

"Navigating the AI Revolution: Market Insights, Statistical Data, and Industry Transformations"

- Sana

Abstract: This paper investigates emergence of Artificial Intelligence (AI) as a transformative force across multiple sectors, driving innovation and efficiency. This research paper explores the current landscape of AI, focusing on its market size, growth trajectory, and key statistical data. The paper provides a comprehensive analysis of the global AI market, which was valued at approximately \$136 billion in 2022 and is projected to reach around \$500 billion by 2025, reflecting a compound annual growth rate (CAGR) of about 35%. The study examines regional market dynamics, highlighting North America's leadership, followed by rapid growth in Europe and the Asia-Pacific region.

In addition to market size, the paper delves into AI spending across various domains, including enterprise investments, AI software and services, and research and development. It highlights that global enterprise spending on AI surpassed \$300 billion in 2023, with notable investments in AI-driven applications such as machine learning and automation. The research also addresses sector-specific AI applications, including healthcare, finance, retail, manufacturing, transportation, education, entertainment, and agriculture, demonstrating how AI is revolutionizing each industry. The paper further discusses the implications of AI's growth, including the challenges and opportunities it presents for businesses and society. By examining current trends and future projections, this research provides valuable insights into the evolving role of AI and its impact on various sectors. The findings underscore the significant investment in AI technologies and their potential to drive continued innovation and economic growth.

KEY WORDS: Artificial Intelligence, market size, prompt, computing

Why I chose this topic:

1. Introduction:

Artificial Intelligence (AI) has quickly gotten to be one of the foremost critical innovations in advanced times, influencing industries, social orders, and existence. At its centre, AI alludes to the advancement of machines and computer program that can perform assignments regularly requiring human insights, such as decision-making, learning, problem-solving, and understanding common dialect. Its rise can be ascribed to headways in machine learning, information handling, and computational control, empowering frameworks to not as it were imitate human behaviour but too outperform human capabilities in particular assignments. One of AI's most outstanding impacts is in computerization. Businesses like fabricating, coordinations, and retail are progressively depending on AI-powered robotization to progress proficiency and diminish operational costs. Mechanized frameworks, from self-driving vehicles to mechanical arms, can perform dreary or perilous assignments with tall exactness, permitting human labourers to centre on more complex, imaginative, and key parts. In healthcare, AI has been transformative in diagnostics, sedate revelation, and personalized medication.

Machine learning calculations can analyse therapeutic pictures, identify designs in quiet information, and indeed foresee infection flare-ups, supporting in quicker and more exact decision-making. In fund, AI is playing a vital part in extortion discovery, algorithmic exchanging, and personalized budgetary administrations. AI models can handle tremendous sums of value-based information in real time, recognizing inconsistencies that will indicate fraudulent action. Furthermore, AI-driven exchanging calculations can analyse advertise patterns and make split-second choices that were once the domain of human dealers. In spite of its numerous points of interest, AI in present day times raises noteworthy moral and societal challenges. Concerns almost protection, information security, and the potential abuse of AI in reconnaissance or military applications are predominant.

AI frameworks can also propagate predispositions display within the information they are prepared on, driving to unequal treatment in zones like enlisting, law requirement, or budgetary loaning. Moreover, the rise of mechanization brings fears of work uprooting, as machines take over assignments already performed by people. As AI proceeds to advance, the require for moral rules, straightforwardness, and dependable advancement gets to be basic. Whereas AI has the potential to unravel numerous of society's challenges, it must be drawn nearer with caution, guaranteeing that its benefits are shared even-handedly and its dangers are carefully overseen.

2. History of AI:

The history of Counterfeit Insights (AI) follows its beginnings back to antiquated philosophical and numerical concepts. Early masterminds, such as the Greeks, envisioned mechanical creatures, whereas logicians like Aristotle laid the establishments for consistent thinking that would afterward ended up significant for AI advancement. Within the 17th century, mathematicians like René Descartes and Gottfried Wilhelm Leibniz assisted the idea of machines able of typical thinking, clearing the way for future investigation of machine insights.

The formal birth of AI happened within the mid-20th century. British mathematician Alan Turing played a urgent part in characterizing the field with his 1950 paper, "Computing Apparatus and Insights." In it, Turing proposed the Turing Test, a strategy to decide whether a machine may display brilliantly behaviour vague from that of a human. The Dartmouth Conference in 1956, organized by John McCarthy, authoritatively coined the term "Fake Insights," stamping the starting of AI as a formal field of consider.

Early AI programs like Rationale Scholar and ELIZA illustrated essential machine thinking and normal dialect handling. The period between the 1950s and 1970s is regularly alluded to as the "brilliant a long time" of AI. Analysts centered on typical AI, making frameworks that utilized rule-based rationale to fathom issues and mirror human thought forms. Programs like SHRDLU, which might control virtual pieces through dialect commands, were early triumphs. Be that as it may, AI before long confronted noteworthy confinements. Real-world errands demonstrated distant as well complex for rule-based frameworks, driving to a decline in subsidizing and intrigued, a period presently known as the AI Winter.

AI experienced a resurgence within the 1980s and 1990s, much appreciated to progressions in machine learning and neural systems. Analysts like Geoffrey Hinton created the backpropagation algorithm, allowing neural systems to memorize from information and recognize designs. The center shifted from physically programming rules to empowering machines to memorize from encounter. Furthermore, master frameworks, which mimicked human decision-making in particular spaces like medication and building, picked up notoriety amid this period. Be that as it may, these frameworks were still restricted by their failure to generalize past their contract spaces.

The 2000s checked the starting of an AI renaissance, driven by the accessibility of enormous datasets, way better calculations, and more prominent computational control. This period saw the rise of machine learning, where AI frameworks seem analyze and learn from tremendous sums of information without being unequivocally modified.

The improvement of profound learning within the 2010s, especially the utilize of neural systems with numerous layers, revolutionized areas like picture and discourse acknowledgment. Profound learning models, such as convolutional neural systems (CNNs) and repetitive neural systems (RNNs), started to beat past AI strategies. High-profile triumphs, such as Google's AlphaGo, showcased AI's developing capabilities. In cutting edge times, AI is implanted in existence, from virtual colleagues like Siri and Alexa to suggestion calculations utilized by stages like Netflix. AI is additionally changing businesses, especially through independent frameworks such as self-driving cars and rambles.

Healthcare is profiting from AI's symptomatic capacities and its potential for personalized pharmaceutical. In spite of these progressions, AI has raised modern concerns almost morals, inclination, security, and the relocation of human employments, driving to discourses approximately the mindful improvement and control of AI. As AI proceeds to progress, the center has moved to more complex objectives, such as Common AI, which points to create machines competent of performing any assignment a human can. Analysts are too working on Logical AI to guarantee that AI choices are straightforward and reasonable. As AI gets to be progressively coordinates into society, its future holds both guarantee and challenges, requiring cautious administration to maximize its benefits whereas minimizing dangers.

3. From Sci-Fi to Reality: Dive into Pop culture

Artificial Intelligence came into the minds of people through pop culture. Software developers were working to make it all reality.

In pop culture, Artificial Intelligence (AI) has been delineated through different focal points, regularly adjusting the fine line between wonder and danger. The "Press Man" arrangement grandstands AI as a capable partner through Tony Stark's J.A.R.V.I.S. framework, which is shrewdly, instinctive, and improves human capabilities without dominating them. J.A.R.V.I.S. speaks to a cheerful vision of AI as a device for development, collaboration, and problem-solving. In differentiate, "Edge Runner" offers a more philosophical take on AI through its depiction of replicates—artificial creatures vague from people. The film digs into questions approximately character, awareness, and what it implies to be really human, depicting AI as complex substances hooking with existential problems. On the darker conclusion of the range, "The Eliminator"

arrangement epitomizes AI as a disastrous danger. Skynet, a self-aware AI framework, compensation war against humankind, reflecting profound fears of AI picking up independence and turning against its makers. The story taps into tensions around control, delineating a future where AI supersedes human specialist. Essentially, "The Network" depicts a dystopian reality where AI has subjugated humankind by making a recreated world to control human awareness. The story highlights the existential fear of AI dominance, where people are now not in command but are instead subject to an advanced overlord that characterizes their reality. These differing portrayals—from the accommodating and collaborative J.A.R.V.I.S. to the prophetically catastrophic dangers of Skynet and The Matrix—reflect society's complex relationship with AI, where it is seen as both an apparatus for advance and a potential peril to human presence. Through these stories, pop culture proceeds to shape our understanding and concerns around AI's part in our future.

4. AI in modern times:

The emergence of Artificial Intelligence (AI) in contemporary times has been characterized by revolutionary progress that has revolutionized sectors and restructured societal operations. AI has moved from experimental ideas to practical applications integrated into daily life thanks to the rise of big data, greater computing power, and advanced algorithms. The advancement of machine learning and deep learning is a crucial factor in propelling the growth of AI. These methods enable AI systems to gain knowledge from extensive datasets without requiring direct programming. One instance is the utilization of deep learning algorithms which have led to advancements in image recognition, enabling technologies such as Google Photos to automatically categorize and detect objects and faces in images. Likewise, advancements in speech recognition technology have led to enhanced performance in virtual assistants such as Siri, Google Assistant, and Alexa, resulting in more precise understanding and responses to voice instructions. AI has transformed sectors like healthcare as well. For example, AI is utilized by IBM's Watson to help doctors diagnose illnesses by examining patient information, medical texts, and clinical studies. AI systems have also been successful in radiology, detecting patterns in medical images faster and more accurately than humans. DeepMind's AlphaFold gained attention by successfully tackling the long-standing problem of predicting protein folding, a development with significant implications for drug development and biological studies. AI has fueled the advancement of autonomous vehicles in the automotive sector. Companies such as Tesla, Waymo, and Uber are utilizing AI-driven sensors, cameras, and machine learning algorithms to develop self-driving vehicles that can maneuver through intricate surroundings. These systems depend on live data to make decisions like identifying barriers, understanding traffic signs, and obeying road regulations. Even though fully self-driving cars are still being tested, artificial intelligence has already enhanced driver assistance systems, improving safety measures such as lane-keeping and automatic braking.

AI has brought about a major change in both retail and e-commerce as well. For instance, Amazon utilizes AI algorithms to drive its recommendation system, examining customer actions and preferences in order to recommend products. AI also assists in improving logistics and supply chains, as businesses utilize predictive analytics to handle inventory and enhance delivery routes. Customer service is increasingly using chatbots powered by NLP to offer immediate assistance and cut down on wait times.

AI plays a crucial role in customizing content for users on entertainment platforms such as Netflix and Spotify. AI models can suggest movies, TV shows, and music based on users' viewing and listening behaviors. Likewise, YouTube's AI-driven recommendation system suggests videos by analyzing previous viewing habits and interactions to engage users on the platform.

Despite its quick ascent, the heightened utilization of AI brings up significant ethical issues. Prejudice in AI systems, frequently originating from prejudiced training data, has been a notable problem, especially in fields such as recruitment, criminal justice, and facial recognition. Clearview AI and similar companies are under investigation for utilizing facial recognition technology in policing, triggering discussions regarding privacy, surveillance, and civil rights. The emergence of AI in contemporary society has its advantages and disadvantages, leading to significant progress but also raising concerns regarding governance, equity, and ethical implementation. As artificial intelligence advances, its influence on sectors and communities will increase, bringing fresh chances and challenges that will require cautious handling.

5. AI and Humans:

The emergence of Artificial Intelligence (AI) has initiated a multifaceted discussion regarding its influence on employment and the possibility of substituting human positions. This conversation can be organized into a few main topics: job loss, task enhancement, the creation of new jobs, social and economic effects, and collaboration between humans and AI. Loss of employment One of the top worries surrounding AI is its ability to replace human employees. AI technologies, especially those utilizing machine learning and automation, are becoming more adept at carrying out responsibilities that were previously done by humans.

In manufacturing, robots can effectively manage repetitive tasks like welding and assembly, decreasing the reliance on human labour in the production process. Likewise, in the retail industry, self-service kiosks and automated inventory management tools are reducing the need for cashier and stock clerk roles. Although these developments improve productivity, they also provoke worries about substantial employment reductions in specific sectors. Increasing the complexity of tasks Even though there is a possibility of job loss, artificial intelligence frequently enhances human skills instead of entirely taking over them. AI tools in various industries are created to help people by managing tasks that are repetitive or require a lot of data, enabling workers to concentrate on duties that are more intricate and innovative. In the healthcare field, AI technologies such as IBM Watson Health are utilized for analyzing medical information to offer diagnostic recommendations; however, human physicians remain crucial for interpreting findings, making ultimate choices, and administering healthcare to patients. Likewise, in the field of finance, AI algorithms examine market patterns and provide investment suggestions, however, human financial advisors are essential for delivering customized guidance and comprehending client requirements.

Creation of new jobs the emergence of AI is also leading to the development of new job prospects and sectors. With AI systems taking over specific duties, there is a need for the creation, upkeep, and supervision of these technologies, resulting in the rise of fresh career opportunities. There is a growing need for positions in AI research, data science, machine learning engineering, and AI ethics. As worries over AI ethics and bias increase, there is an increased demand for experts to create and implement rules for responsible use of AI. Furthermore, the evolution of AI technology increases the need for data scientists and machine learning engineers, essential in constructing and improving AI algorithms. Implications on society and the economy AI's influence on the workforce has wide-ranging societal and economic consequences. Job loss caused by automation can result in higher rates of joblessness and unequal distribution of income, causing major economic difficulties. Dealing with these problems involves taking proactive steps like implementing reskilling and upskilling initiatives to aid employees in transitioning to different positions. Efforts focused on providing instruction in emerging skills like coding and data analysis are crucial in lessening the impact of job cuts. Furthermore, ideas such as Universal Basic Income (UBI) are being investigated as possible remedies to offer economic security for individuals impacted by job displacement caused by automation.

Collaboration between humans and artificial intelligence

In anticipation of the future, attention is turning to the effective collaboration between AI and humans. AI systems are proficient at handling data and identifying patterns, whereas humans possess distinctive qualities like creativity, emotional intelligence, and intricate decision-making abilities. The objective is to develop hybrid systems that combine AI with human strengths in order to boost productivity and spur innovation. In the creative sectors, AI tools are employed to create art, music, and writing, with humans overseeing and enhancing these results to craft original and inventive pieces. AI Chabot's handle basic inquiries in customer service, while human agents handle more complex or sensitive interactions. To sum up, even though AI may result in job losses, it also provides chances for enhancing tasks, generating new jobs, and enhancing collaboration between humans and AI. Careful thought must be given to the effects on both the workforce and society when navigating these changes, and attention should be paid to maximizing the advantages of AI while also addressing its possible downsides.

6. Prompt Engineering:

Prompt Engineering is a new area within Artificial Intelligence (AI) that is dedicated to creating and improving the prompts that are utilized to engage with AI language models. This particular task is essential in improving the precision and pertinence of the results produced by these models. In essence, prompt engineering entails creating precise inputs or questions to direct AI in generating preferred outputs. The success of AI interactions relies heavily on how clear and specific the prompts are, as well as the context they include. Through careful crafting of prompts, individuals can greatly enhance the AI's responses in terms of coherence and usefulness. Various methods and approaches are used in the field of prompt engineering to enhance the efficiency of AI. Precise and explicit prompts assist the AI in comprehending the user's intentions, resulting in more precise responses. Including contextual hints in the prompt can help direct the AI to generate responses that meet the user's requirements.

Experimentation with iterative refinement of prompts can aid in determining the optimal phrasing and structures. Moreover, prompts containing examples or descriptive guidance help AI generate responses that meet the desired format and content in few-shot and zero-shot learning approaches. Engineering applications are diverse and can be found in many different fields. Content creation involves producing written content like articles, ads, and posts for social media. Creating prompts effectively guarantees the produced content aligns with the desired tone and message. In the realm of customer support, AI-powered chatbots and virtual assistants effectively manage queries by utilizing carefully formulated prompts, thus improving the overall user experience.

In the realm of education and training, prompt engineering is used to develop educational materials and training simulations, harnessing AI for in-depth explanations and problem-solving. Moreover, swift engineering in research and data analysis assists in extracting valuable insights from intricate datasets, supporting data-driven decision-making.

Even though there are advantages, quick engineering comes with various obstacles. Bias and fairness pose important issues, as prompts that are poorly designed may introduce or perpetuate stereotypes and inaccuracies. Furthermore, AI language models come with built-in limitations and may not consistently understand prompts as intended, underscoring the importance of knowing the model's boundaries and abilities. Ethical considerations play a vital role in ensuring AI is used responsibly, preventing the creation of harmful or deceiving content. Dealing with these challenges requires setting up guidelines and optimal methods for quick design. It is anticipated that as we look ahead, advanced engineering will continue to grow in complexity.

Progress can involve creating prompts that change according to AI reactions or user engagement, increasing the model's flexibility. Customized engagements based on the specific preferences and requirements of each user are expected to increase in popularity. Additionally, combining prompt engineering with other AI technologies like multimodal models that handle various types of data will result in more well-rounded and adaptable AI systems. In conclusion, efficient engineering is crucial in enhancing AI interactions across various fields, from content creation to customer support, and will progress alongside advancements in AI technologies.

7. AI in different Sectors:

Artificial intelligence (AI) has made significant inroads into sectors, changing traditional processes and driving innovation. Here's how AI is changing various market segments:

1. **Health services:** In the health care system, AI is changing diagnosis, treatment and patient care. Devices equipped with artificial intelligence improve medical imaging by making X-ray, MRI and CT scans more accurate and faster. For example, AI algorithms can detect early signs of diseases such as cancer and diabetic retinopathy with great accuracy. AI can also power medicine by analyzing patient data to recommend appropriate treatment plans. In drug discovery, AI accelerates the identification of potential drug candidates and predicts their effectiveness. AI-powered virtual health assistants and chatbots provide health information to patients and manage appointments, thereby simplifying healthcare.
2. **Finance:** The financial sector uses artificial intelligence to improve various operations. Artificial intelligence algorithms are used to detect fraud by analyzing transaction patterns and identifying anomalies that indicate fraud. In risk management, AI helps to predict market trends and assess credit risk, thus making investment and credit approval decisions possible. Powered by artificial intelligence, robo-advisors offer personalized financial advice and financial management, making investment services even simpler. In addition, AI improves customer service through chatbots that handle common questions and transactions, reducing operational costs and improving the customer experience.
3. **Marketing:** Artificial intelligence is changing marketing by improving the customer experience and optimizing operations. AI-powered recommendation systems analyze customer behavior and preferences to provide personalized product recommendations, increasing sales and customer satisfaction. In inventory management, AI predicts demand and optimizes inventory levels, reducing overstock and inventory. AI chats and virtual assistants help customers with questions, product recommendations and order tracking. In addition, AI is used in dynamic pricing strategies, adjusting prices based on market demand, competition and other factors to increase revenue.
4. **Infrastructure:** In manufacturing, AI drives efficiency and innovation through automation and predictive maintenance. Robots equipped with artificial intelligence and automated systems will perform repetitive tasks such as assembly, gluing and packaging and improve the speed and quality of production. Predictive maintenance uses artificial intelligence to analyze data from machine tools to predict equipment failures before they occur, reducing downtime and maintenance costs. AI is also being used for quality control, where it checks products for errors using computer vision, ensuring higher standards and fewer errors in the final product.
5. **Transportation:** and logistics Artificial intelligence will transform the transportation sector and the sector by improving efficiency and safety. Self-driving cars powered by artificial intelligence will revolutionize the way people and goods are transported, and companies like Tesla and Waymo are leading the way in self-driving technology. AI algorithms optimize parts and supply chain management by predicting demand, managing inventory and streamlining delivery routes. In vehicle management, vehicle performance and driver behavior are monitored to improve safety and performance.
6. **Education:** In education, artificial intelligence is used to create personalized learning experiences and improve organizational processes. AI-powered learning platforms adapt to individual learning styles and needs, providing

content and feedback. Intelligent learning systems provide more support to students and help them master challenging concepts. Artificial intelligence is also used to automate administrative tasks such as grading and scheduling, allowing teachers to focus more on teaching and student engagement.

7. **Entertainment and Media:** It will significantly impact the entertainment and media industry by increasing content creation and personalization. AI algorithms analyze the preferences of viewers to recommend movies, series and music according to individual tastes. In content creation, AI tools help to generate text, music and visual effects, speeding up production processes. Artificial intelligence is also used in games to create immersive and immersive gaming experiences through non-player intelligent features and dynamic game environments.
8. **Agriculture:** Artificial intelligence is changing agriculture by optimizing farming methods and increasing yields. AI systems analyze satellite images and sensor data to monitor crop health, predict weather patterns and optimize irrigation. Autonomous drones and robots perform tasks such as planting, harvesting and monitoring crops, reducing labor costs and increasing efficiency. AI-powered analytics help farmers make data-driven decisions and improve productivity and sustainability.

In short, AI is creating a profound impact across sectors, improving efficiency, innovation and customer experience. The applications are huge and still evolving, and AI is playing a big role in shaping the future of various industries.

8. Market Size and Spending on AI:

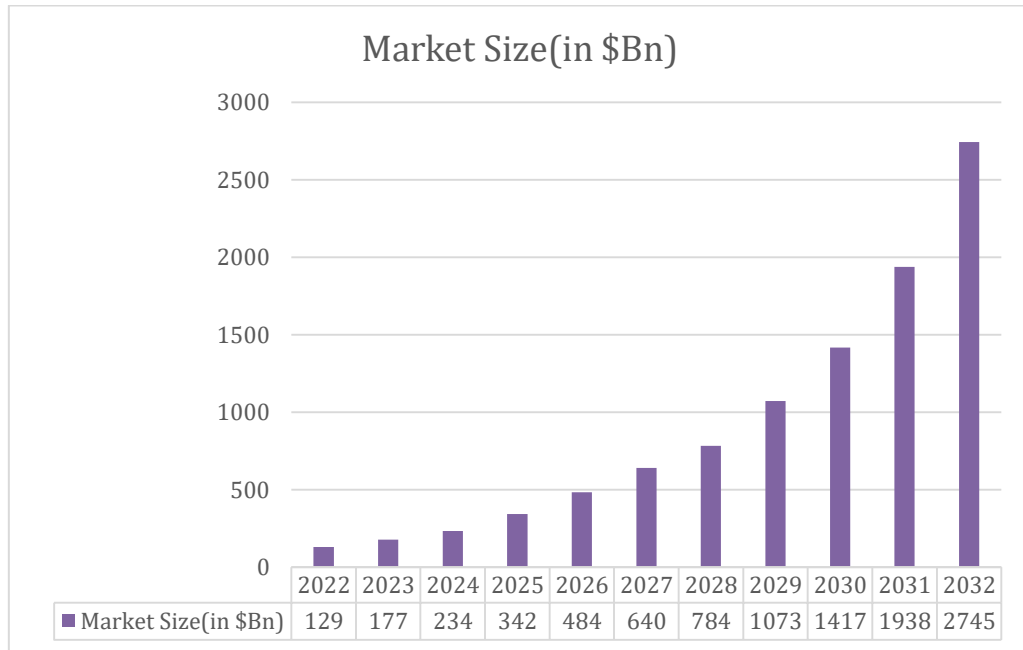
The market size and investment in Artificial Intelligence (AI) are significantly increasing, showcasing the technology's expanding influence in multiple sectors. Recently, there has been a significant increase in the global AI market, reaching a valuation of around \$136 billion in 2022. Estimates suggest that this sector is on track to hit approximately \$500 billion by 2025, propelled by a CAGR of roughly 35%. The impressive growth is driven by the growing incorporation of AI technologies in business operations and consumer products. North America, especially the US, leads as the biggest AI market, backed by substantial investments in AI research and development along with a strong technology ecosystem. At the same time, Europe and the Asia-Pacific region are also witnessing fast expansion, with significant input from nations such as China and India. Expenditure on artificial intelligence includes funding for AI programs, devices, and assistance, incorporating research, execution, and upkeep.

By 2023, it was projected that worldwide business expenditures on AI would surpass \$300 billion, with notable funding in AI-powered tools like data analysis, AI learning, and automation. The AI software sector, consisting of AI platforms and data analytics tools, accounts for a large portion of AI investment, with AI services like consulting and system integration also experiencing significant growth due to organizations' need for guidance in implementing and enhancing AI solutions. Spending around \$60 billion in 2023 is essential for progressing technologies through investment in AI research and development. This involves financial support for progress in machine learning, natural language processing, and robotics.

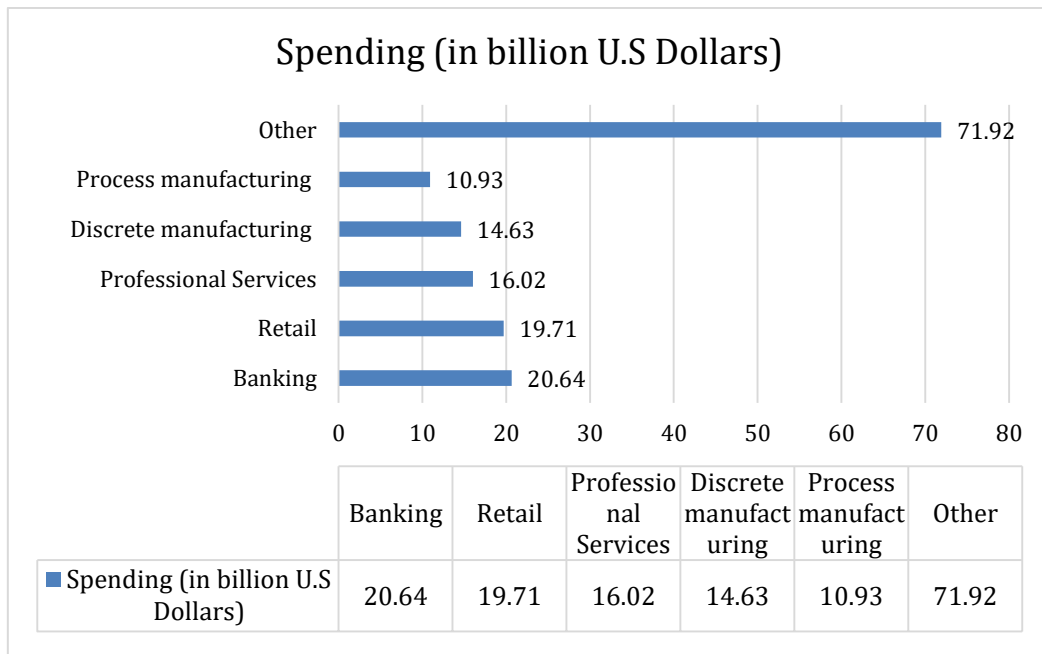
Government and public sector investment in AI is increasing, as governments strive to boost economic growth, enhance public services, and strengthen national security. AI spending in the future appears optimistic, thanks to technological progress, wider usage in various sectors, and the increasing importance of AI in daily activities. Spending in different industries shows the wide range of AI applications: healthcare is seeing increased investments in advanced diagnostics and personalized medicine, finance is heavily focused on using AI for fraud detection and risk management, and retail is utilizing AI technologies to improve customer experiences and optimize supply chains. As artificial intelligence progresses, its incorporation into corporate plans and products for customers will lead to increased investment and creativity, confirming its pivotal position in influencing the future of both sectors and communities.

9. Analysis and Calculations:

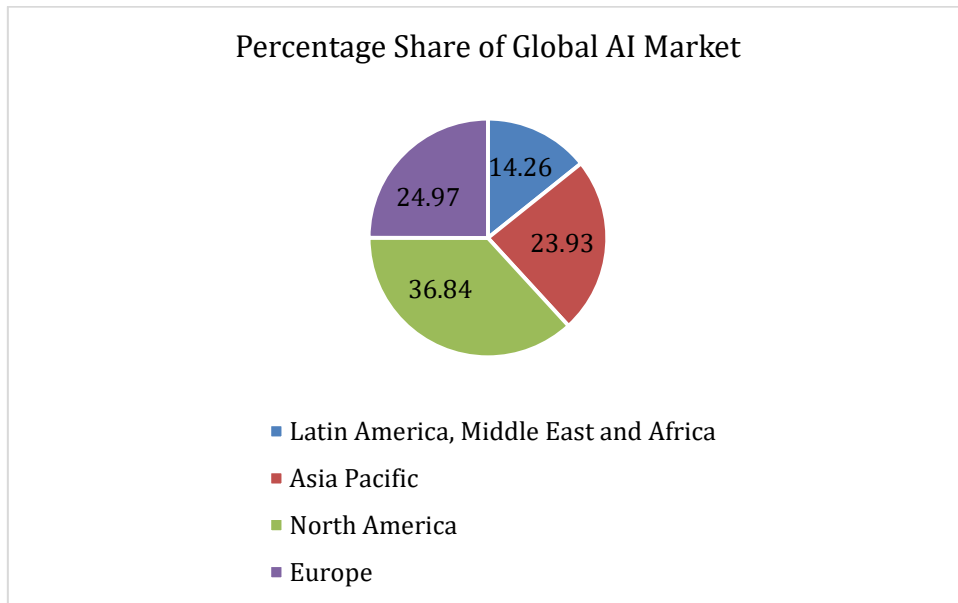
1. Market Size of Artificial Intelligence:



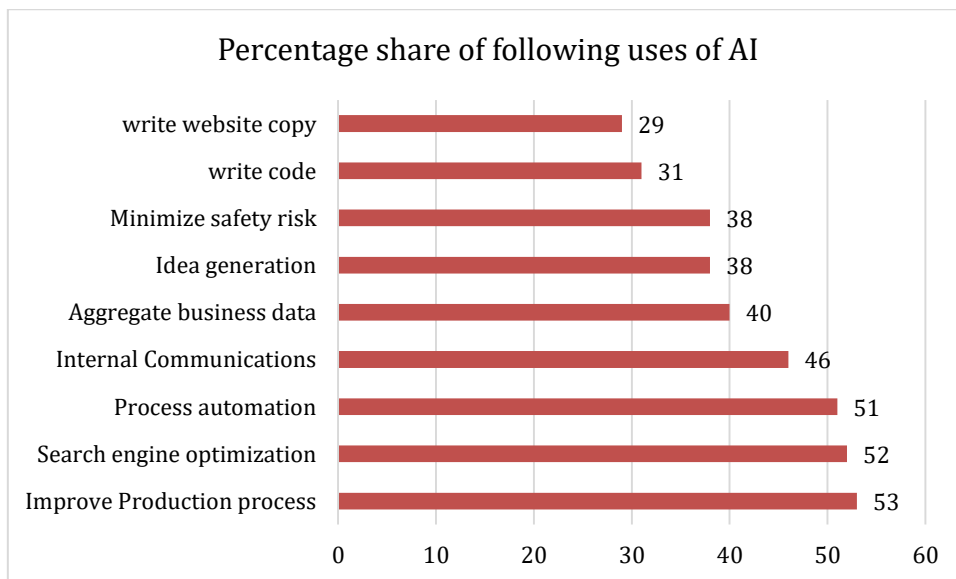
2. Estimate worldwide spending on Artificial Intelligence(AI) BY Industry:



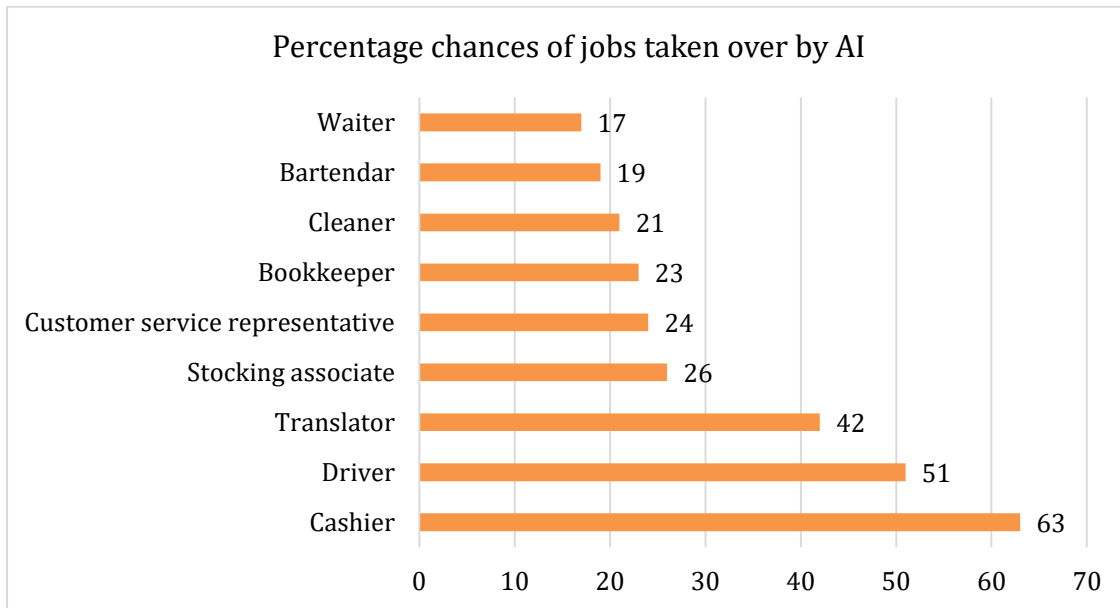
3. Percentage Share of AI market in different region:



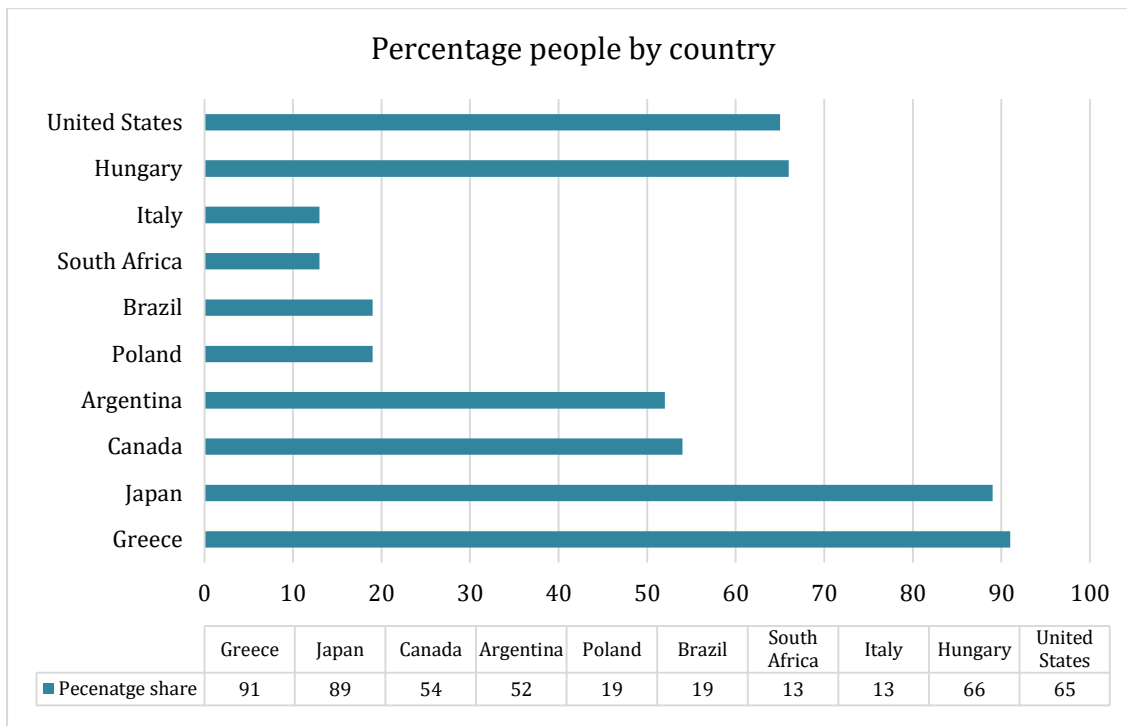
4. Different uses of AI and their following percentage share:



5. Percentage Chances of jobs taken over by AI:



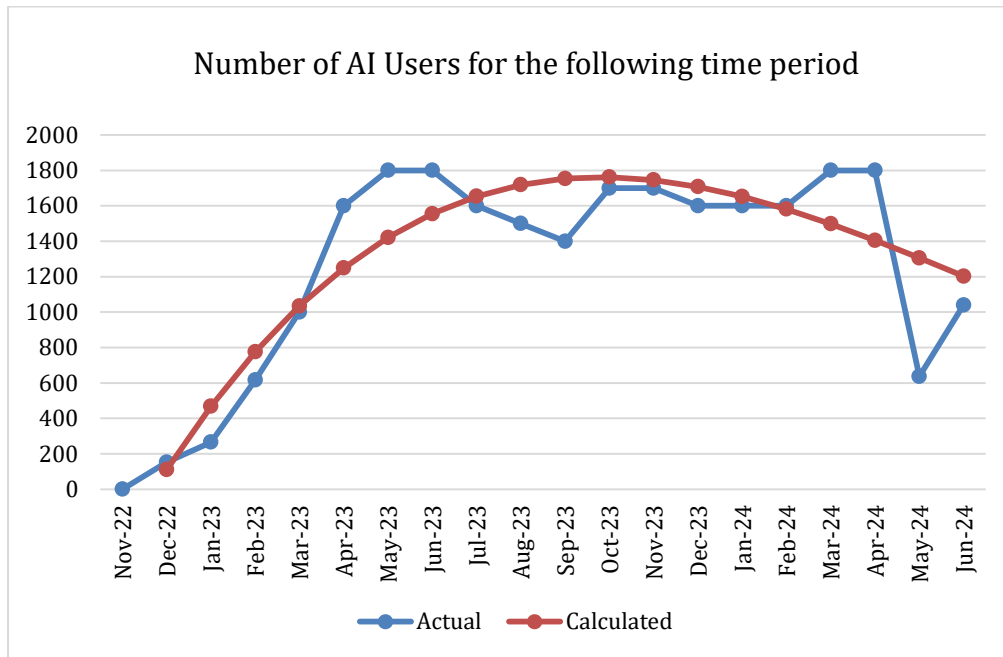
6. Share of people who believe AI will do the work by humans by Country:



➤ Mathematical Equations:

a. Actual vs Calculated AI users from November 2022 to June 2024

In graph, x-axis as years from November 2022 to June 2024 and Y-axis will show number of AI users (in millions). Let's consider November 2022 as 1, December 2022 as 2.....June 2024 as 20. After manually drawing graph and on excel. We concluded cubic equation covers maximum number of plots considering $y=ax^3+bx^2+cx+d$.

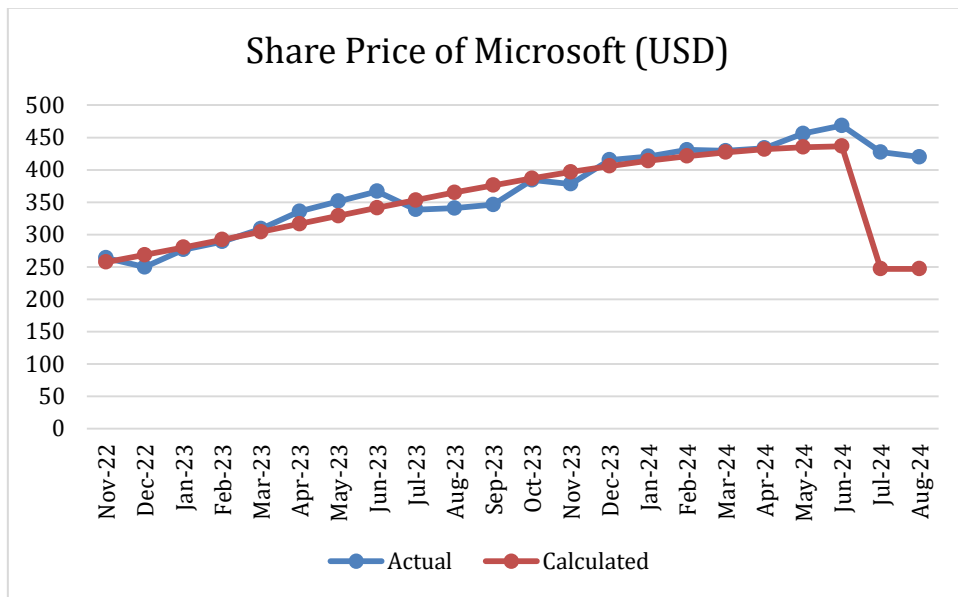


Formula: $y= 0.489*x^3 -28.21*x^2+438.57*x-300$

Where “y” represents number of AI users (in millions) and “x” represents 1, 2,3.....(1 represents November 2022, 2 represents December 2022 and so on).

b. Microsoft Share Price(in USD):

In graph, x-axis as years from November 2022 to August 2024 and Y-axis will show share price of Microsoft (USD). Let's consider November 2022 as 1, December 2022 as 2.....August 2024 as 22. After manually drawing graph and on excel. We concluded cubic equation covers maximum number of plots considering $y=ax^3+bx^2+cx+d$.

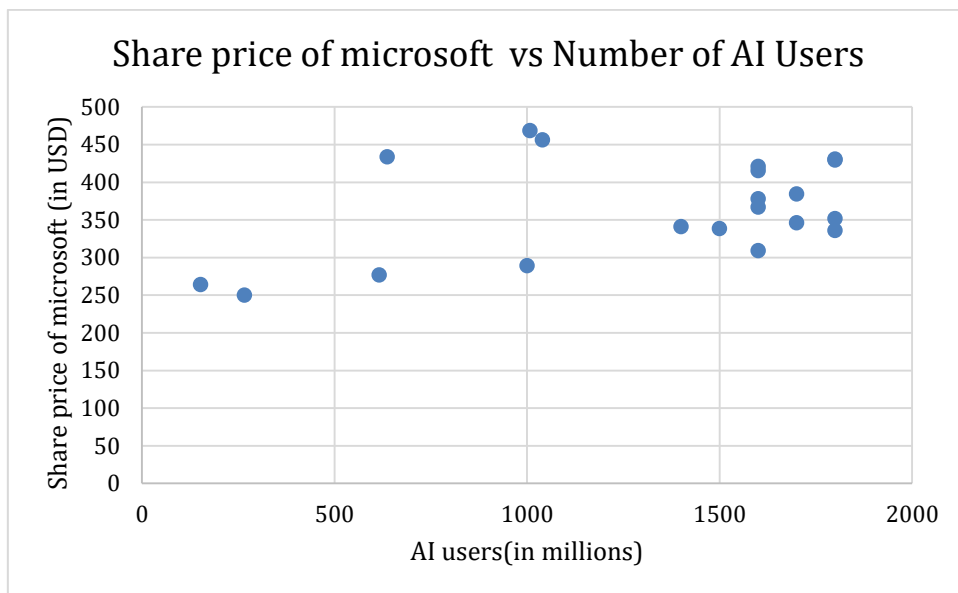


Formula: $y = -0.02 \cdot x^3 + 0.368 \cdot x^2 + 10.12 \cdot x + 247.02$

Calculated point are round off to nearest integer as goals can't be in fractions.

Where "y" share price of Microsoft (USD) and "x" represents 1, 2, 3..... (1 represents November 2022, 2 represents December 2022 and so on).

- c. Correlation between Share Price of Microsoft(in USD) and Number of AI users (in million) from November 2022 to June 2022:



As Microsoft is major stakeholder in Chat GPT and uses their model in their products. Still the correlation is less.

Correlation coefficient = 0.476

Stock Price is averagely affected by number of users.

10. Conclusion :

Analysis of the use of artificial intelligence in various parameters reveals a dynamic and rapidly growing landscape. The size of the AI market is increasing due to advancements in technology and increasing use across industries. Spending on artificial intelligence has increased, reflecting its important role in driving innovation and productivity. Different regions show different levels of investment and development, with North America and Asia-Pacific leading the way due to their strong technological infrastructure and their extensive research. The distribution of the AI market reflects the dominance of the major players, with Microsoft holding a prominent position due to its extensive funding and strategic investment in AI technologies. The mathematical equation for estimating the number of AI users can be expressed as: Number of AI Users = Total Population × Adoption Rate Number of AI

Users=Total Population × Adoption Rate

Where the Adoption Rate reflects the percentage of the population utilizing AI technologies. This equation helps quantify the growing penetration of AI in everyday applications and business environments. The correlation between market size, spending, and the share of leading technology companies like Microsoft indicates a strong relationship between increased investment in AI and the market dominance of established firms. As organizations continue to allocate more resources towards AI development, the market share of key players is likely to expand further, driving innovation and setting new industry standards. In conclusion, the pervasive influence of AI across various sectors underscores its transformative impact on the global economy. As technology advances and markets change, continued analysis and strategic investment are critical to harnessing the power of AI.

"The best way to predict the future is to create it." - Peter Drucker.

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12. Biographies:

Sana

- High school graduate 2024, 'Blue Star Senior Secondary Public School, Hamirpur'
- Discipline captain in the school cabinet.
- President of Cultural Activities Club(2023-24)
- Founder of coding club at my school, as an initiative to help young students build programming skills.
- Organised Symposium-2024 for pharmacy and pharmaceuticals.
- Organised a spring cleaning drive in my community. (2024)
- IBM Full Stack Developer Professional Certification (2023-24)
- Volunteer at regional hospital for covid vaccination(2021)
- First in environment day poster making competition (2022)

- Second in inter school landscape painting competition (2023)
- 1st in classical music competition(synthesizer) (2022)
- Participated in regional and state level Table Tennis tournaments (2021-24)
- Participated in national and state level Karate-Kumite by KIO(Karate India Organisation)(2021-24)
- First in regional MTB tournament(2023)
- Intermediate Course in snow skiing (2020)
- Advance course in snow skiing(2021)
- Winter ice skating course (2021-24)
- Advance mountaineering course(2022)
- First in school level march-past competition (2021)
- Organised and participated in blood donation camp(2024) and donated blood twice in the same year.

Under the guidance of:

Dr. Mamta Jain

- M.Sc (Mathematics) (Double gold medalist)
- M.Phil (Computer Applications) with honors From University of Roorkee (now IIT Roorkee)
- PhD (Mathematics) -Various papers published in international journals
- Former Lead Auditor ISO 9001,ISO -22000 School Accreditation Examiner by QCI
- 26 years of teaching experience
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