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Unleashing the Power of AI:
The Microsoft and OpenAI Partnership

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Microsoft is a global preeminent technology enterprise, boasting a workforce of over 166,000 employees, and spanning operations in more than 190 countries. In the fiscal year of 2022, Microsoft's total revenue exceeded \$198 billion, cementing its position as one of the largest and most valuable technology companies worldwide.¹ The multinational technology corporation was founded in 1975 by Bill Gates and Paul Allen, with the mission to revolutionize the way humans interact with technology. In the words of Bill Gates, their goal was to have “a computer on every desk and in every home.”²

In the domain of software, the booming tech-giant distinguishes its Windows operating system; its Office productivity suite, including Word, Excel, and PowerPoint; and its search engine Bing. It also develops, licenses, and sells a wide range of software products and services, such as server and desktop applications, video games, and cloud computing services.³ In the domain of hardware, Microsoft powers personal computers, Microsoft Surface, Dell Inspiron, Lenovo Yoga; gaming consoles, the legendary Xbox; and mobile devices. In the domain of emerging technologies, Microsoft contributes to artificial intelligence, mixed reality, and the Internet of Things. Throughout its history, Microsoft has been at the forefront of many technological advancements and has made a momentous impact on the way people conduct their daily lives, engage in professional activities, and communicate with one another.

Microsoft has made a multitude of highly successful contributions to the field of artificial intelligence and AI-powered products. These innovations include the creation of virtual assistant Cortana and the chatbot Xiaoice, which have become synonymous with the revolutionary technology that Microsoft has pioneered in this arena. Cortana’s main purpose is to execute tasks

¹ Microsoft. [“Microsoft Annual Report 2022.”](#) *Microsoft 2022 Annual Report*, Microsoft, 28 July 2022

² Bae, Hannah. [“Bill Gates Emails Microsoft Employees to Celebrate Company's 40th Anniversary.”](#) *CNNMoney*, Cable News Network, 6 Apr. 2015

³ Microsoft. [“Microsoft Corporation 2012 Annual Report.”](#) *Business Description*, Microsoft

that enhance productivity and organization within the Windows 10 ecosystem.⁴ Xiaoice's design is based on the personality traits of a teenage girl, with a primary function of providing emotionally intelligent advice to maximize user appeal, while expressing active-listening and empathy.⁵

Microsoft has also established itself as a trailblazer in the field of cloud computing, offering a comprehensive range of computing resources to both businesses and individuals through its Azure platform for several years. The company toiled in developing cloud-based AI and machine learning tools, such as Azure Machine Learning, which helps customers build and deploy intelligent applications. As Microsoft's CEO Satya Nadella perfectly states, "The age of AI is upon us, and Microsoft is powering it."⁶



Photo by Pixabay from Pexels

⁴ Microsoft. [“What Is Cortana?”](#) *Microsoft Support*

⁵ Singh, Nidhi. [“3 Most Popular AI Chatbots to Make Friends With.”](#) *Jumpstart Magazine*, 22 Jan. 2023

⁶ Dotan, Tom. [“CHATGPT Spotlights Microsoft's Early Efforts to Monetize AI.”](#) *The Wall Street Journal*, 29 Jan. 2023

Over the years, Microsoft has formed numerous strategic partnerships with a diverse range of entities – including prominent technology firms, esteemed research organizations, and government agencies. In 2013, Microsoft partnered with the Allen Institute for Artificial Intelligence (AI2) to advance natural language processing and other AI technologies. And in 2017, Microsoft partnered with the United Nations to develop AI-powered solutions to global problems.⁷ Other partnership ventures of Microsoft include working with startup Element AI, which specializes in developing AI-powered solutions for businesses;⁸ and Bonsai, a provider of a sophisticated platform designed for the construction and deployment of autonomous systems.⁹ Microsoft a proven track record of investing in research and development and participating in collaborations to advance technology and innovation. These partnerships serve as a catalyst for Microsoft's growth and innovation, enabling the company to expand its technological capabilities and remain at the forefront of the technology industry.

In a statement published on Microsoft News in February 2023, the tech giant declared that they “have been on the forefront of cutting-edge research in AI” and that they are “integrating powerful, innovative AI technologies into [their] products and services to help customers do more” Microsoft.¹⁰ This segued into an announcement of a global pledge to continue empowering AI and its growing capabilities through an avant-garde commitment to a robust ten billion-dollar investment in OpenAI, a leading research organization with a mission of promoting and developing friendly artificial intelligence in a way that benefits humanity as a

⁷ Sharrock, Chris. [“Working Together on a Resilient Foundation for the Sustainable Development Goals.”](#) *Microsoft On the Issues*, 2 Nov. 2022

⁸ Delma, Gregg. [“Element Ai Announces Funding from Microsoft Ventures.”](#) *Business Wire*, 12 Dec. 2016,

⁹ Barker, Paul. [“Project Bonsai Cornerstone of New TCS, Microsoft Initiative: IT World Canada News.”](#) *IT World Canada*, 17 Oct. 2022

¹⁰ Microsoft. [“What Is Microsoft's Approach to AI?: Microsoft Source.”](#) *Microsoft News*, Microsoft, 17 Feb. 2023

whole.¹¹ OpenAI was founded in 2015 by a group of tech luminaries including Elon Musk, Sam Altman, and Greg Brockman. One of OpenAI's most significant contributions to the field of AI is the development of DALL-E-2, released in January 2022. DALL-E 2 can generate high-quality images that are more complex and detailed than those produced by the original DALL-E.¹² The deep learning model also has capabilities of generating animations and 3D models in addition to 2D images. The development of DALL-E 2 has significant implications for a variety of industries, including advertising, design, and entertainment. OpenAI's focus on conducting research in various areas of AI, including natural language processing, computer vision, and robotics, are a seamless integration with the vision Microsoft carries for the future.

Microsoft has been a potent ally of OpenAI's mission and provides both financial and technical resources to help advance the organization's research and bring AI technologies to Microsoft's Azure cloud computing platform and continue development. This partnership has been underway since 2019, but was only publicized in November 2022. Together, Microsoft and OpenAI conjoin to make AI more accessible, commercialized, trustworthy, and beneficial for people and organizations around the world through three strategies.¹³ Firstly, Microsoft increases “investments in the development and deployment of specialized supercomputing systems to accelerate OpenAI's groundbreaking independent AI research.”¹⁴ Secondly, they “deploy OpenAI's models across [their] consumer and enterprise products and introduce new categories

¹¹ Browne, Ryan. [“Microsoft Reportedly Plans to Invest \\$10 Billion in Creator of Buzzy A.I. Tool Chatgpt.”](#) *CNBC*, CNBC, 10 Jan. 2023

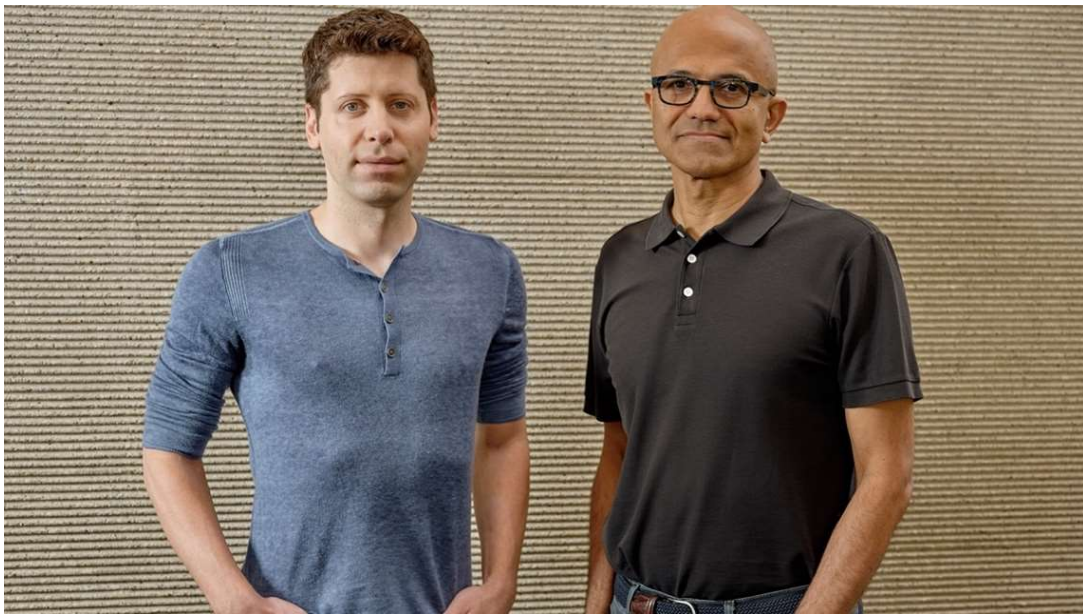
¹² Nguyen, Britney. [“Chatgpt Isn't the Only Cool AI Tool Made by Openai - Check out Dall-E, Whisper, and Codex.”](#) *Business Insider*, Business Insider, 4 Mar. 2023

¹³ Dotan, Tom. [“Microsoft Expands Access to OpenAI's Tools to More Customers.”](#) *The Wall Street Journal*, 23 Jan. 2023

¹⁴ Microsoft Corporate Blogs. [“Microsoft and OpenAI Extend Partnership.”](#) *The Official Microsoft Blog*, Microsoft, 23 Jan. 2023

of digital experiences built on OpenAI's technology."¹⁵ And thirdly, they serve as OpenAI's exclusive cloud provider with Azure.¹⁶ Microsoft and OpenAI have effectuated on the development of several AI tools and technologies, including GPT-3 and the OpenAI API.¹⁷ CEO of OpenAI, Sam Altman, recalls:

“The past three years of our partnership have been great, Microsoft shares our values and we are excited to continue our independent research and work toward creating advanced AI that benefits everyone.”¹⁸



*Sam Altman, OpenAI Founder and CEO (left) with Satya Nadella, Microsoft's CEO (right).
[Photo by Ian C. Bates for The New York Times](#)*

¹⁵ Microsoft Corporate Blogs. [“Microsoft and OpenAI Extend Partnership.”](#) *The Official Microsoft Blog*, Microsoft, 23 Jan. 2023

¹⁶ Microsoft Corporate Blogs. [“Microsoft and OpenAI Extend Partnership.”](#) *The Official Microsoft Blog*, Microsoft, 23 Jan. 2023

¹⁷ Dotan, Tom. [“CHATGPT Spotlights Microsoft's Early Efforts to Monetize AI.”](#) *The Wall Street Journal*, 29 Jan. 2023

¹⁸ Microsoft Corporate Blogs. [“Microsoft and OpenAI Extend Partnership.”](#) *The Official Microsoft Blog*, Microsoft, 23 Jan. 2023

The GPT-3 has the ability to perform a wide range of natural language processing tasks, from answering questions to generating human-like text, while the OpenAI API provides developers with a simple way to integrate AI capabilities into their own applications.¹⁹ ChatGPT is based on the GPT-3 language model which outputs simple and concise responses to a user's input text, in a plain language conversational way.²⁰ Other capabilities of ChatGPT include writing emails, essays, poetry, articles, press releases; answering questions; summarizing articles; and even generating lines of code –depending on the inputted prompt by the user.²¹ This powerful tool serves as an immediate and practical solution for any emerging inquiries, with 13 million active daily individual users, as of January 2023.²² ChatGPT represents a pivotal moment in the technology industry, with evident precedent progress.



Photo by Getty Images from Forbes

¹⁹ Hughes, Alex. [“CHATGPT: Everything You Need to Know about OpenAI's GPT-3 Tool.”](#) *BBC Science Focus Magazine*, BBC Science Focus Magazine, 2 Feb. 2023

²⁰ Research, Livy Investment. [“OpenAI Impact Analysis: Microsoft, Google and Nvidia \(NASDAQ:MSFT\).”](#) *Seeking Alpha*, 5 Dec. 2022,

²¹ Smith, Adam. [“What Is Chatgpt? and Will It Steal Our Jobs?”](#) *Context News*, 7 Feb. 2023

²² Ruby, Daniel. [“CHATGPT Statistics for 2023: Comprehensive Facts and Data.”](#) *Demand Sage*, 8 Feb. 2023

With the newfound developments, Microsoft infused features developed by OpenAI in their search engine, Bing, to enhance the search experience for its users.²³ With GPT-3, Bing has a better understanding of the context and intent behind users' questions and provides more applicable answers, even when questions are phrased in a conversational or colloquial manner. Users can easily navigate to the information they seek, regardless of the technicality of their input. Bing also now uses OpenAI's API to provide a range of AI-powered features, such as image and video recognition, text completion, and summarization. These features increase the ways in which Bing can be used by users.²⁴ By incorporating OpenAI's technology into its search engine, Bing is placed on a pedestal for its ability to deliver an intelligent and intuitive search experience to its users. Microsoft's search engine has become differentiated from other search engines and provides users with a valuable tool for finding information and discovering new insights.

Google is a global technology giant with a strong presence in search engines, mobile operating systems, and cloud computing. In the fiscal year of 2022, Google's total revenue exceeded \$224.47 billion.²⁵ Google has made significant contributions to the field of AI, including the development of its natural language processing model called BERT (Bidirectional Encoder Representations from Transformers). BERT is designed to help computers better understand the nuances and context of human language, and it has been used to improve search results and language translation. Google has also invested heavily in the development of machine learning technologies, such as TensorFlow, an open-source software library for dataflow and

²³ Dastin, Jeffrey. [“Microsoft Packs Bing Search Engine, Edge Browser with AI in Big Challenge to Google.”](#) *Reuters*, Thomson Reuters, 8 Feb. 2023

²⁴ Stern, Joanna. [“I Tried Microsoft's New AI-Powered Bing. Search Will Never Be the Same.”](#) *The Wall Street Journal*, 7 Feb. 2023

²⁵ Bianchi, Tiago. [“Google Revenue 2002-2022.”](#) *Statista*, 13 Feb. 2023

differentiable programming across a range of tasks. Google made TensorFlow available to the public, allowing individuals and businesses to use this technology to develop their own AI application.

In contrast to Bing's search engine performance in the past, Google has consistently carried a leading position in the fierce race between search engines. The company's search engine employs advanced algorithms and machine learning techniques to provide users with highly relevant search results based on their queries. Google also offers an extensive suite of other products and services, including online advertising, email, cloud storage, and mobile operating systems. Another area of focus was the development of strong brand recognition amongst users from an early age, with associated features such as advanced technologies and vast indexes of webpage results. Google's strong market position is a result of its continued innovation, strategic product offerings, and superior technology.

In wake of the new and improved Bing, Google undertook the development of an AI chatbot called Bard, rival to ChatGPT.²⁶ The introduction of Bard by Google marks a significant development in the race for game-changing artificial intelligence, displaying their desire to keep up with recent innovations. The new AI chatbot is designed to provide users with a more personalized and human-like experience while interacting with Google's search engine. One of the main advantages of Bard is its ability to understand natural language and provide more relevant and contextually veracious responses to user queries, which is achieved through the use of machine learning algorithms that enable the system to learn and adapt to new information and user behavior over time. Bard is also expected to offer improved search functionality, including more accurate results and faster response times – making it easier for users to find the

²⁶ Grant, Teddy. [“Google Announces New AI Program Named Bard, in Wake of Viral ChatGPT.”](#) *ABC News*, ABC News Network, 6 Feb. 2023

information they need and get the answers to their questions more quickly. In a message from Sundar Pichai, Google CEO says:

“We’ve been working on an experimental conversational AI service, powered by LaMDA, that we’re calling Bard. And today, we’re taking another step forward by opening it up to trusted testers ahead of making it more widely available to the public in the coming weeks. Bard seeks to combine the breadth of the world’s knowledge with the power, intelligence and creativity of our large language models. It draws on information from the web to provide fresh, high-quality responses.”²⁷

The AI chatbot is only available for testing by specialists, which suggests that Google is taking a cautious approach to rolling out this new technology. Employees assigned to Bard testing have reported that Bard usage is accompanied by confusion, errors, and delays.²⁸ In a promotional demo video announcing the emergence of Bard, the “new artificial intelligence-powered chatbot gave a wrong answer” to the inputted prompt, which quickly plummeted the company’s market share by over \$100 billion.²⁹ In response to the incident, “Google said it underlined the need for ‘rigorous testing’ on the chatbot, which is yet to be released to the public and is still being scrutinized by specialist product testers before it is rolled out.”³⁰ However, given the company's history of innovation and leadership in the field of AI and the search engine industry, it is likely that Bard will be available to the public in the near future.

Since Bard would enhance the user experience when searching for information online, its release could lead to increased engagement with Google's search engine and other Google

²⁷ Pichai, Sundar. [“An Important next Step on Our Ai Journey.”](#) *Google Blog*, Google, 6 Feb. 2023

²⁸ Terech, Kristina. [“Confusion, Errors and Delays: What's Really Going on with Google Bard?”](#) *TechRadar*, TechRadar, 10 Mar. 2023

²⁹ Milmo, Dan. [“Google Ai Chatbot Bard Sends Shares Plummeting after It Gives Wrong Answer.”](#) *The Guardian*, Guardian News and Media, 9 Feb. 2023

³⁰ Milmo, Dan. [“Why Did Google's CHATGPT Rival Go Wrong and Are AI Chatbots Overhyped?”](#) *The Guardian*, Guardian News and Media, 9 Feb. 2023

products. Increased engagement would generate higher advertising revenues for the company, as more users spend more time on its platforms. The release of Bard would also attract more tech-savvy users to Google's ecosystem, who are interested in exploring the latest AI technologies and innovations – the same audience as Bing's new users. By leveraging advanced natural language processing algorithms and other cutting-edge technologies, Google demonstrates its commitment to innovation and ability to stay at the forefront of the rapidly evolving tech landscape.



[Photo via hgs.cs](#)

The impact of the Microsoft-OpenAI partnership on Google is multifaceted and dependent on a wide range of factors, but one thing is apparent – the level of competition in the search engine industry has significantly intensified with the GPT-3 language model and processing capabilities incorporated in Bing tipping the scales. As of January 2023, “search engine Bing accounted for 8.85% of the global search market,” while “Google had a share of around 84.69 percent.”³¹ Bing’s market share has increased 121.8% since its 3.99% share in 2020.³² Still, the number reported for Bing is expected to continue increasing, as it gains more traction from users interested in using a more advanced search engine. For the first time in

³¹ Bianchi, Tiago. [“Global Search Engine Desktop Market Share 2023.”](#) Statista, 24 Feb. 2023

³² Theuring, Jonathan, and Katie Barnard. [“Bing vs Google: Search Engine Comparison 2023.”](#) Impression, 4 Jan. 2023

history, Bing is now positioned as a legitimate rival to Google. In an interview with the Wall Street Journal, Microsoft CEO Satya Nadella states:

“Bing with AI is going to completely change what people can expect from search. We’re grounded in the fact that Google dominates the space. I feel like a new race is starting with a complete new platform technology. I’m excited for users to have choice, finally, and a real competitive race out there.”³³

Tech giants are striving to push the limits of AI technology and the coming years will prove to be a charged time for novel development, with the race between tech industry leaders producing breakthroughs. The current playing field projects that Microsoft will steadily gain head in the race for the elite search engine. Microsoft’s partnership with OpenAI advanced Microsoft’s Bing and initiated substantial competition against Google’s seemingly booming search engine. Once Bard becomes available to the public, Google will be poised to reenter the playing field in competition with OpenAI’s ChatGPT and Microsoft’s Bing.³⁴ By investing billions in OpenAI, Microsoft demonstrates its commitment to dominating its position the field of AI and exploring new technologies to ameliorate the way humans interact with technology.

³³ Stern, Joanna. [“Can Bing and OpenAI Challenge Google? Microsoft's Satya Nadella Weighs In \(Exclusive\) | WSJ.”](#) *YouTube*, Wall Street Journal, 7 Feb. 2023

³⁴ Kruppa, Miles, and Sam Schechner. [“How Google Became Cautious of AI and Gave Microsoft an Opening.”](#) *The Wall Street Journal*, Dow Jones & Company, 7 Mar. 2023,

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