



Navigating IndiaAI Mission

The Startups Perspective

January 2025

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Executive Summary

The rapid growth of AI startups in India highlights the country's innovative spirit and technological prowess as AI startups are not only adopting AI but also developing novel solutions, creating new market niches, and solving complex problems across various sectors of the economy. Government of India has also recognized the importance of AI startups in transforming the technological ecosystem and has earmarked a significant amount of about INR 2,000 crore for promoting and supporting AI startups under the IndiaAI Mission. Government of India has taken an inclusive approach that aims to promote AI startups from Tier-II and Tier-III cities, ensuring that AI development encompasses the entire nation.

Startups that are involved in the development of AI tools, solutions and services are at the forefront of the AI revolution that has transformed the technology industry. As there are tremendous opportunities for startups working in the field of AI, given the immense possibilities of innovation in AI technologies, such opportunities for AI startups often come with several kinds of challenges. For AI startups, unlike their counterparts in other domains, the transition of their AI products or services from the concept stage to commercialization cannot have a long period given the rapid developments in the field of AI due to fast paced innovation. Such transition would often require AI startups to make high capital investments for R&D, talent acquisition and production which can be a primary challenge, given that AI space is becoming extremely crowded. Further, other factors such as access to compute infrastructure, IPR concerns, access to large volumes of data and compliance with regulations, can also bring additional burden to AI startups and might have an impact on innovation. Therefore, understanding these challenges and the support needed from the government can help make AI startups one of the key stakeholders in the IndiaAI Mission.

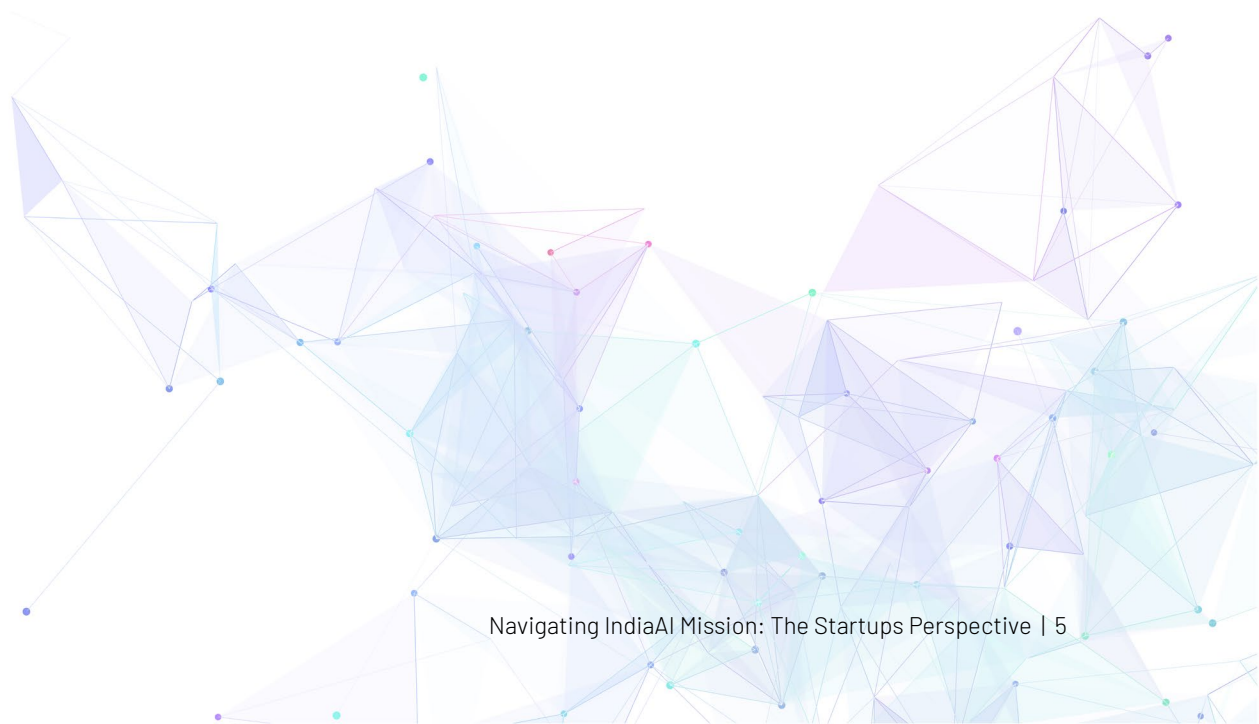
This report captures the awareness of 40 AI startups in India on different aspects of the IndiaAI Mission, including their views and perspectives on some of the key pillars of the Mission. The report further delves into the current state of AI development in India, identifies the challenges faced by AI startups on different aspects related to the AI ecosystem, highlights innovative approaches to address these challenges,

and suggests strategies for aligning with the pillars of the IndiaAI Mission including, Compute Capacity, Innovation, Datasets, Future Skills, and Safe & Trusted AI, with the needs of the startup community.

While Government of India has been taking several initiatives to address the concerns related to AI ecosystem in the country, for example, under the IndiaAI Mission, a huge focus is given to increasing the country's compute capacity through procurement of GPUs and making them available to startups and researchers, it is also imperative to consider different approaches that can be adopted by the Government to create a comprehensive AI compute ecosystem in the country. As there is a demand-supply gap of talents with necessary AI skills and domain knowledge, creating a challenge for AI startups in terms of hiring, Government's intervention through collaboration with academia and industry can help in bridging such gaps. Such collaborations can not only create appropriate skill sets for students required in the AI industry, but can also create upskilling and reskilling programs for existing technology professionals working outside the AI domain.

The report also highlights the challenges faced by AI startups on aspects like protection of intellectual property rights, access to funding and investments and access to datasets for training of AI models. Finally, on the regulatory and governance aspects, the report highlights the need for multi-stakeholder discussions under the IndiaAI Mission for framing an AI governance framework and necessary guardrails for protecting the public interest and at the same time ensuring that such guardrails and regulations do not create hurdles for AI innovation.

As India stands on the brink of an AI revolution, the role of startups in shaping this transformation is crucial, making them invaluable partners in realizing the vision of the IndiaAI Mission. Promoting more AI startups from different corners of the country and including their voices in policy making processes would create new avenues for innovations in the AI domain that can cater to the needs of India. Therefore, highlighting their views on different aspects of AI initiatives like the IndiaAI Mission can foster further collaboration between the Government and startups to create a conducive ecosystem, focusing on innovation, growth and responsible development of AI.



Key Survey Findings

Challenges in AI Innovation

52%

AI startups face the following as challenges in terms of investing on innovation

- Low financial investments
- Difficulty in demonstrating the scalability and profitability of AI business models
- Resource crunch due to high competition from other startups and companies in the AI space.

Access to Compute Resources

31%

AI startups suggest taking holistic approach for strengthening AI compute approach by focusing on Compute-as-a-Stack.

29%

AI startups suggest procurement of AI compute and offering to startups at subsidised rates.

Challenges in AI Talent Acquisition

23%

AI startups find scarcity of talents with requisite AI skills in India

25%

AI startups highlight that top-tier talents get absorbed in big-tech companies

26%

AI Startups face lack of resources to offer unique value proposition.

26%

AI startups feel that talents often lack qualities such as ethical awareness, regulatory risks, etc.

Access to High Quality Datasets

79%

AI startups feel this as a prominent challenge.

Regulation vs Innovation

25%

AI startups highlighted the need for a balance between regulation and innovation.

Impact of AI Regulation on Startups

23%

AI startups view AI regulations as helpful in preventing misuse of AI products.

27%

AI startups view AI regulations may create a compliance burden.



Introduction

As India is leading the disruption of the technology landscape through emerging technologies like Artificial Intelligence (AI) and Machine Learning (ML), startups have become a significant part of this tech-driven revolution in terms of development, adoption and deployment of AI technologies. According to a report by Dun & Bradstreet, about 77% of Indian startups invest in advanced technologies such as AI, ML, Internet of Things (IoT), and blockchain.¹ The rapid growth of AI startups in India is not just a trend but a testament to the country's innovative spirit and technological prowess. These startups are not merely adopting AI technologies, they are actively developing novel solutions, creating new market niches, and solving complex problems across various sectors including healthcare, finance, education, and agriculture. Their agility and innovative approaches are challenging traditional business models and driving digital transformation across industries.

With the growing demands for AI applications at large scale along with fast-paced innovation and R&D, the key components of AI ecosystem - compute, data, and skills have become increasingly important. These three pillars form the foundation of AI development and deployment:

- **Compute**

The need for high-performance computing infrastructure to train and run complex AI models is paramount. As AI algorithms become more sophisticated, the demand for powerful, energy-efficient, and cost-effective computing resources continues to grow.



- **Data**

High-quality, diverse, and ethically sourced data is the lifeblood of AI systems. Indian startups are uniquely positioned to leverage the country's vast and varied data landscape, but they also face challenges related to data privacy, security, and standardization.



- **Skills**

The development of a skilled workforce capable of designing, implementing, and maintaining AI systems is crucial. This includes not only technical skills in AI and ML but also interdisciplinary knowledge to apply AI across various domains.



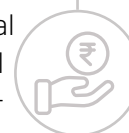
Recognizing the strategic importance of AI, the Union Cabinet chaired by Prime Minister Modi has approved an allocation of over INR 10,300 crore for the India AI Mission, which focuses on pillars like compute capacity, innovation in developing and deploying indigenous LLMs and domain-specific models, access to high quality non-personal data sets, promotion of impactful AI solutions for socio-economic transformation, expansion of AI education to all academic levels, providing access to funding for deep-tech AI startups, and ensuring responsible AI via governance frameworks.² A significant outlay of about INR 2,000 crore has been earmarked for funding and supporting AI-related startups, marking a significant step towards developing the AI ecosystem in India.³ This substantial financial commitment demonstrates the government's recognition of AI startups as critical drivers of economic growth, innovation, and global competitiveness.

The government's focus on promoting AI startups, including those from Tier-II and Tier-III cities reflects the importance of AI startups in the development of this emerging technology across the country. This inclusive approach aims to tap into the diverse talent pool spread across India, ensuring that AI development is not limited to major tech hubs but encompasses the entire nation. By supporting startups in smaller cities and towns, the government seeks to create a more balanced and equitable AI ecosystem, potentially leading to AI solutions that address a wider range of local and regional challenges.

Despite the surge in the number of AI startups in the country, they face numerous challenges such as limited financial resources, aggressive competition, access to AI talent, intellectual property challenges and regulatory challenges. Therefore, understanding the views of AI startups in terms of the challenges they face and the support they want from the Government would provide an opportunity to the Government to make startups an important stakeholder while preparing the roadmap for the IndiaAI Mission. These challenges are multifaceted and interconnected:

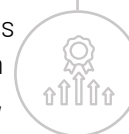
- **Funding**

While there has been an increase in AI-focused funding venture capital firms, it is important to look at the struggles that many startups still go through in terms of securing adequate funding, especially for long-term research and development.



- **Competition**

AI startups often find challenges due to immense competition in this space with numerous startups and technology companies working on different layers of AI leading to resource crunch including financial, talent and infrastructure.



- **Intellectual Property**

Protecting AI innovations through patents can be complex and expensive, particularly for resource-constrained startups.



- **Talent Acquisition**

The global demand for AI talent often makes it challenging for startups to attract and retain skilled professionals, especially when competing with larger companies offering more competitive compensation packages.



- **Regulatory Environment**

The evolving nature of AI technology often outpaces regulatory frameworks, creating uncertainty for startups, especially in sensitive areas like data privacy and algorithmic accountability.



Considering these issues in the AI startup ecosystem, this report looks at some of the pillars of the IndiaAI Mission from the lenses of AI startups in India to understand their view on the Mission and suggestions that they want to share with the Government to build a conducive AI ecosystem in the country. By examining the Mission through the lens of startups, this report aims to:

- Provide a ground-level perspective on the current state of AI development in India.
- Identify specific areas where government support can have the most significant impact.
- Highlight innovative approaches and best practices emerging from the startup ecosystem.
- Offer insights into potential collaborations between government, academia, industry and startups.
- Suggest strategies for aligning the IndiaAI Mission with the needs and aspirations of the startup community.

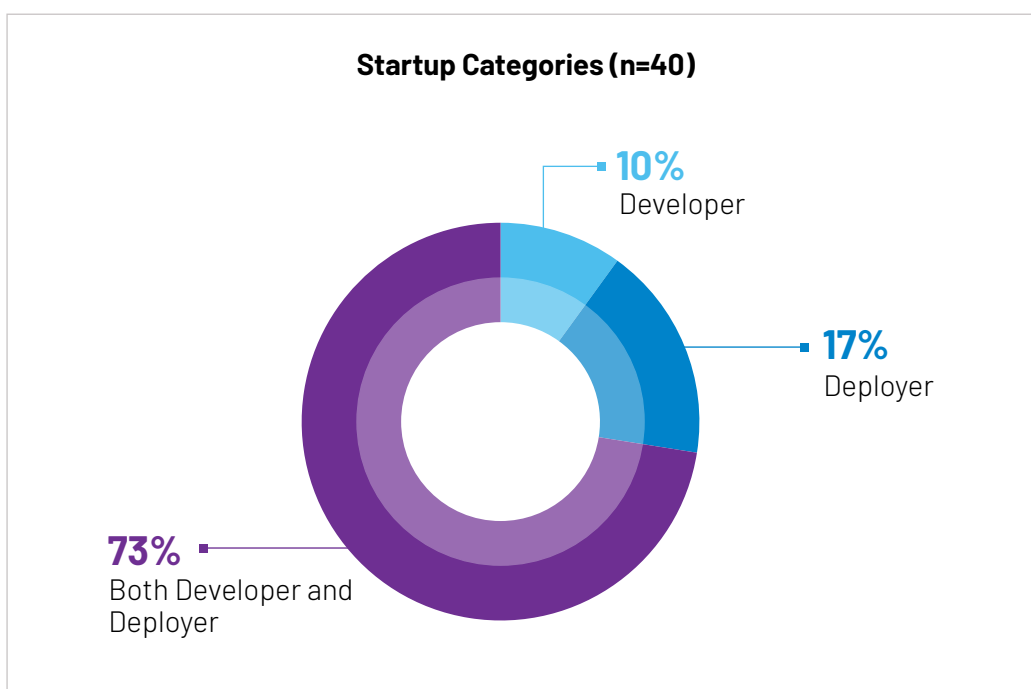
As India stands at the cusp of an AI revolution, the role of startups in shaping this transformation cannot be overstated. Their agility, innovation, and ground-level understanding of market needs make them invaluable partners in realizing the vision of the IndiaAI Mission. This report serves as a bridge between the startup community and policymakers, aiming to foster a collaborative ecosystem that can propel India to the forefront of global AI innovation and adoption.



Methodology

To understand the perspectives of AI startups on various pillars of the IndiaAI Mission, a comprehensive online survey was conducted among startups in India working in the field of AI. The survey questionnaire was meticulously designed to align with the seven key pillars of the IndiaAI Mission, including research and development, compute infrastructure, data management, workforce development, start-up ecosystem, responsible AI, and sector-specific applications.

The survey's primary categorization of participating AI startups was based on their core function: those focused on developing AI models and algorithms, and those deploying AI tools to solve specific business challenges. The below chart shows the representation of AI startups based on this categorization.



This distinction allows for a nuanced analysis of how different types of AI startups perceive and engage with the various aspects of the IndiaAI Mission. The survey also aimed to gather a representative sample of India's AI start-up ecosystem, including companies at various stages of growth and across different sectors, to provide a comprehensive view of the challenges, opportunities, and perspectives within the industry.

Limitations:

The survey exercise and the findings emerging from it may have some inherent limitations. These are listed below:

- **Limited scope and depth:** The limited scope and depth of certain questions made it difficult to capture nuances of the responses received with respect to reasons behind the responses. Since the questionnaire was administered online, it is difficult to ascertain whether respondents answered the questions with adequate application of mind.
- **Validity of responses:** As responses to various questions include respondent biases and are driven by perceptions towards the subject, i.e., the survey relied upon stated preferences and perceptions of respondents, confirming the objectiveness and factual validity of the responses is a challenge.
- **Data accuracy:** While efforts were made to maintain data accuracy, any errors that may have occurred in data analysis remain solely ours.
- **Interpretations:** Despite testing and piloting the questionnaire, it is possible that certain questions may have been interpreted differently by different respondents, especially considering that the survey was conducted online without any in-person explanations.

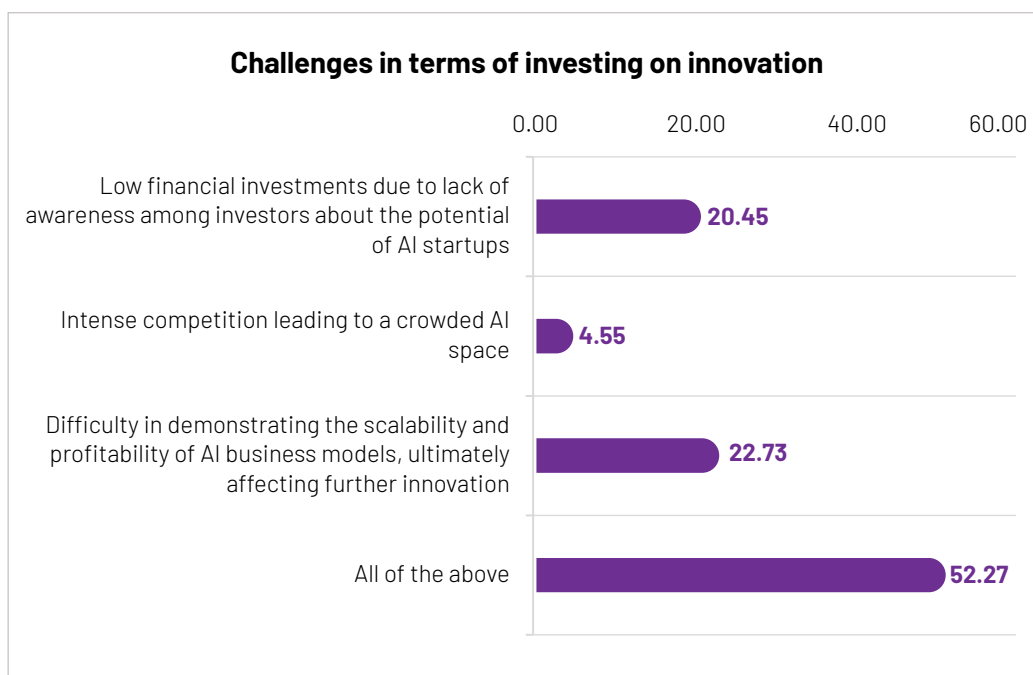


AI Innovation: Challenges and Role of Government Support

According to DPIIT, India has 1,40,803 DPIIT-recognized startups (as of 30th June 2024) positioning India's start-up ecosystem as the 3rd largest in the world.⁴ With the advancement in AI technologies, startups are heavily investing in these emerging technologies to build their products and services. This has also led to the demand for opportunities to develop complex AI models and applications in the country and Indian startups have been at the forefront for the development of such technologies. One of the significant factors that supported in booming of startups in India has been greater access to private capital through Venture Capital and Private Equity funding.⁵ Having said that one of the prominent challenges faced by the AI startups in the country is related to investments and financing. According to a report by Tracxn, AI startups accounted for only about 0.3% of the overall tech start-up funding, which stood at USD 3 billion in the April-June quarter of 2024. Funding for AI startups, including those providing AI infrastructure and AI-as-a-service in India, stood at USD 8.2 million in April-June quarter of 2024,⁶ a significant decline of about 91% sequentially and by 82% year on year.⁷

From the survey data, about 52 % of startups have highlighted multiple challenges including low financial investments, intense competition in the AI space, and difficulty in demonstrating the scalability and profitability of AI business models. The rest of the startups either consider one among the three or a combination of any two aspects as challenges for them, low financial investments being a concern for about 20% of the startups participated in the survey. The underlying factor as highlighted by the survey data reflects the lack of awareness among investors about the potential of AI startups in developing AI models and applications that have the potential for transforming the technology space as well as significantly contributing to the growth of businesses in various economic sectors. Also, the AI space has

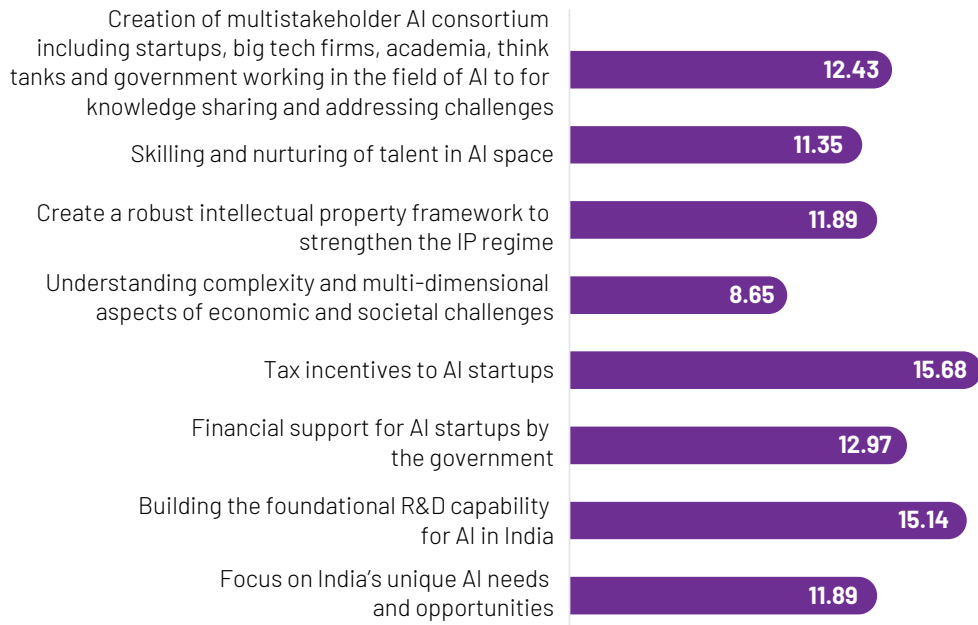
become extremely crowded due to which AI startups are concerned on securing investments for R&D as development of AI is a capital-intensive endeavor.



Government of India under the IndiaAI Mission has earmarked about INR 2000 crore for funding of startups working in the domain of AI. Several ministries of Government of India from time to time have been implementing schemes and initiatives to support startups, for example, Startup India Seed Fund Scheme under the ‘Start-up India’ initiative, TIDE 2.0 launched by MeitY, etc. have been offered to startups for prototype development, product trials, market entry and commercialization of their products and services.⁸ As a significant allocation under the IndiaAI Mission has been done for supporting startups, adoption of an appropriate funding mechanism for the deployment of programs under the Mission will be significant for the growth of the AI start-up ecosystem.

Apart from providing financial support to AI startups through appropriate mechanisms, it is also important for the government to look at other factors in terms of supporting the startups and encourage them to focus on innovation. From the survey data, while about 13% of the startups are of the view that financial support for AI startups from the government will help promote innovation, about 16% of startups believe that Government should also provide tax incentives.

Government's support in promoting innovation in AI development under IndiaAI Mission



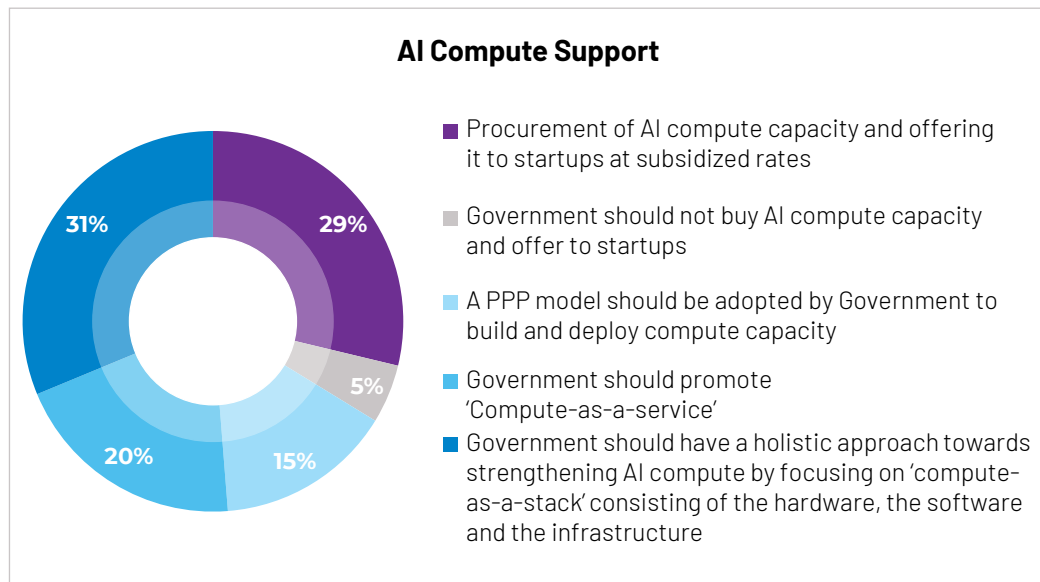
As there is a massive headway for AI innovation in the country and AI startups are at the forefront in terms of innovation and R&D, safeguarding their Intellectual Property Rights (IPR) becomes significant. Startups may face several IPR challenges such as high costs of filing patents, complicated legal processes, lack of awareness on patentability of subject matter in case of AI-assisted or AI-generated inventions, etc. The survey data shows that about 12% of the AI startups are of the view that getting support from the government in safeguarding IPR of their products will be helpful in keeping up with the pace of innovation. Government's support in terms of fast-tracking of patent examination at a lower cost would be crucial to nurture their creativity in building complex AI models and technologies.

Apart from financial, taxation and IPR support, about 15% of AI startups from the survey believe that creating R&D centres for developing capabilities on creating foundational models through mentorship and incubation can also be a significant support from the Government.



AI Compute: Challenges and Approaches

There is a very close relationship between AI and computing power. The rapid development of complex AI models through machine learning and deep learning techniques has led to the growth in the demand for high-end computational resources. Also, the demand for applications of complex AI models at a larger scale has further pushed the demand for access to high-computing capacity. Training of AI models is one of the most computationally intensive tasks and requires very high computing power that world's chip manufacturers and cloud service providers are having a hard time keeping up with the demand.⁹



AI startups often struggle with financial resources and, therefore, face the challenge of accessing high computational resources. The survey data reflects that about 29% of the startups are of the view that Government should procure AI computing resources and offer it to startups at a subsidised rate.

Several discussions on developing India's compute power and providing access to startups and researchers have focused on the need to look at different approaches by the Government that include creating a marketplace model where compute capacity can be provided by private entities and government plays the role of an enabler¹⁰, build compute infrastructure that can provide 'computing-as-a-service'¹¹ to startups, and, of course, buying GPUs and providing compute power to startups at a subsidised rate. Around 20% of the startups in the survey also are of the view that compute-as-a-service should be promoted by the Government.

Government of India under the IndiaAI Mission aims to deploy over 10,000 Graphics Processing Units (GPUs) through strategic public-private collaborations and around INR 4568 crores¹² have been earmarked for it. Also, a dedicated pillar- 'IndiaAI Compute', under the IndiaAI Mission has been made to develop high computing infrastructure for development of complex AI technologies in the country. Government of India has also invited bidders for empanelment of agencies for Cloud-Based AI Services to democratise access to essential AI infrastructure and grant authorisation to end users from academia, MSMEs, startups, research community, governments, public sector agencies, and others to access AI services on the cloud.¹³

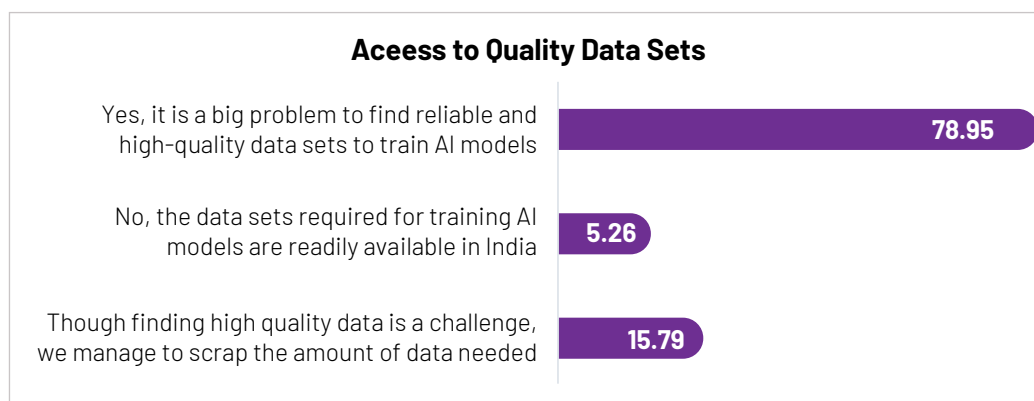
There are certain apprehensions on procurement of GPUs to address the problem of access to AI compute. This is because a particular type of GPU procured in a particular year might become less relevant and useful in the coming years, given the rapid advancement of GPU models.¹⁴ Therefore, though procurement of GPUs and providing subsidy for its usage to startups might address the challenge of access to high AI computing power to some extent, building the AI compute capacity of the country could require different approaches in addition to procurement of GPUs such as developing NPUs and AI accelerators or cloud-based compute. Another approach can be building 'compute-as-a-stack' that includes different layers encompassing multiple dimensions such as the hardware layer comprising of GPUs, TPUs, etc., the software layer comprising of programming language that enable the use of specialized chips and the infrastructure layer comprising of data centres.¹⁵ The survey data also highlights that 31% of startups feel that Government should take a holistic approach towards strengthening AI compute by focusing on 'compute-as-a-stack'. Therefore, it is very critical for the Government to adopt a framework under the AI Compute pillar of the IndiaAI Mission that not only focuses on procurement of GPUs to provide them at a subsidised rate to startups and AI developers, but also to look at other aspects of compute from software and infrastructure scenario as well.



Access to high-quality Datasets

Datasets are considered the backbone of machine learning and deep learning as these models are trained on data. High-quality datasets are required to ensure that training of AI models gives reliable output based on real-world scenarios. As AI applications have significant impact on the society, socio-economic aspects like inclusion, equality, non-discrimination, etc. become important factors of consideration while developing responsible AI models. To ensure that AI models adhere to ethical implications, the quality of data used to train AI models should be representative, accurate, complete and accessible.¹⁶ Here, representativeness of data means whether the data used to train AI models is representative of all people and completeness means the extent to which all required elements are present within the dataset.^{17,18}

With 751.5 million internet users (as of January 2024) in India and an internet penetration rate of 52.45 of the total population, huge amounts of data are produced daily in the country.¹⁹ However, there is a dearth of well-annotated, feature-rich local datasets, which can create impediments in AI development.²⁰ Also, the lack of data interoperability because of data stored in silos in different government and private organizations creates challenges in terms of data exchanges among organizations. Also, considering India's landscape with cultural, religious and regional complexities, access to well-annotated, feature-rich local datasets becomes a challenge.



For AI startups, though access to high-quality data for training AI models is a significant challenge and about 79% of them in the survey highlighted it, technology companies are playing a crucial role in providing open datasets that can be added to scenario-specific features of AI models by startups. Additionally, to overcome the challenge of language barriers in India, the Ministry of Electronics and Information Technology (MeitY) has created Bhashini AI, a multilingual translation model that has helped in creating a shared repository of digital data received from multiple stakeholders across different Indian languages to build AI models for such languages.²¹

The IndiaAI Datasets Platform pillar of the IndiaAI Mission focuses on streamlining access to quality non-personal datasets for AI Innovation and developing a one-stop solution for seamless access to non-personal datasets to Indian startups and researchers.²² Therefore, the time for operationalization of such a common data exchange platform will become crucial to address the challenges faced by AI startups in terms of accessing diverse sets of high-quality data to train AI models.





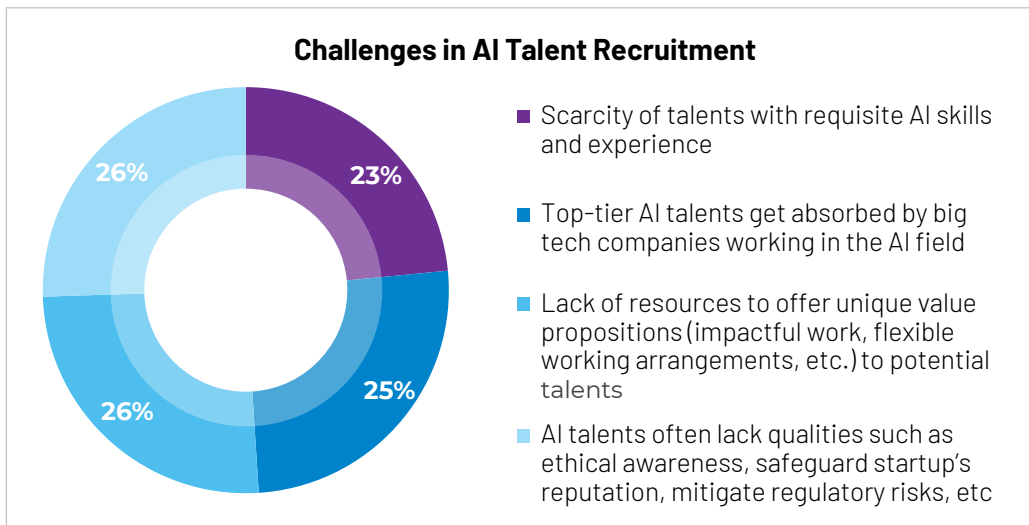
Acquisition and Skilling of AI Talent

India is often recognized as a leading producer of tech talent in the world and many major global tech companies are headed by technocrats of Indian origin. India, with its expanding economy accompanied by rapid digitalization, extensive talent pool, and favorable government policies, has emerged as a prime destination for IT companies and professionals globally. As emerging technologies like AI are transforming the technology landscape of India, future-ready talent has become an important pillar to take the AI revolution forward. According to data highlighted by the Stanford AI Index 2024²³, India tops global AI skill penetration rates and AI talent concentration.²⁴

With the extensive use of AI in businesses and different sectors of the economy, the demand for AI talent is expected to grow further in the coming years. According to a report, the AI market is expected to grow at a rate of 25–35 percent CAGR, whereas the demand for Indian AI talent is expected to grow from 600,000– 650,000 to more than 1,250,000 at a 15 percent CAGR.²⁵ This can be a signal for a demand-supply gap in the AI talent pool of the country.

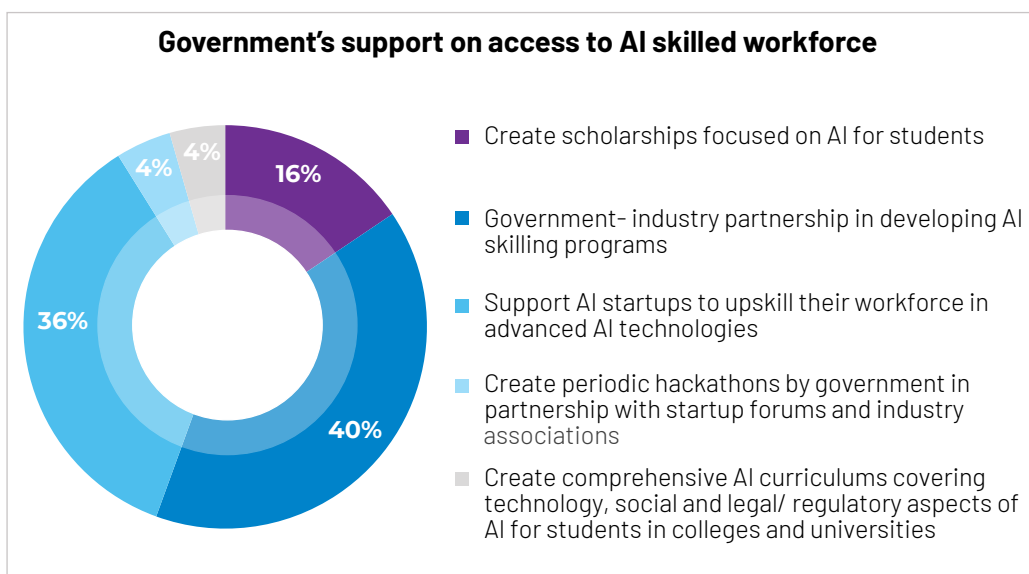
When we talk about the recruitment of AI skilled talents by startups, there is a gap in terms of demand and supply. According to the survey data, 23% of startups consider the scarcity of AI talents in India as a prominent challenge they face. One of the main reasons behind this challenge (25% of startups in the survey believe) is stiff competition from the technology incumbents as well as highly funded startups in terms of attracting top-tier talents. AI startups, especially at the initial stages of developing AI models or products, often have limited resources and lack brand recognition.

Therefore, 26% of the startups from the survey data view competitive compensation packages along with unique value propositions such as opportunities to revolutionize technology with impact as a prominent challenge.



Recruitment of AI talent with requisite skills and knowledge is also difficult compared to those working in other technologies because given the diverse applications of AI models and applications, it creates a demand for interdisciplinary talents with diverse skill sets encompassing mathematics, statistics, computer science, and domain-specific knowledge. Also, prioritizing ethical considerations in the development of AI technologies, especially in domains with high risks such as healthcare requires professionals with ethical awareness who can uphold the principles of responsible AI practices. Finding talents with such level of multi-disciplinary knowledge and ethical awareness, according to 30% of the startups in the survey, is also a challenge for AI startups.

The IndiaAI Mission has dedicated one pillar on 'AI Future Skills' to address the shortage of skills and subject matter experts in the AI workforce. The Mission under this pillar would also focus on mitigating barriers to entry into AI programs by increasing AI courses in undergraduate, masters-level, and Ph.D. programs. While the Mission also aims to set up data and AI labs in Tier 2 and Tier 3 cities across India, such initiatives can be done through public private partnerships (PPP) and government, industry, and academia collaboration.



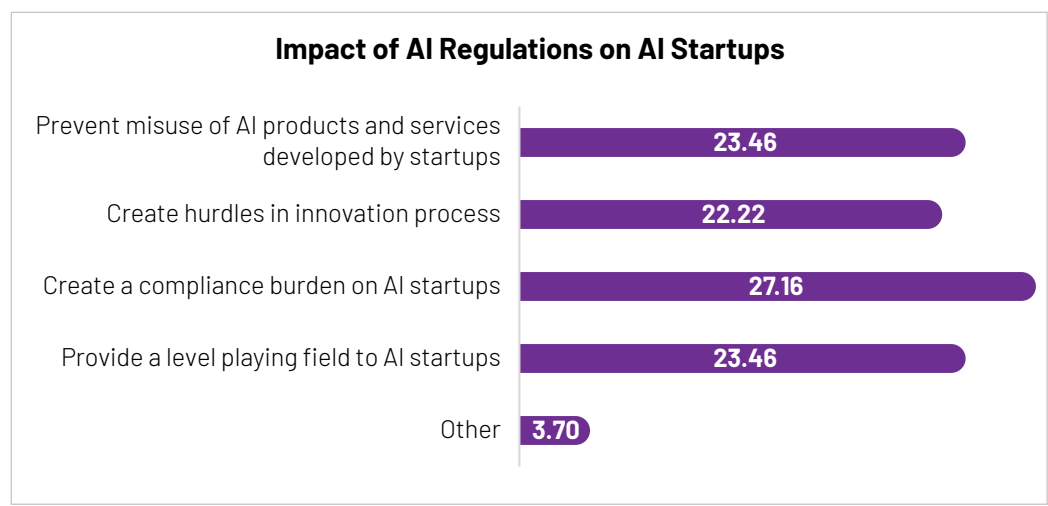
The survey highlights that a significant percentage of startups (40%) are of the view that Government-industry partnerships in developing AI skill programs would be crucial in creating talents with requisite skills and inter-disciplinary knowledge, important for the development of responsible AI. Also, as AI startups have various constraints, they often face challenges in terms of investing in periodic training and development programs to upskill their existing workforce on the latest developments in AI technologies. In the survey 36% of startups are of the view that Government, under the IndiaAI Mission may also support AI startups through programs to upskill their workforce in advanced AI technologies through collaborative programs between the Government, industry and academia.



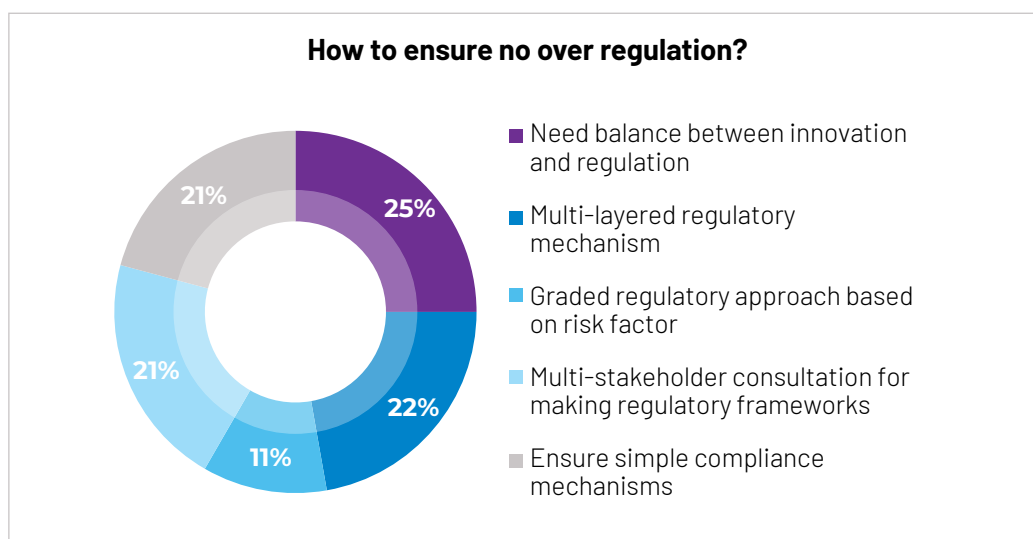
AI Governance Framework

AI technologies have transformed the technology space and influenced the everyday lives of people. With LLMs and Generative AI spearheading the latest developments in AI technologies, the risks associated with these technologies have also led to concerns in society. Growing misinformation and deepfakes, biased outputs by AI technologies, concerns related to job replacement by AI, etc. have created an urgent need for formulation of AI regulations. The European Union has come up with the Artificial Intelligence Act, to ensure that AI systems used in the EU are safe, transparent, traceable, non-discriminatory and environmentally friendly.²⁶ Though the EU Act adopts a risk-based approach, categorizing AI technologies into 4 sets of risks has led concerns among stakeholders that stringent regulations under the AI Act may have a negative impact on innovation.²⁷

Government of India has been working towards bringing regulations for AI that would include appropriate safeguards that will not hinder the growth and development of AI.²⁸ The IndiaAI Mission also talks about developing guardrails through guidelines and governance frameworks to advance the responsible development, deployment and adoption of AI.²⁹ As startups are an integral part of the AI development ecosystem in the country, it is important to have insights of their views on how can regulations and governance frameworks on AI to be brought by the Government can have an impact on them as well as the society.



About 23.5% of startups in the survey are of the view that AI regulations can help in preventing the misuse of products and services developed by startups, however, about 22% of startups also have apprehensions that such regulations might create hurdles in innovation due to the compliance burden that they (27 %) might face.



AI technologies applicable in different sectors can have different consequences and levels of impact on people and society. Therefore, regulatory provisions that would be framed by the Government for governance of AI technologies should be thoroughly discussed and debated. Based on the survey data, 21% of the startups believe that multistakeholder consultations should be held before creation of regulatory frameworks for AI.

Further, compliance requirements for AI startups and AI companies can be provided by the regulatory frameworks based on risk assessment of the AI technology. In the EU's AI Act, for example, high-risk AI systems are subject to strict obligations.³⁰ However, there can be different principles and approaches for the adoption of regulatory frameworks for AI such as risk-based, rights based, sector-agnostic and sector-specific regulatory approaches. Also, addressing risks in AI needs sectoral and contextual consideration, rather viewing all AI technologies under the same umbrella of same risk levels. Though 21% of the startups in the survey are of the view that compliance mechanisms should be simple, it is important to address that regulatory provisions should have different levels of compliance provisions for AI startups or companies based on the impact or risk associated with the AI technology they are developing. For, example companies building foundational AI models or AI applications for high-risk sectors like healthcare should have additional compliance requirements, whereas for those building AI applications for low-risk sectors, basic compliance requirements should be mandated.

A graded approach towards AI regulations and multi-stakeholder consultations before formulation of such regulatory frameworks could enable the Government to take a holistic approach towards addressing the concerns associated with AI, but at the same time enable AI startups and researchers to continue working on AI innovation. This would create a balance between AI innovation and AI regulation, a significant factor for the development of AI in the country.



Recommendations

As AI startups are a significant part of India's fast-developing AI ecosystem, their views on Government initiatives not only become helpful in understanding the gaps on the ground but also provides opportunities to the startups to be part of consultation processes by the Government for developing initiatives such as the IndiaAI Mission. The survey data reflects on multiple hurdles faced by startups such as challenges of access to compute power, skilled talents, financing and stiff competition leading to resource crunch, collaborations between the government and industry have created various avenues for providing support to AI startups in terms of skilling, computational power and cloud infrastructure.^{31, 32}

As the Government is working for the launch of the IndiaAI Mission, following are some of the key aspects related to AI startups that may be considered by the Government:

- While the government under the IndiaAI Mission is working on creating a state-of-the-art AI compute infrastructure through PPP model and empanelment of agencies for providing AI services on Cloud to democratize access to AI compute infrastructure, it is important for the Government to take a holistic approach to build high-performance and scalable compute ecosystem for AI. For this, policy frameworks can be created as guiding documents for creating clusters of high-performance computing facilities, cloud services such as Infrastructure as a service (IaaS) providers and software stacks, with affordable access to such services for startups.
- The IndiaAI Mission can further strengthen AI startup ecosystem by creating opportunities for Government-industry-startup-academia collaboration to promote and facilitate innovation. AI Centre of Excellence and AI incubation centres in higher educational institutions can be established through such collaborations. Further, to bridge the regional divide in terms of R&D and innovation in AI, Government under the IndiaAI Mission can consider a 'hub-spoke model' for innovation centres under the IndiaAI Innovation Centre pillar. This could support satellite incubation centres in Tier II and Tier III towns in promoting AI innovation.

- While the Central Government is working on the IndiaAI Datasets Platform under the IndiaAI Mission, a data governance framework should also be adopted which could include provisions to address issues like handling and management of data, access of data to startups and researchers to enable them to create and deploy their own AI models and safety and security of such data. Also, such policy frameworks can provide for ensuring that high- quality of data is available for startups and researchers for training, testing and validation of AI models.
- To create a future-ready workforce with AI skills and address the supply-demand gap of AI professionals in the country, especially for AI startups, the Government under the IndiaAI mission should adopt the approach of skilling, upskilling and reskilling in AI. Through inclusion of AI curriculum in educational institutions, students can be skilled in AI so that they can take up jobs in AI development. In schools, AI tinkering labs can be created where students can experiment and apply their theoretical knowledge of AI. Further, for university level students and young professionals, short-term AI certification and diploma courses can be designed through academia-industry collaboration to equip the IT workforce of the country with AI related skills. Also, as AI development requires multi-dimensional knowledge, the Central Government, in collaboration with industry and academia can create multi-disciplinary reskilling programs for AI professionals.
- By taking the concerns of AI startups into consideration while developing a regulatory framework, the Government should take a balanced approach between safeguarding the public interest and fostering innovation in the AI field. The regulatory framework should include appropriate guardrails that can ensure the development and applications of AI technologies within ethical, safe and legal boundaries. At the same time, the regulatory framework should take a graded approach for implementing guardrails depending on the impact of AI models and applications, rather than having rigid, one-size-fits-all regulations. This is to ensure that regulations do not impose overburden on AI innovation at the same time address the harms and concerns associated with AI.

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