



Democratisation of Artificial Intelligence for the Benefit of Society and Humanity

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Abstract

Artificial Intelligence (AI) has become one of the most influential technologies of the twentyfirst century, impacting economies, governance, industry, and daily life (Brynjolfsson & McAfee, 2017; Russell & Norvig, 2020). While AI has the potential to boost productivity, innovation, and quality of life, its development remains concentrated in a few advanced nations and large tech companies. This raises concerns about technological inequality, digital monopolies, and unequal access to AI benefits. The democratisation of AI aims to improve accessibility, affordability, transparency, and ethical governance. This paper reviews AI's technological evolution, its sectorial applications in industry, education, healthcare, and governance, and the economic dominance of few large corporations (Manyika et al., 2022; World Economic Forum, 2023). It discusses challenges such as the high cost of training large models, infrastructure needs, including GPUs and data centres, energy consumption, and skilled manpower shortages. Effective democratisation must address both AI creators and users, operating at production and access levels. Using policy analysis and case studies, the paper explores global efforts and India's emerging role in fostering inclusive AI governance (Government of India, 2024; NITI Aayog, 2020). The conclusion emphasises that democratising AI is vital for equitable progress, requiring coordinated action by governments, industry, and academia to ensure AI benefits all of society and humanity (UNESCO, 2022; United Nations, 2023).

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Democratisation of Artificial Intelligence for the Benefit of Society and Humanity

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Abstract

Artificial Intelligence (AI) has become one of the most influential technologies of the twentyfirst century, impacting economies, governance, industry, and daily life (Brynjolfsson & McAfee, 2017; Russell & Norvig, 2020). While AI has the potential to boost productivity, innovation, and quality of life, its development remains concentrated in a few advanced nations and large tech companies. This raises concerns about technological inequality, digital monopolies, and unequal access to AI benefits. The democratisation of AI aims to improve accessibility, affordability, transparency, and ethical governance. This paper reviews AI's technological evolution, its sectorial applications in industry, education, healthcare, and governance, and the economic dominance of few large corporations (Manyika et al., 2022; World Economic Forum, 2023). It discusses challenges such as the high cost of training large models, infrastructure needs, including GPUs and data centres, energy consumption, and skilled manpower shortages. Effective democratisation must address both AI creators and users, operating at production and access levels. Using policy analysis and case studies, the paper explores global efforts and India's emerging role in fostering inclusive AI governance (Government of India, 2024; NITI Aayog, 2020). The conclusion emphasises that democratising AI is vital for equitable progress, requiring coordinated action by governments, industry, and academia to ensure AI benefits all of society and humanity (UNESCO, 2022; United Nations, 2023).

Keywords: *Artificial Intelligence, Democratisation, Machine Learning, Large Language Models (LLMs), GPUs, Society*

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1. Introduction

Artificial Intelligence has progressed from a theoretical academic topic to a powerful technological force transforming the modern world (Russell & Norvig, 2020; Brynjolfsson & McAfee, 2017). AI now influences diverse sectors such as healthcare diagnostics, industrial automation, digital finance, education, and scientific research. The swift advancement of machine learning algorithms, deep neural networks, and generative AI systems has significantly enhanced machines' capacity to carry out tasks once considered exclusive to human intelligence.

The democratisation of AI involves expanding access to AI technologies, computational resources, research tools, and educational materials, allowing individuals, businesses, and governments worldwide to leverage AI progress (OECD, 2019; UNESCO, 2022). This is particularly important for developing economies, as better access to AI can significantly enhance economic growth, improve governance, and promote public welfare (Manyika et al., 2022; United Nations, 2023).

Effective democratisation must include both AI creators and users. AI creators include researchers, startups, academic institutions, and independent developers who build and train AI models. Currently, the development of advanced AI systems is mainly controlled by a few large technology companies due to high costs related to infrastructure, data, and specialised talent. While these creators develop AI technologies, the goal of democratisation is

to ensure AI benefits society as a whole. Achieving this requires making AI tools accessible and usable by individuals, businesses, and governments.

The research is based on the premise that only a few countries and big tech giants dominate the AI ecosystem, and to reach the current level of AI mastery, they have invested a considerable amount of money. They need to recover the costs and earn substantial profits. For geopolitical dominance, such niche technologies are not shared freely. So, what is the option to democratise? There needs to be a global push to share resources and technology. Since the investments are heavy, countries must contribute to initial funding and provide support. With technology accessible to scientists, entrepreneurs, start-ups, and students, new innovations and applications will emerge at lower costs, fostering competition and reducing expenses. This should initially lower costs for individual AI users, which will, in turn, decrease costs for businesses and eventually make AI technology available to everyone. This research investigates the technological and economic aspects of artificial intelligence, analysing the opportunities and challenges involved in making AI accessible to all. It also examines government policy initiatives, with a focus on India's growing role in promoting inclusive AI development.

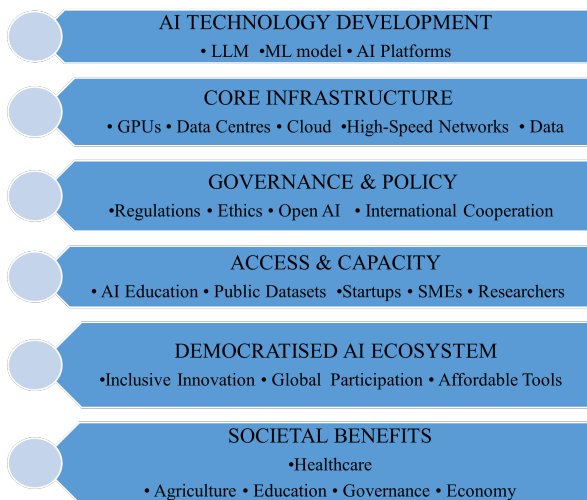


Figure 1: Conceptual Framework for Democratisation of AI: Global AI Ecosystem
Source: Compiled by the Author.

2. Literature Review

The AI literature has expanded greatly over the past decade, emphasising AI's growing importance in economic and social systems. Early research primarily focused on computational theory and algorithms. Russell and Norvig (2020) define artificial intelligence as designing systems that can perform tasks requiring human intelligence, such as reasoning, learning, perception, and language understanding.

Brynjolfsson and McAfee (2017) view AI as a general-purpose technology similar to electricity and the internet, with the potential to transform entire economic systems. Their research shows that AI could greatly alter labour markets and productivity trends (Acemoglu & Restrepo, 2020). They also explore how automation and AI impact employment and economic inequality, highlighting that while AI can boost productivity, it may also create disruptions in the labour market without appropriate policy measures.

Numerous experts have voiced concerns about the dominance of AI development by a small group of large tech firms. According to research from the World Economic Forum (2023), a handful of companies with sufficient financial resources, computational infrastructure, and technical expertise control the global AI scene.

Recent research has focused on AI democratisation, aiming to expand access to AI technologies and ensure its benefits are shared fairly (Seger et al., 2023). Experts point out that reaching this goal involves addressing challenges such as infrastructure, cost, data accessibility, and regulatory policies (Floridi & Cowls, 2019). Furthermore, AI studies are increasingly examining ethical and societal issues, emphasising responsible governance, algorithmic transparency, and protecting individual rights within an AI-driven environment (Jobin et al., 2019; UNESCO, 2022). This research takes a technology governance approach, investigating how factors like infrastructure, computational resources, regulations, and human capital influence the global distribution of AI capabilities.

3. Research Methodology

This study conducts a qualitative policy analysis to examine the democratisation of artificial intelligence by integrating secondary data analysis, case studies, and comparative policy evaluation. It mainly relies on secondary data from credible sources such

as academic journals, industry reports, government policy documents, financial disclosures from AI companies, and reports from international organisations. These sources provide insights into the technological, economic, and policy dimensions of AI development. To illustrate the practical progression of AI technologies and their broader effects, case studies like the United States' dominance in AI, the Netherlands' leadership in the global semiconductor industry, and China's Control over critical minerals are analysed, with a focus on their influence on AI democratisation. The framework is based on technology governance principles and examines four key areas: access to technology, infrastructure and computing resources, economic obstacles, and the availability of skilled human capital.

4. Understanding Artificial Intelligence and its Applications across Key Sectors

Artificial Intelligence consists of computational systems that perform tasks typically requiring human intelligence, like learning, reasoning, and decision-making. Progress in algorithms, big data, and high-performance computing has accelerated AI development, enabling its application across various industries, government, and daily digital services (Brynjolfsson & McAfee, 2017; Russell & Norvig, 2020).

Machine Learning enables systems to analyse large datasets and improve performance without explicit instructions. Deep Learning, a more sophisticated form of machine learning that uses neural networks, has led to significant advances in speech recognition, image processing, and autonomous systems (Goodfellow et al., 2016; Russell & Norvig, 2020). Natural Language Processing enables machines to comprehend and generate human language, supporting technologies like chatbots, translation services, and virtual assistants. Generative AI and Large Language Models now create human-like text and multimedia content, revolutionising research, business, and digital communication (Floridi et al., 2018; Seger et al., 2023). AI applications across sectors foster innovation in manufacturing, finance, healthcare, education, and research by boosting efficiency and data-driven decisions. Their adoption increases productivity, facilitates personalised services, and drives economic growth and better quality of life (Manyika et al., 2022; OECD, 2019).

5. Global AI Industry and Major Technology Companies

a) Leading AI Countries and Industries

The global AI industry is mainly controlled by a small number of large tech companies that have the financial strength, advanced infrastructure, and technical skills required for extensive AI research and development. Key players include OpenAI, Google (Alphabet), Microsoft, NVIDIA, Meta, and Amazon. These companies spend billions each year on AI research, infrastructure, and product development. Their investments drive progress in machine learning, generative AI, robotics, and cloud AI services. (Acemoglu & Restrepo, 2020; OECD, 2019)

Each of these companies plays a distinct role in shaping the global AI landscape. For instance, NVIDIA is vital because it produces high-performance Graphics Processing Units (GPUs), which are crucial hardware for training and deploying complex AI models. These GPUs are employed in large-scale AI training clusters housed in hyper scale data centres managed by tech companies and cloud providers. Without this specialised hardware, developing modern large language models would be significantly

more difficult. Meanwhile, companies like Microsoft and Google have developed extensive cloud computing platforms that provide AI tools, data storage, and computational resources through on-demand services. This cloud infrastructure allows businesses, researchers, and start-ups to access advanced AI capabilities without the need for expensive hardware investments.

Companies such as Meta and Amazon are heavily investing in AI for social media, digital marketing, and e-commerce, while also developing their own machine learning tools and research initiatives. Despite rapid progress by these industry leaders, the concentration of AI power in a small number of firms raises concerns. Critics fear this could foster monopolies, stifle competition, and limit access to AI resources. Therefore, policymakers and researchers are stressing the importance of democratising AI to ensure that innovation and economic benefits are shared more broadly across society. Cockburn, I., Henderson, R., & Stern, S. (2019).

Table 1: Estimated Global Distribution of AI Compute Capacity

Country / Region	Share of Global AI Compute Capacity	Major AI Infrastructure	Key Companies / Institutions
United States	~55–60%	Hyperscale cloud data centres, GPU clusters	OpenAI, Google, Microsoft, Amazon
China	~20–25%	National AI supercomputing centres	Baidu, Alibaba, Tencent
European Union	~10%	AI research clusters and HPC systems	DeepMind, SAP, research institutes
United Kingdom	~5%	AI research hubs	DeepMind, university labs
India	~2–3%	Emerging AI computing infrastructure	IndiaAI Mission, startup ecosystem
Japan	~2%	Robotics and AI research	SoftBank, research institutes
Rest of World	<5%	Limited compute infrastructure	Universities and small clusters

Note: The percentage shown is an estimate based on global AI infrastructure reports.

Source: Author’s compilation based on Ahmed & Wahed (2020), Stanford AI Index Report (2024), OECD (2019), and World Economic Forum (2023).

Interpretation: The global AI ecosystem demonstrates a high concentration of technology, with more than 75% of AI computing capacity situated in the United States and China.

b) Investment in AI

AI investment has increased nearly 18-fold over the past decade. Key drivers include Generative AI, Cloud computing, semiconductor innovation, and AI startup ecosystems. These AI technologies depend heavily on foreign platforms and have limited participation in global AI innovation. The figure below illustrates the global AI investment figures over the last 10 years.

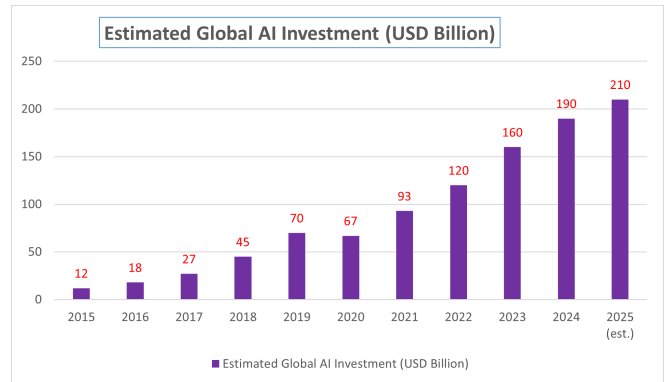


Figure 2: Global Investment in Artificial Intelligence (2015–2025) Source: Estimated global AI investment based on industry and institutional reports.

c) Jump in AI Computing Power

Over the last seven years, global AI computing capacity has grown significantly, driven by the rapid increase in digital data and improvements in computing infrastructure. The widespread adoption of smartphones and mobile internet has produced enormous amounts of data through social media, digital communication, location tracking, and app usage. At the same time, the expansion of online financial services - such as digital banking, mobile payments, e-commerce, and real-time transactions has generated large datasets requiring advanced analytics and AI-based fraud detection. As a result, AI training compute has grown exponentially over the past decade (Besiroglu et al., 2024), with estimates showing multiple orders of magnitude increase since the late 2010s. This data surge, along with advances in computational power and storage, has created unprecedented demand for AI solutions across industries. The following data offers insights into AI training compute and related costs.

Table 2: Growth of AI Compute Power

Year	Typical AI Training Compute (FLOPs)	Estimated Training Cost
2012	10 ¹⁶ FLOPs	<\$50,000
2015	10 ¹⁸ FLOPs	\$100,000
2018	10 ²⁰ FLOPs	\$1–5 million
2020	10 ²² FLOPs	\$10–20 million
2023	10 ²⁴ FLOPs	\$50–100 million
2025 (Frontier models)	10 ²⁵ FLOPs	\$100–500 million

Source: Besiroglu, T., et al. (2024). *Compute Trends in Machine Learning*. Epoch AI Research.

Interpretation: AI compute needs are expanding rapidly as the expenses for frontier models have risen sharply. This pattern clarifies why major corporations primarily lead AI development.

6. Challenges in Democratising AI

a) Need for Democratisation of AI

Democratising AI involves expanding access to artificial intelligence so that individuals, businesses, and governments worldwide can benefit from its advancements. This is important because AI has the potential to greatly increase economic productivity and social well-being. Increased access can also help close economic gaps between countries and regions. When only a few large firms control AI, it can create monopolies that hinder innovation

and competition. Additionally, greater access enables small businesses, researchers, and entrepreneurs to develop new solutions and address societal challenges. Ultimately, democratizing AI fosters more inclusive and ethical governance of these emerging technologies.

b) Cost of Training Large Language Models

Training large AI models demands vast computational resources. These advanced models are developed using thousands of specialised processors over long durations. The costs of training a sizable language model can exceed tens of millions of dollars, primarily due to the high costs of computing infrastructure and electricity.

Table 3: Estimated Cost of Training Major Large Language Models (LLMs)

Model / AI System	Developer	Estimated Training Cost (USD)	Estimated Compute Requirements	Key Cost Components
GPT-3	OpenAI	\$4–12 million	Thousands of GPUs over several weeks	GPUs, electricity, engineering labour
GPT-4	OpenAI	> \$100 million	Massive GPU clusters and advanced infrastructure	GPU clusters, data processing, energy, R&D staff
Gemini Ultra	Google DeepMind	~\$191 million (estimate)	Large distributed AI clusters	GPU/TPU hardware, cloud infrastructure
DeepSeek-R1	DeepSeek (China)	~\$294,000	512 NVIDIA H800 chips	GPU compute, engineering costs
Sovereign LLM (10T tokens estimate)	Research models	\$8–32 million depending on GPU type	H100 vs A100 clusters	Hardware, electricity, training time

Source: Author’s compilation is based on Brown et al. (2020), Patterson et al. (2021), Stanford AI Index (2024), Patel & Ahmad (SemiAnalysis 2023–2024), DeepSeek Technical Report (2024), and Epoch AI compute trend analysis.

Interpretation: Recent years have seen a sharp rise in the cost of training frontier AI models. The cost of GPT-4 training alone reportedly exceeded \$100 million, underscoring the significant capital required to develop cutting-edge models.

c) Cost of GPUs and Data Centres

Modern AI systems rely on specialised hardware such as Graphics Processing Units (GPUs). High-performance GPUs used for AI training can cost tens of thousands of dollars each. Large AI training clusters may contain thousands of GPUs, resulting in infrastructure costs of hundreds of millions of dollars. In addition to hardware, data centres also need significant investments in cooling systems, networking, and security.

Table 4: Cost Structure of AI Hardware Infrastructure (GPUs and AI Servers)

Component	Typical Cost	Description	Role in AI Development
NVIDIA H100 GPU	\$25,000 – \$40,000 per GPU	Most widely used chip for training large AI models	Core AI compute unit
AI GPU Server (8 GPUs)	\$200,000 – \$400,000	Multi-GPU training servers	Used for model training clusters
GPU Server Rack	Up to \$500,000	Includes networking and storage	High-density compute infrastructure
GPU Cloud Rental	\$2 – \$7 per GPU per hour	Access to GPUs via cloud providers	Reduces capital expenditure
DGX AI Supercomputer System	\$400,000 – \$500,000	Enterprise-level AI training system	Used by large tech companies

Source: Author’s compilation based on NVIDIA DGX system documentation (2023), SemiAnalysis AI compute reports (2023), Uptime Institute Data Center Survey (2023), and cloud provider pricing data (AWS, Azure, Google Cloud).

Interpretation: Advanced GPUs such as the NVIDIA H100 cost between \$25,000 and \$40,000 each, making large AI clusters extremely expensive. An 8-GPU AI server may cost \$200,000–\$400,000, while full GPU racks may exceed \$500,000.

Table 5: Cost Structure of AI Data Centres

Cost Component	Percentage of Total Cost	Typical Investment Range	Description
AI Accelerators (GPUs/TPUs)	40–50%	\$10M–\$1B+	Core computing hardware
Servers & Networking	15–25%	\$5M–\$500M	Servers, interconnects, switches
Power Infrastructure	10–20%	\$5M–\$200M	Electrical systems, transformers
Cooling Systems	10–15%	\$2M–\$100M	Liquid cooling and HVAC
Land & Buildings	5–10%	\$5M–\$500M	Real estate and construction
Operations & Maintenance	5–10%	\$1M–\$50M annually	Staff, monitoring, upgrades

Source: Author’s compilation based on IEA (2024), Uptime Institute Global Data Center Survey (2023), Lawrence Berkeley National Laboratory (2016), and McKinsey Global Data Center Report (2023).

Interpretation: Hyper scale AI facilities may reach tens of billions of dollars, depending on power capacity and compute scale

d) Energy Requirements

AI model training consumes significant amounts of electricity and raises environmental concerns (Patterson et al., 2021; IEA, 2024). The high energy demand of large AI systems prompts companies to invest more in renewable energy and energy-efficient data centres to address these concerns.

Table 6: Energy Requirements of Large AI Systems

AI System	Estimated Energy Use	Context
Training GPT-4	~50 GWh energy	Equivalent to electricity consumption of thousands of households
AI query (LLM inference)	~0.3 Wh per query	Energy used for each user request
AI Data Centre (Hyperscale)	100 MW – 1 GW	Comparable to power consumption of a small city

Source: Compiled by the author based on Energy Institute (2025), IEA Energy and AI Report (2024), Oviedo et al. (2025), and environmental impact studies on large language models.

Implication: The energy demands of AI systems are rapidly increasing. Global data-centre electricity demand is expected to rise significantly as AI adoption expands.

e) Requirement of Skilled Manpower and High Salaries

Creating and implementing advanced AI solutions requires a highly specialised team, including machine learning engineers, data scientists, AI researchers, software architects, and data infrastructure specialists. These experts need strong skills in mathematics, statistics, computer science, algorithm creation, and big data management. The global demand for such talent greatly exceeds supply, creating a substantial gap. Consequently, salaries for experienced AI professionals are very high, especially in leading tech firms where top researchers can earn hundreds of thousands of dollars per year. (Besiroglu et al., 2024; Patterson et al., 2021)

f) Case Study: United States Dominance in Artificial Intelligence

The United States has solidified its position as the global leader in artificial intelligence through what experts call a “full-stack AI leadership strategy,” which combines sophisticated hardware development, innovative AI models, and substantial financial investment. Close collaboration among tech companies, universities, venture capital groups, and government policies has helped the U.S. lead in AI innovation, computing infrastructure, and private-sector funding (Stanford University, 2024; Manyika et al., 2022). A key element of this dominance is the country’s advanced semiconductor and computing infrastructure. Firms like NVIDIA, AMD, and Qualcomm develop high-performance chips for large-scale AI training, while cloud providers such as Google, Amazon, and Microsoft operate massive data centres offering extensive computational resources for training cutting-edge AI models.

The United States remains a leader in developing large language models and advanced AI systems. In 2024, U.S. companies like OpenAI and Anthropic contributed significantly to the global AI landscape, creating next-generation systems capable of autonomous reasoning and complex decision-making. These innovations have set international standards for AI development and use. A key factor in U.S. leadership is the substantial financial investment in AI; private sector funding reached about \$109 billion in 2024, the largest share worldwide. The concentration of venture capital, research institutions, and tech firms in areas such as Silicon Valley has fostered a strong innovation ecosystem, helping maintain the country’s leading role in global AI (World Economic Forum, 2023).

g) Case Study: Dutch Dominance in the Global Semiconductor Industry

Despite its small size, the Netherlands holds a significant influence in the global semiconductor sector. Its advanced technologies, specialised companies, and robust innovation ecosystem have enabled it to dominate key areas of semiconductor manufacturing equipment. As a result, the Netherlands plays a vital role in global digital supply chains that support sectors like modern computing, AI, and telecommunications (OECD, 2023; World Economic Forum, 2023). The country’s leadership is mainly due to its control over advanced lithography technologies, which are crucial for producing state-of-the-art semiconductor chips.

A central pillar of this dominance is **ASML**, the Dutch company that is the world’s sole producer of **Extreme Ultraviolet (EUV) lithography machines**, which are necessary for producing advanced chips used in AI processors, smartphones, and high-performance computing systems. EUV lithography enables semiconductor fabrication at extremely small scales, such as 3-nanometer and 5-nanometer nodes. Alongside ASML, other Dutch firms such as **ASM International** and **BE Semiconductor Industries (Besi)** specialise in critical technologies like atomic layer deposition and advanced semiconductor packaging. These technologies are essential for wafer fabrication and chip assembly in modern semiconductor production (Varas et al., 2021).

The Netherlands benefits from the Brainport Eindhoven innovation ecosystem, where industry, universities, and government work together to advance semiconductor research and development. This collaborative cluster enhances the country’s technological leadership and has significant geopolitical impacts. Dutch export controls on advanced lithography equipment, especially those related to semiconductor exports to China, highlight the Netherlands’ strategic role in global semiconductor supply chains and technological rivalry (European Commission, 2023).

h) Case Study: China’s Dominance in Critical Minerals

China has become a leading supplier of critical minerals vital to modern tech, including renewable energy, electric vehicles, electronics, and AI hardware. Key minerals such as lithium, cobalt, rare earth elements, graphite, and nickel are essential for the production of batteries, semiconductors, wind turbines, and defence systems. Over the last twenty years, China has actively invested in mining, processing, and global supply networks, enabling it to secure a large share of global production and refining capacity (IEA, 2023; World Economic Forum, 2023).

China’s prowess extends beyond mineral extraction to include **processing and refining**, where it leads the midstream supply chain stage. The nation handles a significant share of the world’s lithium, cobalt, and rare earths, vital for high-tech industries. Moreover, Chinese firms have heavily invested in overseas mining operations in Africa, Latin America, and Southeast Asia, aiming for long-term resource access - such as cobalt in the Democratic Republic of Congo and lithium in South America. This strategic management of critical mineral supply chains confers considerable geopolitical influence to China in the global tech arena (Lee, 2018).

i) Inference: Why Democratisation of AI Will Be a Challenge

The case studies of the United States, the Netherlands, and China demonstrate how the worldwide AI ecosystem is influenced by technological dominance and national capabilities. The US leads in AI model creation, computing infrastructure, and venture capital, providing a significant edge in innovation. The Netherlands primarily holds a near-monopoly on advanced semiconductor manufacturing equipment through firms like ASML, whose lithography systems are crucial for producing high-performance AI chips. Meanwhile, China manages key mineral supply chains,

including rare earth elements, lithium, and cobalt, essential for electronics and semiconductors. These examples collectively reveal that AI development relies on a complex global value chain controlled by a few nations, creating structural barriers that hinder the broader democratisation of artificial intelligence.

The distribution of AI resources has significant geopolitical implications. Countries controlling key elements of the AI supply chain - such as semiconductor equipment, computing infrastructure, or essential minerals - gain strategic influence in global tech rivalries. Actions like export controls, technology bans, and resource diplomacy are reshaping international relations in the digital age. As major powers compete for technological supremacy, these geopolitical tensions may obstruct the open spread of AI technologies, making it harder to democratise artificial intelligence worldwide.

7. India’s Role in Promoting AI Democratisation



India increasingly considers artificial intelligence a vital factor for economic growth, better governance, and technological advancement. Its policy focus is on democratising AI by making computing resources, datasets, and AI tools accessible not just to large tech companies but also to start-ups, academic institutions, and public sector organisations. This aligns with the broader ‘Viksit Bharat 2047’ initiative, aimed at creating an inclusive and technologically progressive economy. The government emphasises expanding digital infrastructure and implementing AI solutions across sectors such as agriculture, healthcare, education, and public administration to enhance service delivery and citizen well-being (Press Information Bureau [PIB], 2024; Ministry of Electronics and Information Technology [MeitY], 2024).

India is bolstering its AI ecosystem by establishing sovereign computing infrastructure and positioning high-end computing as a Digital Public Infrastructure (DPI), akin to the UPI model for digital payments. This strategy aims to combat “compute poverty” by ensuring affordable access to advanced computing resources. High-end GPU access costs around ₹65 per hour, which is nearly a third of the global average, enabling startups, researchers, and MSMEs to train large AI models without prohibitive costs. The deployment of 38,000 GPUs and 1,050 TPUs supports the creation of indigenous AI models, with companies like Sarvam AI, Soket AI, and Gnani AI already utilising this infrastructure. Furthermore, the AIKosh national dataset platform hosts thousands of datasets and AI models to foster research and innovation (PIB, 2024; MeitY, 2024).

India prioritises practical AI solutions that directly benefit its citizens. In agriculture, tools such as Kisan e-Mitra, the National

Pest Surveillance System, and Crop Health Monitoring use satellite images and weather data to assist farmers with crop management and pest control. In healthcare, AI supports early disease detection, diagnostics, and telemedicine, especially in remote areas. The Bhashini language platform, launched in 2022, promotes linguistic diversity by supporting over 36 Indian languages and integrating hundreds of AI models, enabling access to digital services in native languages (Press Information Bureau, 2023).

India’s growing digital innovation ecosystem further bolsters these efforts. The country boasts over two lakh startups, many integrating AI into their offerings, with the technology sector employing millions of skilled workers. Internationally, India champions cooperation through events like the India–AI Impact Summit, fostering inclusive AI progress and collaboration among Global South nations. These efforts establish India as an emerging leader in advancing the democratisation of artificial intelligence and creating an AI ecosystem centred on inclusive tech growth.

Table 7: India’s AI Infrastructure Strategy

Initiative	Implementing Agency	Key Objective	Infrastructure Component
IndiaAI Mission	Ministry of Electronics and IT	Build national AI ecosystem	National AI computing infrastructure
National AI Compute Facility	Government of India	Provide GPUs for researchers and startups	Public GPU clusters
IndiaAI Innovation Centres	Government + academia	Promote AI research and startups	AI labs and incubation centres
Public AI Datasets Programme	Government agencies	Provide open data for AI training	National data platforms
Skill Development Programmes	NASSCOM, universities	Train AI workforce	AI education and training
Digital India Programme	Government of India	Expand digital infrastructure	Broadband and cloud ecosystem

Source: Government of India - Ministry of Electronics and Information Technology (MeitY)

Inference: India’s approach emphasises making AI affordable and accessible, building public infrastructure, improving AI skills, and fostering open data ecosystems. This strategy is designed to drive economic growth and social development.

8. Policy Pathways for Democratising Artificial Intelligence

a) Democratisation of AI for Creators

The democratisation of artificial intelligence for creators aims to broaden opportunities for researchers, startups, academic institutions, and independent developers in designing and training AI systems. Currently, advanced AI models are mainly developed by a few large tech companies due to high computational costs, limited access to large datasets, and a shortage of specialised talent (Ahmed & Wahed, 2020; Seger et al., 2023). A key step toward democratisation involves improving access to high-performance computing resources like GPUs and data centres. Governments and research organisations can create national AI clusters and public computing facilities to offer affordable resources to universities, startups, and smaller firms. Cloud platforms are vital, allowing developers to rent computing power on demand rather than investing in expensive hardware. Open-source ecosystems based on frameworks such as TensorFlow and

PyTorch foster collaboration by enabling developers worldwide to build, modify, and enhance AI models. Sharing large public datasets via anonymised repositories and ethical data-sharing frameworks can also support AI research. Public funding, grants, and startup programmes are essential in spreading AI innovation more broadly and reducing the dominance of large corporations.

b) Democratisation of AI for Users

While enabling creators to develop AI technologies is crucial, the wider goal of AI democratisation is to ensure its advantages reach individuals, businesses, and public institutions across society. This involves making AI tools affordable, accessible, and easy for non-technical users to operate. Many AI services now utilise cloud-based platforms that offer subscription access to features like virtual assistants, automated analytics, and AI-driven design tools. These enable small businesses, educators, and professionals to incorporate AI into their work without needing advanced technical skills (Brynjolfsson & McAfee, 2017). Equally important is promoting AI literacy so citizens can understand how to use AI responsibly and effectively. Governments and educational institutions should invest in training programmes that teach basic AI concepts, provide hands-on experience, and raise awareness of ethical issues. Democratisation can also be achieved by embedding AI into public services such as healthcare diagnostics, agricultural advisory systems, and digital governance platforms (Floridi & Cowls, 2019; Seger et al., 2023). Furthermore, multilingual AI tools are vital to ensure inclusive access across different language communities. Robust regulatory frameworks addressing data privacy, algorithmic bias, transparency, and accountability are key to ensuring AI benefits society while minimising risks (UNESCO, 2022).

Table 8: Stakeholder Roles in AI Democratisation

Stakeholder	Role in Democratisation
Governments	Policy frameworks, infrastructure funding
Technology Companies	Innovation, platforms, AI tools
Universities	Research and skill development
Startups	Innovation and specialised AI applications
Civil Society	Ethical oversight and public engagement

c) Benefits of AI Democratisation for Society

The democratisation of artificial intelligence offers substantial societal advantages by broadening access to cutting-edge technology beyond just large corporations and highly developed nations. Increased availability of AI infrastructure, digital tools, and informational resources also enables startups, small businesses, and academic institutions to contribute to technological advances, fostering a more inclusive digital environment (Brynjolfsson & McAfee, 2017; OECD, 2019).

A major benefit of AI democratisation is its impact on economic productivity and industrial efficiency. AI facilitates data-driven decisions, automates routine tasks, and optimises manufacturing processes across various sectors. As AI tools grow more affordable, small and medium-sized enterprises can now access technologies that were once exclusive to large corporations, enhancing their competitiveness and fostering entrepreneurship (Manyika et al., 2022).

AI democratisation also supports healthcare, education, and agriculture. AI-based diagnostics improve disease detection, personalised learning platforms advance education, and data-driven

tools assist farmers in optimising crop management, fostering more inclusive and equitable social progress (UNESCO, 2022).

e) Policy Recommendations for the Democratisation of Artificial Intelligence

- 1. Develop public AI Infrastructure:** Governments should invest in national AI computing facilities equipped with GPUs, cloud platforms, and data centres to offer affordable computing resources to universities, startups, and research institutions.
- 2. Expand Access to Data Resources:** Developing open and anonymised datasets for the public can promote AI research and innovation while ensuring data privacy and adhering to ethical standards.
- 3. Encourage Open-Source AI Development:** Governments and research organisations ought to support open-source frameworks like TensorFlow and PyTorch to reduce barriers for developers and foster collaborative innovation.
- 4. Encourage Start-up Ecosystems:** Providing financial incentives, grants, and incubation programmes to support start-ups and small enterprises in AI innovation and development.
- 5. Enhance International Cooperation:** Fostering global collaboration via multilateral institutions, which can support the creation of common standards for AI governance, data sharing, and responsible technological progress.
- 6. Expand AI Education and Skill Development:** Investing in AI education across schools, universities, and training centres can help overcome the shortage of skilled AI professionals.
- 7. Encourage Interdisciplinary AI Training:** Integrating technical skills with ethics, policy, and social sciences to equip professionals for responsible AI management.
- 8. Establish ethical AI frameworks:** Regulations should promote transparency, fairness, accountability, and safeguard human rights in AI deployment.
- 9. Strengthen Data Privacy and Security Policies:** Regulations should protect personal data while allowing responsible AI development.
- 10. Promote responsible AI governance:** Through collaboration among governments, industry, and academia to make AI technologies inclusive, transparent, and beneficial for society.

f) Initiative by Developing Countries to make AI Accessible to All

As discussed earlier, AI technology is costly, and major countries and companies are unlikely to share it freely or easily. Geopolitical issues add further complexity. However, nations recognise that democratising AI is crucial for societal progress. What options are available for developing countries? They require significant central investment, which may be beyond the means of startups, researchers, and industries. Additionally, international cooperation is essential, along with efforts to improve the overall AI ecosystem.

The India AI Impact Summit 2026 in New Delhi highlighted key themes around democratising artificial intelligence. The

discussions centred on providing AI infrastructure, datasets, and digital tools to startups, researchers, and developing economies, rather than restricting them to a few global tech giants. The summit stressed the importance of inclusive AI development, capacity building, international cooperation, and applying AI to social sectors such as healthcare, agriculture, education, and climate change. Additionally, India advocated for a “frugal, sovereign, and scalable” AI ecosystem that supports innovation across the Global South, while ensuring responsible technology governance (Press Information Bureau, 2026; India AI Impact Summit Report, 2026).

In his keynote, Prime Minister Narendra Modi emphasised that artificial intelligence should be developed in a human-centric and inclusive way. He unveiled the “MANAV” vision for AI, stating that it needs to be moral, accountable, secure for the nation, accessible, and legitimate. Modi highlighted the need to democratise AI, insisting it should not be controlled by a few countries or corporations but should benefit all of humanity. He noted that AI should have “an open sky for innovation while the reins remain in human hands, “ensuring technological advances promote the well-being and happiness of society at large.

9. Conclusion

The global AI landscape is centred in the United States and China, which together account for over 75% of the world's AI computing capacity. This dominance results from cutting-edge semiconductor production, widespread cloud computing infrastructure, substantial investments in AI research, and a pool of highly skilled researchers. Countries with less developed AI infrastructure face challenges, such as reduced capacity to create their own AI technologies. The uneven spread of AI infrastructure highlights the broader digital divide between developed and developing nations (OECD, 2019).

The democratisation of AI aims to overcome these challenges by broadening access to AI tools, infrastructure, and expertise. Reaching this goal depends on collaborative efforts among governments, industry, and academia.

India and other emerging economies hold a vital role in fostering inclusive AI growth and ensuring AI's benefits reach everyone worldwide. Through effective policy-making, technological progress, and international collaboration, the democratisation of AI can play a crucial part in advancing societal and human progress.

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