

'The Future is AI' series

ChatGPT in Financial Services

The 11 best practice cases from banks and fintechs

Evolution of ChatGPT, from research to product

Machine learning model

2017
Transformer

Attention Is All You Need

Ashish Vaswani*
Google Brain
avaswani@google.com

Noam Shazeer*
Google Brain
noam@google.com

Niki Parmar*
Google Research
nikip@google.com

Jakob Uszkoreit*
Google Research
usz@google.com

Llion Jones*
Google Research
llion@google.com

Aidan N. Gomez* †
University of Toronto
aidan@cs.toronto.edu

Lukasz Kaiser*
Google Brain
lukaszkaizer@google.com

Illia Polosukhin* †
illia.polosukhin@gmail.com

- Deep learning model that adopts the mechanism of self attention
- Perform more with parallelization and reduce training times

Pre-train model

2018
GPT-1

- 117 Million parameters
- Language Translation
- Summarisation
- Question Answering

2019
GPT-2

- 1.5 Billion parameters
- Generating human-like text
- Completing sentences.

Fine-tuned model

2020
GPT-3

- 175 Billion parameters
- Chatbots
- Comprehensive Language Translation
- Text Generation.

Ready-AI Product

2021
ChatGPT

- Commercial release
- Supervised training for conversational data

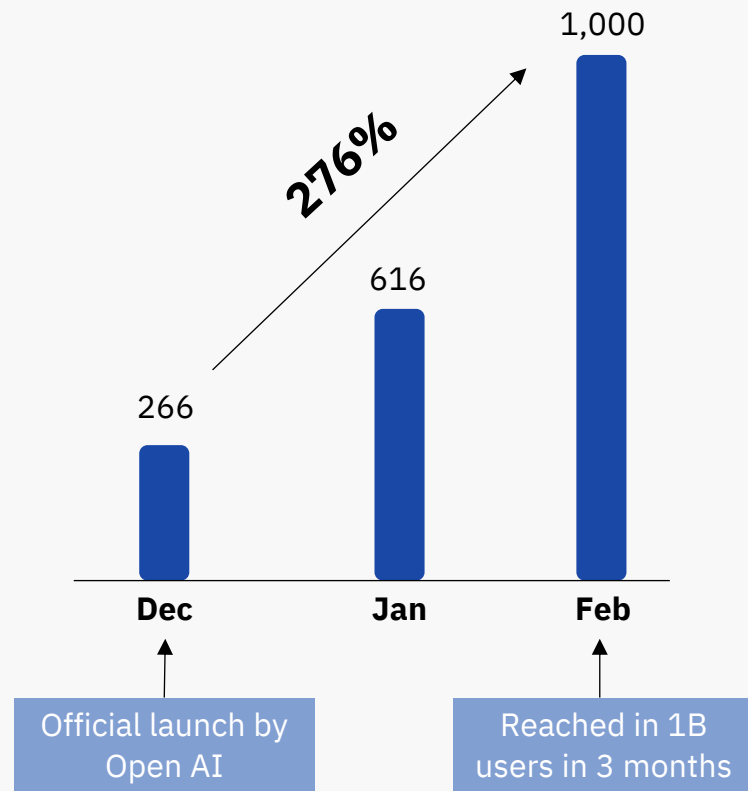
2023
GPT-4

- 1 Trillion parameters
- Composed of both images and text, returning textual responses

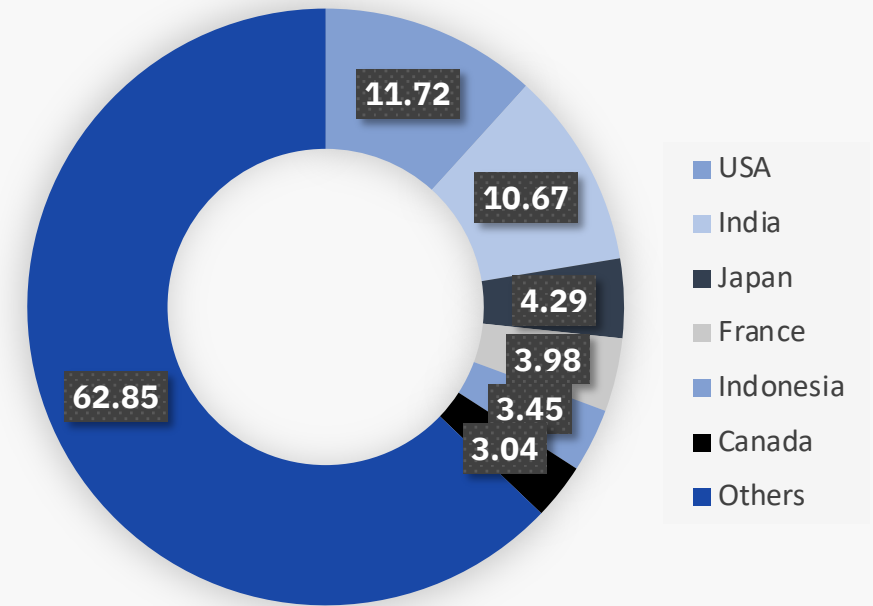
Increasing AI capabilities in ChatGPT

ChatGPT is becoming a popular tool worldwide

Total visits on ChatGPT (million)



Global ChatGPT visits (% by country)



USA has the greatest number of unique ChatGPT visits

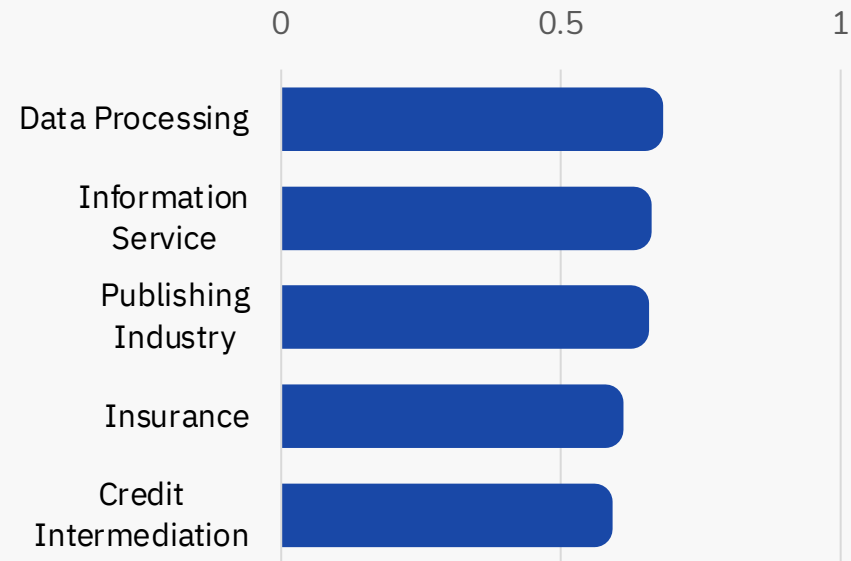
ChatGPT experiences adoption across key industries

ChatGPT will earn a revenue of **US\$200 million by the end of 2023** and **US\$1 billion by the end of 2024**

-Reuters

ChatGPT will most likely achieve profitability in the long run as user adoption increases

Top Industry impacted by GPT



What CEOs think about ChatGPT



“ChatGPT could change the game (for banking)”

Brian Moynihan, CEO of Bank of America



“We're imagining new ways to augment and empower employees with AI... including ChatGPT”





Jamie Dimon, CEO of JPMorgan Chase & Co.

B Bloomberg.com
'Work to Do' on ChatGPT, Banking Tech, Says BofA's Moynihan
Wall Street has "some work to do" before using popular technology such as ChatGPT, Bank of America Corp. Chief Executive Officer Brian...
6 Mar 2023

P Pymnts.com
Microsoft Fends off AI Data Concerns With Private-Server ChatGPT Solution
The commercial viability of artificial intelligence (AI) is officially here, and so are its pitfalls. At the center of many enterprise...
5 days ago

ii Insider Intelligence
How can banks best embrace AI-powered tools?
The news: US banks have "some work to do" before they can embrace AI-powered tools like ChatGPT, according to Bank of America CEO Brian...
8 Mar 2023

B Bloomberg.com
BofA CEO Moynihan on Brexit, US Recession, ChatGPT
Bank of America Chairman and Chief Executive Officer Brian Moynihan discusses the...
BANK OF AMERICA GLOBAL INVESTORS



ChatGPT, the new productivity booster

“We can observe a bank of 1000 employees could in theory save...per year...360hours”

Source : MIT Research Study

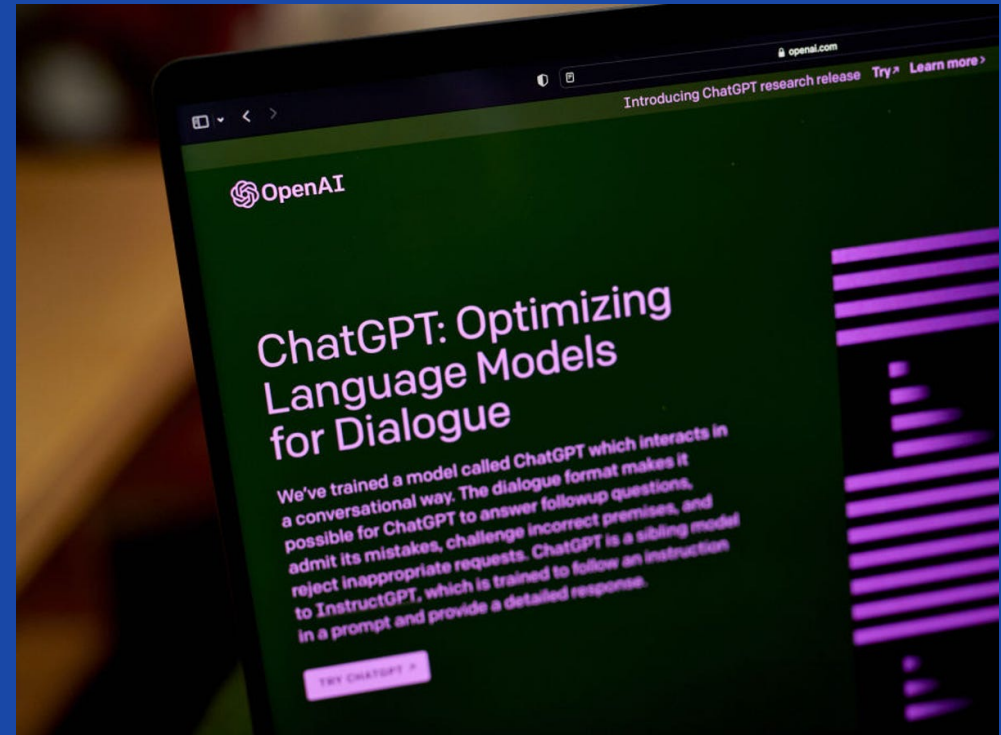
Email writing (15% Time Saving)						
Business	Number of Employees	Average Labor Costs	Hours per Day of Email Writing	Yearly time consumed for email writing	Yearly saved hours	Yearly saved Costs
Agents	500	\$ 25,00	2	400	60	\$ 750.000,00
Backoffice	200	\$ 30,00	2	400	60	\$ 360.000,00
Management	100	\$ 40,00	3	600	90	\$ 360.000,00
IT	200	\$ 30,00	1	200	30	\$ 180.000,00
Total						\$ 1.650.000,00

Coding (10% Time Saving)						
Business	Number of Employees	Average Labor Costs	Hours per Day of Email Writing	Yearly time consumed for email writing	Yearly saved hours	Yearly saved Costs
Agents	500	\$ 25,00	0	0	0	\$ -
Backoffice	200	\$ 30,00	0	0	0	\$ -
Management	100	\$ 40,00	0	0	0	\$ -
IT	200	\$ 30,00	4	800	80	\$ 480.000,00
Total						\$ 480.000,00

Brainstorming (5% Time Saving)						
Business	Number of Employees	Average Labor Costs	Hours per Day of Email Writing	Yearly time consumed for email writing	Yearly saved hours	Yearly saved Costs
Agents	500	\$ 25,00	0,5	100	5	\$ 62.500,00
Backoffice	200	\$ 30,00	1	200	10	\$ 60.000,00
Management	100	\$ 40,00	1	200	10	\$ 40.000,00
IT	200	\$ 30,00	1,5	300	15	\$ 90.000,00
Total						\$ 252.500,00

ChatGPT set to revolutionize financial services

- ChatGPT uses:
 - Artificial intelligence
 - Natural Language Processing (NLP) capabilities
- The technology will help to
 - Improve the customer experience
 - Provide **personalized, timely, and consistent** customer service across various channels
 - Increase operational efficiency
 - **Streamline** operations, **reduce** costs, and **enhance** efficiency through automation and improved resource allocation



How banks and fintechs use ChatGPT?

Customer Experience

- 1. Hyper-personalisation**
 - Klarna
- 2. Fraud Detection**
 - Stripe
 - Flagright
- 3. Conversational Customer Support**
 - Morgan Stanley

Product Experience

- 4. Wealthtech**
 - Douough
 - Crypto.com
 - OnFinance
- 5. Investment Banking**
 - JP Morgan
 - Trovata
- 6. SME Banking**
 - Alaan
- 7. Insurance**
 - Plum

11 best practices of ChatGPT

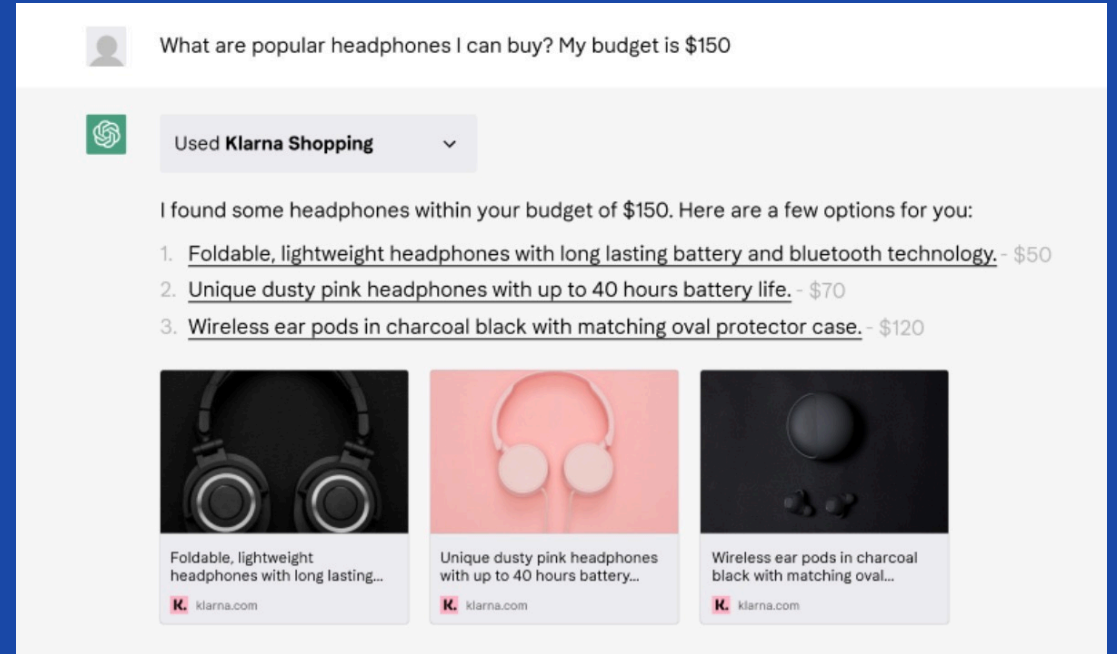


Hyper-personalization

#1 Swedish fintech KLARNA creates a plugin with ChatGPT

- Offers highly personalized and intuitive shopping experience
- Curates recommendations and links to shop in KLARNA

#1 Klarna.



What are popular headphones I can buy? My budget is \$150

Used Klarna Shopping

I found some headphones within your budget of \$150. Here are a few options for you:

1. Foldable, lightweight headphones with long lasting battery and bluetooth technology. - \$50
2. Unique dusty pink headphones with up to 40 hours battery life. - \$70
3. Wireless ear pods in charcoal black with matching oval protector case. - \$120

Foldable, lightweight headphones with long lasting...

Unique dusty pink headphones with up to 40 hours battery...

Wireless ear pods in charcoal black with matching oval...

- User: Installs the Klarna extension from the ChatGPT plugin store and ask for shopping ideas.
- ChatGPT: Provides recommendations based on the conversation

Fraud Detection

#2 Stripe integrated ChatGPT to detect Fraud

- Stripe maintains robust community on forums like Discord which crowdsources help for niche technical questions and raises visibility of developers.
- Uses GPT-4 to analyse syntax and flag out fraud in these communities
- Scans inbound communications and identifies coordinated activities from malicious actors
- Aids efforts to experiment their intention to improve fraud detection

#2
stripe

“

GPT-4 was a game changer.
It opened up a lot of areas.

”

Eugene Mann, Product Lead, Stripe Applied Machine Learning

#3 Flagright teamed up with Open AI to provide AML compliance and fraud detection capabilities

- Captures an analyst's writing style, sentiment, user information, closing reason, specific suspicious activity and more for high quality outcomes

#3



Flagright

“

Flagright AI represents a significant leap forward for the financial industry.

”

Baran Ozkan, Flagright co-founder and CEO

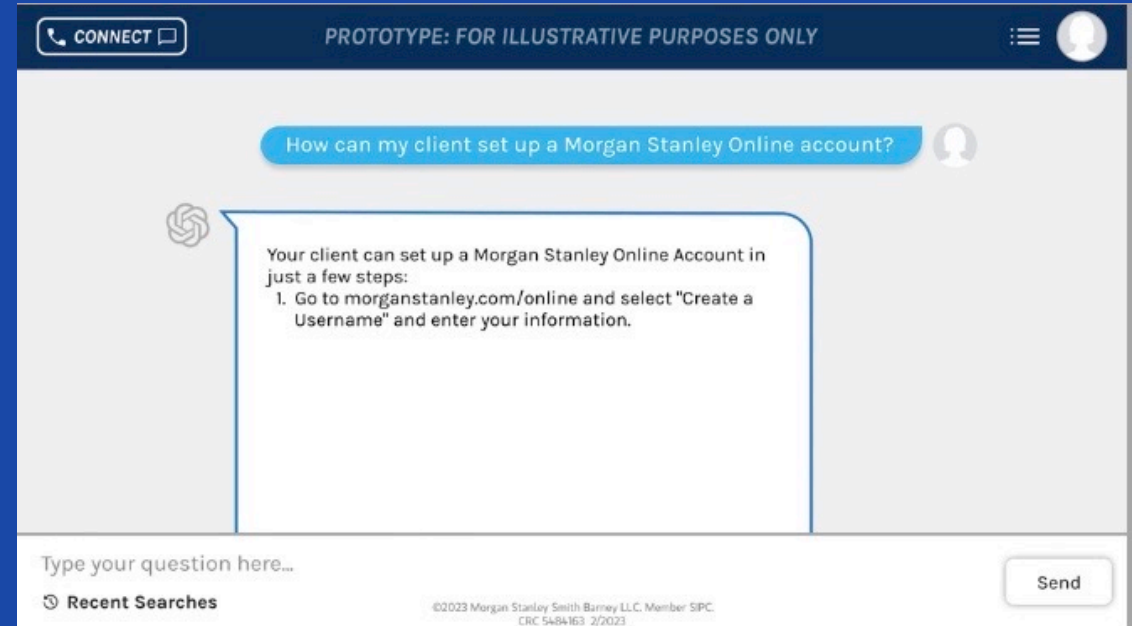
Conversational Customer Support

#4 Morgan Stanley plans to create an internal-facing chatbot using ChatGPT

- Exploring how it could enhance insights from financial advisors' notes or how to improve follow-up client communications
- Leverages on their vast knowledge base, when deploying GPT-4, to provide the best possible advice
- Used by financial advisors internally to assist when doing wealth management for clients

#4

Morgan Stanley



- User will key in their question, and in return, the chatbot provides the appropriate response

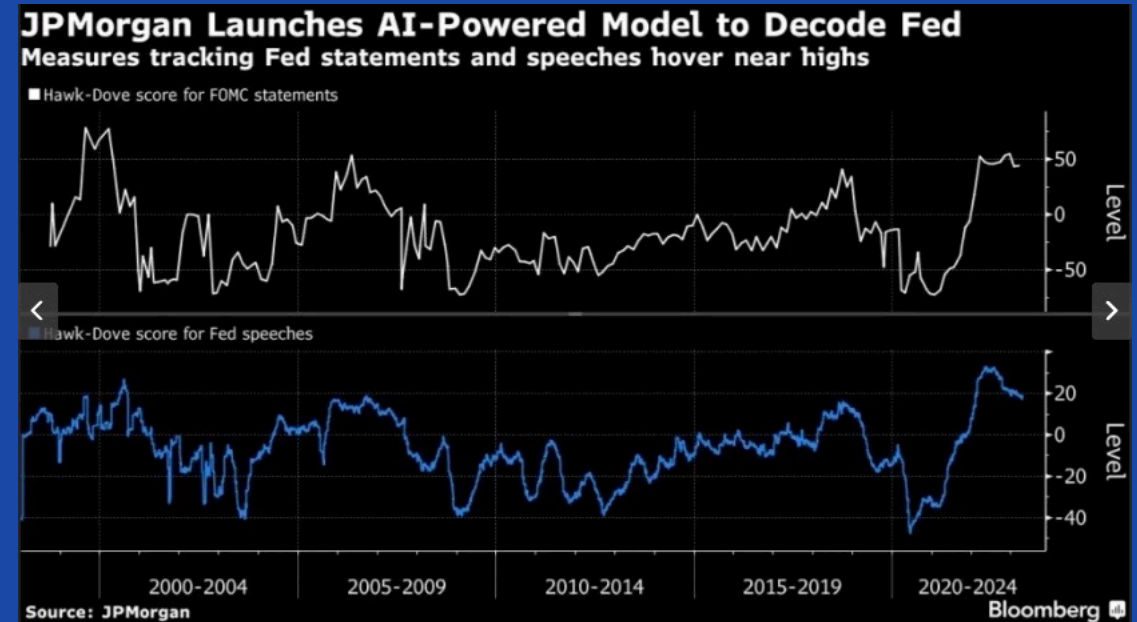
Investment Banking

#5 JPMorgan unveiled a new AI tool that can potentially uncover trading signals

- Uses ChatGPT to analyse the tone of remarks by policy makers
- Identifies potential trading signals to help predict upcoming monetary policy decisions

#5

JPMORGAN CHASE & Co.



Source: Yahoo Finance

#6 Trovata AI leverages on OpenAI's ChatGPT technology

- Visioned to automate cash workflows
- Provide business intelligence for corporate finance, accounting & treasury department



#6

TROVATA

Press

Trovata Launches First Generative AI Finance & Treasury Tool

Trovata AI democratizes financial acumen, treasury expertise, and business intelligence

Source: Trovata press release

Wealthtech

#7 Douugh is incorporating ChatGPT into its "micro-investing" platform

- Enables users to educate themselves about finance
- Identifies potential investments, create comparisons, and discover the differences between ETFs and shares, etc.

#7

Douugh

DOUUGH DEPLOYS CHATGPT BUT WITH "STRICT GUARDRAILS TO LIMIT RANDOMNESS"

APRIL 3, 2023 12:08 PM UTC, RICK STEVES

"To ensure the AI maintains a tool for general intelligence and search, we've implemented strict guardrails to limit the 'randomness' of the responses generated by ChatGPT and focus on providing factual information."

Source: [financefeeds](#)

Wealthtech

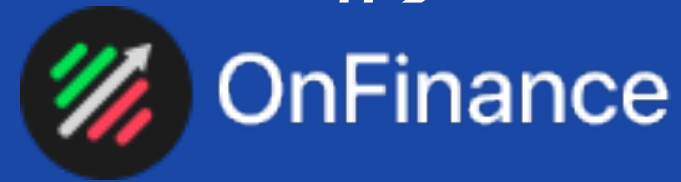
#8



#8 Crypto.com will be piloting its first AI-powered user assistant Amy supported by ChatGPT

- Helps users learn about the crypto industry with near real-time information about specific tokens and projects, as well as details on price listings and historical events

#9



#9 OnFinance launched NEO a ChatGPT-powered chatbot

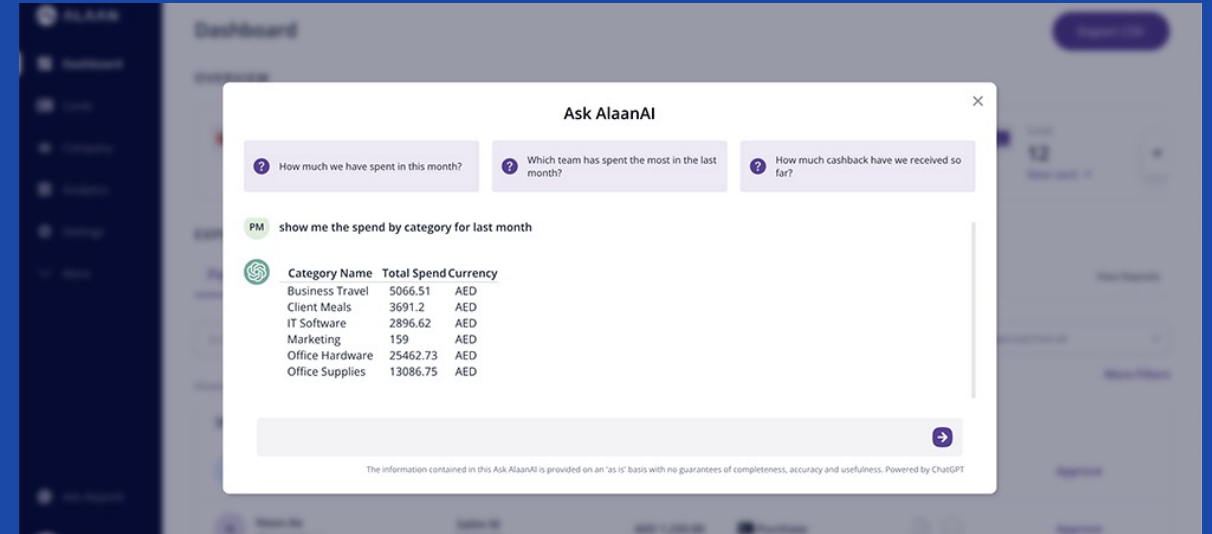
- Helps users learn about finance and investing by answering queries

SME Banking

#10 Alaan to integrate GPT-4 into its user platform

- Provides insights on corporate spending
- Answers critical business questions in real time

#10
الآن
ALAN



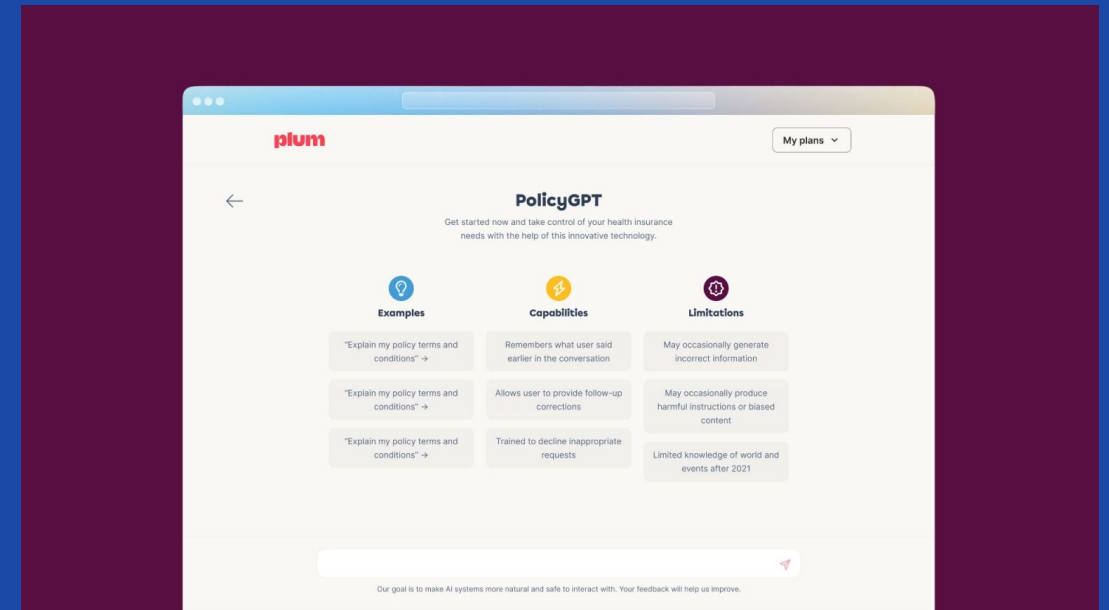
Source: intelligencio

Insurance

#11 Plum unveiled PolicyGPT for a more intelligent and user-friendly experience

- Designed to educate customers about their insurance health policies

#11



Source: plumhq.com

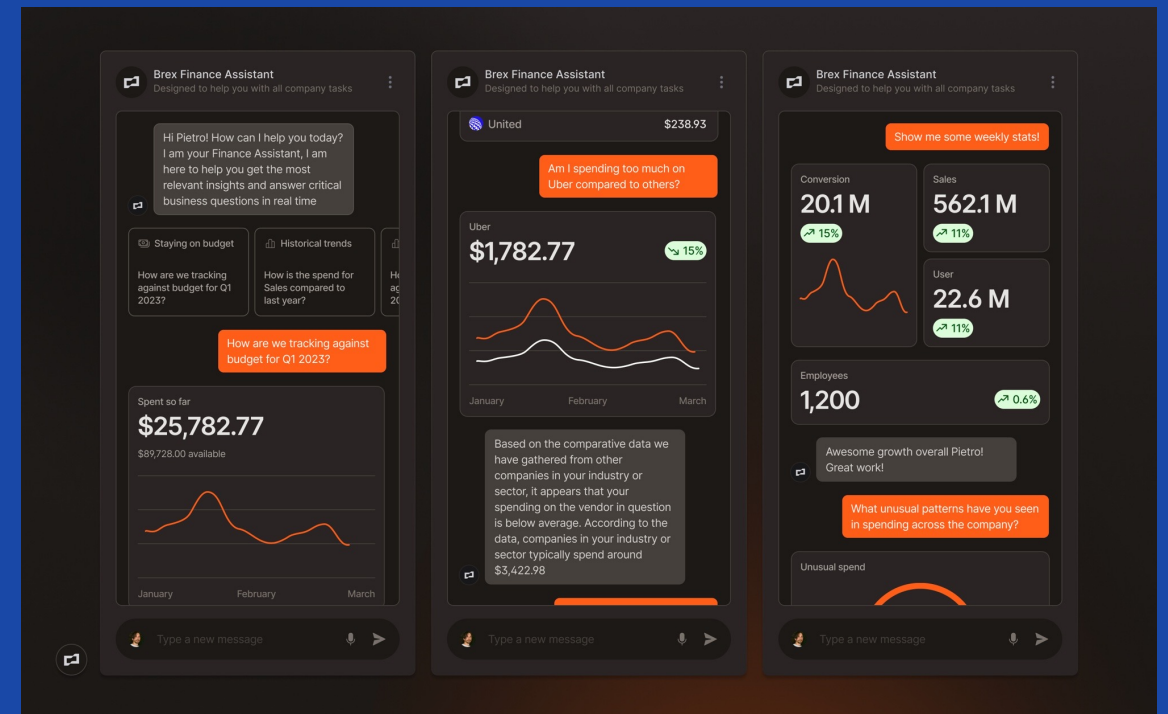
The background features a dark blue, futuristic circuit board pattern with glowing blue lines and nodes. A central square contains a faint, stylized dollar sign icon. The main text is centered and reads "AI-enabled financial services use cases".

AI-enabled financial services use cases

AI-powered tools providing insights

Brex launch AI-powered tools for CFOs that uses advanced ML and NLP technology from OpenAI

- Provides relevant insights on corporate spending and answer critical business questions in real time
- Allows access to a chat interface that will provide users with complex, AI-powered insights



Source: [brex.com](https://www.brex.com)

BloombergGPT for finance

BloombergGPT, a purpose-built LLM from scratch for finance

- This model would have potential for finance specific few-shot learning, text generation and conversational systems

Bloomberg

<i>Finance-Specific</i>	BloombergGPT	GPT-NeoX	OPT-66B	BLOOM-176B	
Financial Tasks	62.51	51.90	53.01	54.35	
Bloomberg Tasks (Sentiment Analysis)	62.47	29.23	35.76	33.39	

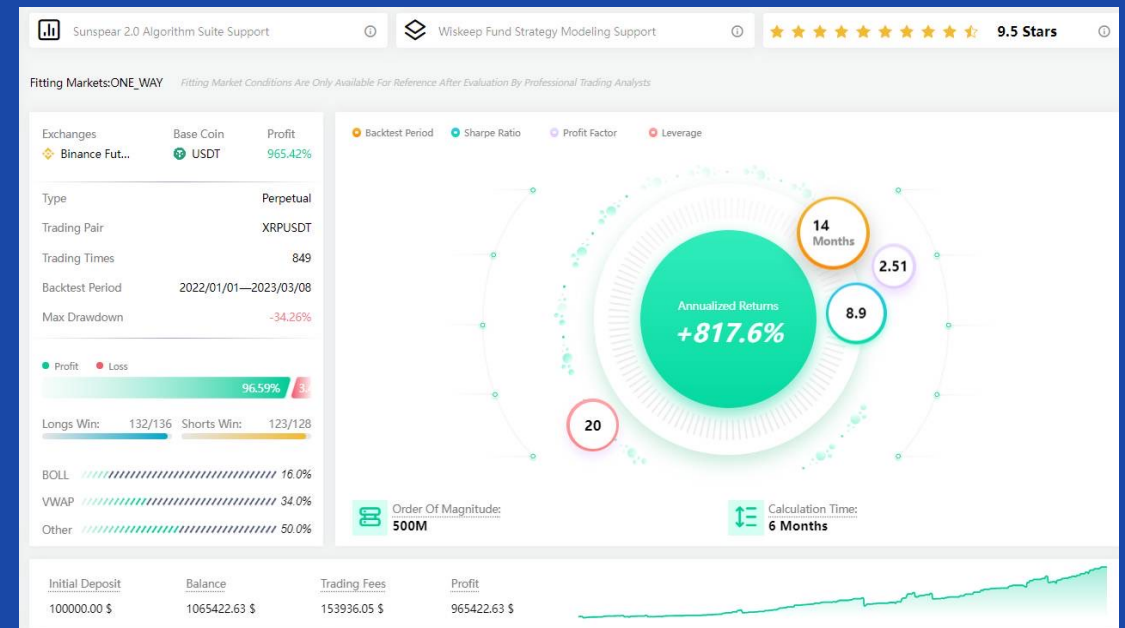
<i>General-Purpose</i>	BloombergGPT	GPT-NeoX	OPT-66B	BLOOM-176B	GPT-3
MMLU	39.18	35.95	35.99	39.13	43.9
Reading Comprehension	61.22	42.81	50.21	49.37	67.0
Linguistic Scenarios	60.63	57.18	58.59	58.26	63.4

- BloombergGPT performance benchmark
- Source: Bloomberg

ATP Bot, the "ChatGPT" of quantitative trading

ATPBot reduces emotional interference and human error

- Analyses market data in real time and uses natural language processing to extract valuable insights from news articles and other text-based data



- Platform for trading strategy development and services



ChatGPT: Limitations and Challenges in Financial Services

Internal Limitations and Challenges

1 Security and Privacy

ChatGPT poses security and privacy risks for banks and customers, requiring diligent monitoring and compliance with regulations.

#2 Data quality

ChatGPT's response accuracy relies on data quality and availability, which can be challenging for banks with diverse or outdated data sources

#3 Talent implications

Personnel need training and upskilling to effectively utilise the technology.

#4 Legal

Organizations must comply with evolving regulations and laws regarding generative AI

External Limitations and Challenges

#1 Bias and discrimination

Bias in AI can result from biased training data, flawed algorithms, and unconscious human bias

#2 Copyright

Copyright questions about who owns the content once it is on ChatGPT (depends on the terms and conditions)

#3 Reputation risk

Insufficient client training may lead to unintentional leaks of sensitive information, negatively impacting the organisation with potential lawsuits

#4 Adversarial attacks

Vulnerable to deliberate manipulation by sophisticated external users

#5 Cyber Security

Cybercriminals can use ChatGPT to trick them into providing sensitive input with the right prompts

ChatGPT: CEO Concerns

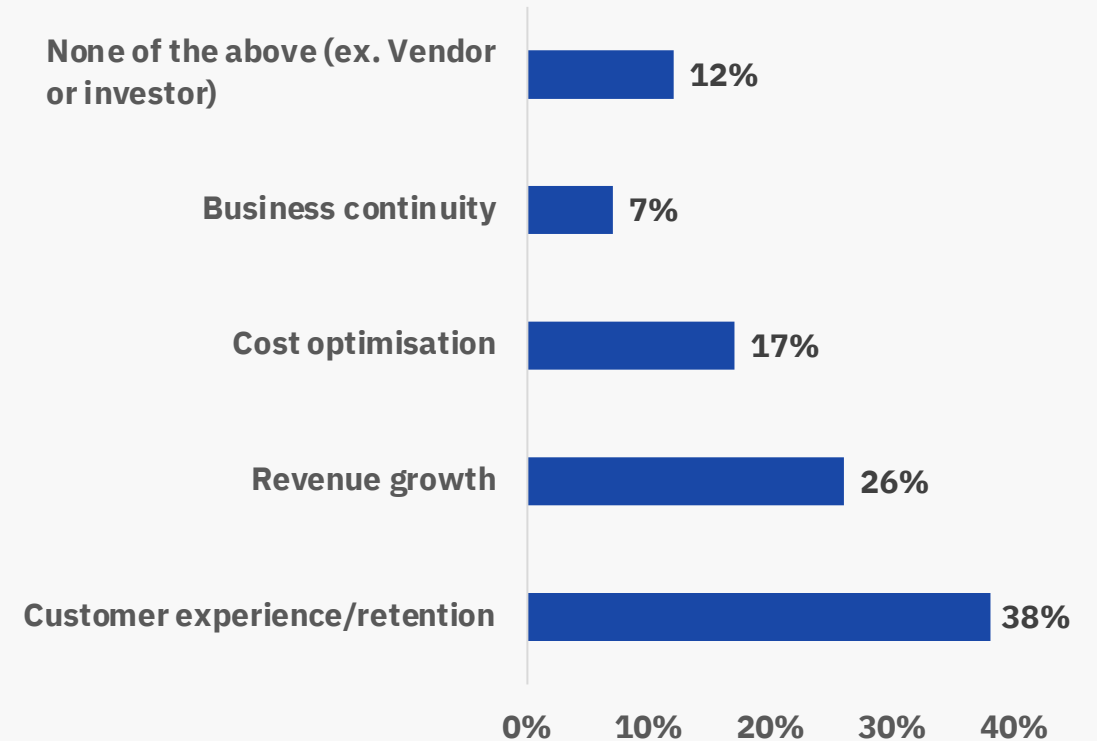


ChatGPT has prompted an increase in AI Investment

45% executives feel that ChatGPT has encouraged them to increase their investments in AI

70% of organisations have started to explore **Generative AI**

Primary focus of generative AI investments



Concerns



“There's good use but the bad guys are going to use it too.”

Jamie Dimon, CEO of JP Morgan

“No enterprise is too big or too small not to worry about (cyber attacks)”

Brian Moynihan, Bank of America CEO



Bloomberg 
@business



JPMorgan Chase CEO Jamie Dimon says the company does believe that AI is real and that it “is a technology which is staggering,” on the heels of restricting staff from using ChatGPT trib.al/flmxjmV

‘Work to Do’ on ChatGPT, Banking Tech, Says BofA’s Moynihan

- Digital technology has to be applied correctly, bank CEO says
- Moynihan in virtual speech to AFR Business Summit in Sydney

“CEO Jamie Dimon decided to ban his employees from using ChatGPT in the workplace.”

 Fortune

A major bank has banned ChatGPT—should your company follow suit?

Experts explain why financial institutions would take a pass on ChatGPT.

24 Feb 2023

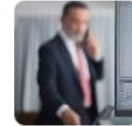


 Tech.co

Wall Street Banks Are Banning Employee Use of AI Bot ChatGPT

Banks from JPMorgan to Goldman Sachs are banning AI chatbots. Will a vetting process reverse that decision? Written by Adam Rowe.

24 Feb 2023



 Forbes

Workers' ChatGPT Use Restricted At More Banks—Including Goldman, Citigroup

Large banks, public school districts and universities have restricted the use of OpenAI's impressive chatbot, ChatGPT.

24 Feb 2023



ChatGPT, how its positives outweighs the negative

68% of executives find the benefits outweighs the risks. Only 5% feel the opposite.

“The generative AI frenzy shows no signs of abating”

Frances Karamouis, Distinguished VP Analyst at Gartner

twimbit
be more



Insights



Immersions



Challenges