



Enhancing the US - India Collaborative Landscape in Artificial Intelligence



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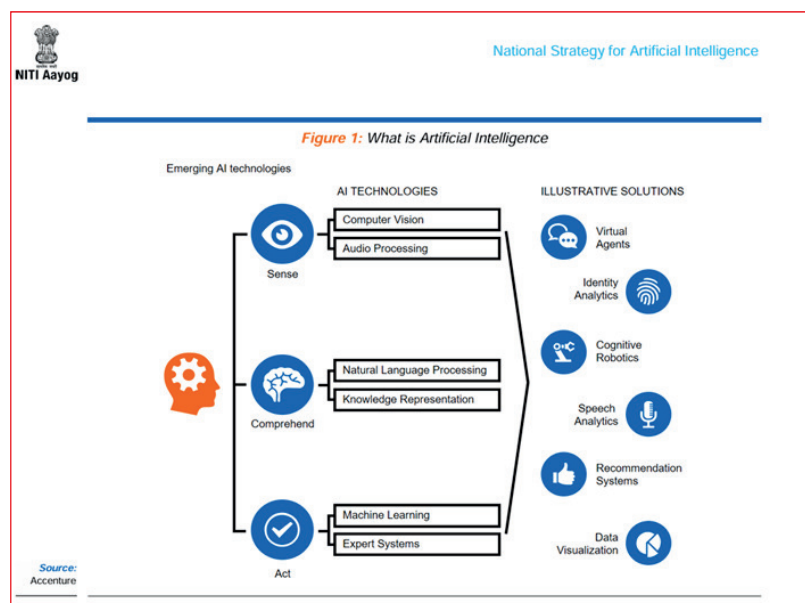
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Introduction

Artificial Intelligence (AI), a term coined by Emeritus Stanford Professor John McCarthy in 1955, was defined by him as “the science and engineering of making intelligent machines”.[1]

Artificial intelligence, commonly known as AI, is a branch of computer science focused on creating systems capable of performing tasks that normally require human intelligence. The artificial intelligence definition involves the development of algorithms and models that enable machines to learn from data, recognize patterns, and make decisions. This field encompasses various subfields, including machine learning, where systems improve their performance through experience, and natural language processing, which allows machines to understand and generate human language.



As the Fourth Industrial Revolution approaches, India can unlock its potential by strategically integrating AI technologies and investing in the education of future generations.

India, being the fastest growing economy with the second largest population in the world, has a significant stake in the AI revolution. Recognizing AI's potential to transform economies and the need for India to strategize its approach, Hon'ble Finance Minister, in his budget speech for 2018 – 2019, mandated NITI Aayog to establish the National Program on AI, with a view to guiding the research and development in new and emerging technologies. In pursuance of the above, NITI Aayog has adopted a three-pronged approach – undertaking exploratory proof-of-concept AI projects in various areas, crafting a national strategy for building a vibrant AI ecosystem in India and collaborating with various experts and stakeholders. Since the start of this year, NITI Aayog has partnered with several leading AI technology players to implement AI projects in critical areas such as agriculture and health.

[1] <https://stanmed.stanford.edu/brief-glossary-artificial-intelligence-ai/>



#AIforAll will aim at enhancing and empowering human capabilities to address the challenges of access, affordability, shortage and inconsistency of skilled expertise; effective implementation of AI initiatives to evolve scalable solutions for emerging economies; and endeavors to tackle some of the global challenges from AI's perspective, be it application, research, development, technology, or responsible AI. #AIforAll will focus on harnessing collaborations and partnerships and aspires to ensure prosperity for all. Thus, #AIforAll means technology leadership in AI for achieving the greater good^[2]

At the Inauguration of the Global Partnership on AI Summit held in December 2023, Prime Minister Narendra Modi said - "For any system to become sustainable, it has to be made Transformative, Transparent and Trusted. There is no doubt that AI is transformative. But it is up to us to make it as transparent as possible. If we can make the data and algorithms used transparent and free from bias, then it would be a good start. We have to convince people around the world that AI is for their benefit and well-being. We also have to assure different countries of the world that no one will be left behind in the development journey of this technology. Trust in AI will increase when ethical, economic and social concerns related to AI are taken into account. For example, if up-skilling and re-skilling becomes part of the AI growth curve, youngsters will be able to believe that AI is for the betterment of their future. If attention is paid to data security, people will be able to believe that AI will drive development without interfering with their privacy. If the Global South realizes that they too play a crucial role in the development of AI, then they will be able to accept it as a way of the future."^[3]

US India Artificial Intelligence (USIAI) is an initiative of the Indo-US Science and Technology Forum (IUSSTF), established in March 2000. The USIAI presents a chance for the two powerful democracies to fortify their strategic alliance by concentrating on AI cooperation. It serves as a forum to offer suggestions for creating an AI workforce and^[4] advancing alliances. It lays down a four-step action plan on AI cooperation which includes Calls for Action, Roundtables, Thematic Workshops, and AI Workforce Summit. Such collaboration can take advantage of the already-existing economic and employment infrastructure by utilizing a sizable Indian workforce to support software programs from the United States.

AI presents a massive opportunity to improve various sectors in India, but so far, adoption has been mostly profit-driven. This doesn't leverage AI's full potential. Major technological advancements like AI happen rarely, so national strategies need to consider both financial gains and societal benefits.

[2] <https://www.niti.gov.in/sites/default/files/2023-03/National-Strategy-for-Artificial-Intelligence.pdf>

[3] <https://www.narendramodi.in/text-of-prime-minister-narendra-modis-address-at-the-inauguration-of-gpai-summit-2023-576938>

[4] *Enabling AI Innovation: Addressing Challenges and Opportunities at the Interface of Science, Technology and Society*, IUSSTF U.S. – India Artificial Intelligence (USIAI) Initiative



NITI Aayog has identified five key areas where AI can significantly address societal needs:

- **Healthcare:** making quality healthcare more accessible and affordable.
- **Agriculture:** increasing farmer income, farm productivity, and reducing waste.
- **Education:** improving access to quality education.
- **Smart Cities and Infrastructure:** creating efficient and connected urban environments.
- **Smart Mobility and Transportation:** developing safer, smarter transportation systems and reducing traffic congestion.

However, to fully achieve #AIforAll, several challenges need to be overcome:

- **Limited expertise:** Not enough people have the skills to research and apply AI effectively.
- **Data limitations:** Difficulty accessing the right kind of data to train AI models.
- **Cost and awareness:** High costs associated with AI and a lack of awareness about its benefits.
- **Privacy concerns:** Ensuring data privacy and security, including clear regulations on data anonymization.
- **Collaboration gap:** A lack of collaboration between different stakeholders hinders widespread adoption of AI.^[5]

Historically, strong research capabilities have been crucial for technological leadership. To be a leader in AI, India needs to invest heavily in this area.

Opportunities for US and Indian technology partnerships in Artificial Intelligence (AI)

An unfolding technological renaissance, the disruptions underway in Artificial Intelligence, Quantum Computing and the Digital Economy are a sign of volcanic economic activity and herald the promise of explosive future growth.

Satya Nadella, CEO of Microsoft, at the recent Microsoft CEO Connection held in Mumbai, urged India and the US to work together on creating AI policies. He called “AI a powerful new technology that should be spread widely to benefit everyone economically. Nadella stressed that collaboration is key to avoid a patchwork of policies. This would allow even small startups in either country to develop safe and exportable AI solutions, benefiting both nations.”^[6]

At the #ServiceNow's #knowledge23 conference, the Chairman and CEO of ServiceNow, Bill McDermott's keynote address was completely dominated by an AI-driven intelligent enterprise theme. In his keynote message he postulated that in the next 18 months, the enterprise globally would undergo an exponential change in the Digital transformation

[5] <https://www.niti.gov.in/sites/default/files/2023-03/National-Strategy-for-Artificial-Intelligence.pdf>

[6]



space triggered by AI technologies. He called it the “exponential enterprise” that will use AI to transform rapidly. Similarly, at the #SAP’s annual conference sapphire2023, in Orlando, SAP’s CEO Christian Klein spoke about repositioning the SAP platform as an AI built for Business to meet the needs of new generation enterprises that will be sustainable, networked, and Intelligent.

Satya Nadella, of Microsoft in his exclusive CNBC interview, stressed that AI is already at scale and according to him AI was in the auto-pilot era and moved into the Co-pilot era where Humans and AI will co-exist in a complimenting fashion where humans are in the loop then being out of the loop. Indicating that job descriptions as we know them now undoubtedly change.

Arvind Krishna, Chairman and CEO of IBM, recently announced that by using LLM, he can look at replacing the 30% of current traditional back-office jobs and increasing hiring in the revenue generation functions. Hiring in back-office functions — such as human resources — will be suspended or slowed, Krishna said in an interview. These non-customer-facing roles amount to roughly 26,000 workers, Krishna said. “We can see 30% of that getting replaced by AI and automation over a five-year period.”^[7]

Andrea Guerzoni, EY Global Vice Chair – Strategy and Transactions, says: "CEO concerns about the unintended consequences of AI reflect a broader confluence of – sometimes dystopian - views in media, society, and contemporary culture. They see a role for business leaders to address these fears – an opportunity to engage on the ethical implications of AI and how its use could impact key areas of our lives, such as privacy. CEOs clearly see the huge advantages of AI and its potential to drive productivity and positive outcomes for all stakeholders, which has galvanized investment in AI-driven innovation – they know that bold actions to harness the upside potential will lead to future competitive advantage.”^[8]

Generative AI (GenAI), India CEOs anticipate, will deliver significant top-and bottom-line benefits and enhance their company’s ability to build trust with stakeholders. For India CEOs, the top three re-invention actions to create deliver and capture value are adopting new technologies, developing novel products/services and forming new strategic partnerships.

India’s AI Advantage

- India's AI mission framework has been developed with a comprehensive approach to create an AI ecosystem and the vision includes scaling up AI adoption, providing wider opportunities for innovators and also fostering skill development in this field.^[9]

[7] <https://www.linkedin.com/pulse/generative-ai-its-impact-future-jobs-vishnu-murali/>

[8] https://www.ey.com/en_gl/newsroom/2023/07/ceo-confidence-in-artificial-intelligence-tempered-by-social-ethical-and-security-risks

[9] <https://www.pwc.in/press-releases/2024/86-of-ceos-believe-indias-economic-growth-will-improve-over-the-next-12-months-pwcs-annual-global-ceo-survey-india-perspective.html>



- The Union Cabinet has approved an allocation of over Rs 10,300 crore for the India AI Mission, marking a significant step towards bolstering India's AI ecosystem. This substantial financial infusion, slated over the next five years, is poised to catalyse various components of the India AI Mission, including pivotal initiatives like the India AI Compute Capacity, India AI Innovation Centre (IAIC), India AI Datasets Platform, India AI Application Development Initiative, India AI Future Skills, India AI Startup Financing, and Safe & Trusted AI.^[10]
- The overarching aim of this financial outlay is to ensure a structured implementation of the India AI Mission through a public-private partnership model aimed at nurturing India's AI innovation ecosystem.
- A cornerstone of this effort is the India AI Compute Capacity, envisioned to erect a cutting-edge, scalable AI computing infrastructure by deploying over 10,000 Graphics Processing Units (GPUs) through strategic public-private collaborations.
- India's startups and digital natives also provide the country with a huge first-mover advantage for developing AI. Currently, one in four AI projects on the GitHub developer platform comes from India, and by 2027 the country will have eclipsed the US to become the world's largest developer base.

AI and its Impact on Jobs

Artificial intelligence (AI) could replace the equivalent of 300 million full-time jobs, a report by investment bank Goldman Sachs says. It could replace a quarter of work tasks in the US and Europe but may also mean new jobs and a productivity boom. And it could eventually increase the total annual value of goods and services produced globally by 7%. The report also predicts two-thirds of jobs in the U.S. and Europe "are exposed to some degree of AI automation," and around a quarter of all jobs could be performed by AI entirely.

Researchers from the University of Pennsylvania and OpenAI found some educated white-collar workers earning up to \$80,000 a year are the most likely to be affected by workforce automation.

Forbes also says that According to an MIT and Boston University report, AI will replace as many as two million manufacturing workers by 2025.

A study by the McKinsey Global Institute reports that by 2030, at least 14% of employees globally could need to change their careers due to digitization, robotics, and AI advancements ^[11]

[10]<https://pib.gov.in/PressReleasePage.aspx?PRID=2012375>

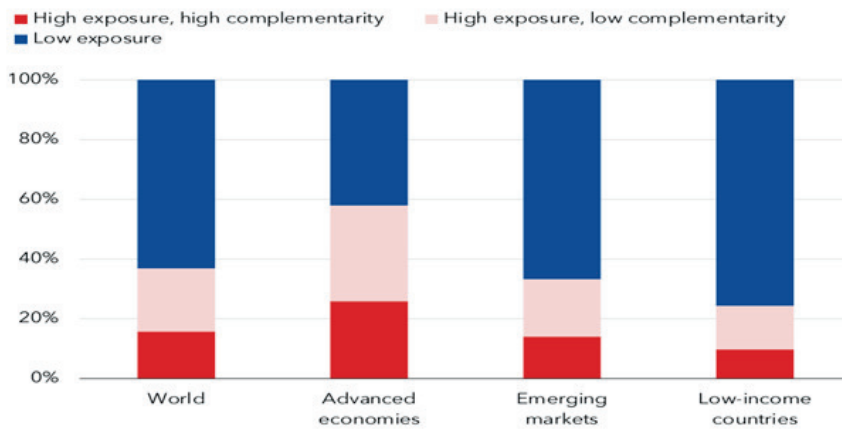
[11]<https://www.nexford.edu/insights/how-will-ai-affect-jobs>



AI's impact on jobs

Most jobs are exposed to AI in advanced economies, with smaller shares in emerging markets and low-income countries.

Employment shares by AI exposure and complementarity



Source: International Labour Organization (ILO) and IMF staff calculations
Note: Share of employment within each country group is calculated as the working-age-population-weighted average.

IMF

As per various studies:

- Employment opportunities will increase to about 12 million by 2030 in the organised manufacturing and services sector with the rise in AI technologies.
- Any impact on job losses will go hand-in-hand with the creation of new job opportunities in emerging areas such as data scientists, artificial intelligence programmer and big data analyst, but these will require new skills and probably fewer employees.
- Many studies have pointed out that there will be creation/generation of new jobs in light of the deployment of AI in workplaces.
- There will be long-term benefits of leveraging AI in businesses as productivity increases.

AI Trust Issues

- Disinformation
- Safety and security
- The black box problem
- Ethical concerns
- Bias
- Instability
- Hallucinations in LLMs
- Unknown unknowns

Strategies for Ensuring Trust

- Developing safe and trustworthy AI systems that are transparent, accountable, and aligned with human values
- Development of frameworks and guidelines by governments and regulatory bodies to ensure its safety and ethical development
- Industry-Academia Partnerships



Conclusion:

AI can develop in very different directions, underscoring the role of society in actively and collectively determining its future. What is clear is that technology must be guided as tools that can enhance, rather than undermine, human potential and ingenuity. Ultimately, it's about what AI can do to help people.

IMF's Gita Gopinath urges balancing innovation and regulation in developing a unique set of policies for AI. Because AI operates across borders, we urgently need global cooperation to maximize the enormous opportunities of this technology while minimizing the obvious harms to society ^[12]

[12] <https://www.imf.org/en/Publications/fandd/issues/2023/12/Editor-letter-the-AI-awakening>



AI - The Transformational Economy

Introduction

Tipped to become the third-largest economy in the world by 2027, India's hopes to achieve the same depend heavily on the implementation of AI technology in its economy. According to McKinsey Global Institute's study, AI would have a staggering \$15.7 trillion economic impact on India by 2035.^[13] One might wonder why there is so much of an onus placed on this technology to change the entire economic framework of the Indian nation. However, one should realize that this technology has within it the ability to augment productivity and efficiency, besides other benefits that would in turn, hasten India's economic growth. It is important to note that Indian and American companies based in India have a significant role to play in the adoption of this AI technology.

How can AI transform the economy?

In terms of global GDP trends, Goldman Sachs has predicted that generative AI can increase the global GDP by 7%.^[14] India's GDP could supposedly increase by \$359-438 billion by 2030, representing a 5.9-7.2% increase with the incorporation of generative AI technology according to an EY report.^[15] While these trends look very promising, there is a need to look into the possible reasons for this proposed monumental economic change.

- **Job-Creating Engine** - According to a World Economic Forum (WEF) report, AI would create 12 million jobs in the world by 2025. ^[16] While this is contrary to the popular perception that AI would lead to massive unemployment, however, a skilled and constantly adaptive workforce can definitely find jobs in an AI-centered environment.
- **Heightened Efficiency and Time-Saving** - AI is inherently known for its automating capabilities of mundane and repetitive activities through smart algorithms and thereby saves the valuable time of employees which, in turn, can be used for much more complex and critical roles.
- **Ease of Handling Big Data** - In the current-day world which is data-driven, AI has the superhuman ability to swiftly grasp large datasets and accordingly make a thorough analysis of data as per the needs of a company. ^[17]

[13] https://www.researchgate.net/publication/378715670_Impact_of_Artificial_Intelligence_on_Indian_Economy

[14] <https://www.financialexpress.com/opinion/economic-transformation-and-ai-artificial-intelligence-will-be-a-key-pillar-to-ensure-that-the-indian-economy-is-in-the-global-top-three/3217771/>

[15] https://www.ey.com/en_in/ai/generative-ai-india-report/economic-opportunity-of-gen-ai-india

[16] <https://www.livemint.com/ai/artificial-intelligence/ai-in-india-jobs-evolved-not-erased-opportunity-and-reskilling-key-experts-claim-11703326684794.html>

[17] <https://www.forbes.com/advisor/in/business/software/advantages-of-ai/>

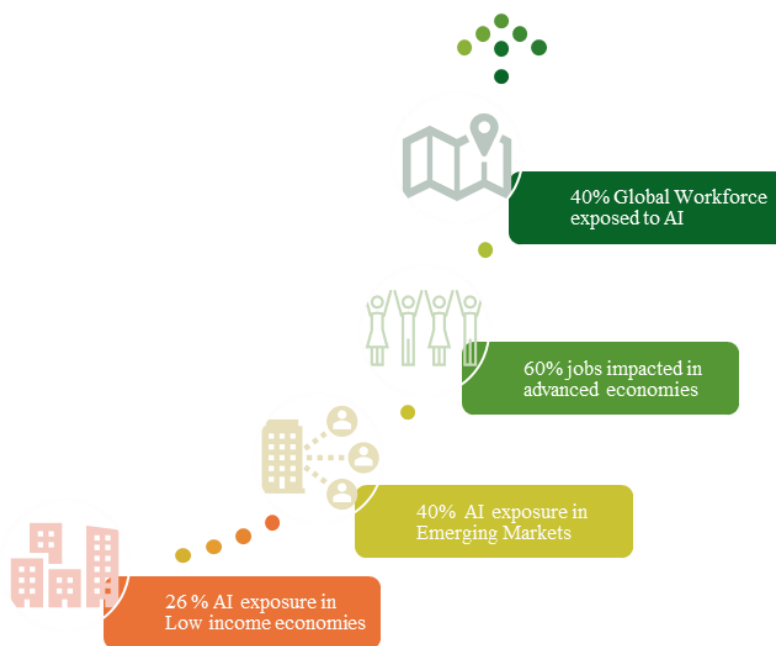


- **24/7 Availability and Productivity** - Unlike human beings who have limited availability and productivity, AI technology is available and accessible 24/7, with no sort of compromise on its productivity at any given point in time.

Despite these benefits, the rapid growth of AI also raises concerns about job displacement and inequality. It is crucial to implement policies and strategies that ensure equitable access to AI technologies and mitigate potential negative impacts on the workforce.

A new analysis by IMF ^[18] staff examines the potential impact of AI on the global labor market, revealing both opportunities and challenges. While many studies predict that jobs may be replaced by AI, it is also likely that AI will complement human work in many cases. The IMF analysis captures both these forces.

The findings are striking:



Responsible AI Application

AI's integration across sectors like education, finance, agriculture and healthcare is influencing crucial decisions based on algorithmic insights and data sets. While this trend offers numerous benefits, it also introduces inherent risks. As a result, there has been heightened attention should be given to responsible development and deployment of AI systems. The AI community is increasingly focused on evaluating the societal impact of AI and implementing measures to mitigate risks for the stakeholders involved.

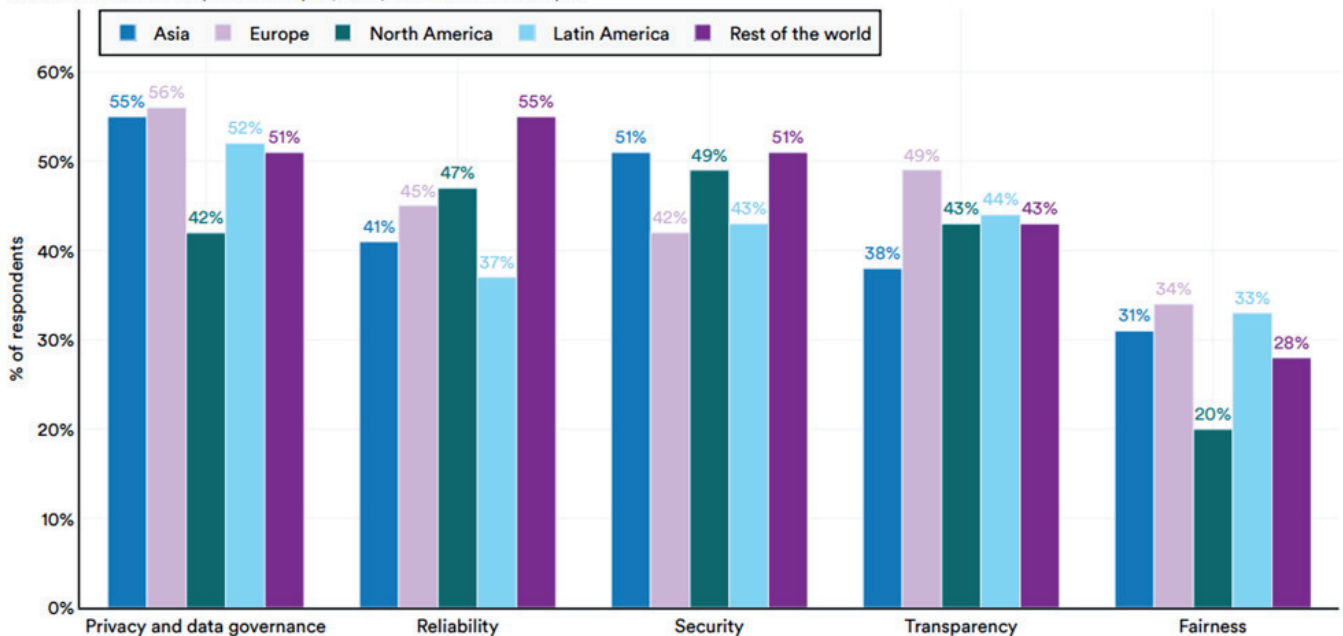
[18] <https://www.imf.org/en/Blogs/Articles/2024/01/14/ai-will-transform-the-global-economy-lets-make-sure-it-benefits-humanity>



A global survey on responsible AI underscores companies' primary concerns with AI, focusing on privacy, security, and reliability. While organizations are taking initial steps to address these risks, the survey reveals that globally, most companies have only partially mitigated these challenges thus far ^[19]

Relevance of selected responsible AI risks for organizations by region

Source: Global State of Responsible AI report, 2024 | Chart: 2024 AI Index report



Examples of RAI Applications

Intel has identified the following list of seven areas of ethical inquiry that we have integrated into Intel's AI product lifecycle processes White Paper. These principles serve as a strong foundation for considering the risks associated with AI products and projects and provide a north star that we put into action through our Ethical Impact Assessment process. We will continue to improve our approach based on learnings and evolve Intel's orientation towards the responsible use, design, and development of AI capabilities.

Meta, has organized its Responsible AI efforts around five key pillars that were heavily influenced by those principles: Privacy & Security, Fairness & Inclusion, Robustness & Safety, Transparency & Control, and Accountability & Governance.

<https://ai.meta.com/blog/facebooks-five-pillars-of-responsible-ai/>

Responsible AI efforts are propelled by their mission to help ensure that AI at Meta benefits people and society. Through regular collaboration with subject matter experts, policy stakeholders and people with lived experiences, we're continuously building and testing approaches to help ensure our machine learning (ML) systems are designed and used responsibly. <https://ai.meta.com/responsible-ai/>

[19] https://aiindex.stanford.edu/wp-content/uploads/2024/04/HAI_AI-Index-Report-2024_Chapter3.pdf



Microsoft AI Access Principles

- Provide access and support for AI developers who create models and applications.**
 - 1 As we grow chip capacity, we are expanding Microsoft's cloud computing AI infrastructure to enable the training and deployment of more foundation models, both proprietary and open source.
 - 2 We are making AI models and development tools broadly available to software applications developers around the world, so every nation can develop its own AI economy.
- Ensure choice and fairness across the AI economy.**
 - 3 We are making available public APIs to enable developers to access and use AI models we host.
 - 4 We are supporting a common public API to enable network operators to support software developers.
 - 5 Developers may choose how to distribute and sell their AI models, tools and applications for deployment and use on Microsoft Azure, whether via the Azure Marketplace or directly to customers.
 - 6 We respect the needs of developers by ensuring we do not use any non-public information or data from the training, building, deployment, or use of developers' AI models in Microsoft Azure to compete with those models.
 - 7 We enable customers using Microsoft Azure to switch to another cloud provider by easily enabling them to export and transfer their data.
- Meet our societal responsibilities.**
 - 8 We are supporting the physical and cyber security needs of all the AI models and applications that run in our AI datacenters.
 - 9 We are applying a strong Responsible AI Standard to keep people at the center of AI design decisions and respect enduring values like fairness, reliability, safety, privacy, inclusiveness, transparency, and accountability.
 - 10 We are investing in initiatives to spread AI skilling broadly around the world.
 - 11 We are managing our AI datacenters in an environmentally sensitive manner and using AI to advance environmental sustainability needs.

<https://blogs.microsoft.com/on-the-issues/2024/02/26/microsoft-ai-access-principles-responsible-mobile-world-congress/>

Microsoft developed a Responsible AI Standard. It's a framework for building AI systems according to six principles: fairness, reliability and safety, privacy and security, inclusiveness, transparency, and accountability. For Microsoft, these principles are the cornerstone of a responsible and trustworthy approach to AI, especially as intelligent technology becomes more prevalent in products and services that people use every day. <https://learn.microsoft.com/en-us/azure/machine-learning/concept-responsible-ai?view=azureml-api-2>

Salesforce believes that the benefits of AI should be accessible to everyone. But it is not enough to deliver only the technological capabilities of AI, we have an important responsibility to ensure that AI is safe and inclusive for all. We take that responsibility seriously and are committed to providing our employees, customers, and partners with the tools they need to develop and use AI safely, accurately, and ethically.

Trusted AI Principles



- Responsible**
Safeguard human rights and protect the data we are entrusted with.
- Accountable**
Seek and leverage feedback for continuous improvement.
- Transparent**
Develop a transparent user experience to guide users through machine-driven recommendations. Be transparent about how we build our AI.
- Empowering**
Promote economic growth and employment for our customers, their employees, and society as a whole. Empower our customers to use our AI responsibly.
- Inclusive**
Respect the societal values of all those impacted, not just those of the creators.

<https://www.salesforce.com/eu/blog/meet-salesforces-trusted-ai-principles/>



“**Qualcomm** recognizes that compliance with AI regulations and implementing best practices are fundamental aspects of responsible AI innovation. We have a multidisciplinary group, including engineering, IT, government affairs, legal, standards and other disciplines, that closely monitors AI-related legal, regulatory and standards developments globally, as well as our internal activities and developments, and strives to align our governance practices with the evolving landscape of AI regulations.

We recognize that putting our Responsible AI Principles into action also requires external collaboration. For example, we have been working with C2PA (via Truepic) around technology to certify the source and history (or provenance) of media content – for instance, adding a digital mark to content generated or modified by AI. We are also actively engaged in international, regional, and national standard bodies such as ISO, the ITU, CEN-CENELEC, ETSI, DIN, AFNOR and the BSI to define technical standards addressing our Responsible AI Principles.

Qualcomm values—purposeful innovation, passionate execution, collaborative community, and unquestioned integrity—are at the core of what we do. To that end, we strive to create responsible AI technologies that help advance society. We aim to act as a responsible steward of AI, consider the broader implications of our work and take steps to mitigate potential harm. As such, our vision for and work on AI are guided by our Responsible AI Principles”

<https://www.qualcomm.com/products/technology/artificial-intelligence/responsible-ai>

Google “because AI is core to Google products, at Google these questions are asked daily. We remain committed to sharing our lessons learned and emerging responsible innovation practices, drawing upon more than 20 years of using machine learning and more than a decade of AI research. Rooted in our near 25-year-old mission to organize the world’s information and make it universally accessible and useful, Google’s innovation strategy is to iterate on the process of innovation itself. This means that we create projects that not only exemplify engineering excellence, but from their earliest moments embody the human-centered values manifested in Google’s AI Principles”

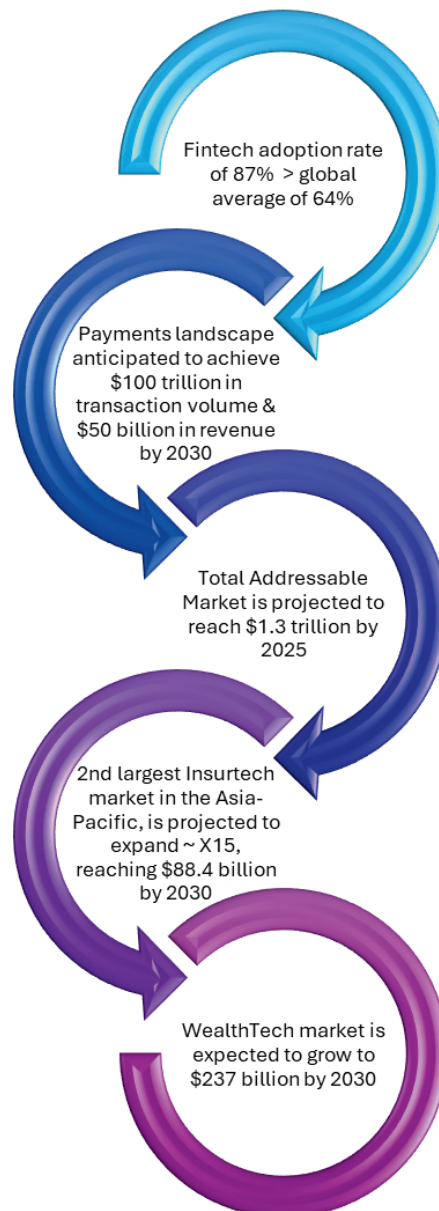
Market Disruptions: Opportunities to tap into Indian Market

Artificial intelligence (AI) is rapidly transforming the global economy, impacting everything from how goods are produced to how services are delivered. Here's a look at some of the key markets areas AI is driving economic transformation:



Fintech:

AI is significantly disrupting India's fintech market by enhancing customer experiences, improving risk management, and driving financial inclusion. AI-powered chatbots and virtual assistants provide personalized customer service, streamlining banking operations and making financial services more accessible. Advanced algorithms analyze vast amounts of data for credit scoring, fraud detection, and investment strategies, thereby reducing risks and operational costs. Furthermore, AI enables the development of innovative products like robo-advisors and automated lending platforms, which cater to underserved populations and promote greater financial inclusion in India's diverse economy. This technological integration is fostering a more efficient, secure, and inclusive financial ecosystem.^[20]



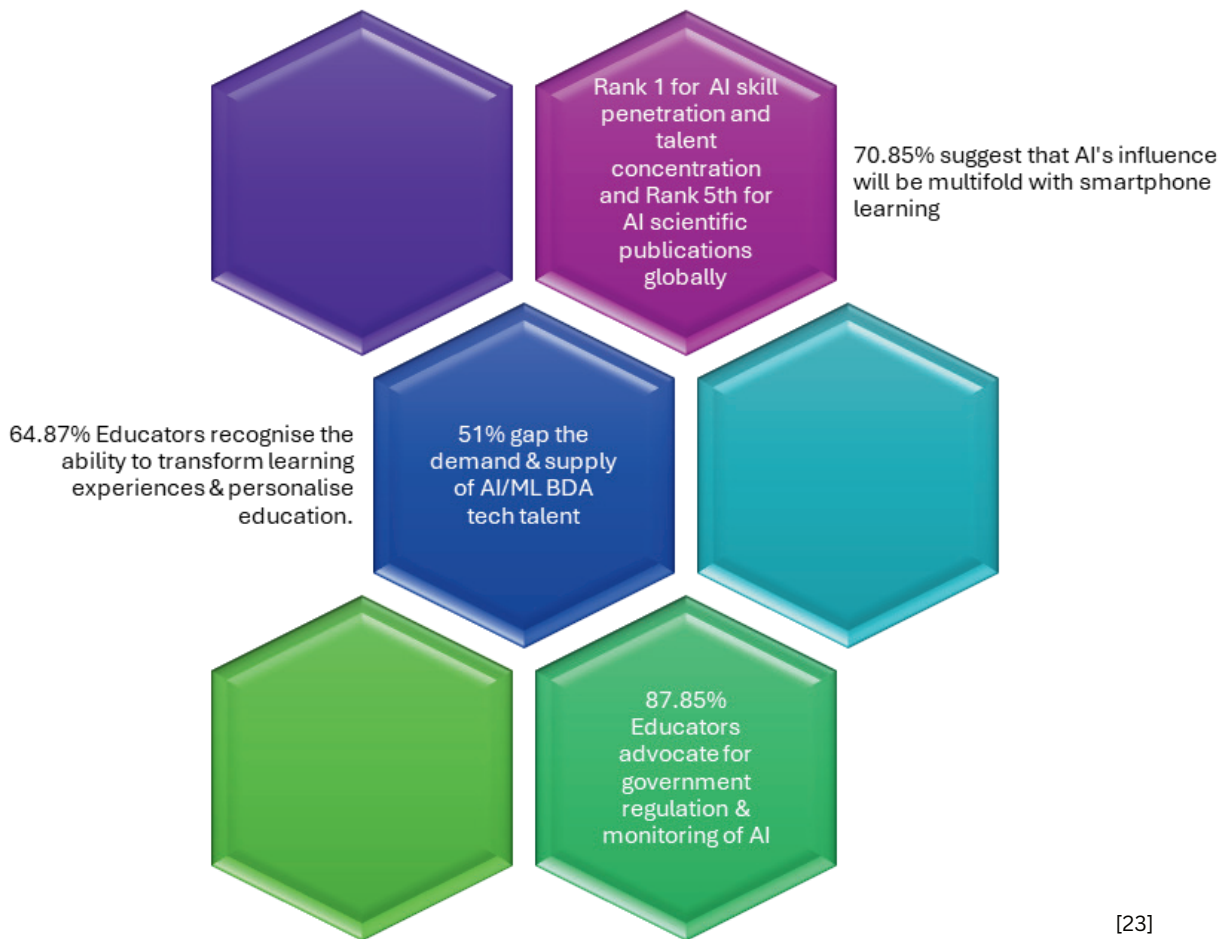
[21]

[20] <https://www.financialexpress.com/business/blockchain-data-science-and-ai-how-it-is-changing-the-game-for-fintechs-in-india-3075675/>
[21] <https://www.investindia.gov.in/sector/bfsi-fintech-financial-services>



Edtech

The India edtech market size was valued at \$5.13 billion in 2023. The Indian edtech market recorded strong growth in 2023 due to the rise in internet penetration and digital literacy. Several factors such as the availability of reasonably priced online education, increased technology adoption via the use of mobile devices, availability of high-speed internet, and flexible learning modules have influenced growth in the market. We can expect the market to see significant growth, over 19% per year, from 2023 to 2028.^[22]



[23]

AI-driven adaptive learning platforms tailor educational content to individual student needs. These platforms analyze student performance data to identify strengths and weaknesses, enabling more targeted interventions. AI-powered chatbots and virtual tutors provide instant assistance and feedback, making learning more interactive and engaging. Additionally, AI is enhancing accessibility for students in remote or underserved areas by providing high-quality digital content and resources.

Predictive analytics help educators anticipate student challenges and improve retention rates. This disruption opens doors for more investments in digital infrastructure development, including

[22]<https://www.globaldata.com/store/report/india-edtech-market-analysis/#:~:text=India%20EdTech%20Market%20Report%20Overview,19%25%20during%202023%2D2028>
[23]<https://www.peoplematters.in/news/learning/technology/over-60-of-indian-educators-embrace-ai-in-classrooms-41295> <https://nasscom.in/knowledge-center/publications/state-data-science-ai-skills-india-data-and-art-smart-intelligence#:~:text=talent%20pool%20globally,India%20ranks%201st%20in%20terms%20of%20AI%20skill%20penetration%20with,and%20AI%20scientific%20publications%2C%20globally.&text=is%20about%2051,-By%202026%2C%20the%20estimated%20demand%20for%20professionals%20in%20India%20is,to%20be%20over%201%20million.>



high-speed internet connectivity in rural areas and access to digital devices for students and teachers.

Comprehensive training programs to equip teachers with the necessary skills to integrate AI into their teaching practices, understanding AI concepts, using AI tools, and interpreting AI-generated data are essential. Moreover, stringent policies to protect the privacy and security of student data, ensuring AI systems comply with data protection laws and ethical standards, are urgently needed.

Overall, AI is transforming India's EdTech landscape by making education more efficient, inclusive, and effective, while presenting substantial opportunities for infrastructure investment.^[24]

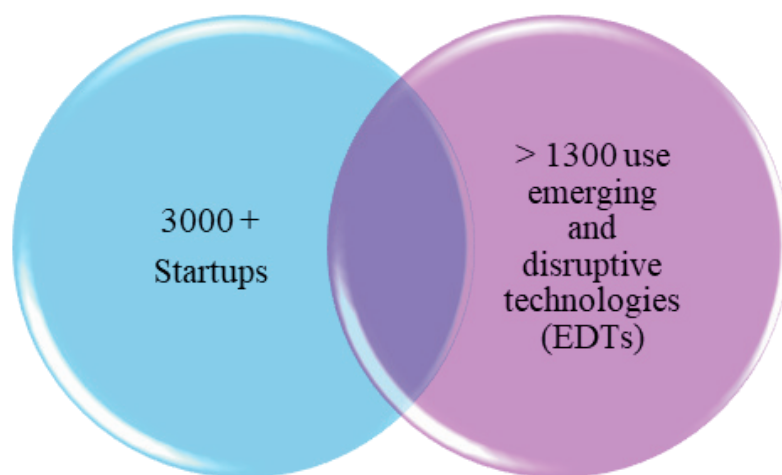
Agritech

AI is evolving and transforming India's Agritech sector by driving efficiency, productivity, and sustainability, thereby boosting investments in the industry. AI-powered technologies like precision farming, predictive analytics, and automated machinery are revolutionizing agricultural practices.

Precision farming techniques utilize AI to analyze soil health, weather patterns, and crop conditions, enabling farmers to make data-driven decisions about planting, irrigation, and fertilization, leading to higher yields and reduced resource wastage.

Furthermore, AI-enabled drones and robotic systems are automating labor-intensive tasks such as planting, monitoring, and harvesting, significantly reducing labor costs and improving operational efficiency.

AI's role in enhancing supply chain management by optimizing logistics, reducing post-harvest losses, and ensuring better market linkages is also crucial. This technological transformation attracts substantial investments in digital infrastructure, smart farming equipment, and AI-based platforms tailored to agriculture.



[24] <https://www.hindustantimes.com/ht-insight/future-tech/need-for-leveraging-ai-in-indias-education-sector-101716450004610.html>

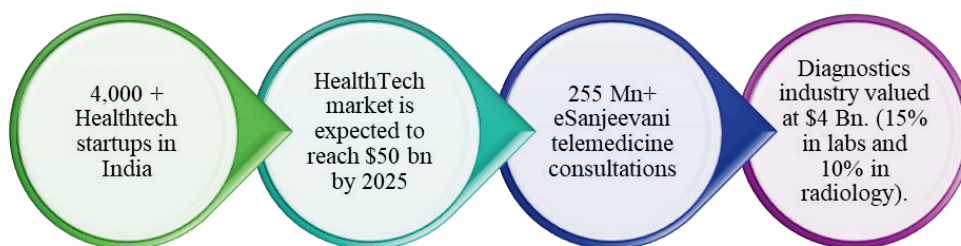


Additionally, the focus on developing AI-driven solutions that promote sustainable farming practices aligns with global environmental goals, further appealing to investors interested in the intersection of technology and sustainability.

Overall, AI is transforming India's Agritech sector and creating a fertile ground for increased investment, innovation, and growth.^[25] Indian agriculture is at a crossroads, needing rapid adaptation to a growing middle class and climate change. This shift towards smart technology aims to enhance efficiency, sustainability, and resilience.^[26]

Healthtech

AI is transforming India's HealthTech market by revolutionizing diagnostics, operations, and patient outcomes, unlocking significant investment and partnership opportunities. AI-powered tools and imaging technologies enable precise disease detection, enhancing treatment success rates for conditions like cancer and cardiovascular diseases. Predictive analytics preemptively identify health risks and outbreaks, optimizing resource allocation and proactive healthcare management. AI-driven platforms streamline hospital operations by automating administrative tasks, managing patient records efficiently, and optimizing supply chains, thereby lowering costs and improving care delivery.



AI-driven predictive analytics leverage advanced algorithms to personalize treatment plans based on genetic, lifestyle, and clinical data, improving patient outcomes while reducing treatment costs. During the COVID-19 pandemic, AI-enabled telemedicine expanded access to healthcare in remote areas through virtual consultations and continuous monitoring via wearable devices











[25]<https://rmsmicropalytics.com/how-ai-is-reshaping-the-future-of-agricultural-analytics-our-perspective/#:-:text=Conclusion%3A%20Embracing%20the%20AI%20Revolution,boosting%20productivity%20and%20building%20resilience>

[26]<https://www.orfonline.org/expert-speak/shoots-of-change-india-s-agritech-revolution>



AI is also revolutionizing drug discovery by accelerating research and development processes, cutting down time and costs. Machine learning models analyze molecular structures to predict potential drug candidates, bolstering India's pharmaceutical sector. These advancements spur investments in healthcare infrastructure, including high-speed internet for telehealth, AI-powered diagnostics and treatments, and training programs for healthcare professionals in AI technologies. Strengthening regulations and ethical guidelines to safeguard patient data and ensure responsible AI deployment is crucial. AI's ongoing evolution in India's healthcare sector presents vast opportunities for investment, fostering an advanced, accessible, and efficient healthcare ecosystem. ^[27]

Impact on the economy

Key Drivers	Considerations & Challenges
 Increased Productivity and Efficiency	 Regulation and Ethical Concerns
 Research, Innovation and Application	 The Digital Divide
 New Products Development	 Quality Assurance
 Job Market Disruption	 Industry Collaboration
 Economic Growth and Development	 Seamless Customer Experience

AI will affect almost 40 percent of jobs around the world, replacing some and complementing others. We need a careful balance of policies to tap its potential.

Conclusion

Thus, with all the proposed transformative changes in the economy that could possibly come with the incorporation of AI technology, there is a need to invest substantially in AI research, education, and upskilling to create a prosperous future. This investment will enable India to exploit the full potential of its demography of 900 million plus people, thereby ensuring the multiplier effect of sustained growth of the economy. ^[28] Most importantly, Indian and American companies in India must develop a comprehensive economic partnership that is integrated with AI technology to bring in the desired economic change not just in India but across the globe as well.

[27]<https://indiaai.gov.in/article/ai-in-healthcare-changing-india-s-medical-landscape>

[28]<https://www.financialexpress.com/opinion/economic-transformation-and-ai-artificial-intelligence-will-be-a-key-pillar-to-ensure-that-the-indian-economy-is-in-the-global-top-three/3217771/>



Advantage India: The Skilling Mission

In July 2015, the Government of India launched the Skill India Mission to equip young Indians with adequate skills that boost their chances of gaining employment in various sectors of the economy.^[29] The larger mission has several smaller initiatives:

- The National Skill Development Mission;
- The National Policy for Skill Development and Entrepreneurship, 2015;
- The Pradhan Mantri Kaushal Vikas Yojana (PMKVY);
- The Skill Loan scheme; and
- The Rural India Skill.

The Pradhan Mantri Kaushal Vikas Yojana (PMKVY) is the flagship development scheme in the mission. It has several components:

- **Short-term training:** Under this module, training is provided to college/ school dropouts and the unemployed. People are empowered per the National Skills Qualification Framework and also in fields like soft skills, digital literacy, and entrepreneurship.
- **Kaushal and Rozgar Mela:** This module encourages active participation from the community to foster transparency and accountability.
- **Recognition of prior learning:** Individuals with prior experience get certified and receive access to Bridge Courses to cater to knowledge gaps.
- **Special projects:** These training programs deviate from the standard framework and find a place within this facet of the scheme.
- **Monitoring guidelines:** The scheme ensures quality by monitoring the work of the training centers.
- **Placement guidelines:** To ensure that a skilled workforce is guided into the right field as per the demands of the market, the scheme follows strict placement rules.

In 2019, the Finance Minister Nirmala Sitaraman announced that the PMKVY would focus on preparing youth for future-focused skills such as AI, Internet of Things (IoT), Big Data, 3D printing, Virtual Reality and Robotics. This can prove to be a valuable step forward in the goal of reskilling India to preempt job losses from AI.

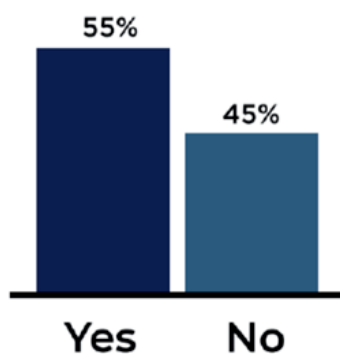
[29]"Skill India Mission-Objectives and Advantages," accessed June 14, 2024, <https://indialends.com/government-schemes/skill-india-mission>



The potential of jobs being replaced by AI has made reskilling a priority to ensure that people whose jobs are being replaced can find higher-paying, high-skill jobs in growing sectors. The aim is to equip young people with the skills that employers seek, which makes them more competitive in the job market. This can reduce India's unemployment, create a highly productive workforce, and offset jobs lost to AI, which makes India more competitive globally. Moreover, this encourages people from all walks of life, including disadvantaged groups and women, to pick up new skills. Further, people can continue to evolve and upskill over the course of their careers.

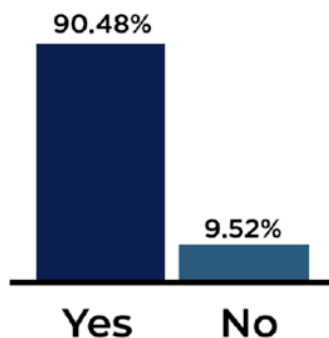
While there is considerable promise in the scheme, only 55% of companies hire workers from government skill centers as of 2023. Even so, more than 90% of these hires are matching their expected performance.

Companies Hiring from Government Workers ^[30]



Source: Wheebox India Skills Report 2023

Percentage Of Hires From Government Skilling Centers Matching Expectations ^[31]



Source: Wheebox India Skills Report 2023

[30]Taken from Mishil Trivedi, "A Study Of The Impact Of The Skill India Mission On The India Economy," International Journal of Social Science & Economic Research 08, no. 08 (2023): 2289-97, <https://doi.org/10.46609/IJSSER.2023.v08i08.014>, pp. 2293-2294.



As Professor Mishil Trivedi of Delhi University puts it,

“As a result, the Skill India Mission can be deemed fairly successful in terms of lowering economic unemployment, but it hasn't had a big enough influence to speed up GDP development. The government would need to continually work to ensure that the ineffective schemes are either changed or improved to ensure that all of the resources are being used as effectively as possible in order for a mission like this to be very successful”.^[32]

In their work, Dr. Rajni Arora & Manoj Chhadwani concur with this conclusion, saying that the pace at which the Skill India Mission is progressing is too low to meet the demand for high-skill workers.^[33] They point out that in 2019, only 2.3% of India's workforce had formal skill training. This is in contrast to 68% of the workforce in the UK, 75% in Germany, 52% in the US, 80% in Japan, and 96% in South Korea.^[34]

If India is to reap the full array of benefits that the Skill India Mission can provide, it will have to address these concerns and accelerate the Mission to meet the threat of lost jobs that AI brings. These jobs can be recovered if the workforce can take on new skills to adapt to the changing technological reality, and missions such as this are a vital part of making that transition.

^[32][Ibid.](#), pp. 2296.

^[33][Rajni Arora and Manoj Chhadwani, “Analysing the Impact of Skill India as a Tool for Reshaping Indian Economy” International Journal of Research and Analytical Reviews Volume 6, no. 1 \(n.d.\), Pp.](#)

^[34][Ibid.](#), pp. 396.



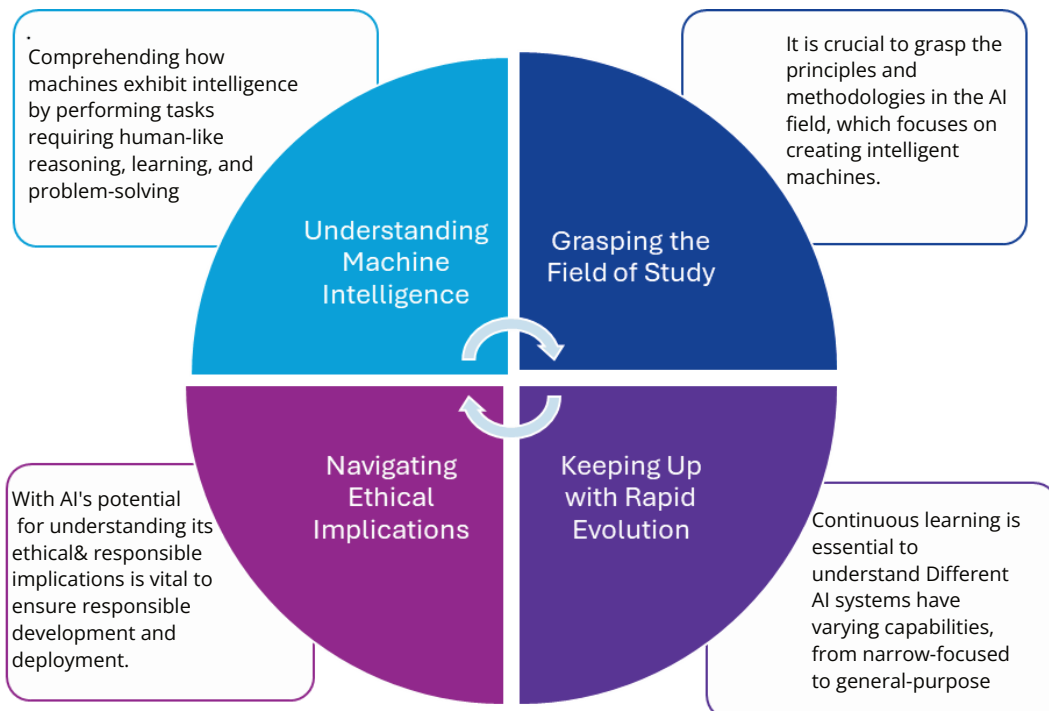
Planning & Developing Future-Ready Skills

Rapid evolution in the way we work has evidently impacted the nature of work itself. Technological advancement in AI has been an important driver in this change. Automation and big data have equivalently accelerated the change. Keeping up with the rapid changes has not only become essential but also equally regenerative and invigorating. Constantly developing future ready skills is now an inescapable necessity.

Machines can perform tasks that typically require human intelligence. Simple rule-based systems to complex algorithms can form the basis of this intelligence. AI is a branch of computer science dedicated to developing intelligent machines and is a rapidly evolving field with a wide range of applications. AI Can be used for both good and bad purposes. Ethical implications have emerged as a paramount consideration.

By planning and actively developing future-ready AI skills, individuals are seen positioning themselves for success in careers. Development of skills is ceaseless, sustained effort that calls for meticulously being carried through.

Why is Technical Skilling essential to achieve India's Vision 2047?





- **Identifying Future-Ready Skills:**

Elementary Skills

- Enhancing ability to learn and adapt, think creatively, solve problems independently, communicate, collaborate will hone these basic skills.

Definite and expressive Skills

- Identified independent and specific skills that involve software expertise, domain knowledge, or industry certifications in the chosen industry are indispensable.

Technical adequacy

- The need to enhance knowledge on digital literacy, data analysis, and coding need no overemphasising. Such adequacy is indispensable.

- **Developing Future-Ready Skills:**

Let durable skills prevail

- An inclination to constantly be perspective in approach as well as current in information supports developing ceaseless thirst for knowledge. This naturally permits being updated with latest technologies.

Enhanced qualifications

- An inclination to constantly be perspective in approach as well as current in information supports developing ceaseless thirst for knowledge. This naturally permits being updated with latest technologies.

On-the-Job Training

- Workshops and training programs offered by industry experts or professional organizations are an active source of enhancement of both knowledge as well as information.

Volunteering

- Volunteering experiences and personal projects contribute immensely in soft skill development.



Government initiatives

The Annual Report 2022-23 ^[35] of the Ministry of Skill Development and Entrepreneurship highlights all aspects of the Skill Development And Entrepreneurship Landscape in India and quantifies the Incremental Requirement of Skilled workforce Across Sectors based on projected future employments. The Indian Government is operationalizing the objective of achieving enhanced skill levels through The National Skill Development Mission developed to create convergence across sectors and States in terms of skill training, activities by a variety of central and state initiatives, international G2G as well as B2B initiatives.

Government – Private Sector synergy

MNCs possess resources, expertise, and global best practices that can directly contribute to the Government's upskilling efforts

Curriculum Development & Skill Standards:

- Partner with MSDE and NSDC to develop industry-relevant curriculum, and support in establishing standardized skill frameworks as well as assessment processes, ensuring a qualified workforce that meets industry expectations.
- Support with insights into the latest technologies and skills that are presently sought within their sectors.
- Collaborate with universities on research projects that can lead to innovative solutions beneficial to both parties.
- Provide training opportunities to university faculty to update their knowledge on industry trends and technologies.
- Participate in career fairs and co-organize recruitment events to connect with students and identify potential talent.
- Internship programs, Capstone projects, Hackathons and Innovation Challenges and more.

Training and Skill Delivery:

- Establish in-house training centers, partner with existing training providers to deliver skill development programs as well as offer trainers with industry expertise to conduct workshops and mentorship programs.
- Develop online training modules and learning resources accessible to a wider range of trainees.

[35][chrome-extension://efaidnbmninnbpcjpcg|clefindmkaj/https://www.msde.gov.in/sites/default/files/2023-09/Final%20Skill%20AR%20Eng.pdf](https://www.msde.gov.in/sites/default/files/2023-09/Final%20Skill%20AR%20Eng.pdf)



Apprenticeship Programs:

- Partner with government initiatives like the National Apprenticeship Promotion Scheme (NAPS) to provide on-the-job training opportunities to potential recruits.
- This equips trainees with practical skills and industry exposure, improving their employability.

Technology and Innovation:

- Leverage their technological prowess to develop e-learning platforms and virtual reality simulations for enhanced and accessible skill training as well as collaborate on research and development projects.

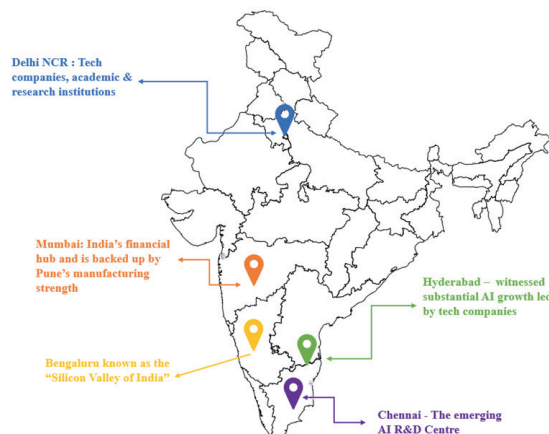
Financial and Infrastructural Support:

- Contribute financially to government skilling initiatives through CSR as well Invest in establishing training centers or upgrading existing infrastructure in collaboration with the government. Offer scholarships or financial aid to attract talented students to relevant fields of study.

In Union Budget 2023-24,^[36] The Government of India announced to skill hundreds of thousands of youth through training programs in Industry 4.0, AI, robotics, mechatronics, IoT, and drones. The Ministry of Education is establishing a task force comprising educational institutions, technical experts, and industry representatives to ensure broad access to this advanced education.

AI Clusters in India

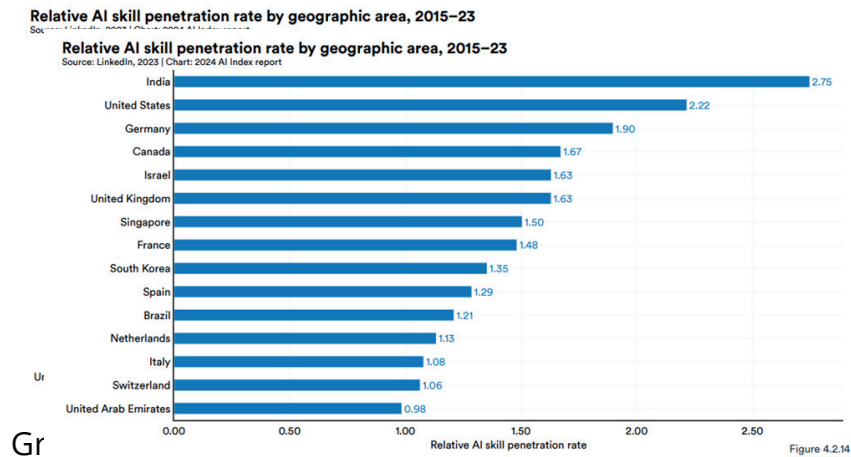
Based upon factors a favorable ecosystem for AI, including availability of talent, R&D facilities and institutions, State Government supporting policies, IT infrastructure and the presence of multinational tech-companies, several cities in India are emerging as AI talent pool attractions



[36] <https://www.hindustantimes.com/india-news/budget-2023-digital-ecosystem-for-skill-development-gets-impetus-101675305790468.html>

AI Skilling in India

A Stanford University analysis has found that, AI talent recruiting in India has increased by 16.8% in 2023 compared to overall hiring. The University's Artificial Intelligence Index Report 2024 has highlighted that India leads the world in AI skill penetration and talent concentration rates, increasing investment in AI education and workforce development, positioning India as a key player in AI innovation.



The Collaboration Supremacy

Collaboration undoubtedly achieves:

Enhanced Workforce Employability

- Skilled and upskilled workers being more productive and better aligned with employability requirements

Improved Innovation and Competitiveness

- Skilled workforce fosters a culture of innovation, benefiting both MNCs and the Indian economy.

Employer Branding

- Active participation in skilling initiatives strengthens MNCs' employer brand and attracts top talent

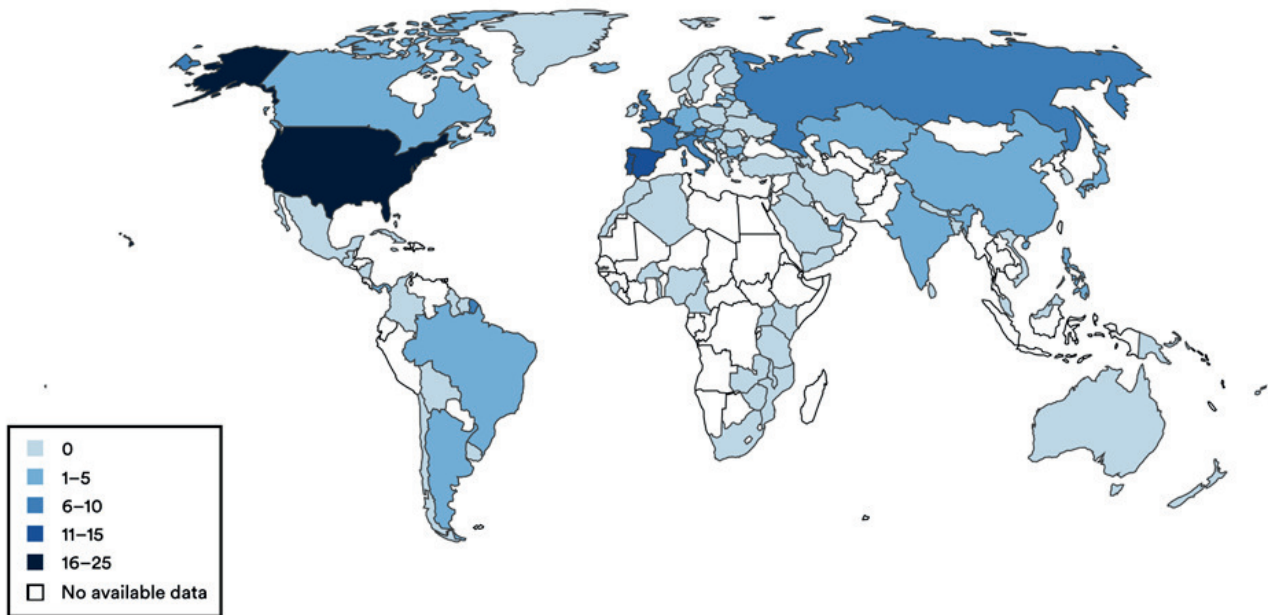
India has recognized skill development as a focus area on bridging its skill gap and has adopted to formulate standards required for quality employment. The corporate sector has also come upon to be encouraged to participate in employment generation. Requirement of Corporate Houses and MNCs to comprehensively partner in this objective needs no overemphasis. Innumerable corporate initiatives continue to support India's Mission to progressively achieve Skill Development in a variety of sectors. This report has explored regulations, India's Skilling Mission as well as highlighted important initiatives of the US Industry in India, in this regard.

Global AI Governance

With the rise of Artificial Intelligence, governments around the world have begun to plan frameworks and rules governing the new technology. According to Stanford University's 2024 Artificial Intelligence Index Report, 32 countries have passed a combined 148 AI-related Bills into law between 2016 and 2023^[37] The United States led the group, with a total of 23 laws passed. Last year alone, 28 Bills were passed.^[38]

Number of AI-related bills passed into law by country, 2016–23

Source: AI Index, 2024 | Chart: 2024 AI Index report



The formulation of these governance frameworks is still in its nascent stage, which allows for collaboration to create aligned policies and international policies between nations that can aid in the development of the industry.

AI Framework in India

India currently does not have specific laws and frameworks governing Artificial Intelligence. The Information Technology Act of 2000, combined with the Information Technology (Reasonable Security Practices and Procedures and Sensitive Personal Data or Information) Rules, 2011, made up the main basis of the framework of technology. The recently passed Digital Personal Data Protection Act of 2023 helps address the privacy concerns that have arisen with AI. All of these laws are meant to be technology-agnostic and, as such, do not specifically target AI but can be applied regardless of the technology used.^[39] While there aren't specific statutes regulating AI, the Government has laid down objectives and principles that future AI policies should follow

[37]Nestor Maslej, Loredana Fattorini, Raymond Perrault, et al., "The AI Index 2024 Annual Report," AI Index Steering Committee, Institute for Human-Centered AI, Stanford University, Stanford, CA, April 2024. Pp. 376.

[38] Ibid, pp. 378.

[39] "AI Watch: Global Regulatory Tracker - India | White & Case LLP," May 13, 2024, _



In June 2018, the NITI Aayog, which serves as the principal public policy think tank of the Government of India, released its National Strategy for Artificial Intelligence (NSAI). In the plan, The NITI Aayog chose to focus on Healthcare, Agriculture, Education, Smart Cities and Infrastructure, and Smart Mobility and Transportation as areas where it believes AI will most change current practices. The organization also raised several concerns, including the lack of policies around anonymization of data. It suggested establishing data protection frameworks and sectorial regulatory frameworks as well as the promotion of the adoption of international standards.^[40]

In February 2021, the NITI Aayog published the “Principles of Responsible AI,” the first part of its roadmap towards the creation of responsible, ethical AI. The second part, entitled “Operationalizing Principles for Responsible AI,” was published in August 2021. Both of these continue the work that started in the NSAI towards formulating policies for the responsible and ethical use of AI.

In the Principles of Responsible AI, the organization proposed seven broad principles to manage AI responsibly:

1. Principle of Safety and Reliability
2. Principle of Equality
3. Principle of Inclusivity and Non-discrimination
4. Principle of Privacy and Security
5. Principle of Transparency
6. Principle of Accountability
7. Principle of protection and reinforcement of positive human values

The report advised the formulation of new legal standards for AI rather than simply applying existing law to the new subject. The report acknowledged the importance of developing policies and noted the fact that policies have historically not kept up with new advances in technology. It recognized the difficulty of crafting rules for a rapidly evolving field like AI. As^[41] such, technology-agnostic rules continue to be the main regulating statutes for AI.

[40]National Strategy for Artificial Intelligence” (NITI Aayog, June 2018). pp. 7-8.

[41]“Principles of Responsible AI” (NITI Aayog, February 2021). pp. 29



In Operationalizing Principles for Responsible AI, the NITI Aayog built upon this framework. They noted that policies also play a role in encouraging AI adoption, as people will feel more confident in the product knowing that it is regulated. The report stressed the need for a balance between protecting individual rights and promoting innovation and calls for a rejection of a one-size-fits-all approach. It recommends that India adopt a risk-based model of governance, where riskier applications of AI, such as those impacting fundamental rights, should be more heavily governed than low-risk operations. Where the risk of an application is not known, regulatory mechanisms may be developed through policy sandboxes and controlled deployments where market reactions and impact could be closely monitored. The report also notes that where common goals exist, international standards can be used.

AI Governance Frameworks in the United States

There is currently no single comprehensive Federal legislation that regulates Artificial intelligence.^[42] The US does have several smaller pieces of legislation that regulate AI in specific ways. The AI Index report categorizes some of these acts as being highly relevant to AI while giving others lower relevance as they only mention artificial intelligence in passing as their primary focus, which is another issue.^[43] For an instance of a lower relevance act, the Federal Aviation Administration Reauthorization Act includes provisions requiring Federal agencies to periodically review the use or proposed use of AI in aviation.^[44] An example of a more relevant Act is the AI Training Act of 2021, which requires that training about AI is provided to Federal employees.^[45]

White House Voluntary Commitments

The Biden Administration has taken swift action to harness the potential and manage the risks of Artificial Intelligence (AI), prioritizing the protection of Americans' rights and safety. On July 21, 2023, President Biden convened seven leading AI companies at the White House—Amazon, Anthropic, Google, Inflection, Meta, Microsoft, and OpenAI—to announce their voluntary commitments to advancing safe, secure, and transparent AI development. These commitments emphasize three core principles—safety, security, and trust—which are crucial for responsible AI advancement.

Recognizing the responsibility of AI developers to ensure the safety of their products, the Administration encourages the industry to maintain high standards that safeguard rights and safety. These commitments, immediately adopted by the companies, represent a significant step towards responsible AI development amid accelerating innovation.^[46]

[42] AI Watch: Global Regulatory Tracker - United States | White & Case LLP, May 13, 2024. <https://www.whitecase.com/insight/out-thinking-at-watch-global-regulatory-tracker-united-states>.

[43] Nestor Maslej, Loredana Fattorin, Raymond Perrault, et al., "The AI Index 2024 Annual Report," AI Index Steering Committee, Institute for Human-Centered AI, Stanford University, Stanford, CA, April 2024. Pp. 379.

[44] Congress.gov, "Text - H.R.302 - 115th Congress (2017-2018): An act to provide protections for certain sports medicine professionals, to reauthorize Federal aviation programs, to improve aircraft safety certification processes, and for other purposes." October 5, 2018. <https://www.congress.gov/bills/115/congress/house/bills/302/text>.

[45] Congress.gov, "Text - S.2551 - 117th Congress (2021-2022): AI Training Act." October 17, 2022. <https://www.congress.gov/bills/117/congress/senate/bills/2551/text>.

[46] The White House, "Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence," The White House, October 30, 2023. <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/10/30/executive-order-on-the-safe-secure-and-trustworthy-development-and-use-of-artificial-intelligence/>.



The Order sets eight guiding principles and priorities for the regulation of AI by the Biden Administration. These guiding policies are:

- Safety and Security;
- Promoting responsible innovation, competition, and collaboration;
- A commitment to supporting American workers;
- Advancing equity and civil rights;
- The interests of Americans who increasingly use, interact with, or purchase AI and AI-enabled products in their daily lives must be protected;
- Privacy and Civil Liberties;
- Managing the risks from the Federal Government’s own use of AI; and
- The Federal Government should lead the way to global societal, economic, and technological progress^[47]

The Biden Administration also released a Blueprint for an AI Bill of Rights. The Rights underlined are:

1. Safe and Effective Systems;
2. Algorithmic Discrimination Protections;
3. Data Privacy;
4. Notice and Explanation; and
5. Human Alternatives, Consideration, and Fallback.

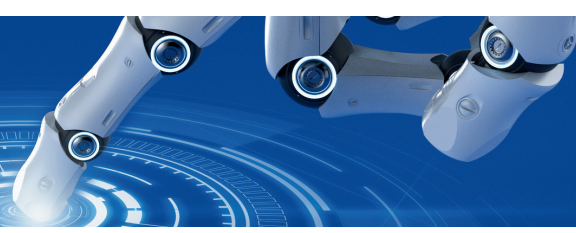
The White House also secured voluntary confirmations from seven leading companies — Amazon, Anthropic, Google, Inflection, Meta, Microsoft, and OpenAI — to build safe, secure, and transparent AI systems.

Common Goals and Principles

Many of the priorities and principles laid out by the US Government broadly align with the principles that have been proposed in the Indian context. Both nations share their goals of safety and reliability, focus on ensuring equity, transparency, and want to protect human values and rights. While neither nation, as noted above, has any strict AI legislation, the principles underlined by them will ideally be incorporated into any future policies

This agreement on principles is significant as it allows for the possibility of the US and India aligning their regulations, either explicitly in a bilateral agreement or independently, which could lead to significant benefits for companies. It would save companies from needing different features and products to comply with the policy framework of different nations, which can allow for homogeneity in the services provided. This can benefit partnerships between American and Indian companies as they would not have to work with two starkly different sets of regulations when designing and implementing their combined solutions.

[47]The White House, "Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence." The White House, October 30, 2023, <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/10/30/executive-order-on-the-safe-secure-and-trustworthy-development-and-use-of-artificial-intelligence/>.



It goes without saying that agreement on principles does not preclude the possibility of stark differences on practical matters. Both nations will surely have different ideas and strategies when creating concrete regulations for AI. Even so, their shared values are significant as both nations view the issue through similar lenses, which is certainly cause for optimism about future partnerships and collaboration.

Global Governance Framework

Artificial Intelligence is a topic of global interest, with countries around the world debating appropriate policies to mitigate AI risks while promoting innovation and adoption in new industries. This presents the possibility of meaningful collaboration between nations to meet common goals. The biggest advantage of this is the standardization across national borders that can facilitate international trade. Even so, considerable challenges remain.

Nations, including India and the United States, have already acknowledged the importance of international collaboration. At the AI Safety Summit held at Bletchley Park in the United Kingdom, both nations joined 27 other countries to sign the Bletchley Declaration. The Declaration acknowledged that the regulation of AI is an issue that transcends national borders and pledged collaboration towards creating AI designed and utilized in a manner that is safe, human-centric, trustworthy, and responsible to ensure equitable benefits.^[48]

International organizations have also been taking steps towards ensuring a safe future with AI. The Organization of Economic Cooperation and Development (OECD) published its principles of Artificial Intelligence in 2019, which has garnered 47 adherents, however this does not include India. The Principles are:

- Inclusive growth, sustainable development and well-being;
- Human rights and democratic values, including fairness and privacy;
- Transparency and explainability;
- Robustness, security and safety; and
- Accountability.^[49]

The OECD also has the following recommendations for policymakers:

- Investing in AI research and development;
- Fostering an inclusive AI enabling ecosystem;
- Shaping an enabling interoperable governance and policy environment for AI;
- Building human capacity and preparing for labor market transition; and
- International co-operation for trustworthy AI^[50]

While India is not an adherent to the OECD principles, and is not a member state of the organization, the goals outlined by the OECD correspond with the principles which the NITI Aayog has put forth for Indian regulation.

[48]Anahita Thoms, Alexander Ehrle, and Kimberly Fischer, "International: Can a Global Framework Regulate AI Ethics?," accessed June 13, 2024, <https://insightplus.bakermckenzie.com/bm/investigations-compliance-ethics/international-can-a-global-framework-regulate-ai-ethics>. See also, "The Bletchley Declaration by Countries Attending the AI Safety Summit, 1-2 November 2023," GOV.UK, accessed June 13, 2024, <https://www.gov.uk/government/publications/ai-safety-summit-2023-the-bletchley-declaration/the-bletchley-declaration-by-countries-attending-the-ai-safety-summit-1-2-november-2023>.

[49]"AI Principles Overview - OECD.AI," accessed June 13, 2024, <https://oecd.ai/en/ai-principles>

[50]ibid



Given this broad alignment of principles across nations, the possibility of International Cooperation is encouraging. According to Baker McKinzie, international agreements beyond just principles are necessary for the successful regulation of AI. ^[51] They cite the Convention on International Civil Aviation, which created the basis for international aviation law and founded the International Civil Aviation Organization as a successful example of international regulations which have facilitated the development of industry by standardizing frameworks across countries. ^[52] However, even with these encouraging movements, challenges remain.

One of the biggest challenges is ensuring that international regulations are updated to keep pace with industry changes. These laws must also ensure that they do not stifle innovation. Countries also may be hesitant to join international agreements that govern an area which would otherwise be within their national purview, as it could impinge upon their sovereignty. These would all be concerns that policymakers would have to work to address.

[51]Anahita Thoms, Alexander Ehrle, and Kimberly Fischer, "International: Can a Global Framework Regulate AI Ethics?," accessed June 13, 2024, <https://insightplus.bakermckenzie.com/bm/investigations-compliance-ethics/international-can-a-global-framework-regulate-ai-ethics>

[52] Ibid



Use Cases

US Industries in the Indian AI Skilling Landscape

According to International Trade Administration, the AI market in India is projected to reach \$8 billion by 2025, growing at a CAGR of over 40% from 2020 to 2025. A LinkedIn survey has found that, the rapid advancement of AI is prompting nearly 94% of companies in India to upskill their employees and with its vast talent pool, growing digital infrastructure, and government initiatives like Digital India, India presents significant opportunities for U.S. companies looking to leverage AI technologies. A recent Microsoft Study reveals that India's 1.4 billion people are exceptionally optimistic about AI. 90% of people surveyed say they already use it, and the vast majority think it will make life more convenient (79%) and enable career development (76%)^[53]

INDIA- US Collaboration Opportunities for AI

U.S.-India initiative on Critical and Emerging Technology

ICET

Under iCET, focus is upon strengthening the two nations Innovation Ecosystems to develop common standards and benchmarks for trustworthy AI by coordinating on the development of consensus, multi-stakeholder standards, ensuring that these standards and benchmarks are aligned with democratic values.^[54]

USIAI

India and the US launched the US-India Artificial Intelligence (USIAI) Initiative in March 2021. This joint venture aims to foster AI (Artificial Intelligence) collaboration in key sectors such as manufacturing sector, healthcare, energy, education and environment reflecting priorities of India and the US

IPEF

Under IPEF, US announced the Upskilling Initiative reflecting the deep and abiding support of both the U.S. government and its private sector to the long-term economic competitiveness of the IPEF partners including India. Fourteen U.S. companies –Amazon Web Services, American Tower, Apple, Cisco, Dell, Edelman, Google, HP, IBM, Mastercard, Microsoft, PayPal, Salesforce, and Visa –will each provide 500,000 or more upskilling opportunities that use digital tools for women and girls in IPEF emerging economies and middle-income partners by 2032. Some of the opportunities that could be provided by the U.S. companies may include training for girls in fields such as data science, cyber-security, AI, and robotics.

[53]<https://www.trade.gov/market-intelligence/india-artificial-intelligence#:~:text=The%20AI%20market%20in%20India,looking%20to%20leverage%20AI%20technologies.https://economictimes.indiatimes.com/jobs/hr-policies-trends/companies-in-india-focus-on-upskilling-workforce-as-ai-makes-rapid-inroads-linked-in-survey/articleshow/108032120.cms?from=mdr> <https://www.cnbctv18.com/india/artificial-intelligence-india-on-the-brink-of-an-ai-revolution-it-has-lessons-for-the-world-ahmed-mazhari-19396246.htm>
[54]<https://www.whitehouse.gov/briefing-room/statements-releases/2023/01/31/fact-sheet-united-states-and-india-elevate-strategic-partnership-with-the-initiative-on-critical-and-emerging-technology-icet/>
[55]<https://www.commerce.gov/news/press-releases/2022/09/commerce-department-launches-indo-pacific-economic-framework-prosperity>



AI Clusters in India

Based upon factors a favorable ecosystem for AI, including availability of talent, R&D facilities and institutions, State Government supporting policies, IT infrastructure and the presence of multinational tech-companies, several cities in India are emerging as AI talent pool attractions

As per International Trade Association,

- Bengaluru - the “Silicon Valley of India,” has a thriving ecosystem of multinationals, startups, and academic institutions, driving AI innovation with over 2,000 active startups. Bengaluru is witnessing AI adoption across industries, supported by annual IT exports exceeding \$50 billion, AI research having a filing over 400 patents annually;
- Chennai - the emerging AI R&D center as a result of positive Government policies;
- Hyderabad – has witnessed substantial AI growth led by tech companies and positive government support and policies;
- Mumbai, as India’s financial hub, contributes significantly to the AI landscape with its infrastructure and diverse industries;
- Pune has the potential to be developed, particularly in manufacturing and IT services, backed by its startup ecosystem and educational institutions;
- Delhi and cities in the NCR have the advantage of the presence of tech companies, academic and research institutions.^[56]

Use Cases : How US Companies are Engaging in AI Skilling in the Indian Landscape

India and the United States have significant potential to address skill requirements in the field of Artificial Intelligence, especially since India has a huge talented IT workforce and the Government of India has strategic plans to develop AI capacity in the country.

As per the Ministry of Skill Development & Entrepreneurship, Government of India, “the Government is focused upon partnering with companies like Microsoft for equipping the youth with skills through training in tools that redefine how people work, connect, address real-world challenges, and live. Institutions like ITIs, NSTIs, and the Government’s skilling platform are driving the skilling mission for the youth and the commitment extends to advancing India’s digital future by empowering a substantial workforce across the length and breadth of the country, ensuring that key sectors in India become AI-first and AI-ready.”

[56][https://www.trade.gov/market-intelligence/india-artificial-intelligence#:~:text=Clusters%3A,National%20Capital%20Region%20\(NCR\),](https://www.trade.gov/market-intelligence/india-artificial-intelligence#:~:text=Clusters%3A,National%20Capital%20Region%20(NCR),)



Microsoft to provide AI skilling opportunities to 2 million people in India by 2025

- Microsoft unveiled a significant skilling initiative in February 2024, in India, aiming to equip 2 million people with AI skills by 2025. The **ADVANTA(I)GE INDIA** initiative is part of Microsoft's Skills for Jobs program, which is designed to empower India's workforce with future-ready skills. The initiative is part of Microsoft's broader commitment to accelerate India's AI transformation. The skilling initiative is aligned with the company's responsible AI principles, and training will be delivered in partnership with governments, nonprofit and corporate organizations, and communities.
- According to Microsoft's recent Work Trend Index, 90 percent of Indian leaders say the people they hire will need new skills to prepare them for the growth of AI, while 78 percent of Indian workers say they don't have the right AI capabilities to complete their current work.
- To address the needs gap, ADVANTA(I)GE INDIA will focus on training individuals in Tier 2 and Tier 3 cities, as well as rural areas, enabling people to participate in the new era of AI and unlock inclusive socio-economic progress.
- Microsoft will partner with Ministry of Skill Development and Entrepreneurship and 10 state governments in India to provide basic and advanced training in AI to 500,000 students and job seekers in 100 rural vocational education institutions and training centers. This will expand on Microsoft's existing collaboration with the ministry to train young people in digital and cybersecurity skills.
- Furthermore, Microsoft will provide **in-depth AI technical skills training for 100,000 young women through 5,000 trainers at higher education institutions in Tier 2 and Tier 3 cities**. This will be achieved by making Microsoft's AI Trainer Toolkit Guide available for trainers and strengthening skilling programs for women in cloud, AI, and cybersecurity with AI credentials. Microsoft will also provide access to Azure AI services to build tech solutions, and foster industry collaborations for mentorship, internships, and jobs.
- Microsoft will raise awareness of responsible **AI use and AI-enabled careers for 400,000 students** in schools in remote and tribal regions, enabling them to be next-generation AI innovators. This will be achieved by piloting three of Microsoft's global initiatives: **Technology Education and Literacy in Schools (TEALS), Farm Beats for Students, and the AI Guidance for Schools Toolkit for teachers**.
- The **National Program for Civil Service is strengthening its partnership with Microsoft, equipping 250,000 government officers** with essential knowledge of generative AI and increasing their AI fluency. This partnership will help enhance the productivity of government officers and transform digital governance in rural India and build capabilities for investments in the next generation of AI-enabled citizen services, meeting citizens where they are located.



- Microsoft in January 2024 announced a new month-long initiative called **AI Odyssey with the aim of upskilling 1,00,000 developers in India** on the latest Artificial Intelligence (AI) technologies and tools. The program focusses upon empowering developers to build solutions for real-world challenges and contribute to India's technological advancement.
- Microsoft is working with rural communities in Maharashtra, who work with rural people for training AI models in the Marathi language, the model's that will later help AI-based services reach the same people.
- The two-tier AI Odyssey programme includes hands-on training using Microsoft's Azure AI services to create and deploy AI solutions in practical scenarios. Participants will have access to resources and coding samples. The second level involves an inline assessment, allowing participants to earn Microsoft Applied Skills credentials. ^[57]

IBM to support future ready skill development

- The 'IBM Global AI Adoption Index 2023' found early adopters are leading the way, with 74 per cent of those Indian enterprises already working with AI, having accelerated their investments in AI in the past 24 months in areas like R&D and workforce re-skilling.
- A recent study by IBM Institute of Business Value (IBV), the Augmented work for an automated, AI-driven world, states that surveyed executives in India estimate that implementing AI and automation will require more than 40% of their workforce to reskill over the next three years.
- IBM has made a commitment to skill 30 million people worldwide by 2030, and train two million learners globally in AI by the end of 2026. IBM seeks to open technological resources and expertise to enable youth and job seekers to gain the technical and professional skills required to join or re-enter the workforce.

^[57]<https://news.microsoft.com/en-in/microsoft-to-provide-ai-skilling-opportunities-to-2-million-people-in-india-by-2025/>
<https://www.livemint.com/news/india/satya-nadellas-microsoft-to-train-2-million-indians-in-ai-by-2025-details-here-11707364948135.html#:~:text=In%20a%20significant%20skilling%20initiative,workforce%20with%20future%20ready%20skills.>
<https://news.microsoft.com/en-in/microsoft-launches-new-ai-skills-initiative-and-grant/>
<https://news.microsoft.com/en-in/microsoft-launches-ai-odyssey-to-skill-100000-developers-in-india-in-latest-ai-technologies-and-tools/#:~:text=To%20participate%20in%20the%20AI,complete%20by%20January%2031%2C%202024.>



- IBM and the Indian Ministry of Education (MoE), and the Ministry of Skill Development and Entrepreneurship (MSDE) have signed multiple Memorandum of Understanding (MoU) with its various departments to provide curated courses to empower youth in India with future-ready skills. The collaboration will focus on the co-creation of curriculum and access to IBM's learning platform IBM SkillsBuild, for skilling learners across school education, higher education, and vocational skills on emerging technologies like AI (including generative AI) and professional development skills.
- IBM will provide access to digital content from IBM SkillsBuild for high school students, teachers, and trainers on cutting-edge skills in schools identified by the Navodaya Vidyalaya Samiti (NVS), National Council for Teacher Education (NCTE) and Kendriya Vidyalaya Sangathan (KVS) as well as NIOS (National Institute of Open Schooling). This program will be offered online, via webinars and in-person workshops.
- IBM will refresh CBSE's AI curriculum for Grades 11 and 12 for high school students to be hosted on IBM SkillsBuild. IBM SkillsBuild courses entry-level learning plan is dedicated to Artificial Intelligence Fundamentals. ^[58]

Salesforce Upskilling Initiatives

- Salesforce recently announced that it would be partnering with the Ministry of Education to upskill 100K students in AI by 2026, through its Trailhead cloud platform, for fostering tech talent in India. The collaboration aims to align with IDC projections in order to indicate that the global Salesforce economy, driven by AI, will create 11.6 million jobs and generate \$2.02 trillion in business revenues between 2022 and 2028.
- The Trailhead course material will be modified to fit the unique needs of the programs that the Ministry of Education, as well as other ministries, agencies, and organizations, have laid out.
- The partnership will also be offering a virtual internship program which will be funded by Salesforce to promote the capability of the growing generation.
- Salesforce is building strategic partnerships with Indian academic institutions to build capacities.
- The Salesforce program is designed with industry-relevant courses that follow the National Occupational Standards set by the Ministry of Education. This partnership is initiating this through mentoring programs, "train-the-trainer" workshops for educators, and direct links to Salesforce partners and clients in need of qualified workers, along with helping budding IT workers ^[59]

[58] https://economictimes.indiatimes.com/tech/technology/india-a-key-player-in-responsible-ai-revolution-skilling-way-to-go-ibms-sandip-patel/articleshow/107791024.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst <https://in.newsroom.ibm.com/2023-09-27-IBM-partners-with-Govt-to-scale-digital-skills-training-in-india>
[59] <https://analyticshindiamag.com/how-salesforce-is-ai-ding-indias-tech-future/>



- To investigate the potential applications of generative artificial intelligence (GenAI) in its companies, Goldman Sachs has established a centre in India to train engineers and non-engineers.
- The company's AI school was piloted in mid-2023, under which it trained employees across asset and wealth management, risk management, global banking and markets functions and aims to have more than 4,000 employees trained in AI.
- In 2024, the company is aiming to train over 1,000 non-engineering business users across Bengaluru and Hyderabad offices in India. They include individuals across operations, controllers, treasury, sales, research and investment banking.
- The company has plans by the end of the year to have all Goldman Sachs engineers in India, who are in roles that are software development centred, to be enabled on GenAI based co-pilots. There are about 3,200 engineers who are working in software development-related roles.

Goldman Sachs AI School

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Cognizant-partnership approach

- Cognizant's Synapse: a training program designed to empower more than 1 million people with cutting-edge technology, including generative AI, for skills needed to thrive in the digital age. Cognizant expects to equip 200,000 jobseekers with in-demand tech skills through innovative, sponsored upskilling programs;

[60]https://economictimes.indiatimes.com/tech/technology/goldman-sachs-india-to-train-over-1000-non-engineers-in-ai/articleshow/108335558.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst



- Technology Partnerships: Enabled by the technology ecosystem in which Cognizant operates including organizations like IT industry associations in India and the Cognizant Google Cloud AI University.
- Apprenticeships: Working with universities, community colleges, and workforce development groups, Cognizant expects to support thousands of individuals as apprentices and equip them with the experience and capabilities that incorporate emerging technologies such as generative AI.
- Employee Skilling: Through Cognizant's learning and development platform, the company expects to upskill more than 200,000 of its 345,000 own employees over the life of the initiative, pulling on the most relevant technologies including Generative AI ^[61]

Google – Accelerator Program

- Google is offering mentorship to entrepreneurs of Artificial Intelligence (AI)-centred startups. It includes three months of training in design, marketing, and leadership. Also, the founders and their subordinates get access to Google's advanced AI and machine learning.
- AI First- A 3-month equity/fee-free accelerator program for AI-First startups between Seed to Series A based in India.
- Selected startups, headquartered in India, receive expert mentorship and support around AI/ML, Cloud, UX, Android, Web, Product Strategy and Growth.
- The program is deeply technical, leveraging technologies like Machine Learning and AI.
- Google is also collaborating with the Government of Maharashtra to support government-led skills training and education initiatives by assisting the launch of structured high-demand skills courses owned by government organizations on YouTube; providing a train-the-trainer program on its Gen AI products for educators; and equipping 500 government IT professionals with cutting-edge conversational AI skills through Google Cloud. ^[62]

https://economictimes.indiatimes.com/tech/technology/google-maharashtra-government-to-collaborate-for-ai-led-development/articleshow/107535075.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

^[61]<https://www.cognizant.com/us/en/about-cognizant/sustainability-corporate-citizenship/synapse>

^[62]<https://startup.google.com/programs/accelerator/ai-first/india/> <https://www.deccanherald.com/technology/google-invites-entrepreneurs-for-ai-startup-mentorship-programme-2994617>



Amazon Web Services (AWS) – ‘AI-Ready’ initiative

- Since 2017, AWS, the cloud subsidiary of Amazon, has trained over 5.5 million people in India on AI and cloud skills.^[63]
- With generative AI moving from proof of concepts to deployment this year, the company plans to train about two million individuals in AI globally by 2025 through its “AI-Ready” initiative.
- The Directorate General of Training (DGT), under the aegis of the Ministry of Skill Development and Entrepreneurship (MSDE), is collaborating with Amazon Web Services (AWS) India to upskill students in cloud computing, data annotation, artificial intelligence (AI), and machine learning (ML), to boost their capabilities and employability.
- AWS India will provide individuals with self-paced online learning programs in emerging technologies at no cost. This learning content will be offered on DGT’s Bharat Skills platform (<https://bharatskills.gov.in>).

AI for Youth – INTEL and DELL Initiative in Telangana

- Dell Technologies announced that it has partnered with Intel's Digital Readiness team to introduce Artificial Intelligence (AI) at the Lords Institute of Engineering & Technology in Telangana.
- The partnership involves integrating Intel's "AI for Youth" program into the institute's existing curriculum, aiming to bridge the digital skills gap and prepare students for the industry.
- The collaboration with Intel introduces a comprehensive AI readiness program to empower the youth to be future-ready with the power of AI. The programme focuses on building capabilities amongst selected teachers through training provided by Intel along with 170+ hours of AI curriculum.^[64]

^[63]<https://qib.gov.in/PressReleaseSelfFramePage.aspx?PRID=1944468> <https://analyticsindiamag.com/aws-trains-over-5-mn-in-ai-and-cloud-skills-in-india/#:~:text=Since%202017%2C%20AWS%2C%20the%20cloud,the%20APAC%20and%20apan%20region>

^[64]<https://www.cnbctv18.com/technology/dell-and-intel-to-introduce-ai-for-youth-programme-in-telangana-17175411.htm>



Recommendations

Based on our discussions about AI, skilling, and collaboration between the US and India, here are some key recommendations:

Government Initiatives:

- The Government of India (GoI) can:
 - Develop a national AI strategy that prioritizes skilling and workforce development.
 - Establish a central body to coordinate AI and skilling initiatives across different ministries and states.
 - Offer tax breaks and incentives to companies investing in joint R&D projects with Indian universities on AI-related skilling programs.
 - Invest in building robust and affordable internet infrastructure across the country to facilitate access to online learning platforms

Industry Collaboration:

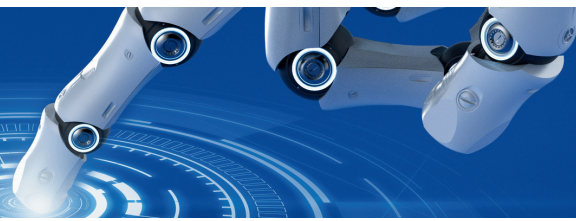
- US companies and Indian institutions can:
 - Develop joint skilling programs focused on industry-specific needs and emerging AI applications relevant to India (e.g., agriculture, healthcare).
 - Offer internship and mentorship opportunities for Indian students in US companies working on AI technologies.
 - Establish joint research centers focused on developing AI-powered learning platforms for the Indian workforce.
 -

Focus on Future-Ready Skills:

- Skill development programs should emphasize:
 - Foundational skills like critical thinking, problem-solving, communication, and collaboration.
 - Data analysis and digital literacy skills are essential for working with AI technologies.
 - Soft skills like adaptability, lifelong learning mindset, and the ability to work effectively with AI systems

Addressing Challenges:

- **Strategies to address challenges include**
 - Developing clear policies on data privacy and intellectual property ownership for collaborative research projects.
 - Implementing robust mechanisms for ethical development and deployment of AI in skilling initiatives.
 - Focusing on inclusivity by ensuring skilling programs are accessible to women and rural populations.
 - Establishing industry-recognized AI certifications to validate skills and enhance employability



US INDIA COLLABORATIONS - AI

The AI market in India is projected to reach \$8 billion by 2025, growing at a CAGR of over 40% from 2020 to 2025. With its vast talent pool, growing digital infrastructure, and government initiatives like Digital India, India presents significant opportunities for U.S. companies looking to leverage AI technologies

The United States and India have a chance to forge a powerful partnership in the race for artificial intelligence (AI) leadership. However, this path requires overcoming some hurdles

US India Artificial Intelligence (USIAI) Initiative

The Indo-U.S. Science and Technology Forum's U.S. India Artificial Intelligence (USIAI) Initiative focuses on AI cooperation in critical areas that are priorities for both countries. USIAI will serve as a platform to discuss opportunities, challenges, and barriers for bilateral AI R&D collaboration, enable AI innovation, help share ideas for developing an AI workforce, and recommend modes and mechanisms for catalyzing partnerships.^[65]

Collaboration vs. Competition:

While countries will vie for top talent, data, and technology in AI, true progress relies on the free flow of information and expertise. The U.S. and India need to find a balance between competition and collaboration.

Resolving Bilateral Issues:

The U.S. might seek changes to Indian data privacy and storage rules, as well as policies seen as favoring Indian e-commerce companies. India, meanwhile, would likely want relaxed H-1B visa restrictions for its IT professionals, a key pillar of the bilateral IT relationship. Addressing these issues will pave the way for smoother cooperation.

AI's Impact on Jobs:

AI will create new jobs but also lead to job losses, even in highly skilled sectors. To prevent trade barriers arising from these disruptions, open dialogue between the two governments, companies, and other stakeholders is crucial.

[65]<https://dst.gov.in/us-india-artificial-intelligence-usiai-initiative-launched>.



The Role of Companies:

Companies in both nations, as creators and users of AI, must ensure the technology doesn't exacerbate social inequality or instability. They also need to support workforce development for the new AI-driven job market. Organizations like the Business Roundtable (US) and the Balanced Scorecard Institute (US) can offer valuable models for this.

India's journey in technology is a remarkable turnaround. From being known as the "back office of the world," it's become a thriving innovation hub, shaping the global tech landscape. Fueled by a billion-strong population eager for progress and a talented workforce, particularly in STEM fields, India has placed artificial intelligence (AI) at the heart of its digital revolution.

But India isn't going it alone. The U.S., the world's economic leader and another AI powerhouse, has been a key partner in this pursuit of a brighter future^[66]

A Strong U.S.-India AI Partnership

The U.S. and India have a history of successful AI collaboration, exemplified by the U.S.-India Artificial Intelligence (USIAI) Partnership launched in 2021. This partnership focuses on joint research and development, building a skilled AI workforce, and exploring AI applications in healthcare, smart cities, and various industries.

Years of growing scientific ties, coupled with closer geopolitical alignment, led the U.S. National Security Commission on AI to propose India as a central point for U.S. tech engagement in the Indo-Pacific region in October 2020. The NSCAI report also recommended a U.S.-India Strategic Tech Alliance to focus on R&D, innovation, talent exchange, and defense and security cooperation.^[67]

The Rise of AI Presents an Opportunity for US-India Collaboration

As Artificial Intelligence (AI) becomes a strategic imperative, the United States and India have a unique opportunity to join forces. Collaboration in AI applications for intelligence gathering, military training, and counterterrorism efforts could prove highly beneficial for both nations.

[66] <https://www.csis.org/blogs/adapt-advance-refreshed-agenda-us-india-relations/us-india-artificial-intelligence>

[67] <https://thesecretariat.in/article/expanding-beyond-borders-the-promise-of-india-us-ai-alliance>



Building a Stronger US-India AI Partnership: Collaboration is Key

A robust partnership between India and the United States on key areas like AI research, data sharing, cybersecurity, standard-setting, computing access, and workforce development would significantly strengthen the strategic relationship between the two nations.

While there might be some divergence in approaches on specific issues, like AI regulation (US favoring voluntary guidelines vs. India's preference for a light-touch hybrid model), or the development of independent "sovereign AI infrastructure," there's significant value in aligning on core principles.

Shared values like respect for democracy, equitable access, fairness, transparency, and inclusivity form a strong foundation for meaningful collaboration. By committing to these principles, the US and India can unlock the full potential of AI for mutual benefit.

In a LinkedIn post on Thursday detailing his predictions for 2024, Chambers wrote, "The US and India will become the most strategic partnership in the world, driving global innovation and job creation at an accelerating pace. These opportunities and growth will be driven by initiatives like Digital and AI India, as well as India's eagerness for and openness to building collaborative, strategic partnerships with the US and other key global players."^[68]

US-India Tech Partnership Takes a Leap Forward

The U.S. and India's longstanding strategic partnership is taking a significant step forward with a new joint declaration on critical and emerging technologies. This initiative focuses on developing and harnessing transformative technologies like Artificial Intelligence (AI), Quantum Computing, and Cybersecurity. These advancements have the potential to revolutionize both nations' economies and security landscapes.

The collaboration brings together government agencies, private companies, academic institutions, and research bodies.

A key area of focus is AI, where both countries boast impressive progress in research and development. The initiative aims to foster even greater collaboration in this field. By working together, the US and India can expedite the development and deployment of AI applications in healthcare, transportation, agriculture, and numerous other sectors.^[69]

[68] <https://economictimes.indiatimes.com/tech/technology/us-india-partnership-to-become-most-strategic-in-the-world-john-chambers/articleshow/106001017.cms?from=mdr>
[69] https://www.researchgate.net/publication/371167488_US-India_Collaboration_on_Critical_and_Emerging_Technology_and_Implication_for_Pakistan_National_Security



Opportunities:

- **Agriculture:** Precision farming and crop monitoring powered by AI have the potential to enhance agricultural productivity in India. Partnerships between U.S. agritech companies and local tech companies servicing Indian farmers can drive the adoption of AI-driven solutions in agriculture.
- **Finance:** AI-powered solutions for fraud detection, risk assessment, and customer service automation are in high demand in the financial sector. U.S. fintech companies can leverage partnerships with Indian banks and financial institutions to deploy AI-driven solutions.
- **Healthcare:** AI presents opportunities for predictive diagnostics, personalized treatment plans, and drug discovery in the healthcare sector. Indian information technology (IT) associations like NASSCOM are actively promoting AI-driven healthcare solutions, creating opportunities for collaboration between U.S. and Indian companies.
- **Retail:** AI-driven technologies such as recommendation engines and chatbots are transforming the retail sector in India. Collaborations between U.S. retail giants and Indian retailers can lead to the development of innovative AI-powered solutions for personalized shopping experiences.
- **Manufacturing:** AI-powered predictive maintenance and quality control are revolutionizing the manufacturing sector in India. U.S. manufacturing companies can collaborate with Indian counterparts to implement AI-driven solutions and improve operational efficiency.

Challenges:

- **Data Privacy and Security:** Data privacy and security concerns remain a significant challenge for AI adoption in India, requiring companies to adhere to regulatory frameworks and ensure compliance with data protection laws.
- **Infrastructure Constraints:** Limited access to high-speed internet and digital infrastructure in certain regions of India may hinder the widespread adoption of AI technologies, requiring investments in infrastructure development.
- **Skill Shortage:** There is a shortage of skilled AI professionals in India, emphasizing the need for training and upskilling initiatives by Indian IT associations and educational institutions. There is a considerable gap between job demand and skill availability in the AI sector. To bridge this gap, initiatives focusing on upskilling, reskilling, and promoting AI education are crucial to meet the growing demand for skilled AI professionals in India.



The Way Forward: Becoming Future Ready

- Empower India's workforce with future-ready skills.
- Training in partnership with governments, nonprofit and corporate organizations, and communities.
- Training individuals in Tier 2 and Tier 3 cities, as well as rural areas, enabling people to participate in the new era of AI and unlock inclusive socio-economic progress.
- AI innovation in partnership with private sector to equip the youth with skills through training in tools that redefine how people work.
- Lend access to AI skills across the nation
- Creating AI fluency at scale

Conclusion: By implementing these recommendations, India can leverage collaboration with the US to create a skilled workforce prepared to thrive in the AI-powered future. This will be crucial for achieving the goals of Atmanirbhar Bharat (Self-Reliant India) and Viksit Bharat (Developed India).



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