensuring compliance with regulations on Anti-Money Laundering (AML) and Combating the Financing of Terrorism (CFT).

Research indicates that nine out of ten KYC or digital onboarding systems with liveness detection can be bypassed.³³ However, agentic AI offers a more robust approach by analyzing contextual signals, such as how a device is being held, or whether unauthorized software is running. This deeper level of scrutiny enhances security and helps prevent sophisticated fraud attempts.

³³ ID Tech, Nine of the Top 10 Liveness Detection Systems are Vulnerable to Deepfakes, 20 May 2022.

Onboarding Agents

– *Greg Ulrich, Chief AI & Data Officer, Mastercard*

Mastercard, in collaboration with Databricks, launched its first of a suite of GenAI based digital assistants designed to speed up the onboarding of Mastercard's products for customers and partners. Mastercard's new in-house capability was built in collaboration with Databricks on its Data Intelligence Platform; this platform includes core functionalities like a chat-based assistant user interface, source management and learning with human feedback.

The program ensures that new knowledge agents are continuously trained on Mastercard's trusted, proprietary data sets while always operating under the company's AI and data governance principles and standards. The effort also removes the friction associated with vetting and procuring third-party solutions, further streamlining operations.

The product onboarding assistant automates routine tasks and answers customer's critical questions during onboarding by utilizing a large language model with Retrieval Augmented Generation (RAG) and fine-tuning. Using Mastercard's existing onboarding documentation as its knowledge base, RAG locates the accurate information needed to respond to user prompts.

The tool also employs a human-in-the-loop approach to integrate feedback from subject matter experts, reinforcing continuous learning and ensuring accuracy in the agent's responses.

Agentic Contracts

Agentic contracts are programmable and enforceable contracts that can generate text and execute tasks autonomously based on how they have been programmed.

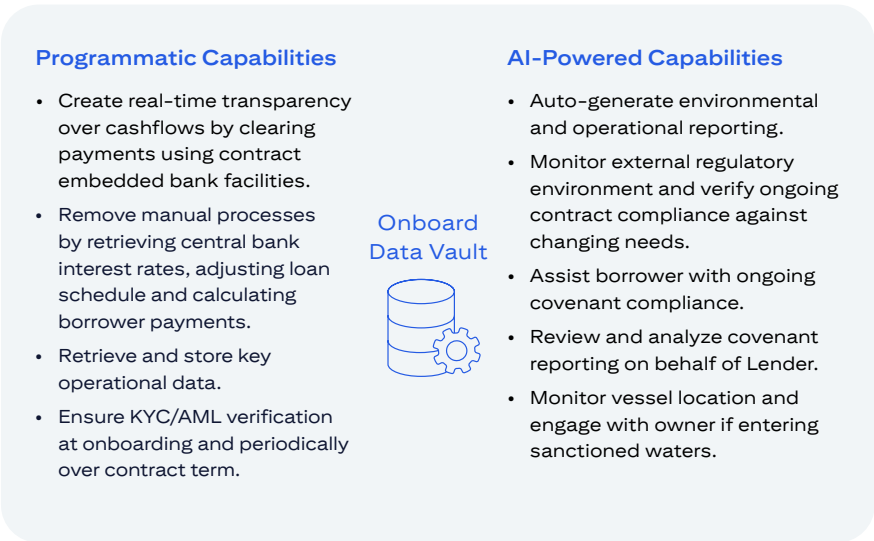
Agentic AI powers smart legal contracts by automating analog legal contracts. Agentic contracts take analog pain points out of the contract lifecycle system. Smart legal contracts (SLCs) are a subset of smart contracts and legal contracts.

We discussed this in detail in [Citi GPS: Money, Tokens & Games – Blockchain's Next Billion Users and Trillions in Value](#) (March 2023). Smart contracts can be used to define and perform the obligations of a legally binding contract.

Agentic AI becomes transformative by executing the terms of the contract in the post-signature phase of the contract. This includes monitoring compliance, automating payments, and managing regulatory changes. The integration with distributed ledger technology ensures transparency and predictability.

Executing the terms of the contract does not mean no human in the loop. Certain tasks still require human oversight due to regulatory requirements and the need to assign liability. Agentic AI handles most tasks but defers final approvals to humans. The anatomy of an agentic contract, its advantages, and the stakeholders it benefits are depicted in Figure 15 and Figure 16.

Figure 15. Benefits of Agentic Maritime Private Credit Contract



Source: Hunit

Figure 16. Agentic Contracts Benefit



Source: Hunit

Agentic AI Use Case in Private Market Asset Finance

– Aaron Powers, Co-founder & CEO, Hunit

Agentic contracts will move private market asset finance from the current world of PDF documents to one where stakeholders can interrogate if the terms of the legal agreement are being complied with in real-time and where valuations can be more standardized (which will become more important under Basel IV).

A key benefit of investment instruments based on this technology is that they can be continually and algorithmically valued, and risk controlled. Risk mitigation strategies can be triggered based on upstream operational data, weeks or months before they impact cash flows or covenant compliance.

Algorithmically monitoring the output from a wind power generation site, or kilometers driven by a fleet of leased commercial vehicles, allows for insight-driven risk management. In the maritime industry, data from the ship itself can be monitored to ensure compliance with environmental and other regulations (e.g. the ship is not going into sanctioned waters).

Corporate Treasury & Payments

Digitization has transformed payments over the decade, and agentic AI on top of LLM architecture could supercharge payments. For example, Stripe enables AI agents and LLM providers to process payments to invoice customers, generate payment links, or issue virtual cards.³⁴

“Agentic treasurers” will employ machine learning, predictive analytics, and natural language processing to streamline processes like cash forecasting, fraud detection, and payment scheduling. [Citi GPS: Treasury 2030 – Modernize or Risk Irrelevance](#) (December 2024) highlights that AI could bring one of the largest technological shifts in treasury.

AI agents can automate the process of finding and reallocating corporate funds to the highest-yielding opportunities within the firm, addressing market discrepancies and managing repetitive tasks such as cash forecasting, reconciliation, and compliance checks. This will free up human time to focus on liquidity risk management, and to create a scalable corporate treasury.³⁵

³⁴ Stripe, Adding Payments to your LLM Agentic Workflows, 14 November 2024.

³⁵ Deloitte, Global Treasury Survey, 12 September 2024.

Corporates operating in multiple countries usually bank with more than one bank. A global bank could leverage AI as a rule engine to generate recommendations to the treasury banker based on, e.g., a client's data, balance sheet size, FX exposure, liquidity, and capital needs on how the company optimizes its working capital to improve return on invested capital (ROIC). Local laws permitting, steps in an entire liquidity optimization service could be automated so that bankers and clients only get involved in the final approval/rejection stages.

AI Driven Cash Flow Forecasting

– Jörg Wiemer Co-founder, TIS (Treasury Intelligence Solutions)

AI agents can transform treasury functions and several other Office of the CFO functions by generating actionable insights from raw data, enabling treasurers to automate key decisions and collaboration within teams. AI improves accuracy in cashflow forecasts and generates insights in variance analysis (between forecasted and actual cashflows), addressing the “why” behind discrepancies. Agentic AI sitting on top of other AI/ML tools helps automate reconciliation statements for financial transactions – reducing time and manual effort required.

Identifying patterns manually can be time consuming and complex but an important precursor to accurately forecast cashflows. AI tools can help treasurers analyze their clients' payment behavior and detect changes in specific behavior that can influence cashflow forecasts. Agentic AI could source data from multiple databases and models to execute on the output generated by other AI models.

Figure 17. General Workflow Methodology in Building an Account Receivables Forecast



Source: TIS (Treasury Intelligence Solutions)

Wealth & Agentic Advisers

AI agents can help transform operations in wealth management by streamlining client acquisition and onboarding. This can include automating parts of the due diligence processes such as document analysis or extraction.

In client servicing, AI agents can stimulate human-like conversations to answer client queries, explain investment options and provide 24x7 guidance. For high-networth clients, AI agents can be an important augmentation to the human adviser, making the latter smarter and better informed.

AI agents can also monitor financial market trends, macroeconomic factors, and geopolitical events in real-time, generating insights and automating investment recommendations for clients. These insights can be provided directly to the client digitally or via a human adviser.

Beyond investment advisory, agentic AI can streamline the management of customer relationship management (CRM) systems. Agents can update CRM records with detailed notes, contact information and more, without manual intervention.

Boosting Efficiency in Wealth and Asset Management

– *Steve Blanchet, Head of Group Technology Strategy and Innovation, Pictet Group*

– *Manuel Grenacher, CEO, Unique FinanceGPT (www.unique.ch)*

An illustrative example for the use of AI in wealth management is One.Chat, an AI platform co-developed by Unique and Pictet, that allows easy access to internal information and finance-specific use cases.

One.Chat is a platform that offers various GenAI capabilities. In addition to directly accessing the latest Azure OpenAI models securely, it has an internal search chatbot for information retrieval and summarization – generating specific responses to queries after reviewing relevant documents and summarizing multiple large documents to generate actionable insights. The platform is offered to 6,000+ Pictet employees (4,000+ monthly active users), generating 50,000+ prompts per week, and is estimated to save 1.5–2 hours per employee per week.³⁶

Within One.Chat, Relationship Managers (RMs) have also access to their own GenAI assistant, which enables streamlined access to information from various sources to better and more efficiently engage with clients. For instance, it can quickly filter out recommended products from the full investment product universe using natural language by mentioning any number of criteria such as bond maturity, yield, ratings, etc. While human RMs continue to be the core of the client relationship, the GenAI assistant helps them be more efficient, which ultimately benefits clients.

Employees can also use GPT's coding functions for software development, alongside other operational tools such as translation of information in multiple languages and drafting emails.

³⁶ Unique AG, Pictet's One.Chat: Boosting Efficiency for Wealth and Asset Management, 05 January 2025.

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Wealth management serves an incredibly diverse clientele, spanning young, self-directed investors exploring stocks and digital assets to ultra-high-net-worth individuals and global change-makers shaping the world's future. Advisors face the complex challenge of providing deeply personalized and high-touch services at scale. With the rapid evolution of AI technology, wealth managers can bridge these diverse needs by delivering tailored opportunities and insights, transforming wealth management into a scalable, inclusive, and accessible model for all clients, regardless of their financial journey.

– Joseph Bonanno, Global Head of Data Analytics & Innovation, Citi Wealth

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Hyper-Personalization

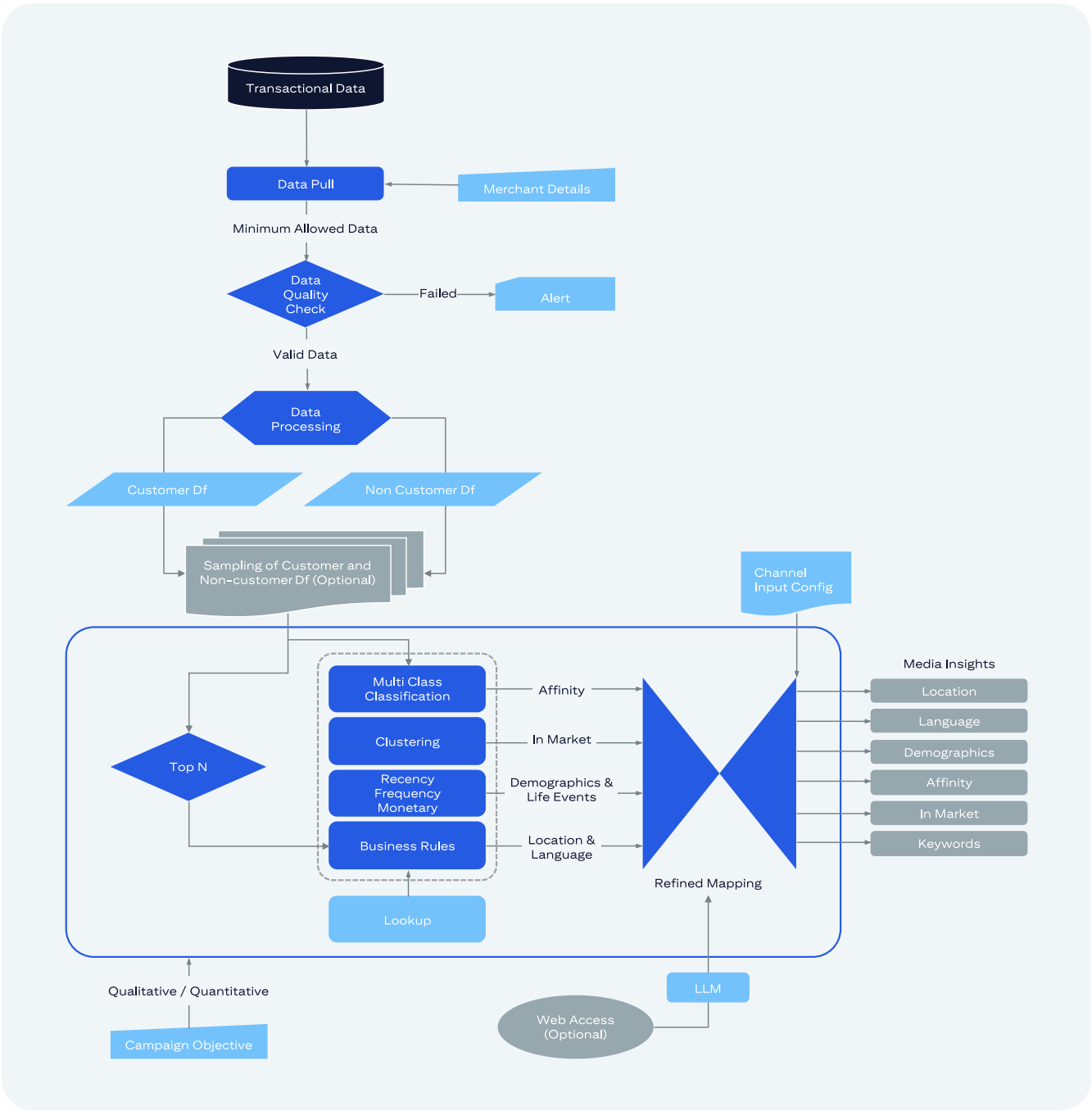
While GenAI drives hyper-personalization, agentic AI drives the execution of hyper-personalization by analyzing vast amounts of data in real-time to offer tailored experiences and recommendations. These systems can adapt to individual preferences, behaviors, and needs, enabling businesses to create personalized products and services, marketing campaigns or customer interactions.

Agentic Marketing Automation to Deliver Hyper-personalized Consumer & Merchant Insight

– Alex Sion, Financial Services Vertical Lead, Blend360

We are witnessing substantial investment from financial services firms to achieve “hyper-personalization” across digital experiences and business intelligence. Furthermore, these hyper-personalization efforts are driving the development of novel platforms, products, and services. This enables financial services firms to pursue new growth as influential marketing advisers and even establishing themselves as prominent media platforms.

Figure 18. Hyper-personalization to Deliver Consumer and Merchant Insights



Source: Blend360

Loan Documentation & Credit Workflow

AI agents can help streamline processes, enhance accuracy, and reduce manual effort in loan documentation and credit workflows. AI-based automated document analysis can analyze and extract key information from complex loan documents, financial statements, contracts, and collateral agreements.

Leveraging capabilities to analyze vast structured and unstructured datasets, AI agents can automate evaluation of borrower creditworthiness, adapting to new data in real-time. Agentic AI systems can help manage multi-step credit workflows, from application intake to approval.

Agentic AI can identify specific tasks within a credit request and assign them to domain specific agents (models). These models perform detailed financial analysis, risk assessment, and compliance checks.

Humans can provide real-time feedback – e.g., refining financial interpretations or adjusting language – which the system incorporates dynamically to improve output.

Small Language Model (SLM) Powered Agentic AI Workflow

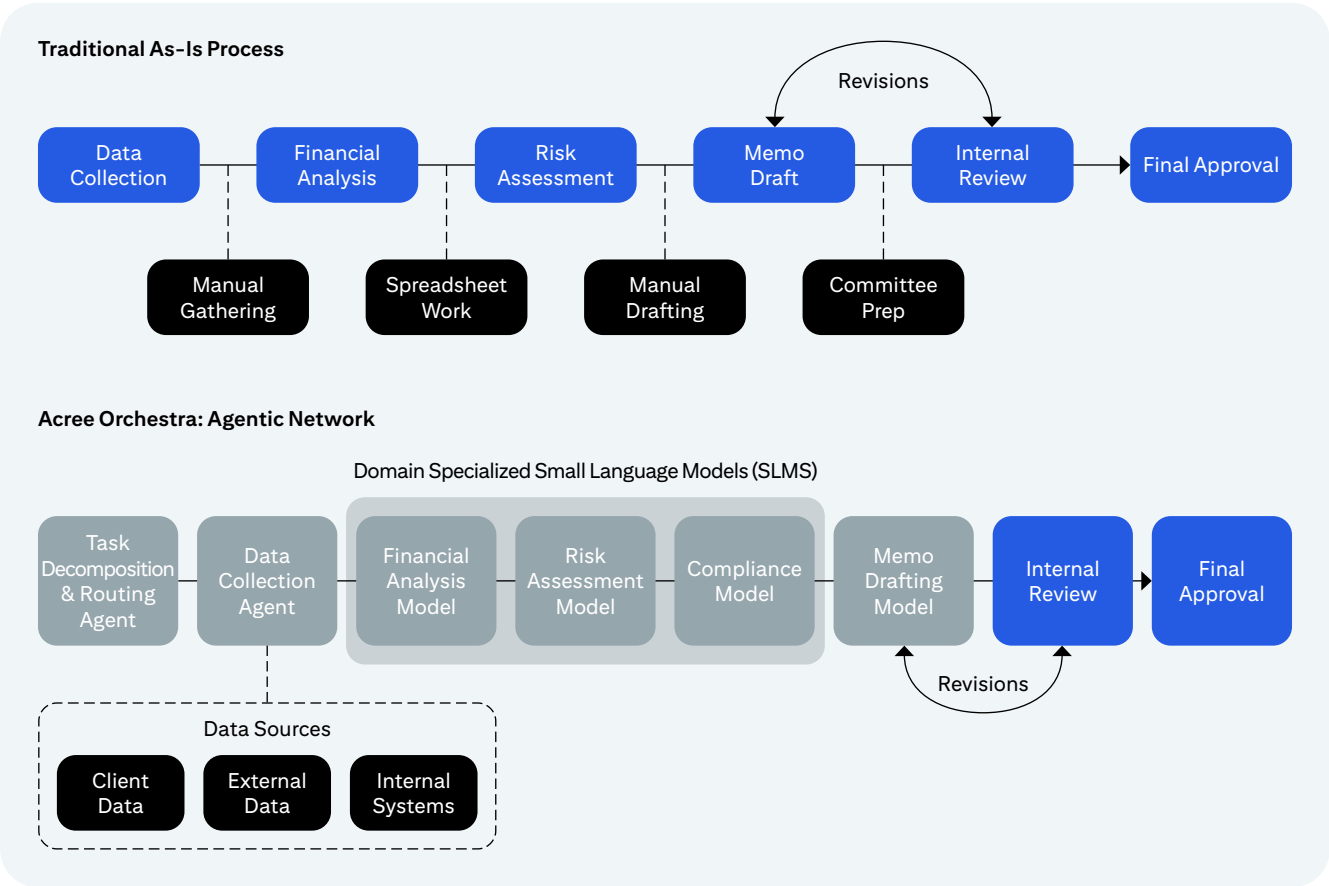
– *Brian Benedict, Co-founder & CRO, Arcee AI*

Small language models (SLMs) combined with agentic AI offer a transformative solution that deliver an efficient, secure system tailored to specific tasks. An SLM-powered agentic AI platform takes the capabilities of SLMs to the next level by enabling enterprises to build custom workflows that handle multi-step tasks with precision and speed. These platforms eliminate repetitive work while delivering higher-quality output faster than traditional methods.

This is achieved through a combination of SLMs, each specializing in different areas such as coding, data summarization, content creation, vision-language processing, or reasoning. Intelligent routing mechanisms ensure that each task is assigned to the most suitable model based on its specialization. Once individual tasks are completed, their outputs are consolidated into a unified response. This adaptive and modular approach makes agentic AI particularly well-suited for automating complex, data-driven workflows typically seen in financial services that require dynamic decision-making and continuous learning.

Below is an example of how Arcee AI's systems can help automate credit memo drafting, including data collection, financial analysis, risk assessment, and generation of a draft memo.

Figure 19. Comparison of Traditional Process vs. Agentic AI Network for Credit Memo Generation



Source: Arcee AI

Insurance & Agentic Claim Management

A standard medical or general insurance claim involves many small checkpoints that contribute to the whole claim management process. Agentic AI could interact with multiple models to make autonomous decisions within defined constraints.

AI agents could handle initial claim reporting, gather necessary details, and help triage claims based on severity and urgency. Initial claim validation requiring the checking of policy details and moving on to next steps could be defined and automated as part of initial insurance claim management workflow.

For insurers, multi-agent systems can gather real-time data from internal and external sources and combine them to provide a complete view of each customer and risk profile. AI systems can automate underwriting by assessing risk profiles and determining appropriate policy terms and pricing without human intervention.

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Agentic AI is a ‘superpower’ for finance professionals. As an example, an organization that processes tens of thousands of claims daily can bring down the resolution time from months or weeks to just days with a handful of senior claim approvers to monitor the output and make decisions.

– Kevin Chung, Chief Strategy Officer, Writer

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The proliferation of smartphones and wearables enable insurers to gather a variety of claim-related data, local laws permitting. In [Citi GPS: AI in Finance: Bot, Bank & Beyond](#) (June 2024), we discuss how the availability of more data, often underpinned by AI, can allow insurers to segment risks more granularly. While this can help make pricing more risk-based, such micro-segmentation could also result in large number of smaller risk pools.

Agentic Claim Management

– Ren Ito, Co-founder & COO, Sakana AI

Insurance processing involves an intensive repetitive manual process. Historically, everything was manual, [until the introduction of] robotic process automation (RPA). Now we have agentic middleware to improve the automations and efficiencies achieved by RPA.

AI agents could transform insurance claim management by automating key processes such as claim intake, damage assessment, fraud detection, and settlement. The workflows could be designed to gather and validate information, analyze photos or videos to estimate damages, and cross-check claims against policy terms. For straightforward cases, AI can approve or reject claims instantly and trigger payouts, while flagging complex or suspicious claims for human review.

Investment Research

In [Citi GPS: AI in Finance: Bot, Bank & Beyond](#) (June 2024), we elaborate on how GenAI in investment research could enable analysts to spend more time interacting with clients. AI tools help with repetitive tasks.

Investment research consists of synthesizing a lot of information and data and generating differentiated insights. GenAI tools are designed to ingest vast amounts of data and synthesize them. Agentic AI can potentially extract more value from these models without relying on more data, making existing models more actionable and application oriented.

In the investment research and due diligence process, various market data models and LLMs could be used to analyze and ingest a broad range of data into spreadsheets and summarize narratives from published text and transcripts. This could include searching, extracting, and summarizing information from news, research reports, financial statements, and other materials. This can save researchers time and equip them with more information in a shorter time frame.

The AI agents can populate documents or reports such as investment proposals for use in investment decision making. Agentic AI can also aid researchers and portfolio managers in helping narrow down a large funnel of investment targets, through constructing queries and then analyzing the data to find the investments that best fit certain criteria. In a nutshell, a senior analyst would have a group of agent associates.

In portfolio construction, agentic AI could be used to provide a list of investments ideas or suggestions to rebalance a portfolio based on market information. It could also aid personalization of portfolios by taking into account client preferences expressed in calls.

Agentic AI could help summarize client portfolios, ensuring that portfolio managers are up to date. Agentic AI could also evaluate the portfolio against client preferences and suggest rebalancing where needed, aiding the creation and maintenance of tailored portfolios. It can also contribute to customized client reporting.

Agentic Investment Research

– Kevin Chung, Chief Strategy Officer, Writer

Agentic AI is being leveraged in investments for many tasks –such as creating markets research reports, press releases, and thought leadership – while maintaining a company’s brand, accuracy, and analyst’s specific writing style. This is further amplified by connecting to any type of structured and unstructured data, including historical reports, market performance and internal resources to generate highly relevant and specific content in seconds.

As an example, the AI associate (agent) could produce a quick note based on an industry breaking news, which the analyst can quickly review, fact check and get it published and distributed. The analyst could be on call interacting with clients within minutes of the news being announced rather than spending the hours getting the written note out.

For periodicals and longer form research products, the analyst could use the AI agent to perform various tasks such as conducting all the analysis to generate insights, updating models and spreadsheets, and even running different simulations by plugging in different assumptions.



What are Agents?

The term “agent” refers to an entity or individual authorized to act on behalf of another, known as the principal, to carry out transactions or decisions. The concept of agency is deeply rooted in economic theory and practice, dating back to the emergence of trade and commerce.

Historically, agents were human intermediaries, such as brokers, advisers, or managers, who facilitated transactions between buyers and sellers or managed assets on behalf of their clients. These agents played a pivotal role in building trust, enabling market efficiency, and reducing transaction costs.

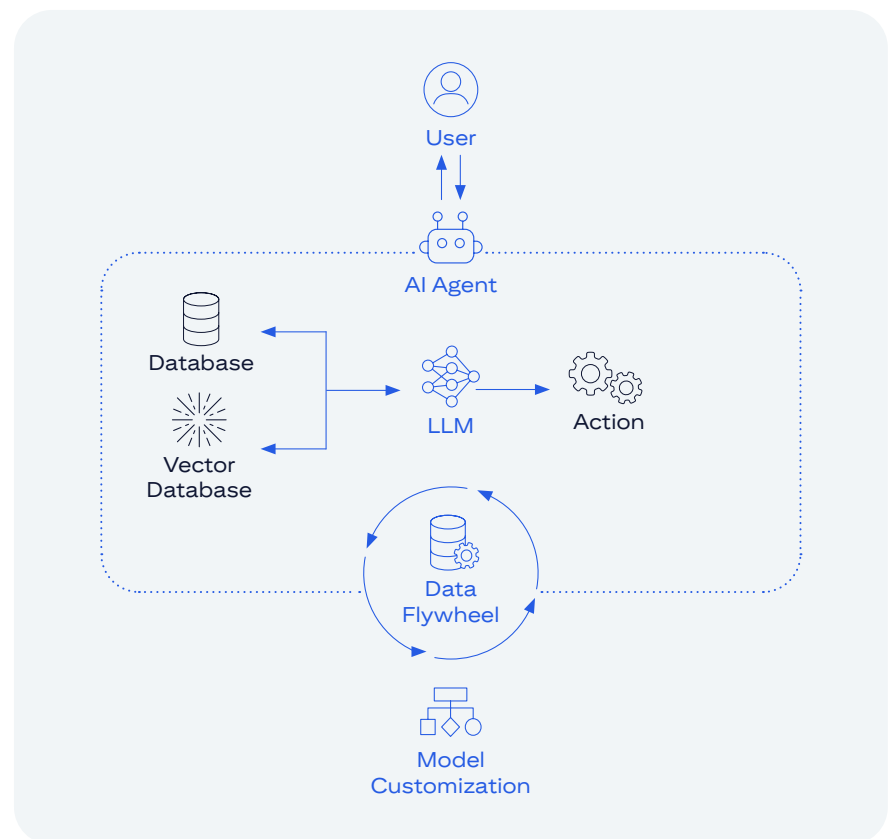
The advent of electronic trading in the late 20th century marked a transformation in the role of agents in finance. Traditional human agents began to be supplemented (in some cases replaced) by digital systems and automated processes.

The development of algorithmic trading in the early 2000s further shifted the landscape. Bots operating on simple rules have existed for some time. The next generation of agents are supposedly smarter. They can reason, learn, and make decisions, but how do they work?

How Do AI Agents Work?

Agentic AI combines perception, reasoning, and action to autonomously interact with its data environment and achieve defined goals, making it capable of handling repetitive manual tasks. Agentic AI operates through a structured workflow involving several core components. Key steps are depicted in Figure 20.

Figure 20. An Illustration of How Agentic AI Works ³⁷



Source: Nvidia, Citi Global Insights

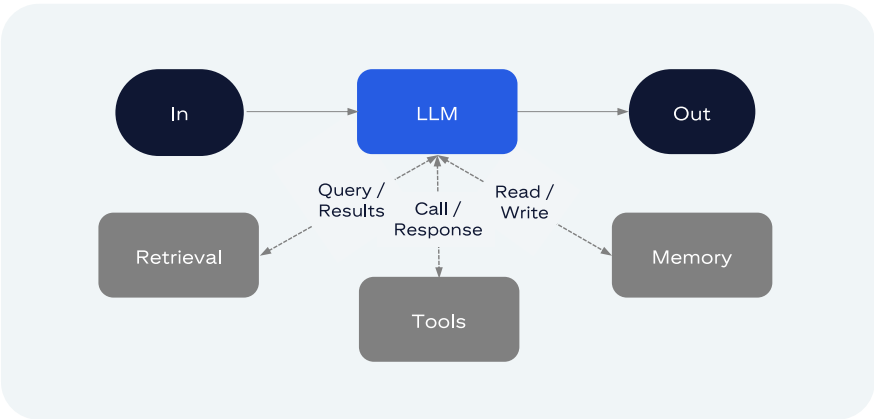
³⁷ NVIDIA, What is Agentic AI?, 22 October 2024.

Building Blocks for Agentic Workflows

The Augmented LLM: The foundational building blocks for an agentic AI system is an LLM enhanced with key augmentations including retrieval, tools, and memory. These augmentations allow the AI to move beyond static responses and access information, execute specific tasks, and support contextual continuity for more dynamic and personalized interactions (Figure 21).

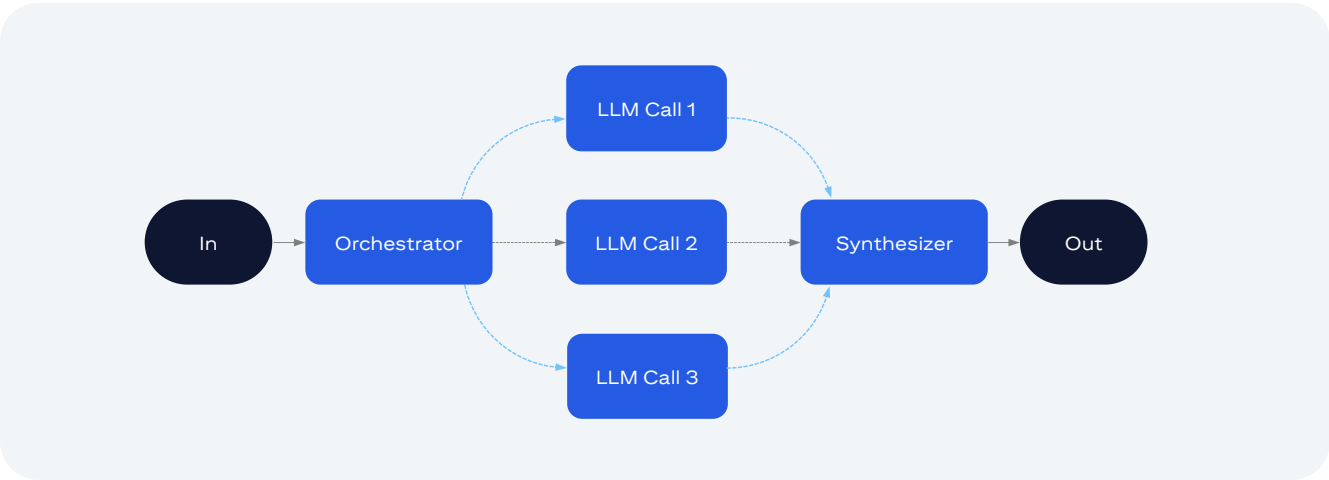
Workflow: This represents structured sequences of steps or actions that enable the system to achieve specific goals or solve a problem. Workflows can be found in different types such as prompt chaining, routing, parallelization, orchestrator workers etc., depending on the varieties of task and complexities.

Figure 21. The Augmented LLM ³⁸



Source: Anthropic, Citi Global Insights

Figure 22. Orchestrator-Worker Workflows ³⁹



Source: Anthropic, Citi Global Insights

³⁸ Anthropic, Building Effective Agents, 20 December 2024.

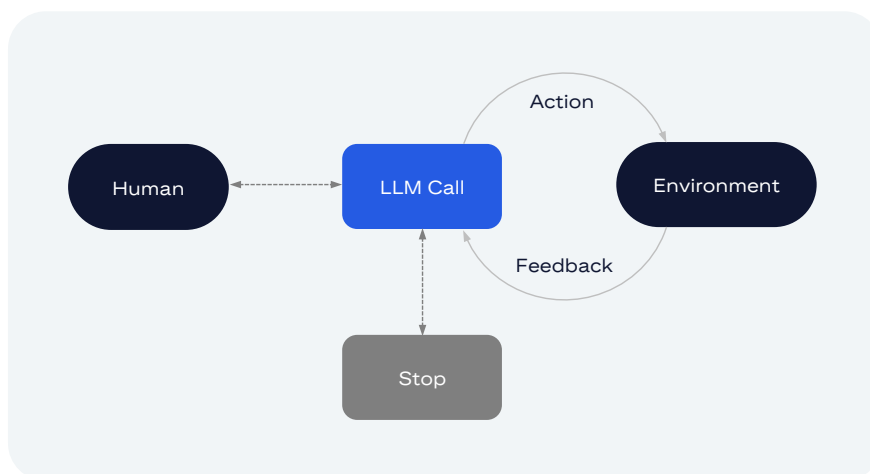
³⁹ Anthropic, Building Effective Agents, 20 December 2024.

Figure 22 illustrates an orchestrator-worker workflow where a central LLM dynamically breaks down tasks, delegates them to worker LLMs, and synthesizes their results. Orchestrator-worker workflows are typically suitable for complex tasks that may involve gathering and analyzing information from multiple sources.

Agents: These refer to intelligent systems or programs designed to understand complex inputs, engage in reasoning, make decisions, or achieve goals on behalf of a user.

Figure 23 illustrates an autonomous agent, which is typically a LLM using tools based on environmental feedback in a loop that can take actions independently within predefined parameters.

Figure 23. Autonomous Agent ⁴⁰



Source: Anthropic, Citi Global Insights

⁴⁰ Anthropic, Building Effective Agents, 20 December 2024.

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