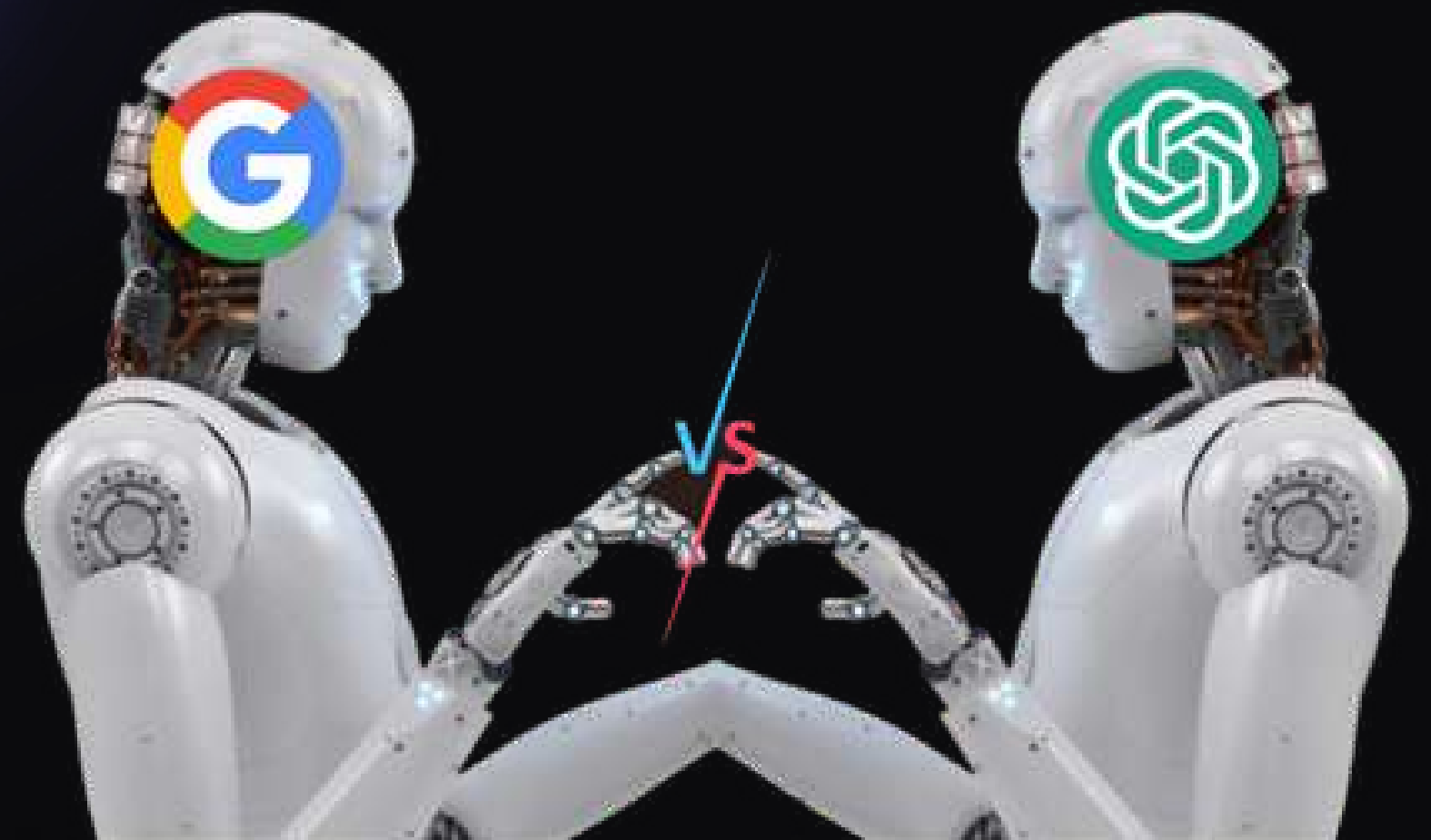
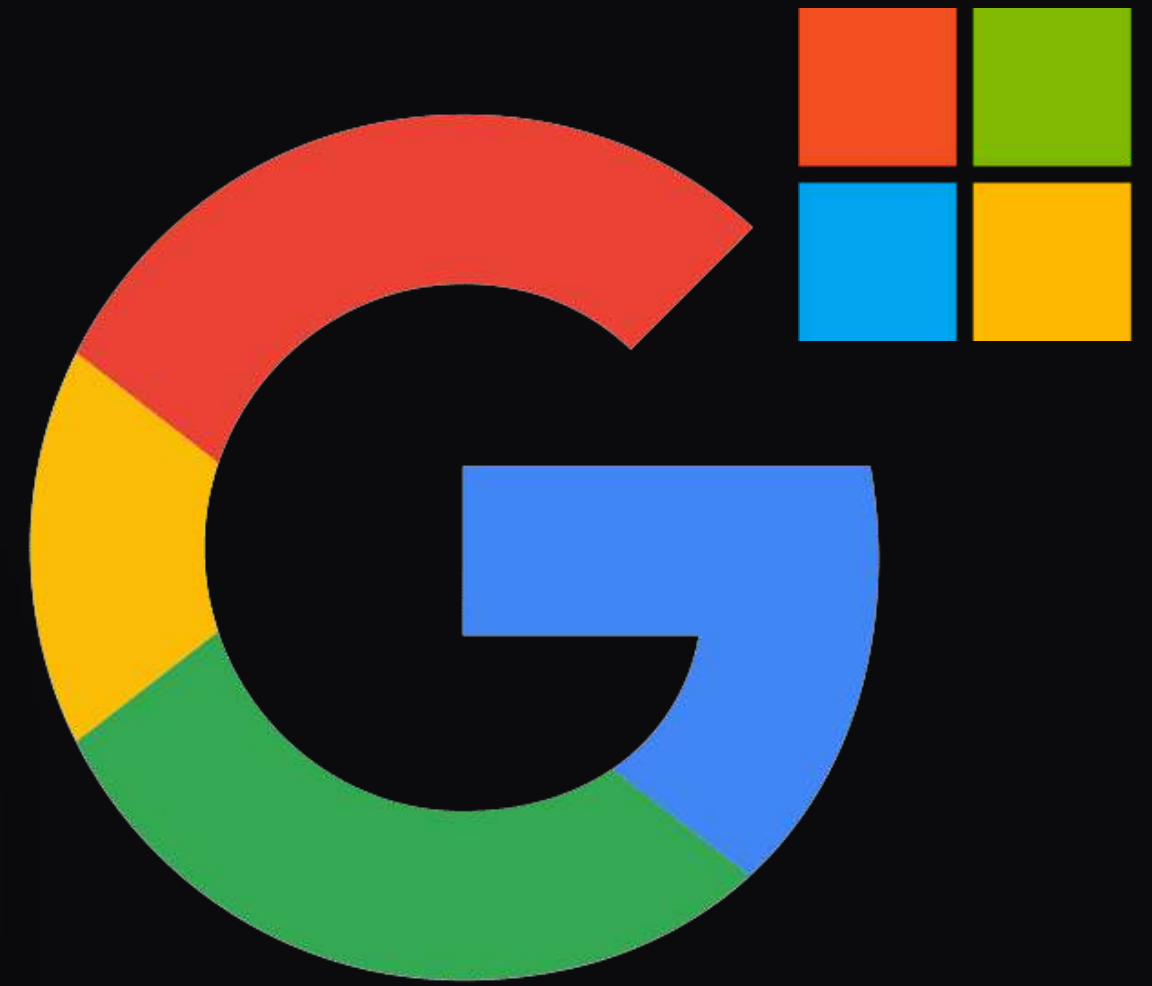


WINTER CONSULTING 2023

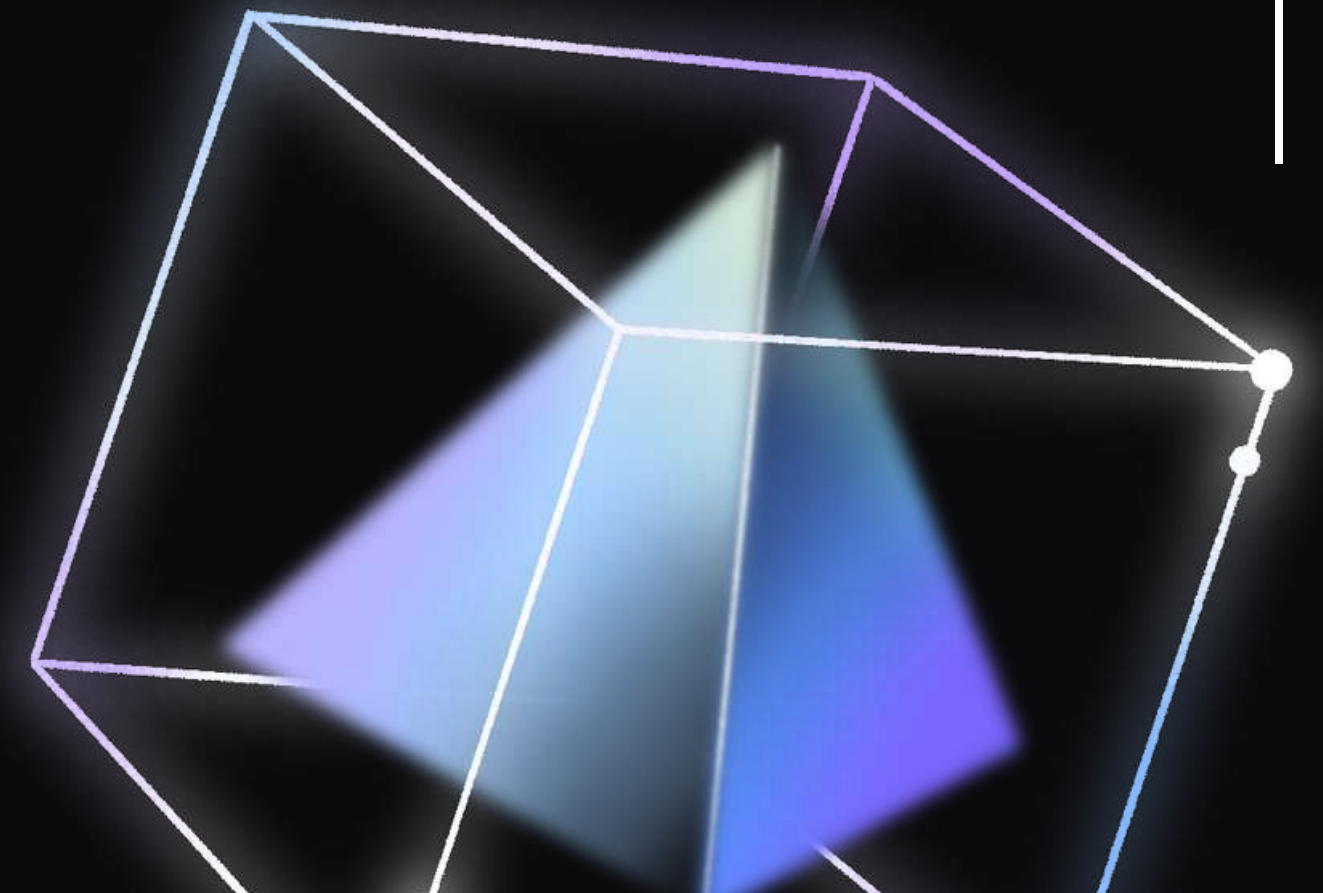
THE AI-WAR

By Krish Sharma
231248



AGENDA

Product Improvements	1
Strategies	2
Google Gemini	3-5
GPT in the House	6
The GPT Effect	7
Future of Information Retrieval	8
The ChatGPT Killers	9
A Big Mistake?	10
Why is this Relevant?	11
Microsoft's Approach to AI	12-13
Impact on Google	14
AI Buzz in the Market	15



PRODUCT IMPROVEMENTS

Conversation Guide Feature

Problem– Users ask questions, receive a response, but feel unsure about how to proceed further with the conversation, potentially limiting their exploration and knowledge on that topic.

Solution– Suggest text at the bottom of the response, for further questions, any related concepts and questions that could possibly arise from the above discussion

This might be really beneficial for those who want to explore the topic and learn as much as they can.

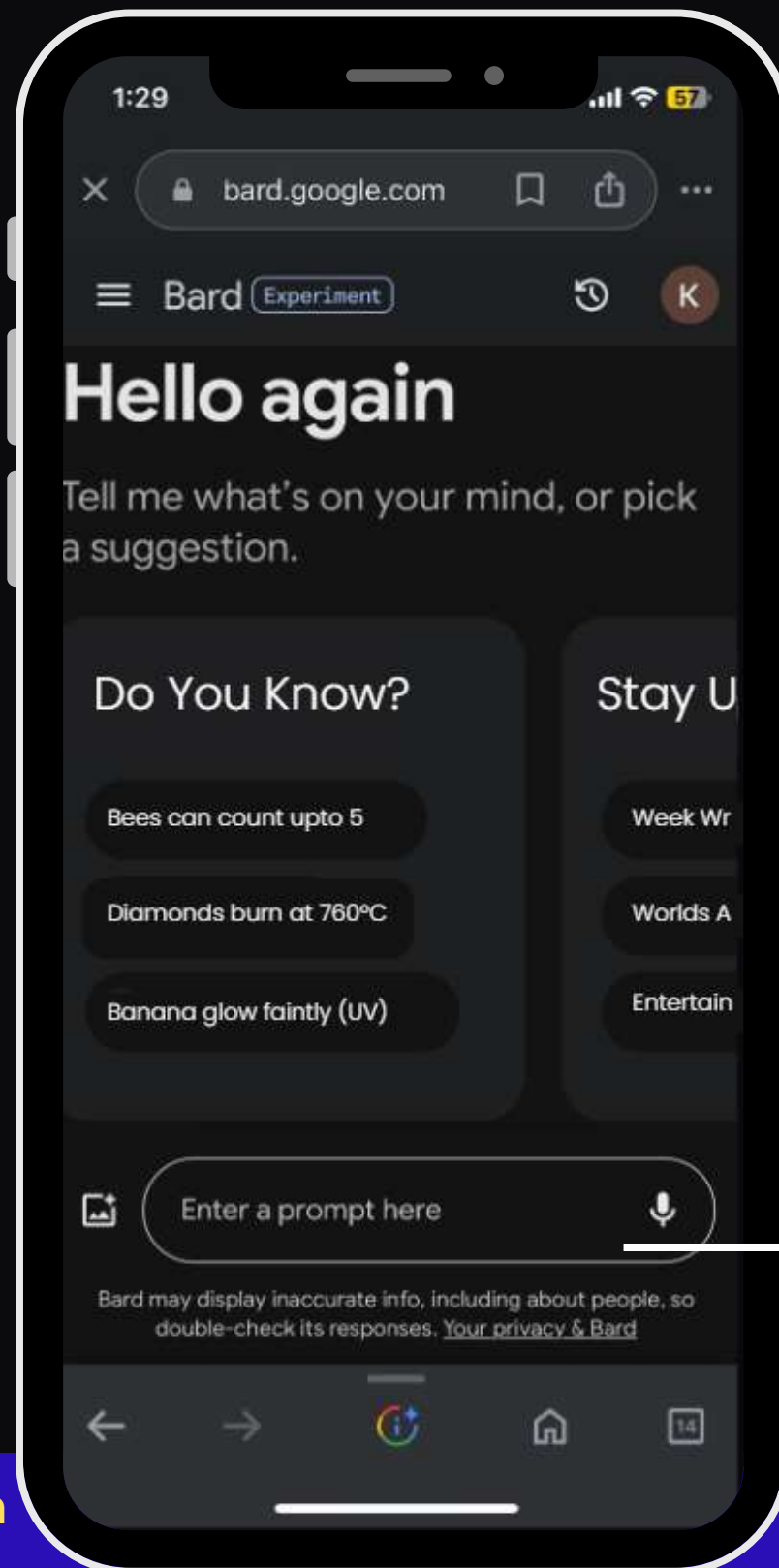
Do You Know? Feature

Location– On Top-Right Corner of the interface

Bard will curate 10–15 intriguing facts, prioritizing those known for their rarity or counter-intuitiveness.

Benefits

- Encourages regular engagement and fosters a sense of discovery
- Can act as a low-pressure entry point for those who are unfamiliar with Bard



Stay Updated Button

Location– On Top-Right Corner of the interface

Similar to Do You Know?, Bard will auto-curate 10–20 top past week current affairs headlines from various regions and categories like politics, technology, science, environment, etc

Benefits

- Can serve as conversation starters, encouraging users to ask more questions in detail with Bard

Double Check Responses

“Double Check” response button to enhance user trust

Location– Below the response

When the button is clicked, Bard will recheck its own statements and provide additional sources of information with more detailed descriptions.

→ **Conversation guide and double check option at the bottom of the response**

****Same improvements for web-browser version**



STRATEGIES

Capitalizing on Strengths

Capitalize on Google's extensive data resources, dominant search engine, and diverse product ecosystem

Collaboration

Explore partnerships with AI research institutions, startups, and content creators. Utilize creators' influence to communicate your unique selling points to the public.

Transparency

Proactively address user concerns about AI bias, ethical considerations, and data privacy.

Integration

Integrate Bard with Google Home, Pixel, and other Android devices, and explore new integration opportunities.

Google-Microsoft, OpenAI War: Who Will Win?

- Google holds several advantages in this competition. It boasts a significantly larger user base than OpenAI and has a strong track record of creating and sustaining successful products. Additionally, Google excels in acquiring and integrating new technologies.
- On the other hand, OpenAI has its own strengths. It is home to a team of globally recognized AI researchers and is dedicated to developing AI that is safe and beneficial. OpenAI also benefits from the support of major tech players, such as Microsoft and Elon Musk.
- It is difficult to predict the winner, but it is evident that this competition will greatly influence the future of AI.



GOOGLE GEMINI

On December 6, 2023, Google released the Gemini Pro alphabet, believed to be more capable, adaptable, and better optimized for smartphones.



Gemini

- Built on a multimodal system, which means it can generalize and seamlessly understand, operate across, and combine different types of information including text, code, audio, images, videos, etc.
- Optimized Gemini 1.0, for three different sizes:
 1. **Gemini Ultra**– Most powerful version and is specifically designed for businesses and data centers
 2. **Gemini Pro**– Heavy-duty version that is going to be the brain behind Google's AI services
 3. **Gemini Nano**– A lightweight version that can run on Android phones even without the internet

GOOGLE GEMINI

With a score of 90.0%, Gemini Ultra is the first model to outperform human experts on MMLU (massive multitask language understanding), which uses a combination of 57 subjects such as math, physics, history, law, medicine and ethics for testing both world knowledge and problem-solving abilities.

MULTIMODAL				
Capability	Benchmark	Description Higher is better unless otherwise noted	Gemini	GPT-4V Previous SOTA model listed when capability is not supported in GPT-4V
Image	MMMU	Multi-discipline college-level reasoning problems	59.4% 0-shot pass@1 Gemini Ultra (pixel only*)	56.8% 0-shot pass@1 GPT-4V
	VQAv2	Natural image understanding	77.8% 0-shot Gemini Ultra (pixel only*)	77.2% 0-shot GPT-4V
	TextVQA	OCR on natural images	82.3% 0-shot Gemini Ultra (pixel only*)	78.0% 0-shot GPT-4V
	DocVQA	Document understanding	90.9% 0-shot Gemini Ultra (pixel only*)	88.4% 0-shot GPT-4V (pixel only)
	Infographic VQA	Infographic understanding	80.3% 0-shot Gemini Ultra (pixel only*)	75.1% 0-shot GPT-4V (pixel only)

	MathVista	Mathematical reasoning in visual contexts	53.0% 0-shot Gemini Ultra (pixel only*)	49.9% 0-shot GPT-4V
Video	VATEX	English video captioning (CIDEr)	62.7 4-shot Gemini Ultra	56.0 4-shot DeepMind Flamingo
	Perception Test MCQA	Video question answering	54.7% 0-shot Gemini Ultra	46.3% 0-shot SeViLA
Audio	CoVoST 2 (21 languages)	Automatic speech translation (BLEU score)	40.1 Gemini Pro	29.1 Whisper v2
	FLEURS (62 languages)	Automatic speech recognition (based on word error rate, lower is better)	7.6% Gemini Pro	17.6% Whisper v3

*Gemini image benchmarks are pixel only – no assistance from OCR systems

TEXT				
Capability	Benchmark Higher is better	Description	Gemini Ultra	GPT-4 API numbers calculated where reported numbers were missing
General	MMLU	Representation of questions in 57 subjects (incl. STEM, humanities, and others)	90.0% CoT@32*	86.4% 5-shot** (reported)
Reasoning	Big-Bench Hard	Diverse set of challenging tasks requiring multi-step reasoning	83.6% 3-shot	83.1% 3-shot (API)
	DROP	Reading comprehension (F1 Score)	82.4 Variable shots	80.9 3-shot (reported)
	HellaSwag	Commonsense reasoning for everyday tasks	87.8% 10-shot*	95.3% 10-shot* (reported)
Math	GSM8K	Basic arithmetic manipulations (incl. Grade School math problems)	94.4% maj1@32	92.0% 5-shot CoT (reported)
	MATH	Challenging math problems (incl. algebra, geometry, pre-calculus, and others)	53.2% 4-shot	52.9% 4-shot (API)
Code	HumanEval	Python code generation	74.4% 0-shot (IT)*	67.0% 0-shot* (reported)
	Natural2Code	Python code generation. New held out dataset HumanEval-like, not leaked on the web	74.9% 0-shot	73.9% 0-shot (API)

* See the technical report for details on performance with other methodologies
** GPT-4 scores 87.29% with CoT@32 - see the technical report for full comparison

What it is capable of

- In Google's official document, a kid solved a physics problem with his handwritten solution. Gemini carefully studied the image, understood the handwriting, identified the mistake, and provided the correct answer.
- Gemini can also interpret images and voice input to give instructions on making an omelet with specific ingredients.



GOOGLE GEMINI

Gemini for the people– Google Pro

- Google will bring Gemini Pro through Google Products
- As of 6th Dec 2023, Bard uses a fine-tuned version of Gemini Pro for advanced reasoning, planning, understanding, and more.
- Available in English in more than 170 countries and territories
- Pixel 8 Pro is the first smartphone engineered to run Gemini Nano, powered by new features like Summarize in the Recorder app and rolling out in Smart Reply in Gboard, starting with WhatsApp, Line, and KakaoTalk¹ — with more messaging apps coming next year.

Future Prospects

- Planned to expand the advanced version of Bard into different modalities and support new languages and locations in the near future
- In the coming months, Gemini will be available in more of their products and services like Search, Ads, Chrome and Duet AI
- They have already started experimenting with Gemini in Search, making their Search generative experience (SGE) faster for users, with 40% reduction in latency in English in the US, alongside improvement in quality
- Starting on December 13, developers and enterprise customers can access Gemini Pro via the Gemini API in Google AI Studio or Google Cloud Vertex AI.

Gemini Ultra– Coming Soon

- Completing trust and safety checks and further refining the model using fine-tuning and reinforcement learning from human feedback (RLHF) before making it broadly available.
- They will make Gemini Ultra available to select customers, developers, partners, and safety and responsibility experts for early experimentation and feedback before rolling it out to developers and enterprise customers early next year.



Our most capable and largest model for highly-complex tasks.



Our best model for scaling across a wide range of tasks.



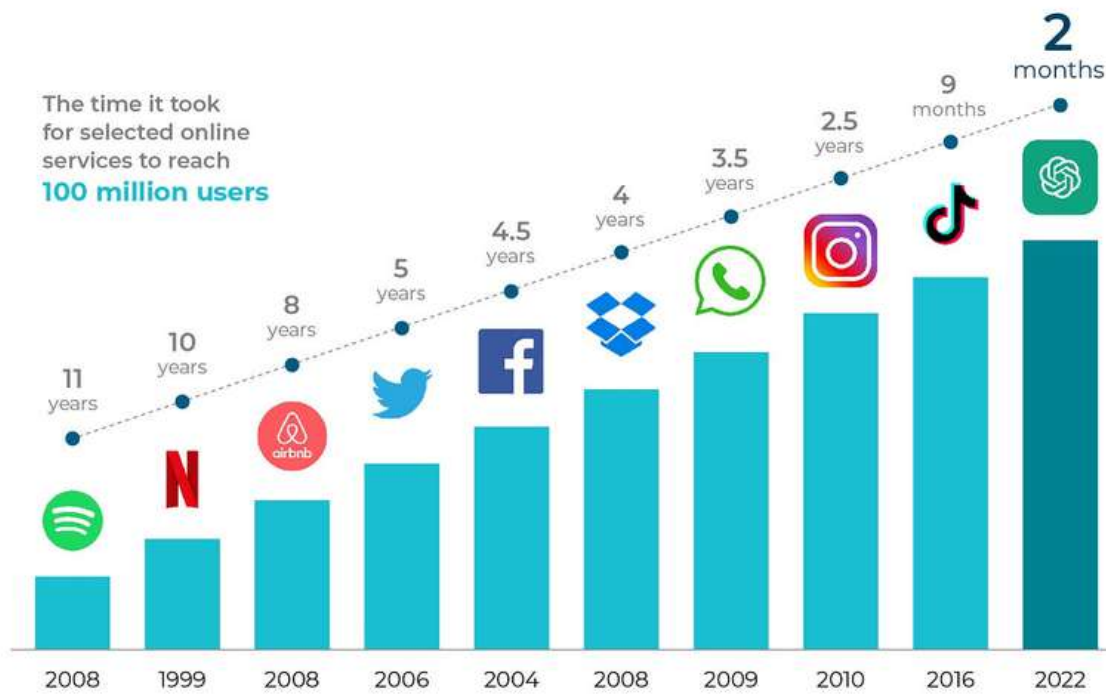
Our most efficient model for on-device tasks.

GPT IN THE HOUSE

- The launch of Gemini was a very big step because last December, Google was facing an existential crisis because of ChatGPT

netscribes
RETURN OF KNOWLEDGE

Chat-GPT sprints to 100 million users



Instagram took 2.5 years to hit 100 Million years, but ChatGPT barely took 5 days to hit 1 Million users and just 60 days to hit 100 Million users

- ChatGPT is the fastest-growing internet consumer business in history and has about 100 Million weekly active users.
- So at this pace, if ChatGPT gets 1 Billion users, it can scrap off 25% of Google's market, and more importantly, OpenAI has the cash support from a powerful player like Microsoft, which has a reputation for killing companies using its business tactics



This is the reason why when Google Bard failed to show competency (by showing incorrect responses), the stock price of Google fell by 10% and Google lost 1 Billion in stock value in just a single week

Information age

News ▾ Data & Insight ▾ Sectors ▾ Topics ▾ Tech M&A ▾ Careers ▾ Jobs ▾ Regions ▾

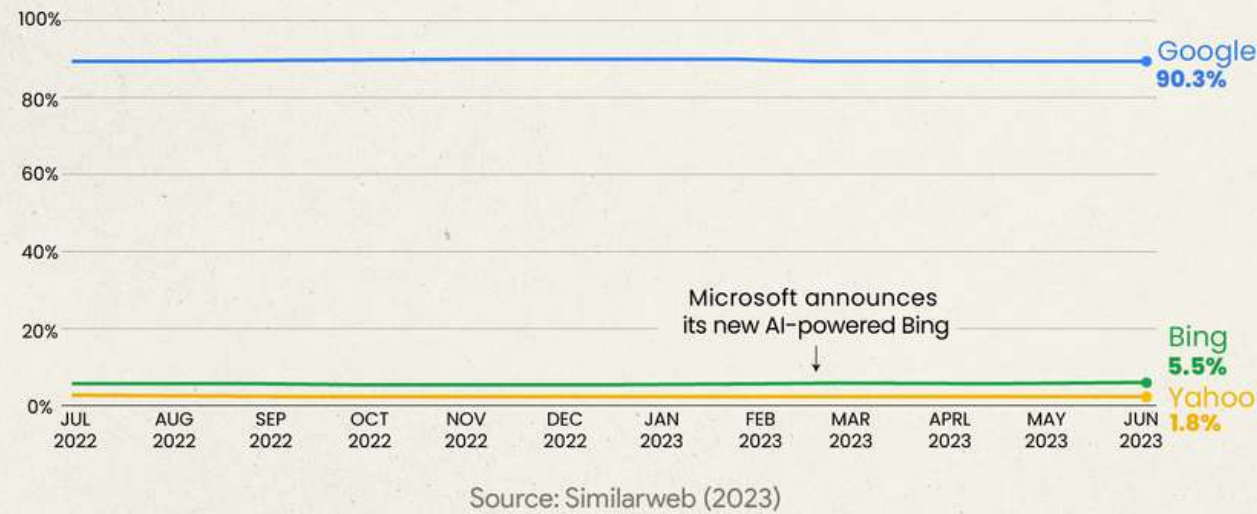
Home » Topics » AI & Machine Learning » Bard AI chatbot's wrong answer leads to drop in Alphabet shares

Bard AI chatbot's wrong answer leads to drop in Alphabet shares

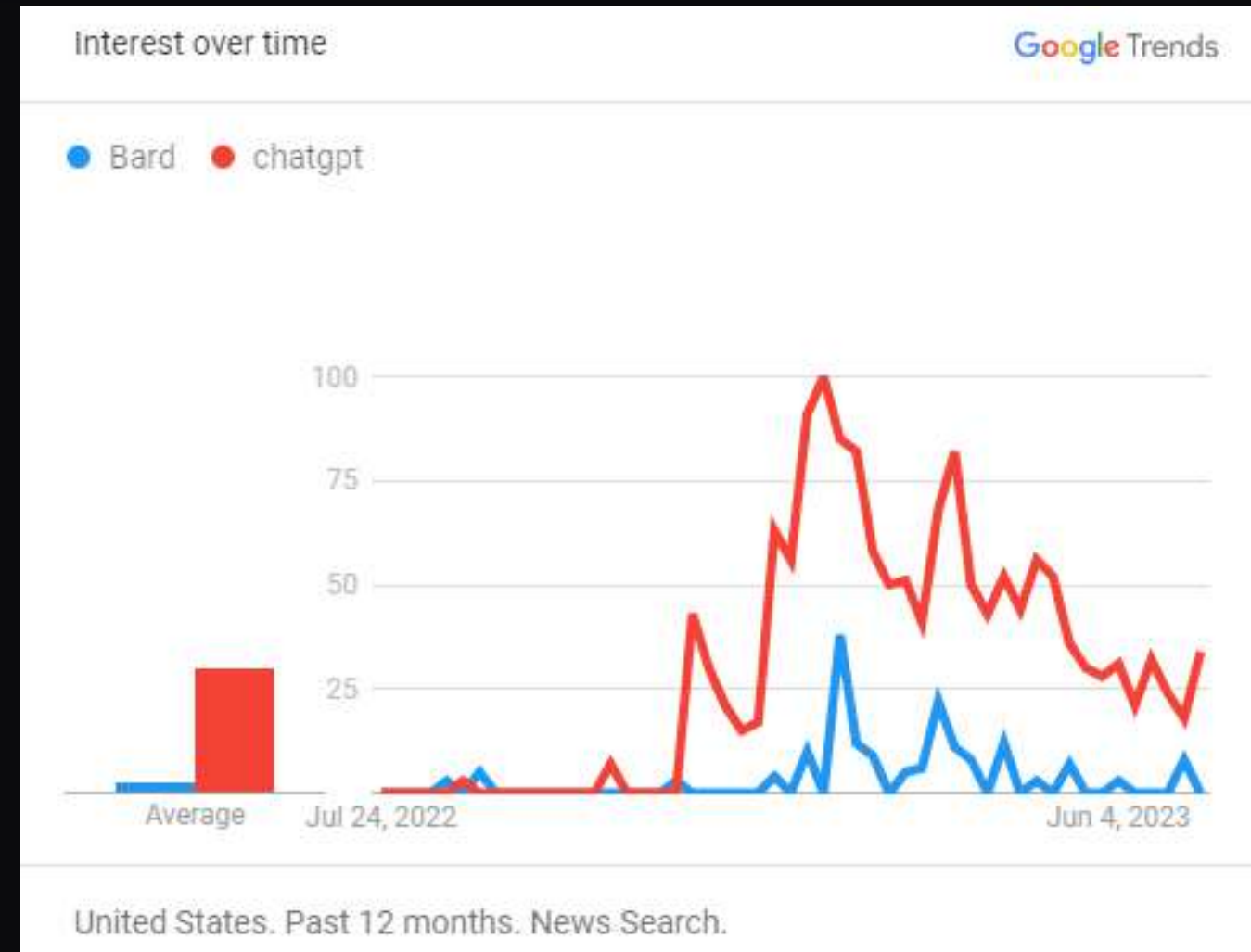
THE GPT EFFECT ON GOOGLE

Google- The King of Search

U.S. Search Engine Market Share



- Google's founders have given the green light to integrate chatbot features into the search engine, inspired by the popularity of OpenAI's ChatGPT.
- In response, Google is also set to unveil more than 20 new AI products.
- Startups like You.com and Neeva have already surpassed Google by offering chatbot-driven query responses, akin to ChatGPT.



- Atlas VPN's calculations indicate that Microsoft Edge is approaching a significant milestone with nearly 300 million users.
- Following the integration of ChatGPT, the browser gained an additional 50 million users. Microsoft revealed that over a million individuals eagerly joined the waitlist to experience the enhanced Bing Search featuring integrated ChatGPT functionality within just 48 hours.

While Microsoft generated a lot of buzz around generative AI integration with search, Google still remains the dominant search engine.

- Daily traffic to ChatGPT continues to skyrocket but Google search revenue have remained stable so far
- However, since the launch of ChatGPT on Nov. Google's shares have declined 11% as of Feb 28, 2023- wiping out around \$140 billion in market value

FUTURE OF INFORMATION RETRIEVAL

is ChatGPT smart enough to change how we find information online?

Could it someday replace Google and other search engines?

End Note

- Brian Nowak, the bank's lead analyst on Alphabet, wrote that language models could take market share "and disrupt Google's position as the entry point for people on the Internet."
- Many internet users use Google as a habit. Additionally, Google is "building similar natural language models such as LaMDA" which could find their way into new products.
- When you ask something to ChatGPT, you don't have to go to various websites like you would have if I'd Googled this question.
- When you Google the same question, the top result gives detailed instructions in an article that includes pop-up ads and way more information than required

- ChatGPT's conversational style and personalized responses provide insight into a potential future of search. Users may come to anticipate search engines being more interactive and dialogue-driven.
- Google's search engine still leads in terms of volume, accuracy, and user base. However, ChatGPT serves as a reminder for Google to consistently innovate and evolve its search approach.



Limitations of asking to AI chat bots

- May generate incorrect information
- Limited study of the topic at the personal level, which highly depends on the way a question is asked

Benefit of asking to AI chat bots

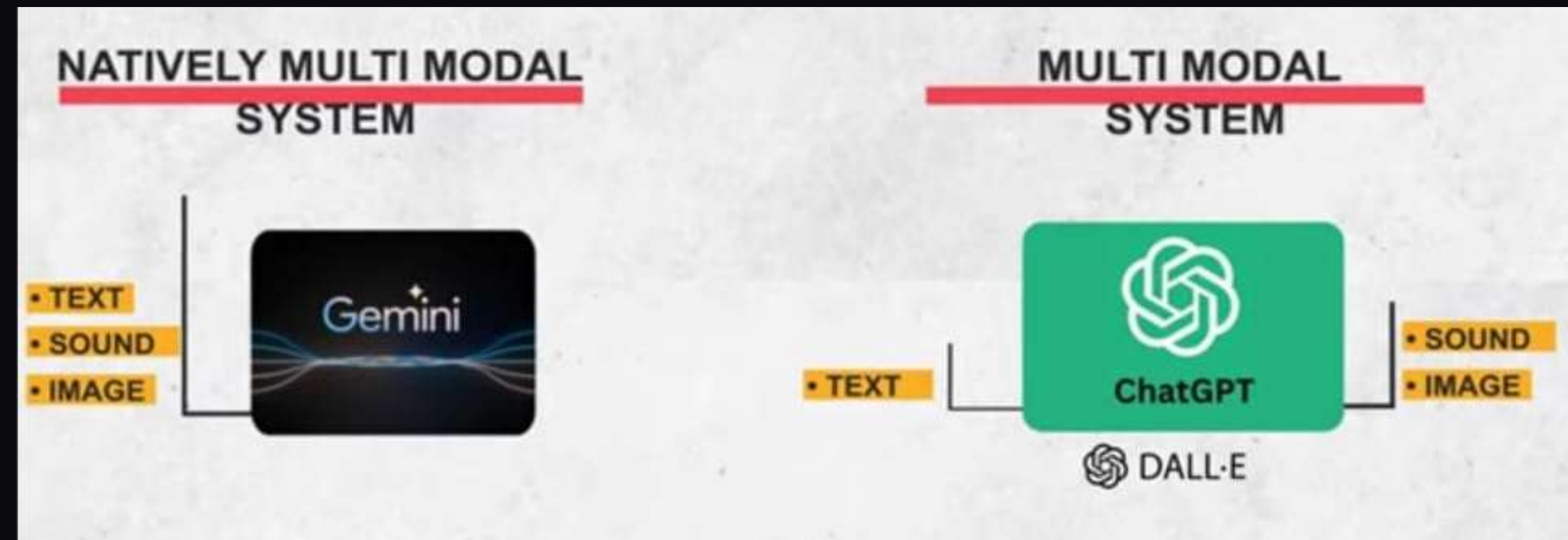
- Speed and efficiency in information retrieval
- Personalized responses
- Interactive approach to finding information

THE CHATGPT KILLERS



- But now, Google has launched Gemini Nano, Pro, and Ultra, three revolutionary AI products that are expected to beat the dominating rise of ChatGPT, and due to this, Alphabet's stock price rose by 5% and gained 80 Billion Dollars in value in a single day
- These products are being called the **ChatGPT killers in the market**

- Gemini is designed from the very start to process images, sound, and text whereas chatGPT was originally built only for text and then it got added up with features. So, this is the reason why it is more likely that Gemini outperforms ChatGPT in the long run



- Google's computing power is expected to be five times greater than OpenAI's, projected to increase to 20 times more next year. This allows Google's AI models, including Gemini, to learn and evolve much faster and more effectively.
- Additionally, Gemini benefits from a vast amount of data from Google, giving it an advantage over startups like OpenAI, which rely on public data.
- With access to almost the entire web, Gemini can tap into an extensive and diverse pool of information far beyond its competitors' reach.

A BIG MISTAKE?

- Google's engineers developed a chatbot two years before the launch of ChatGPT. However, Google chose not to release it due to concerns about safety issues.
- This decision appeared to be a significant mistake, raising doubts about Google's competence. To make matters worse, Microsoft made a revolutionary move by integrating Bing with ChatGPT.
- With the increasing popularity of ChatGPT, Google went into Code Red. Suddenly, everyone at Google began focusing on AI as their 60-billion-dollar search engine business was at risk.
- Google launched its own AI, Google Bard, but to everyone's surprise, Bard performed so poorly that the company lost 100 billion in share value and its stock dropped by 11% in just one day due to the incorrect answers given during a test run of the new AI chatbot.

How Google Became Cautious of AI and Gave Microsoft an Opening

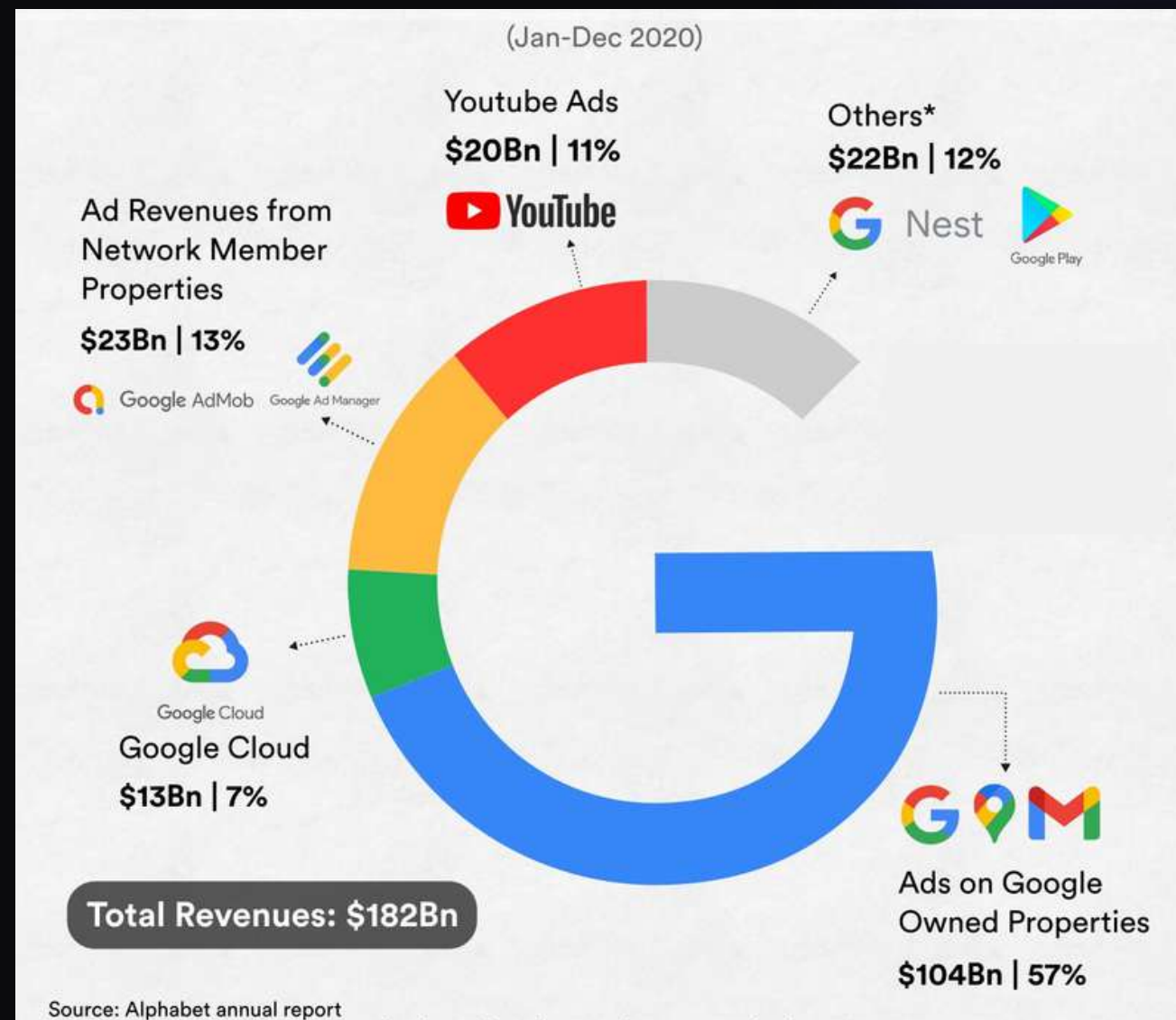
Researchers developed a powerful chatbot years before rival ChatGPT went viral. After management stalled its release, they quit.

[Home](#) > [Tech](#) > [News](#) > Two Google engineers built a ChatGPT-like AI chatbot years ago, but execs reportedly shut it down due to safety concerns

Two Google engineers built a ChatGPT-like AI chatbot years ago, but execs reportedly shut it down due to safety concerns

[Aaron Mok](#) Mar 08 2023 21:13 IST

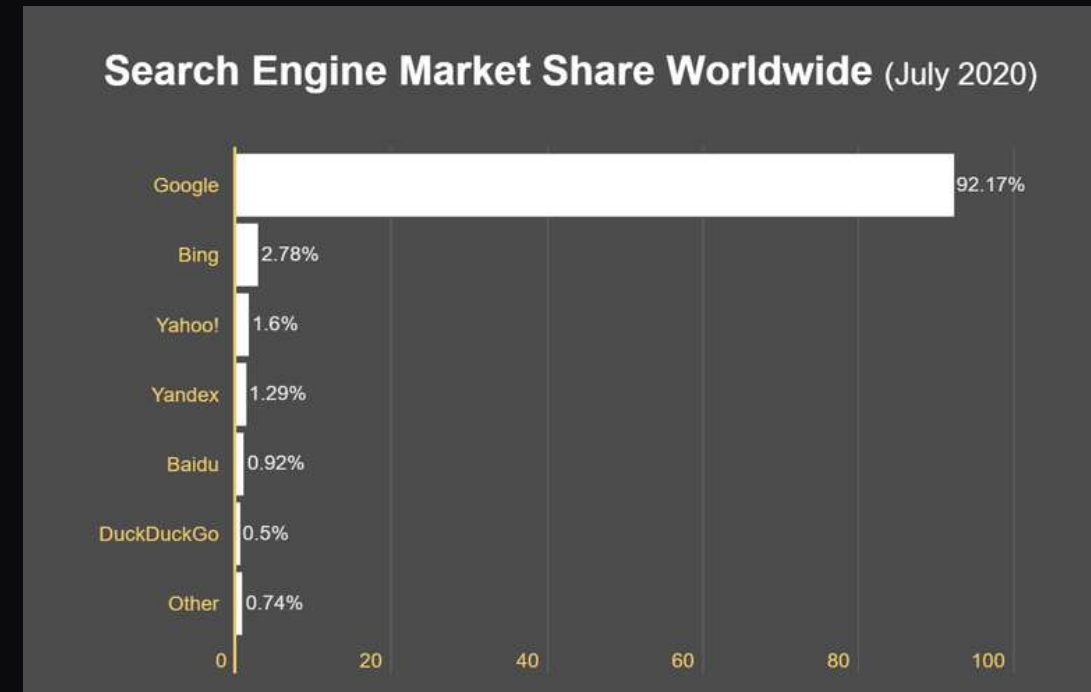
WHY IS THIS RELEVANT?



As of 2022, 11% of Google's revenue came from YouTube ads and 57% only comes from Google search ads

On the other hand, Microsoft gets its money from diverse sources

As we saw, Google is the market leader in the search market with an incredible 92.17%

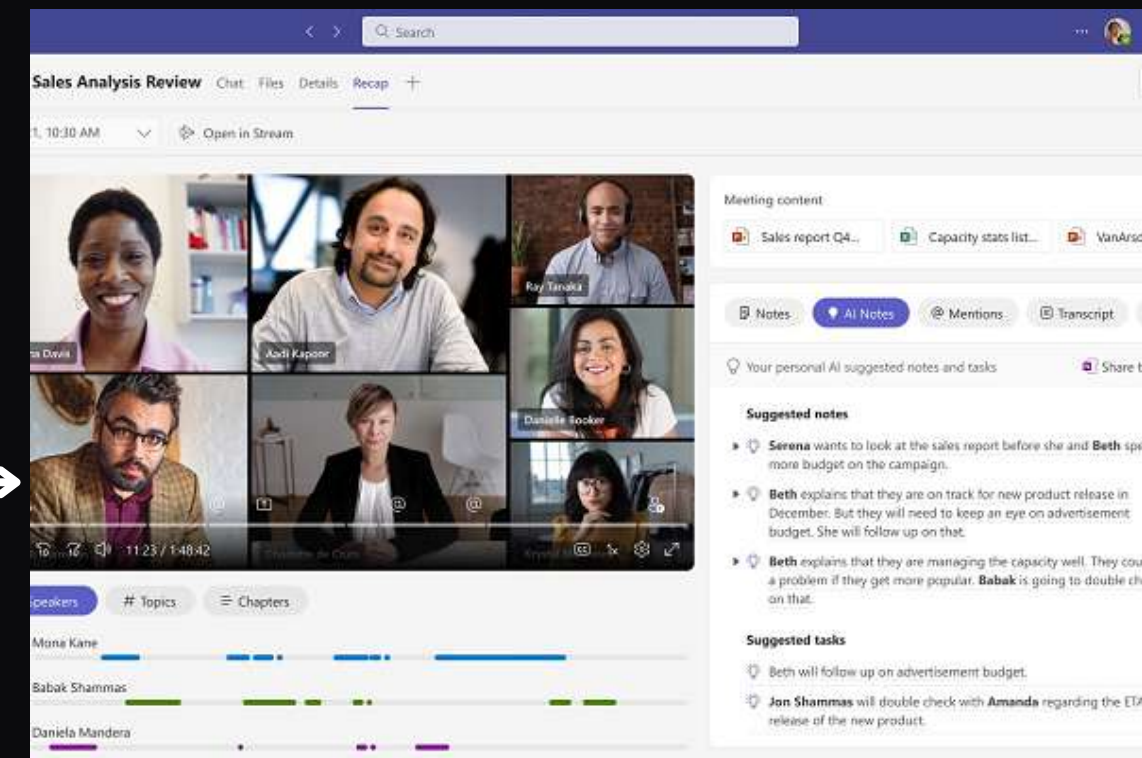
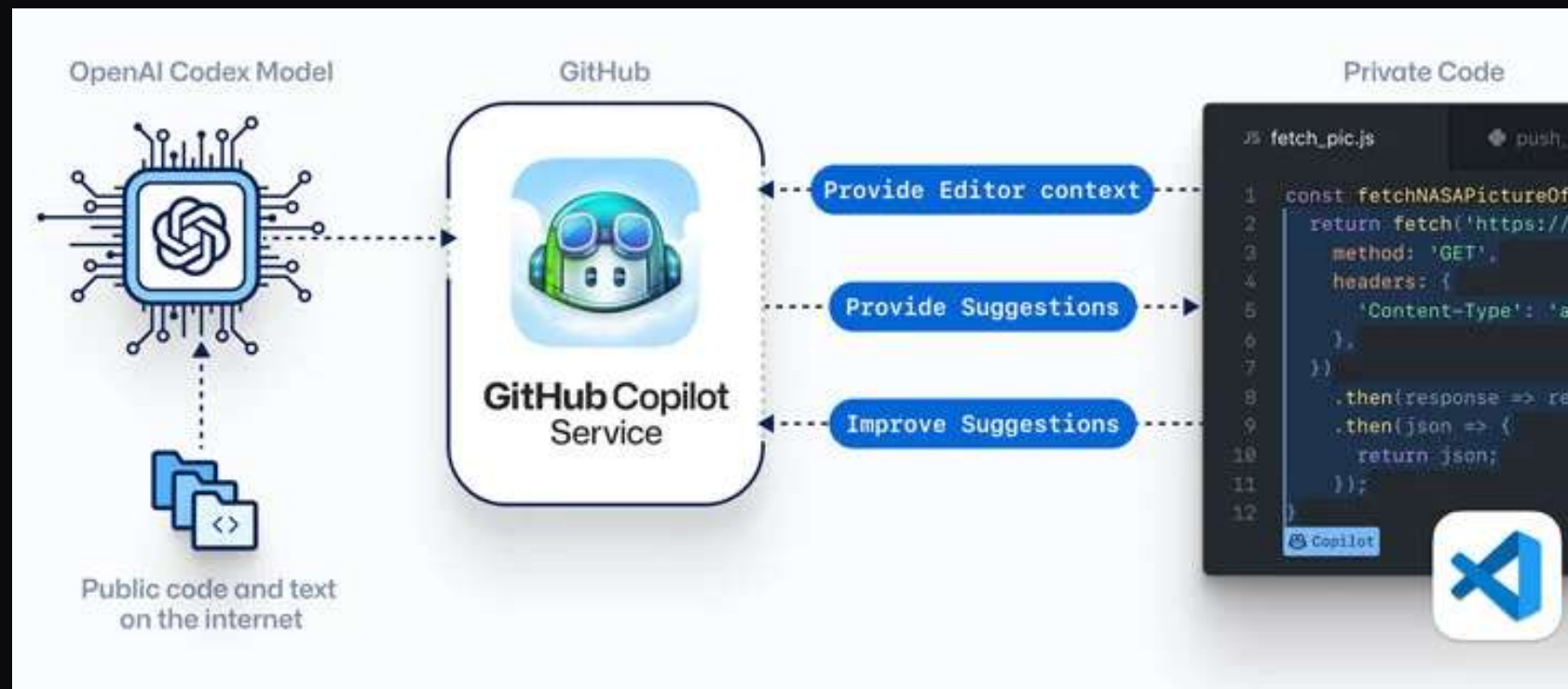
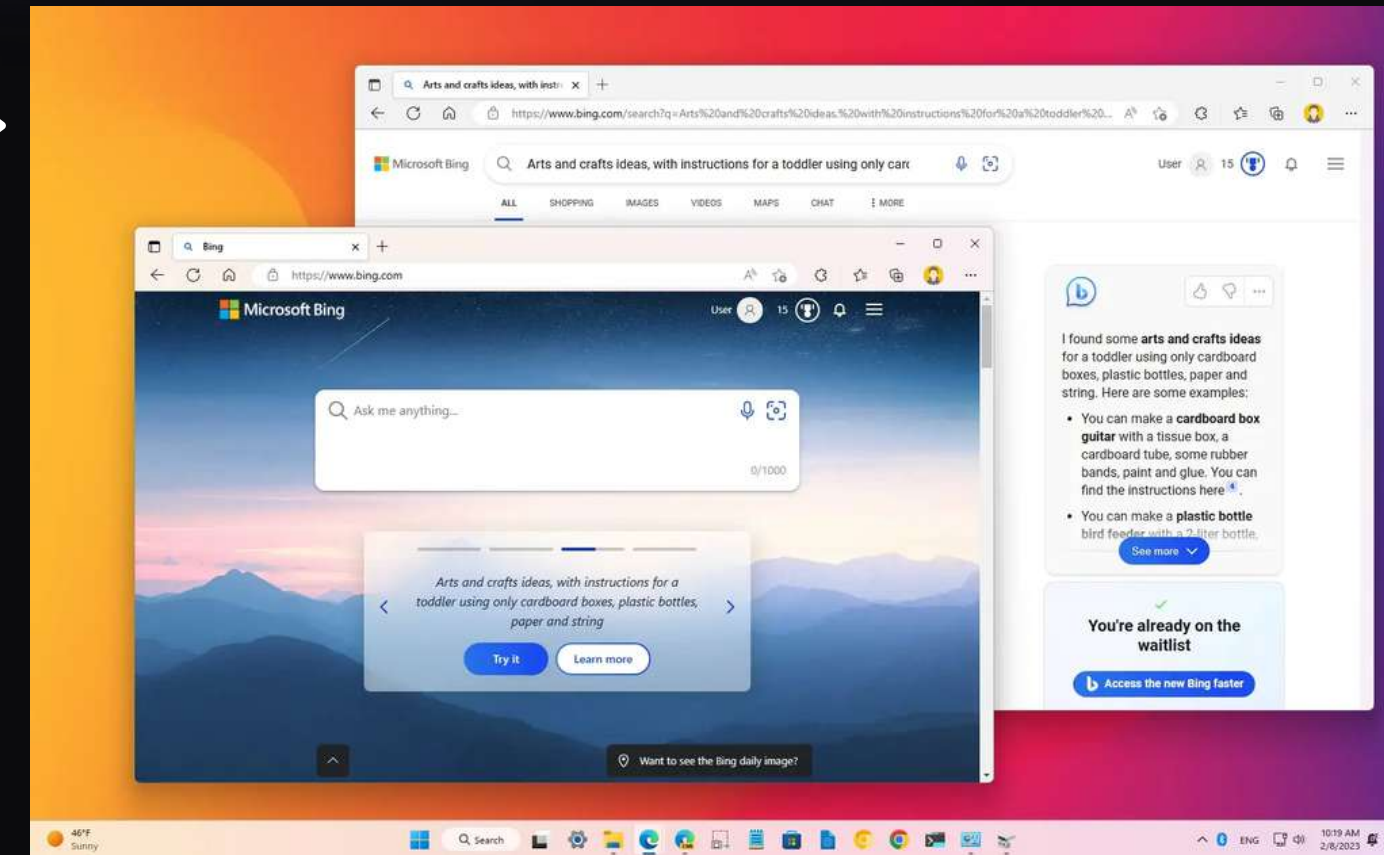


- At this moment, Google's core business is in question. For Microsoft, capturing the search market is just another diversification segment.
- So even if Microsoft doesn't succeed in capturing the search market, it is still okay but if they win this war Microsoft will end up dominating the market to become the most powerful tech company in history.

MICROSOFT'S APPROACH TO AI

Microsoft's effort to integrate AI into everything

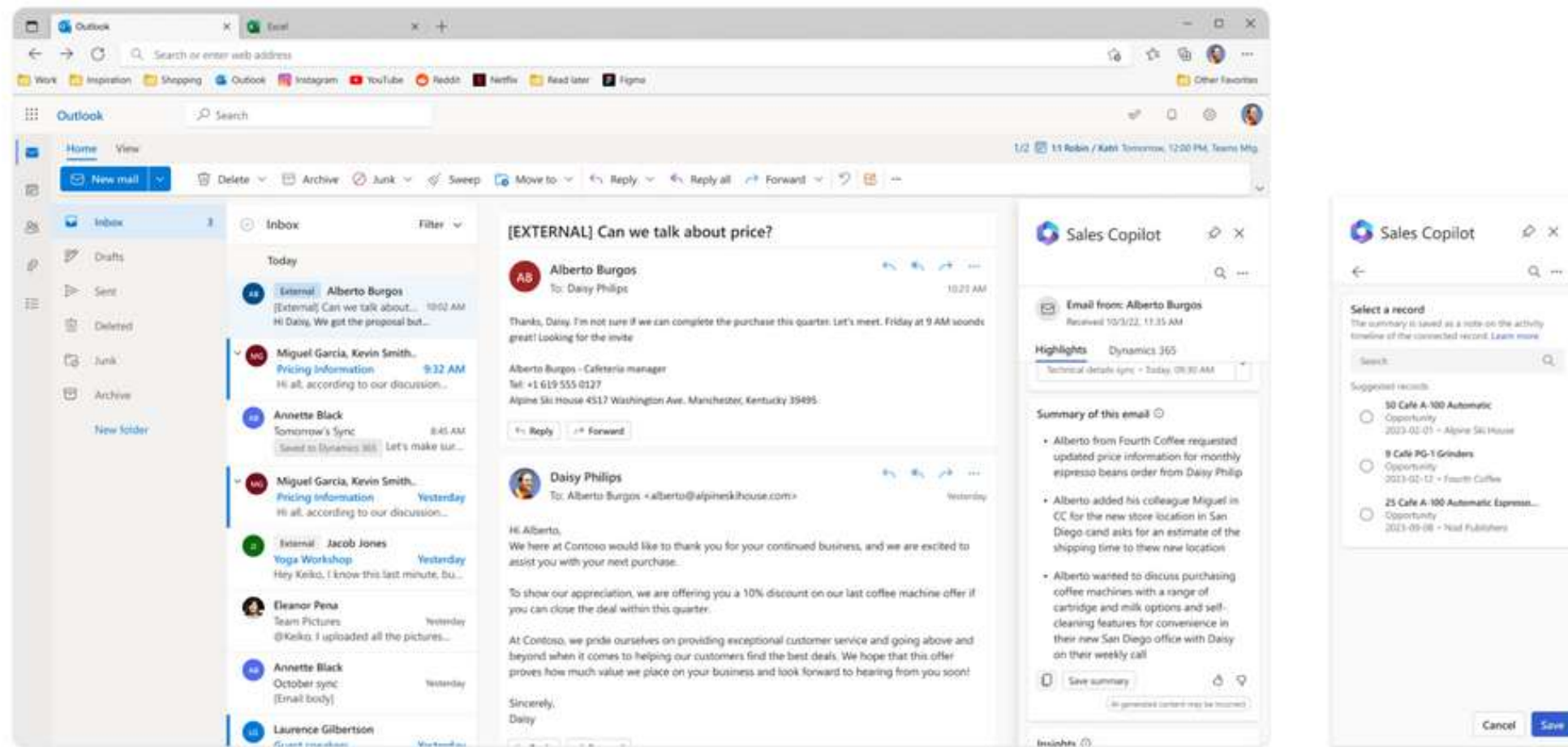
- Microsoft invested £10 billion in ChatGPT and integrated the technology into Bing search, with plans for more integrations.
- GitHub Copilot, using OpenAI's Codex engine, has been available since 2021 to provide code autocomplete features.
- MS Teams has ChatGPT enabled. Premium users can access automated note-taking features, including meeting recaps, real-time language translation, to-do list creation, and call transcripts.
- "Co-pilot" assistant, \$30/month, efficiently summarizes daily emails for Microsoft 365 users.



MICROSOFT'S APPROACH TO AI

Automating the Sales Process

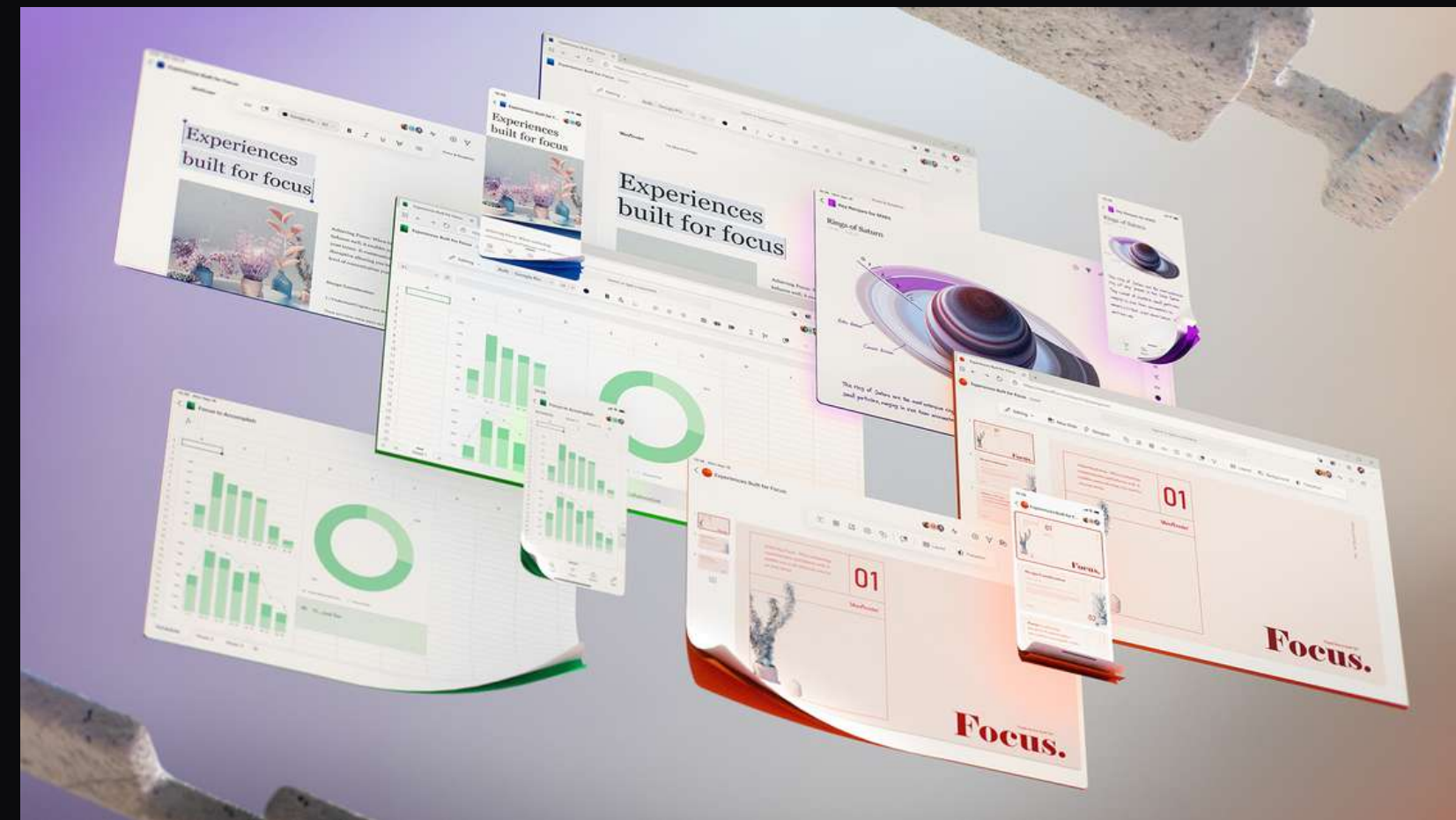
Microsoft's ChatGPT tool aims to automate 66% of sales tasks, freeing agents for human moments.



Email summary and CRM card for opportunity record in Outlook

The Future of Office

- Microsoft might build ChatGPT functionality into its world-leading suite of office software, formerly known as Microsoft Office and Office 365, including Word, Excel, PowerPoint, and Outlook
- Millions of businesses use Office for their day-to-day activities, and a complete AI integration is likely to have a huge impact on the way we use these tools



IMPACT ON GOOGLE

- In March, two Google employees stopped Google from launching an A.I. chatbot, due to safety issues
- The companies released their chatbots anyway. Microsoft was first, in February to reveal an A.I. chatbot in its Bing search engine. Google followed about six weeks later with its own chatbot, Bard.
- Microsoft has integrated GPT technology into its Bing search engine, which represents Microsoft directly challenging Google for the title of King of Search- a title that google has held for over 20 years



In Response

- Introduced their most powerful artificial intelligence (AI) model, Google Gemini, about which we have already discussed in the very beginning.
- Introduced Nora algorithms into Google Search, offering diverse perspectives on user queries similar to ChatGPT's algorithm
- Google Maps has seen improvements as well, like an augmented reality features and an updated camera search function for places of interest
- Google plans to launch over 20 new AI products
- Various startups such as You.com and Neeva have already overtaken Google by providing the ability to answer queries through a chatbot similar to ChatGPT.

Bill Gates — the cofounder of tech giant Microsoft — said Google's profits from its search engine are likely to fall in the future because the company he cofounded has been able to move rapidly on artificial intelligence.

AI BUZZ IN THE MARKET

According to McKinsey's Global Survey, The State of AI in 2021, the adoption of artificial intelligence continues to spread. 56% of all surveyed business representatives stated that their companies use AI in at least one function, and as recently as 2020, this indicator was equal to 50%. According to the same source, the majority of survey respondents also noted the positive impact of artificial intelligence on business efficiency and cost reduction.

- Microsoft is not the first tech company to roll out a tool aimed to help workers be more productive. Think: Slack, Notion, Asana, Airtable, the list goes on. Just last week, Salesforce announced it will integrate ChatGPT into Slack.
- FedEx and Sprint are using predictive analysis data to detect customers who may leave them for competitors, and they claim they can do it with 60%-90% accuracy.

AI-POWERED VIRTUAL ASSISTANTS AND CHATBOTS: The use of chatbots is promptly spreading in industries such as healthcare, finance, marketing and sales, travel and hospitality, etc., reducing the need for staff.



THANK YOU!

Do Connect on [LinkedIn](#)

APPENDIX

<https://www.forbes.com/sites/bernardmarr/2023/03/06/microsofts-plan-to-infuse-ai-and-chatgpt-into-everything/>

<https://qz.com/microsoft-365-copilot-ai-chatbot-office-tools-1850234639>

<https://www.quora.com/How-is-Microsoft-integrating-AI-functionality-into-its-key-software-products>

<https://www.digitalsilk.com/digital-trends/artificial-intelligence-in-business/>

<https://www.businessinsider.in/tech/news/microsoft-cofounder-bill-gates-says-the-rise-of-ai-poses-a-threat-to-googles-search-engine-profit/articleshow/98148069.cms>

<https://www.linkedin.com/pulse/how-has-chatgpt-changed-search-engine-market-share>

<https://www.searchenginejournal.com/googles-founders-return-how-chatgpt-is-changing-search/477041/>

<https://techcommunity.microsoft.com/t5/microsoft-sales-copilot-blog/microsoft-viva-sales-is-now-part-of-microsoft-sales-copilot/ba-p/3876743>

<https://www.elon.edu/u/news/2023/02/13/how-chatgpt-is-changing-the-way-we-use-artificial-intelligence/>

<https://www.i24news.tv/en/news/international/technology-science/1672398503-chatgpt-the-artificial-intelligence-that-will-shake-up-our-habits>

<https://aibusiness.com/google/is-chatgpt-actually-hurting-google-search->

<https://www.reuters.com/technology/google-ai-chatbot-bard-offers-inaccurate-information-company-ad-2023-02-08/>

<https://www.linkedin.com/pulse/how-has-chatgpt-changed-search-engine-market-share/>

And Many More