

POWER OF NARI SHAKTI

India's progress in the modern era is intricately linked to the power of Nari Shakti, or women's strength, which plays a pivotal role in the country's socio-economic development. Over the years, the contributions of women in diverse fields have not only transformed India's societal fabric but also made significant strides in various sectors, including politics, education, business, science, and technology. Nari Shakti is central to India's growth, and empowering women is critical for the nation's sustained advancement.

Historically, India has always acknowledged the power of women in shaping societies. In ancient times, women like Rani Lakshmbai, Sarojini Naidu, and others were at the forefront of India's independence struggle. The modern-day woman, however, continues to break barriers and redefine traditional roles.

One of the most significant changes in India's trajectory has been the increasing participation of women in the workforce. Women have entered professions that were once considered male-dominated, such as engineering, medicine, and politics. The country has witnessed the rise of women entrepreneurs, scientists, and business leaders who have contributed immensely to the country's GDP. India's current economic growth is partly due to the expanding role of women in various sectors, including agriculture, manufacturing, and services.

In the field of education, there has been remarkable progress in the enrollment of girls and women in schools and higher education institutions. According to government statistics, the literacy rate for women in India has steadily increased over the past few decades. Today, women make up a significant portion of India's student population, and an increasing number of them are pursuing higher education in specialized fields such as law, engineering, and medicine. Education empowers women to make informed decisions, be financially independent, and contribute to their families and communities.

Politically, Nari Shakti is making a tremendous impact. India has witnessed the election of women to key leadership roles, including the role of Prime Minister and Chief Ministers in various states. Women's political participation has steadily increased, with more women being elected to parliament and local government bodies. These women leaders have been instrumental in pushing for reforms that directly address women's rights, health, and welfare, such as the implementation of maternity leave policies and the fight for equal pay. The active role of women in politics ensures that the challenges faced by women are brought to the forefront and addressed at the highest levels of governance.

Socially, women's empowerment has been a catalyst for change in India. The ongoing fight against child marriage, female genital mutilation, and gender-based violence has gained momentum through the active participation of women activists and organizations.

The #MeToo movement and the fight for stricter laws on sexual harassment have brought much-needed attention to issues of women's safety and rights. In rural India, women have played a crucial role in challenging the status quo, particularly through grassroots organizations and self-help groups that are empowering women economically.

Digital transformation of Maha Kumbh

■ OMKAR DATTATRAY

The digital transformation of Maha Kumbh Mela 2025 has revolutionized the way pilgrims experience this religious-cultural event. Yogi government and its tech-partners have introduced multiple digital innovations to enhance security, convenience and accessibility. Kumbh, Ardh Kumbh and Maha Kumbh has a special significance in Sanatan Dharma. It has been going on since centuries and the Maha Kumbh 2025 has been clean and green. The Maha Kumbh this year has gone digital and it is the novel initiative of the UT government of Yogi Adityanath. Prayagraj is hosting Maha Kumbh Mela which is expected to be participated by about 40 crore people. 2025 Prayagraj Maha Kumbh has begun on January 13 and will last till February 26. It is the world's largest gathering as people from India and other parts of the globe visit Prayagraj for participation in Maha Kumbh to take holy dip at the confluence of Rivers Ganga, Yamuna and mystical Sarswati. The Uttar Pradesh government has rolled out a digitalization plan. AI technology, mobile apps, Chatbots, a digital lost and found centre and even Google navigation is guiding the millions gathered for the Maha Kumbh. UP government laid out 'Digital Kumbh' experience for the visitors. Initiative involve AI-Powered cameras, Google-assisted navigation & a chatbot, digital lost and found centre which are operating for security, convenience and ease of crores of devotees. To tackle a concern among people that has been long associated with the Kumbh Mela -that of getting lost during one of the largest religious gatherings, expected to be attended by around 40 crore people in January 2025 in Prayagraj. The primary goal of digitizing is to help the largest number of the people participating in this year's Maha Kumbh Mela so that they feel ease at the Prayagraj for the first time. The Rigveda speaks of a divine event called the "Sagar Manthan" or churning of cosmic ocean, which is considered the genesis of the Kumbh / Maha Kumbh Mela. Legend has it that during this cosmic churning a pot-Kumbh containing the elixir {Amrita} appeared. The Maha Kumbh Mela is a timeless tapestry of faith and fervor, unfolds like a sacred epic, weaving together the threads of history, spirituality and cultural heritage. This grand pilgrimage held cyclically at four sacred riverbanks of the Ganges

, Yamuna, and Sarswati, Haridwar along the Ganges, Nashik on Godavari, and Ujjain on the Shipra-is not merely a contemporary spectacle but a tradition steeped in profound historical significance. As we embark on a journey through time, we unravel the layers of history that have shaped the sanctity and prominence of the Kumbh Mela. The roots of the Maha Kumbh Mela can be traced back to ancient Hindu scriptures and mythological narratives. The ancient references to a similar pilgrimage are found in the Rigveda, one of the oldest sacred texts of Hinduism. The Rigveda speaks of a divine event called the "Sagar Manthan" or churning of the cosmic ocean, which is considered as the genesis of the Maha Kumbh. Legend has it that during the cosmic churning a pot -kumbh emerged. The celestial struggle for possession of this divine nectar ensued, leading to a celestial battle that spanned twelve divine days, equivalent to twelve human years. Drops of nectar fell on four locations on earth, marking the sites where the Kumbh Mela is celebrated today. The Kumbh mela finds its first historical references during the Maurya and Gupta periods, approximately from the 4th century BCE to 6th century CE. During this period, the great Indian emperor Ashoka is said to have played a pivotal role in the establishment & promotion of Buddhism. Historical records suggest that the Maha Kumbh Mela in its nascent form attracted pilgrims from various corners of the Indian sub-continent. In the contemporary era, the Kumbh Mela has transformed into a global phenomenon, drawing not only millions of domestic pilgrims but also attracting international attention. The UNESCO recognition of the Kumbh Mela as an intangible cultural heritage of humanity in 2017 further underscored its historical and cultural significance. The Kumbh Mela today is a manifestation of India's rich cultural and religious heritage. It serves as a testament to the resilience of ancient traditions in the face of modernity. The historical evolution of the Maha Kumbh Mela from ancient scriptures to the present day, reflects its ability to adapt and thrive, preserving its sanctity and spiritual essence. The main objectives of digitalization of Maha Kumbh are to improve security, increase visibility, monitor activities, and ensure efficient service delivery. The UP government has introduced a digital plan to help people navigate

the Kumbh Mela 2025 with ease. This initiative, supported by Prime Minister Narendra Modi and chief minister UP Yogi Adityanath, aims to provide a modern digital experience for both attendees and those unable to visit in person. The chief minister has also launched a new website and app, offering detailed information on key areas such as ghats, akharas, religious sites, and travel options to enhance the overall experience. In an interview with the Times of India, Kumbh Mela Adhikari Vijay Kiran Anand stated, "Work is being done for the chatbot through this, devotees will easily reach the camp where they want to go. They will not have to wander anywhere. For the first time, advanced technologies like artificial intelligence has been implemented during the Maha Kumbh. The Prayagraj Mela authority will also be able to track services provided at the event, including the Ganga Aarti Puja, through online platforms. For added convenience, 3D images of all camps are being uploaded to the official website, offering visitors a clear view of facilities and accommodation. To ensure security and cleanliness during the Maha Kumbh 2025, 100AI cameras have also been installed at the Mela. These cameras are monitoring activities and alert the police to any issue. Scanners have also been installed in all toilets to track their cleanliness and maintenance in real time. During chief minister Yogi Adityanath's visit to Prayagraj, an agreement was signed between the UP government and Google. This partnership has enabled Google to offer an online view of the entire tent city. Visitors are also able to access detailed information about attractions such as laser shows, water sports, and more through the official website. For the first time, cutting-edge technologies, including chatbots, Google navigation, and artificial intelligence AI, are used during the Maha Kumbh. Through internet platforms, the Prayagraj Mela authorities are also able to monitor services offered throughout the event, such as the Ganga Aarti Puja. All camps have 3D photo posted to the official website for visitors convenience, providing a clear glimpse of the amenities and lodging. One hundred artificial intelligence cameras have been set up in the Mela to guarantee cleanliness and security during the Maha Kumbh 2025. These cameras are monitoring the situation and notify the police of any problems

. Additionally, scanners have been fitted in every toilet to monitor upkeep and cleanliness in real time. Maha Kumbh 2025 will give UP chance to showcase its tourism potential. The state tourism department has set up a Digital Kumbh Museum to showcase the cultural heritage of India and offer insight into the mythological and historical significance of the Kumbh. To leverage its religious and spiritual tourism potential, the UP government is pitching for global branding of Maha Kumbh Mela 2025, one of the world's largest congregations of pilgrims. "Maha Kumbh 2025 will represent India and UP before domestic and international tourists. It is therefore imperative that visitors carry back a bouquet of pleasant memories of their stay. Therefore we are going all out in our preparations. Although Kumbh is essentially the religious event, it has a major socioeconomic footprint and the state is on the job to promote Maha Kumbh to harness its religious, spiritual, and cultural tourism potential for job creation, socioeconomic growth and cultivating a positive image for UP, which is aspiring to become India's first one trillion dollar economy. To host an enormous congregation of devotees, a gargantuan 4,000-hectare tent city has been set up in Prayagraj. It will have been illuminated with 67,000 streetlights, and comprise 2,000 tents and 25,000 public accommodations for different categories of tourists. About 23,000 CCTV cameras and AI-based surveillance will complement the security paraphernalia of the tent city at the bank of Sangam, the confluence of Ganga, Yamuna and mythical Saraswati in Prayagraj. The state budget for Kumbh has jumped 78% from Rs 4,200 crore in Kumbh Mela 2019 to Rs 7,500 crore for Maha Kumbh 2025. Main religious ritual is a holy dip in the waters at the Sangam -the confluence of the three sacred rivers. Prayagraj is considered as the holiest of the holy pilgrimages in Hinduism and a holy dip there is believed to give salvation to devotees. In short the Maha Kumbh Mela has been digitized and let us pass on our cultural, spiritual and religious legacy to the future generations and keep ourselves aware of our rich cultural and religious roots. Kumbh Mela in fact symbolizes the spiritual, cultural and religious legacy of India.

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Generative AI: India's Geopolitical Quest

■ DR RAKESH VERMA

The establishment of DeepSeek by Liang Wenfeng marks a significant moment in the rapidly evolving field of generative AI. Founded in 2023, DeepSeek quickly made headlines with the launch of its inaugural large language model, DeepSeek R1. Within just a week of its release, the model achieved unprecedented success, becoming the most downloaded app in the United States. This meteoric rise not only highlights the advanced capabilities of the model but also raises critical questions about the shifting power dynamics in the world of artificial intelligence. DeepSeek R1's performance challenges the traditional dominance of the United States in the AI landscape. Historically, the US has been viewed as the leader in AI research and development, fortified by its premier universities, tech giants, and a robust venture-capital ecosystem. However, the rapid ascension of DeepSeek signals a potential shift in this balance of power. The model's ability to deliver performance at a fraction of the infrastructure cost typically associated with high-performing AI systems has sparked discussions about the sustainability of the US's position in the AI arena.

The success of DeepSeek R1 is emblematic of a broader strategy by China to achieve self-reliance in critical technologies, particularly in the face of intensifying geopolitical tensions. As the Chinese government aims to become a global leader in AI by 2030, the emergence of DeepSeek underscores the effectiveness of this strategy. It not only showcases China's engineering capabilities but also demonstrates its commitment to reducing dependency on Western technology.

As the world grapples with the implications of generative AI, the rise of DeepSeek illustrates the complexities of the US-China rivalry. The competition is not merely about technological prowess; it is also about the ability to set global standards, influence norms, and leverage AI for economic and strategic advantages. In this context, DeepSeek's rapid success serves as a wake-up call for other nations, including India, to reassess their positions and adapt to the new realities of the AI landscape.

AI as a Geopolitical Battleground

The development of artificial intelligence (AI) has evolved into a central theme in contemporary geopolitics, with the US-China rivalry epitomizing the intense competition for technological superiority. As countries seek to harness the power of AI, it becomes evident that innovation in this domain does not merely serve economic interests; it also influences global standards and international norms. The ability to develop advanced AI systems

confers significant advantages that can redefine the balance of power on the world stage.

One of the most notable examples of this geopolitical tension is the race to establish AI standards for data privacy and ethical considerations. The United States, with its strong emphasis on individual privacy rights, has championed frameworks that prioritize consumer protection. In contrast, China's state-driven approach to data utilization and surveillance reflects its distinct political landscape and social governance model. This divergence creates a potential schism in global AI governance, where countries may align with one of these two leading powers and adopt their respective models, thereby influencing their own regulatory landscapes.

Moreover, AI's impact on critical industries such as defense, healthcare, and finance cannot be underestimated. In the realm of defense, the US has leveraged AI technologies for advancements in national security, including autonomous drones and predictive analytics. Meanwhile, China has made significant strides in developing AI capabilities for military applications, including real-time battlefield analysis and enhanced logistics. This militarization of AI adds a layer of complexity to the geopolitical landscape, as nations race to secure technological supremacy in defense capabilities.

The economic implications of AI innovation are equally profound. AI has the potential to create new markets and disrupt traditional industries, driving competition between nations. For instance, the rise of AI-driven financial technologies is reshaping the banking sector, with both the US and China vying to lead in this area. The ability to set standards for AI applications in finance will not only affect domestic markets but will also determine how these technologies are adopted globally.

As countries navigate this evolving landscape, the interplay between technology and geopolitics will continue to shape the trajectory of AI development. The competition for AI supremacy is far more than a race for technological advancement; it is a contest for influence, governance, and economic power on a global scale.

India's Position in Generative AI

India's position in the generative AI landscape is marked by significant potential, largely attributable to its rich pool of engineering talent and a rapidly growing tech industry. With a vibrant ecosystem that fosters innovation, the country boasts a large number of skilled professionals who are well-versed in the intricacies of artificial intelligence and machine learning. This talent base provides a strong foundation for India to emerge as a key player in the global AI arena.

However, despite these advantages, India faces notable challenges that hinder its progress in developing foundational AI models compared to global leaders.

One of the primary reasons for India's lag in foundational model development is its heavy reliance on foreign large language models (LLMs). Most Indian startups and enterprises depend on these external models, limiting their ability to innovate and tailor solutions to local needs. This dependency stifles the creation of homegrown technologies that could address unique challenges within the Indian context, such as linguistic diversity and sector-specific applications. While initiatives to procure high-performance graphic processing units (GPUs) are underway, they have yet to gain sufficient traction to support the ambitious AI projects necessary for driving transformative change in key sectors like healthcare, agriculture, and education.

Moreover, the lack of substantial investment in AI research and infrastructure poses a significant barrier to progress. Although the Indian government has initiated several programs aimed at bolstering AI capabilities, including the National AI Strategy, these efforts require higher levels of funding and resources to foster a robust research ecosystem. The establishment of research centers and public-private partnerships is essential for nurturing innovation and providing the necessary infrastructure for developing foundational models.

Economic Imperatives for AI Development in India

Generative AI holds immense potential to catalyze India's economic growth, with the promise of creating new markets and enhancing productivity across various sectors. The implementation of AI technologies could contribute significantly to the country's GDP, driven by improvements in efficiency and innovation. For instance, integrating AI into industries such as healthcare, agriculture, and education can lead to optimized processes, better resource management, and enhanced service delivery, ultimately resulting in substantial economic benefits.

One of the critical aspects of AI development in India lies in the necessity for localized AI models that cater to the country's linguistic diversity. With over 22 officially recognized languages and numerous dialects, India requires AI systems adept at understanding and generating content in multiple languages. This localization not only addresses the unique needs of the Indian populace but also positions the country to tap into broader international markets, especially in regions with similar linguistic challenges. By investing in foundational models tailored to Indian languages, India can

create solutions that resonate with local users while also having the potential for export to other multilingual nations.

Furthermore, the rise of generative AI presents an opportunity for India to assert its presence in the global AI landscape. By developing localized AI systems, India can empower its tech industry to innovate based on domestic needs while simultaneously fostering a competitive edge in international markets. This approach not only enhances local capabilities but also paves the way for India to become a significant player in the global AI ecosystem.

To capitalize on these opportunities, India must prioritize investment in AI research and infrastructure, ensuring that its tech ecosystem is equipped to develop cutting-edge localized solutions. A concerted effort to build a robust framework for AI development can lead to economic transformation, positioning India as a leader in the generative AI space and enabling it to harness the economic benefits that come with it.

Strategies for Advancing AI in India

To enhance its generative AI capabilities, India must adopt a multi-faceted strategy that encompasses increased funding, infrastructure investment, fostering innovation, and strengthening collaboration with global tech leaders. These components are crucial for transforming India into a formidable player in the rapidly evolving AI landscape.

First and foremost, increased funding is essential. The Indian government needs to allocate more resources to AI research and development, focusing on both academia and industry. Initiatives such as the National AI Strategy should be bolstered with substantial financial backing to stimulate groundbreaking research. This funding can enable universities and research institutions to engage in pioneering studies that can lead to the development of foundational AI models tailored to India's unique requirements.

Infrastructure investment plays a critical role in supporting AI advancements. India must develop high-performance computing resources and cloud infrastructure to facilitate the training of large-scale models. Establishing data-sharing frameworks will allow startups and researchers to collaborate effectively and access the necessary datasets for developing innovative solutions. By prioritizing infrastructure, India can create an environment conducive to AI innovation and experimentation.

Fostering a culture of innovation is equally important. Encouraging risk-taking and experimentation in AI development can be achieved through initiatives like hackathons, startup incubators, and partnerships between academia and industry. These initia-

tives can nurture talent and promote entrepreneurship, enabling the next generation of AI leaders to emerge. A focus on interdisciplinary education that combines technology with business acumen will also empower individuals to drive AI innovation forward.

The Role of Indian Tech Giants

Indian tech giants have a critical role to play in advancing large language model (LLM) research and development, leveraging local resources and partnerships to create competitive AI systems. With their established infrastructure, financial capabilities, and talent pool, these companies can catalyze India's journey towards AI self-sufficiency and innovation.

To begin with, Indian tech companies can invest heavily in developing foundational models that cater to the unique challenges presented by the local context. By harnessing their existing resources, such as vast data lakes and high-performance computing infrastructure, these companies can train LLMs that understand and generate content in multiple Indian languages. This localization is vital, as it not only addresses domestic needs but also positions Indian AI solutions for export to other multilingual regions.

Moreover, collaboration is key. Indian tech giants should forge partnerships with universities, research institutions, and startups to create a vibrant ecosystem for AI development. These collaborations can facilitate knowledge sharing, access to diverse datasets, and joint research initiatives. By pooling resources and expertise, stakeholders can accelerate the pace of innovation and ensure that the resulting AI systems are robust and tailored to local requirements.

Additionally, the establishment of innovation hubs and AI research centers by these companies can foster a culture of experimentation and entrepreneurship. Initiatives such as hackathons, incubators, and mentorship programs can nurture talent and provide aspiring AI professionals with the resources they need to succeed. By creating a supportive environment for AI innovation, Indian tech giants can help cultivate the next generation of leaders in this field.

Furthermore, Indian companies must actively engage with global tech leaders to enhance their capabilities. By participating in international AI consortia and joint ventures, they can gain insights into best practices and cutting-edge technologies. This engagement will not only elevate India's position in the global AI landscape but also enable Indian tech giants to contribute significantly to the development of LLMs that are competitive on an international scale.

Addressing Ethical Concerns in AI

As generative AI models gain prominence, ethical considerations sur-

rounding their development and deployment become increasingly critical. Issues such as bias, privacy, and misuse pose significant challenges that must be addressed to ensure responsible AI practices. The rise of DeepSeek and its open-source approach serves as a relevant case study for understanding the importance of transparency and accountability in AI development.

One of the foremost ethical concerns in AI is bias. Generative AI models are trained on vast datasets that may inadvertently include biased or unrepresentative information. This can lead to outputs that reinforce stereotypes or perpetuate discrimination, particularly against marginalized groups. For instance, if a language model is trained predominantly on text from specific demographics, it may struggle to accurately represent the diversity of human experiences. Addressing bias in AI requires a concerted effort to diversify training data, implement fairness algorithms, and continuously monitor model outputs for unintended biases.

Privacy is another pressing ethical issue. The data used to train generative AI models often contains sensitive personal information, raising concerns about how this data is collected, stored, and utilized. Users must be assured that their privacy is protected and that AI systems will not misuse their data. DeepSeek's open-source approach can enhance transparency, allowing researchers and developers to scrutinize its algorithms and data practices. By fostering an environment of accountability, open-source initiatives can help build public trust in AI technologies.

Furthermore, the potential for misuse of generative AI poses a significant ethical dilemma. These models can be exploited for malicious purposes, such as generating misleading information or deepfakes. This misuse can have far-reaching consequences, eroding public trust and undermining democratic processes. Establishing clear guidelines and ethical frameworks for AI development is essential to mitigate these risks. Engaging stakeholders, including policymakers, technologists, and ethicists, can facilitate a more comprehensive understanding of the implications of AI technologies.

DeepSeek's commitment to transparency, showcased through its open-source model, sets a valuable precedent for the AI community. By making its algorithms accessible for validation and scrutiny, DeepSeek emphasizes the importance of ethical considerations in AI development. This approach not only encourages responsible innovation but also empowers users to engage critically with AI technologies, fostering a more informed public discourse around the ethical challenges inherent in generative AI.

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