BCG X + FICCI

India's Triple AI Imperative

Succeeding with AI in India

December 2025

BCGX is the AI, digital and innovation division of Boston Consulting Group. It is uniquely positioned to work with ambitious companies and institutions seeking to accelerate their transformation journeys. BCGX brings together advanced AI and tech expertise with entrepreneurial capability to turbocharge BCG's consulting offerings.

This division is set up to help organizations deliver innovation at scale, supported by 3,000+ data scientists, technologists, innovation specialists, and engineers located in more than 80 cities around the globe. In India, BCGX is a large and cross-functional practice supporting multiple AI/GenAI implementations across sectors.

Established in 1927, Federation of Indian Chambers of Commerce & Industry (FICCI) is the largest and oldest apex business organization in India. Its history is closely interwoven with India's struggle for independence, its industrialization, and its emergence as one of the most rapidly growing global economies.
A non-government, not-for-profit organization, FICCI is the voice of India's business and industry. From influencing policy to encouraging debate, engaging with policy makers and civil society, FICCI articulates the views and concerns of industry. It serves its members from the Indian private and public corporate sectors and multinational companies, drawing its strength from diverse regional chambers of commerce and industry across states, reaching out to over 2,50,000 companies. FICCI provides a platform for networking and consensus building within and across sectors and is the first port of call for Indian industry, policy makers and the international business community.

Executive Summary

India stands at a pivotal moment in its AI journey, transitioning from early adoption towards potential global leadership. With a projected $17Bn[1] AI market by 2027, a thriving startup ecosystem, and 80%[2] of enterprises citing AI as a strategic priority, the nation is poised for progress.

Yet, India's AI landscape shows both promise and pressure: strong intent and application capability alongside gaps in IP creation, and ecosystem maturity.

To realize this opportunity and unlock AI's full potential, India will benefit from three priorities:
India's Triple AI Imperative

- Transform at scale by embedding it into the core of businesses with measurable outcomes.
- Innovate with depth through sustained investment in indigenous research, IP, and model development.
- Diffuse inclusively by democratizing access to compute, data, and skills across sectors and geographies.

These imperatives anchor this report, across three chapters:

Chapter 1: Transform at Scale: Cracking the AI–ROI paradox
Explains what leaders do differently to deliver value at scale, and the rising AI trend as we enter 2026.

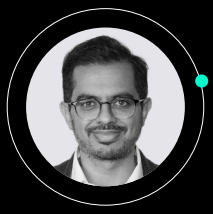
Chapter 2: Innovate with Depth: Enabling India's AI Innovation Ecosystem
Outlines foundational rails for India to scale innovation beyond capital and sovereign compute.

Chapter 3: Diffuse Inclusively: Pushing Last–Mile AI penetration
Explores how democratization can scale AI to the grassroots via infrastructure, innovation and skilling designed to unlock MSME adoption.

1. India's AI Leap—BCG Perspective on Emerging Challengers, June 2025, Market projection includes factors like rising enterprise adoption, strong institutional push, maturity of digital infrastructure, growing startup ecosystem and talent pool
2. BCG AI Radar 2025 (n=1803), executives surveyed across geographies

- India's opportunity is to build "AI for All", sovereign by design, inclusive in reach, and anchored in long-term scientific ambition.

Foreword



Nipun Kalra
Managing Director & Senior Partner,
BCGX India Head

India's AI momentum is formidable. Enterprises are scaling their ambition, national institutions are laying critical foundations, and a vibrant ecosystem of startups and researchers is accelerating innovation across sectors. Yet, despite this progress, one challenge remains consistent: the gap between AI adoption and AI impact.

This report – India's Triple AI Imperative – reflects our experience working with leaders across industry, government, and the innovation ecosystem. It highlights three priorities that we believe are essential for India's next phase: Transform at Scale, to shift from pilots to measurable value; Innovate with Depth, to strengthen India's invent–first capabilities and deepen IP creation; and Diffuse Inclusively, to ensure that AI reaches MSMEs and citizens who stand to benefit most from its potential.

Enterprises will need to redesign workflows and operating models to fully capture AI's value. Startups and institutions must continue pushing the frontier of innovation, moving beyond adoption to building foundational capabilities. MSMEs, meanwhile, require accessible and affordable AI solutions tailored to their contexts.

India has the ingredients for leadership: scale, talent, institutional resolve, and unprecedented momentum. Realizing this opportunity will require coordinated, urgent action across the ecosystem. We hope this report provides a practical blueprint for leaders committed to shaping India's AI future and unlocking impact that is economically significant.

Foreword

Jyoti Vij
Director General
Federation of Indian Chambers of Commerce and Industry (FICCI)

India has entered a defining phase in its technological and economic journey. Artificial Intelligence is no longer a peripheral enabler. It has become a foundational capability that will shape national competitiveness, productivity, and inclusive growth over the next decade. With India's AI market projected to reach $17Bn by 2027 and more than 80 percent of enterprises identifying AI as a strategic priority, the moment demands clarity of direction, coordinated action, and ambition at scale.

This joint FICCI–BCGX report offers a clear assessment of how India can convert its strong AI intent into measurable impact. It outlines three priorities. The first is to transform at scale by embedding AI across enterprises and public systems, addressing the gap between pilots and sustained value. With fewer than a third of companies globally realising returns on AI investments, governance, talent and impact measurement become central. The second is to strengthen innovation depth. India hosts more than 2,000 AI startups yet contributes under one percent of global AI patents, highlighting the need to accelerate foundational research, indigenous model development and national compute capacity. The third is to spread AI widely. MSME adoption alone can unlock over $500Bn in economic value. Expanding access to quality datasets, affordable computing, and skilling infrastructure, especially beyond major cities, will be critical to ensuring AI benefits reach the broader economy.

FICCI remains committed to supporting this national vision. As India strengthens its position as a global hub for digital innovation, industry, government, and academia must work in close partnership to shape responsible, secure, and economically transformative AI ecosystems. Through our policy engagement, industry convenings, and sector-led initiatives, FICCI will continue to advocate for an AI-enabled India that is competitive, inclusive, and globally influential.

This report serves as an important contribution to that mission. I commend the teams at BCGX and FICCI for their rigorous work, and I trust that the insights presented here will inform decision-making across industry leaders, policymakers, and innovators working to build India's AI future.

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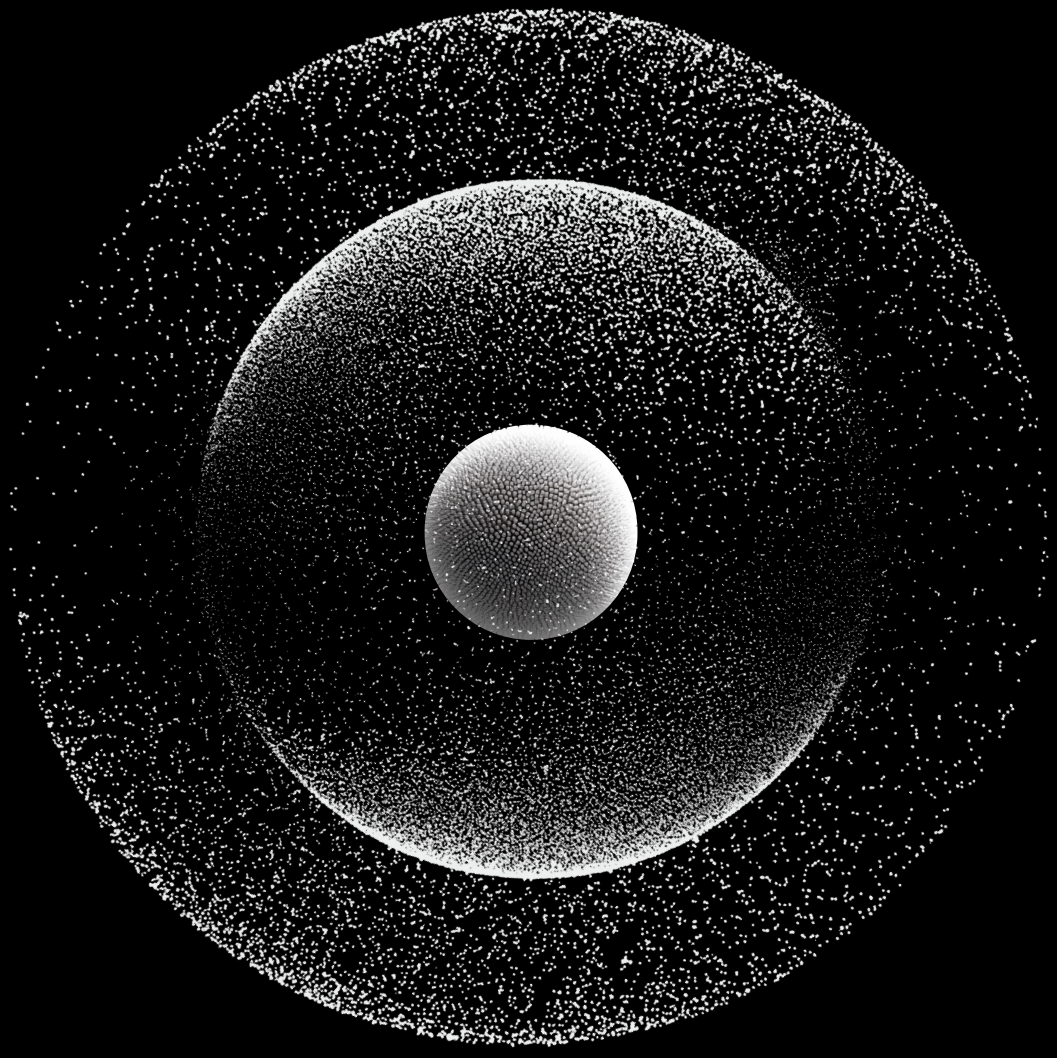
01.

Transform at Scale:
Cracking the AI-ROI Paradox



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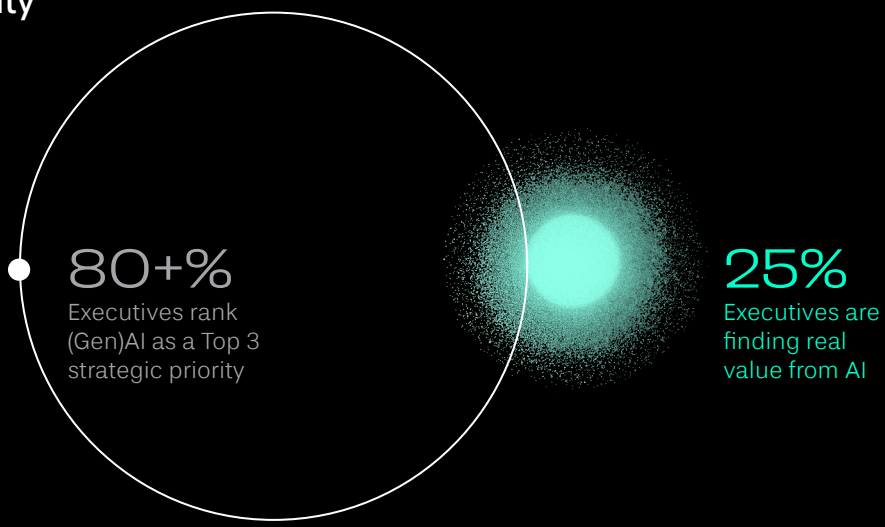
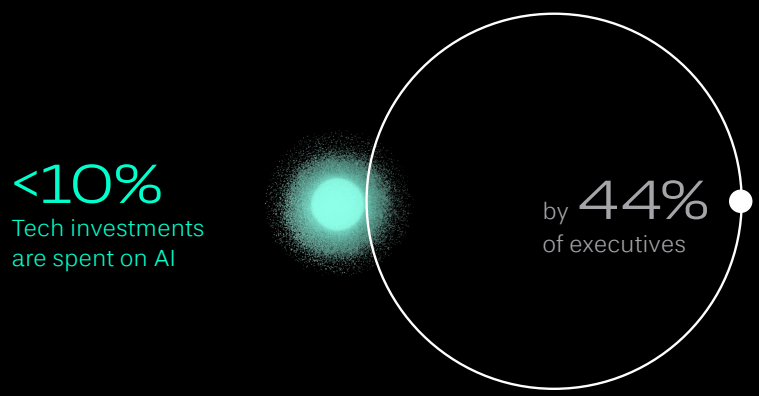
It is deceptively easy to launch AI pilots with initially powerful results

However, it is fiendishly hard to move towards AI@Scale to achieve real value

Current Reality



Investment Gap



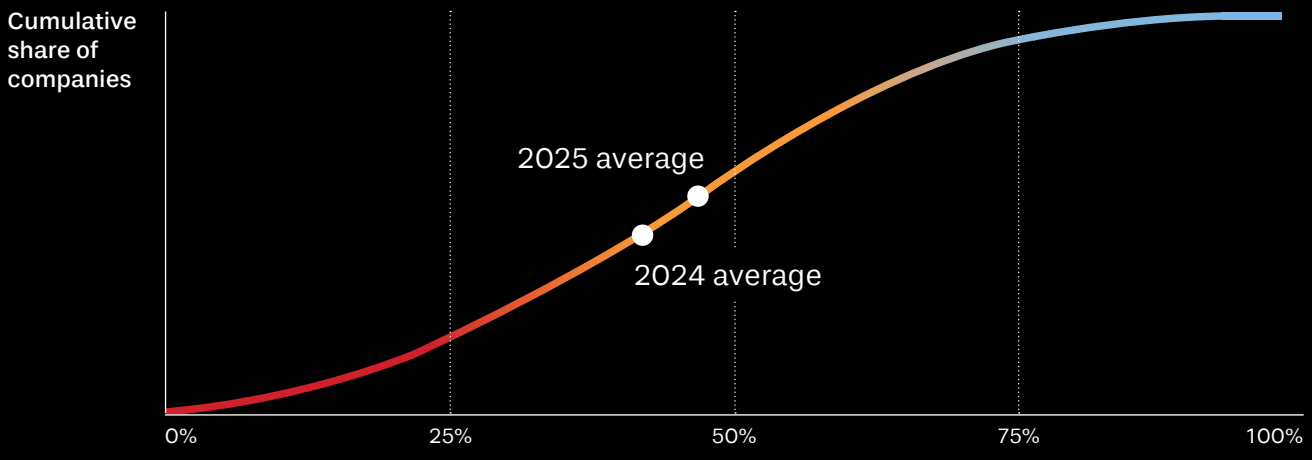
There is a strong intent from corporates to adopt AI. However, given many corporates have faced challenges to scale beyond pilots, the level of AI investment is still low for 44% executives.

Source: BCG AI Radar 2025 (n=1803), executives surveyed across geographies

Share of companies transforming their businesses using AI is steadily growing

AI Laggards

	AI Stagnating	AI Emerging	AI Scaling	AI Future Built
	Minimal or no AI action, lacking foundational capabilities, no value generation	Foundational capabilities and early experimentation, but weak scale and limited value	AI strategy and advanced capabilities in place, scale and value starting to show	Cutting-edge capabilities and AI innovation consistently driving substantial value across functions
2025	14%	46%	35%	5%
2024	25%	49%	22%	4%



Build for the Future x AI 2025 maturity score[1]

Value achieved by AI Future-built[2]

1.7x	3.6x	2.7x	1.6x	3.5x
Revenue Growth	3-year TSR[3]	Return on Invested Capital[4]	EBIT Margin	Patents

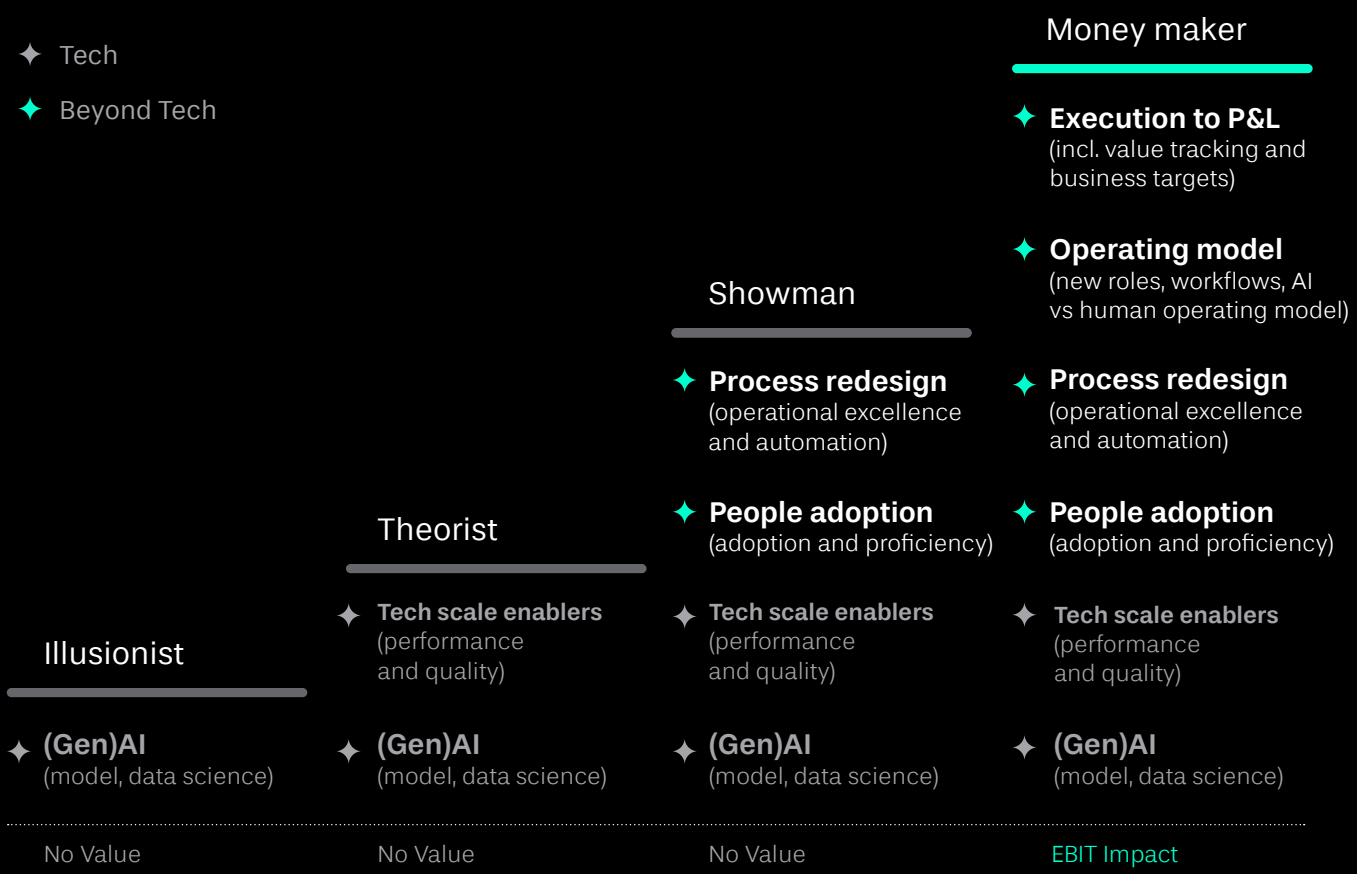
1. AI maturity is assessed through 41 dimensions **2.** AI Future-build vs AI Stagnating+AI Emerging
3. External metric (Capital IQ): Total Shareholder Return (June24-May25 for 1 year, June 22-May 25 for 3 year)
4. External metrics (Capital EQ): Return on Invested Capital
Source: BCG Build for the Future 2025 Global Study (n=1,250)

Three moves that set leaders apart

1. Tech build is necessary but far from sufficient

Much of the real AI value sits beyond the model and tech stack, in how organizations adopt, scale and operationalize it. In practice, companies move through four recognizable stages:

- It begins with The Illusionist, building AI/GenAI capabilities but overlooking the levers that actually create value.
- Some progress to The Theorist, where the tech is strong and scalable, yet the business impact remains elusive.
- A step further is The Showman, who starts integrating AI into processes and drives adoption, often generating early excitement, but still falls short of full value realization.
- And then comes The Money Maker. These organizations redesign roles, workflows and the operating model around how humans and AI jointly deliver outcomes, they track impact rigorously, translating AI into real P&L gains.



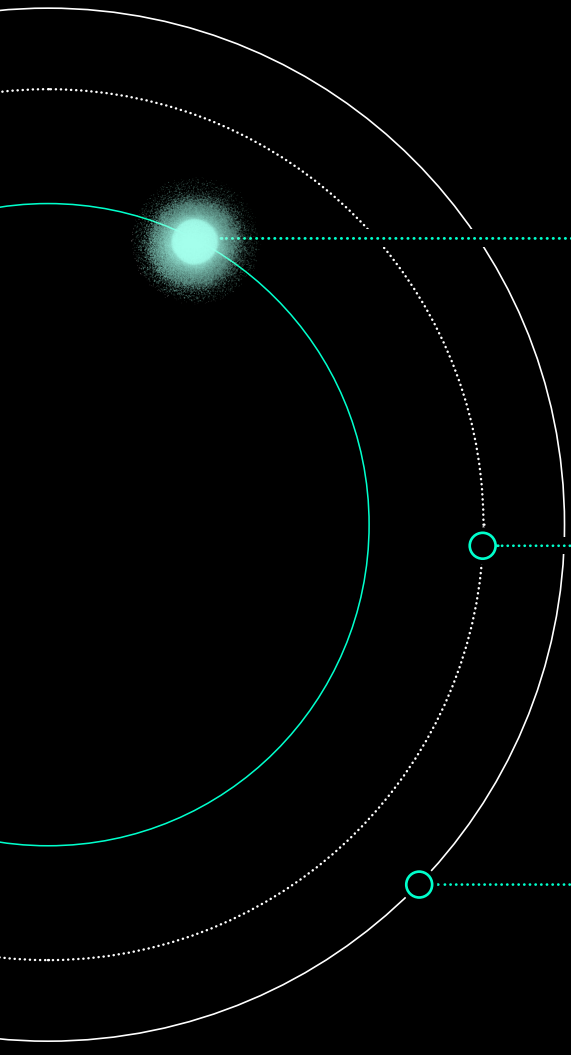
Source: BCG Analysis

Three moves that set leaders apart

2. Invest in AI Center of Excellence and Governance

Delivering on the AI/GenAI agenda of the enterprise needs dedicated focus. Centralized teams are increasingly being set up in organizations, with cross-functional skills across product, design, tech and data. These centres co-own opportunities and value targets with business, while enabling horizontal know-how.

CORE approach to enable organizations.



I.
Centralize
The Intelligence

GenAI centers as the enterprise's AI foundation to navigate AI strategy & centralize decision-making

Ensure strong tech leaders: Attract different skills (e.g., Product Owners, AI engineers, experience design)

II.
Operationalize
The Execution

Empower business functions to activate value delivery using centrally defined capabilities, with flexibility to localize

30-40% senior management time to be invested in value delivery from AI

III.
REinforce
The System

Strong governance to track adoption and value KPIs

Activist transformation office to track metrics across product and tech performance, adoption and business value

- **Best Practice**

Three moves that set leaders apart

3A. Laser sharp focus on VALUE

With the surge of GenAI innovation in 2023-24, most firms took a use-case-driven approach, building standalone solutions for isolated problems. AI leaders, however, pivoted to functional transformations by embedding AI and GenAI across the value chain with a sharp focus on value.

AI value delivery mandate should not be confined to tech or AI teams. Real impact happens only when business and tech/AI partner end-to-end, from designing solutions to driving adoption and delivering value. Ensure impact targets are baked into business budgets and in shared KPIs.

Value from AI initiatives is typically realized in the form of top line gains, productivity enhancement, cost take-out, employee experience, customer engagement, etc.

Key functions prioritized for transformation by AI leaders (Non-exhaustive)[1]

India's AI Adoption

43%

Marketing and Sales

- Targeted activation
- Hyper personalization
- Virtual assistance for conversion
- Rapid creatives generation for acquisition/cross sell campaigns

37%

Operations

- Manufacturing process and opportunity optimization
- Quality detection, hazard detection, quality control

36%

IT/Technology

- IT service management and diagnostics
- Code generation, refactoring, and development co-pilots

33%

Customer Service

- Conversational agents (chat-bot, voice-bot)
- AI-Augmented agent support

23%

Software Development

- Accelerated SDLC[2] including devops, CI/CD, testing and QA

21%

Supply Chain

- Supply planning and allocation
- Real-time supply chain visibility and risk assessment

20%

R&D Innovation

- Accelerated simulation and prototyping
- Design optimization and iterative development

17%

Human Resources

- HR Service Desk automation
- AI powered talent acquisition

15%

Finance

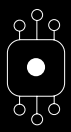
- Financial Planning and analysis
- Finance Operations

1. BCG AI Radar 2025, India (n=100)
Survey Question: Please distribute 100% across the following functions regarding value (value comprises top-line growth and cost reduction) **2.** SDLC = Software Development Lifecycle

Three moves that set leaders apart

3B. Laser sharp focus on VALUE

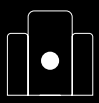
AI leaders are continuously optimizing TCO



Model inference
(Input, Output tokens)

Unoptimized use of LLMs for every task can bloat the costs significantly. This can be prevented via different measures:

- Purpose-based use of SLM/LLM/traditional encoder models, rather than overusing latest LLMs
- Active use of cache for repeat responses
- Don't bloat your prompt. Adopt measures to optimize prompt and the number of actions/tools it can execute



Infrastructure
(Containers, Databases, Cache, Dev Environment)

Adopt a fit-for-compute strategy, assigning between CPU, GPU, and NPU workloads, to avoid unnecessary spend while scaling AI efficiently.

Centralize infrastructure and reallocate:
Unused or scattered GPU resources translate directly into wasted spend–and they depreciate rapidly. Track usage and reassign underutilized capacity to avoid losses.

Talent
(Build and Maintenance)

Build reusable capabilities to cut rework and enable re-use across organization.

Enable fungible skills and resources.

Source: BCG Analysis

Emerging trend for 2026

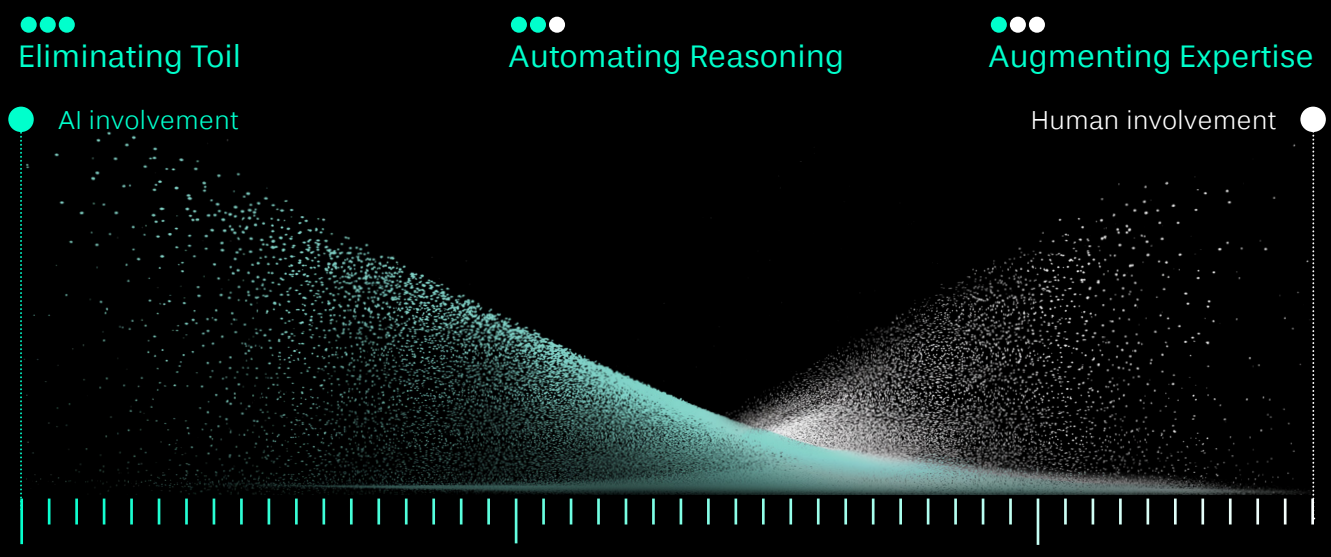
Rise of AI-first businesses

In 2026, AI will go from enabling businesses to orchestrating it. AI will have the first right to perform a task, giving rise to AI-First Businesses.

Many functions in an organization including sales, service, operations, HR, finance, rely on three types of tasks:

- Toil: Routine, repetitive, manual work. 70–80% of toil has the potential to be eliminated with AI.
- Reasoning: Requires analytical skills, contextual interpretation. 30–50% of reasoning can be automated.
- Expertise: Complex in nature, needs domain know-how and stakeholder interactions. AI will play the role of human augmentation for these tasks.

Leveraging this framework, AI first businesses will redesign business functions and operating models to have AI-driven swim-lanes (no to low human touch), AI with human oversight swim-lanes and Human-led swim-lanes.



AI driven

- Data entry
- Report generation
- News monitoring

AI leads, Human oversees

- Data analysis
- Process-based decision making
- Collateral generation

Human leads, AI assists

- Medical diagnosis
- Legal review
- Strategic decisions

Source: BCG Analysis

Emerging trend for 2026

Rise of AI-first businesses

With AI-first businesses, strategic importance shifts from operational scale and fragmented expertise to AI-fluent talent and defensible moats like IP, brand, and customer relationships.

Increasing strategic importance

- Customer access and relationships will be crucial as advice and content get commoditized.
- Brand trust will provide advantage as AI-generated interactions become common. Responsible AI and transparency will win customer trust.
- Unique IP and data ecosystems: Proprietary content, patents and innovations will remain a defensible moat. Larger emphasis will be given to high quality and exclusive datasets to fuel differentiation.
- AI-fluent talent: Attracting and retaining AI-fluent talent will be a priority amid intense competition.

Decreasing strategic importance

- Operational scale in back-office: Automation erodes advantage from large back-office structures.
- Physical customer service teams: AI agents will manage customer engagement more effectively.
- Fragmented human specialists: Knowledge networks, integrated synthesis will replace isolated experts.
- Expensive content production: As AI commoditizes content, creativity becomes the real value.

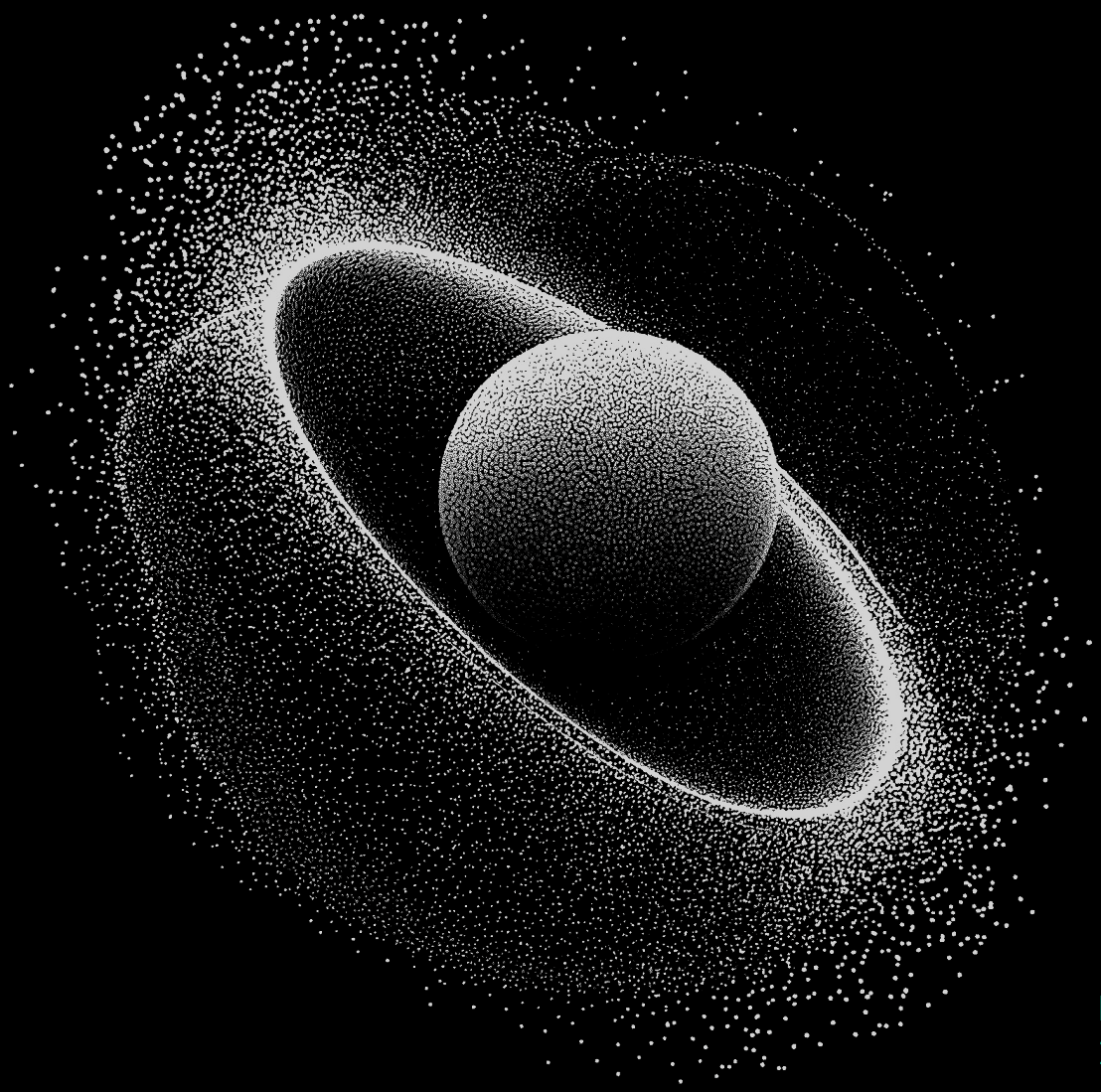
Newer questions to ponder as AI-first businesses take shape:

- As AI eliminates toil and automates reasoning, will organization structures stay pyramids, or evolve into diamonds?
- How will organizations cultivate creativity and deepen expertise as AI becomes embedded in every function?
- How does the role of the leader evolve in an AI-first workplace?
- How will organizations ensure their culture stays human-centric rather than slipping into an AI-centric trap?

Source: BCG Analysis

Innovate with Depth: Enabling India's AI Innovation Ecosystem

02.



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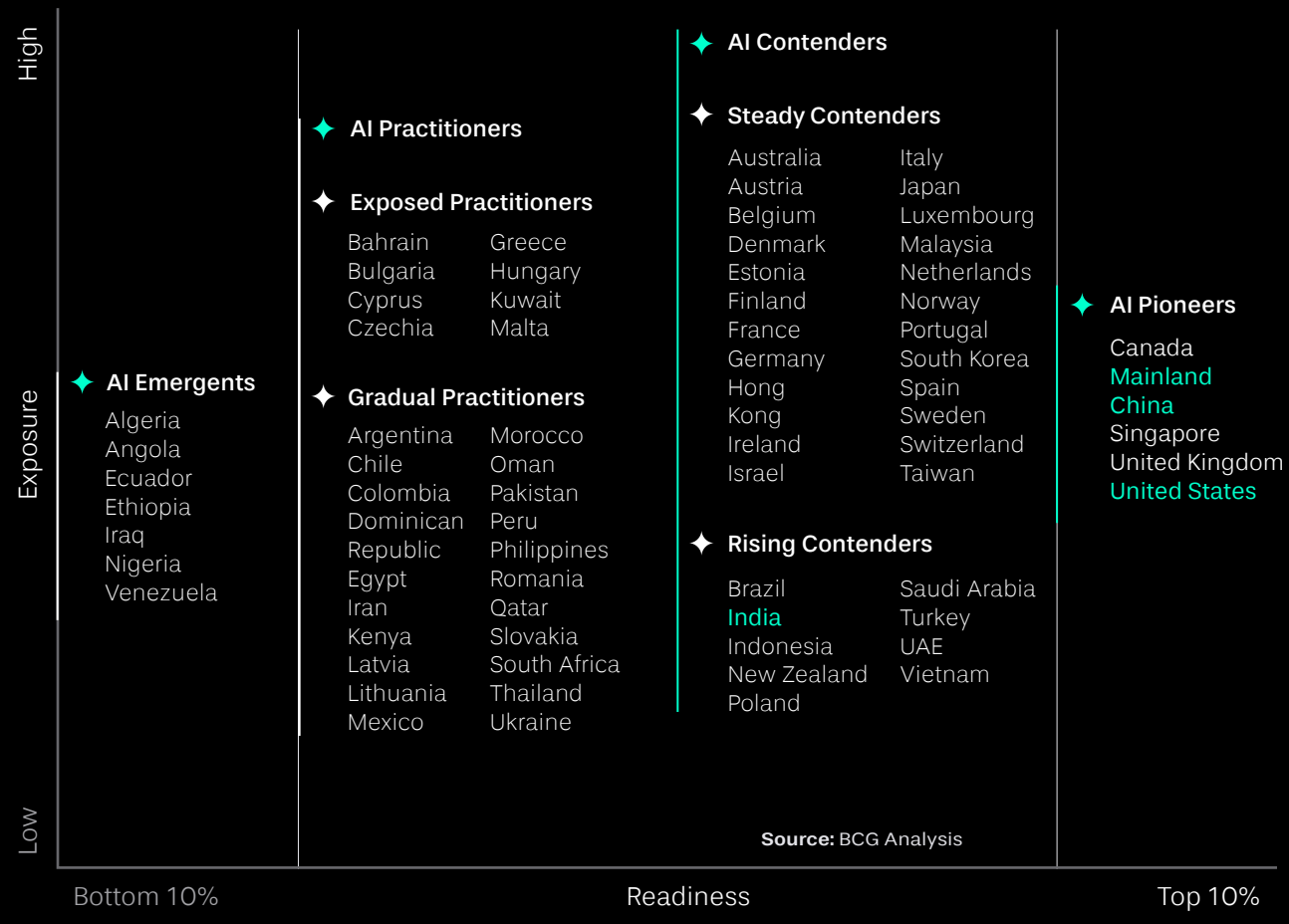
As nations race to innovate in AI, India is emerging as a rising AI contender

BCG's AI Maturity Matrix benchmarks 73 economies on two dimensions: readiness and exposure. Readiness reflects an economy's capacity to adopt, integrate, and scale AI innovations effectively. Exposure measures how significantly AI can reshape an economy, whether through disruption, new opportunities, or shifts in sector growth.

Distribution of Economies across the Archetypes of AI adoption



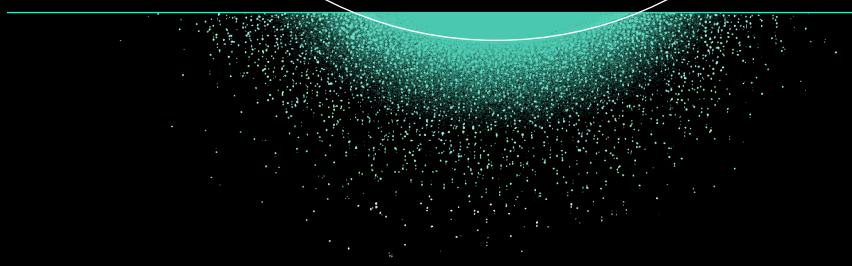
India ranks in the top 25% globally on AI readiness, driven by strong national initiatives, talent investments, and a fast-growing startup ecosystem. However, India trails global pioneers like US and China, which have more mature innovation ecosystems and R&D depth.

Source: BCG Center for Public Economics; BCG Analysis (within each archetype, economies appear in alphabetical order)

However, India faces an Innovation Paradox, currently over-indexed on AI applications

2000+
AI Startups[1]

India #2 globally for its startup hub by volume[1], just behind the US



<1%
AI Patents[2]
by India

India's AI startup ecosystem is concentrated on AI applications, rather than foundational AI innovations, typically the source of defensible IP.

1. Tracxn, 2025 **2.** Stanford AI Index Report, 2025

India's innovation depth lags global leaders despite high startup momentum

India's strong startup base contrasts with a weaker translation into deep-tech outcomes compared to AI leaders like the US and China.

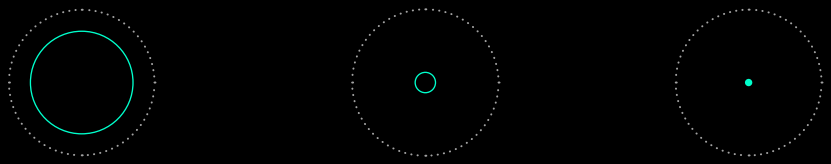
Research-to-IP Conversion[1]:

India's innovation output remains modest despite strong entrepreneurial density.

CHINA	UNITED STATES	INDIA
70%	13%	<1%
Global AI patents	Global AI patents	Global AI patents

Capital Depth Behind Innovation:

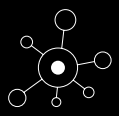
- India attracted 100x lower private funding in AI than US.
- While India AI Mission is powering AI success in India; current fund allocation is at 0.03% of GDP.



	UNITED STATES	CHINA	INDIA
Private AI Investment[1]	$109Bn	$9.3Bn	$1.2Bn
Fund for AI (% of GDP)[2]	1.68%	0.31%	0.03%

1. Stanford AI Index Report, 2025 **2.** GDP from International Monetary Fund, AI Funds from Press releases

US vs China: Divergent AI Innovation approach



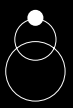
US approach

- Modular
- Frontier-driven
- Ecosystem-led

Decentralized, modular ecosystem: Different AI companies lead in different layers of the stack- Chips (NVIDIA), cloud (AWS/GCP/Azure), models (OpenAI, Meta, Anthropic, Google), vector DBs (Pinecone), orchestration (LangChain), agents, safety tooling, etc. No single firm owns the entire stack, enabling specialization, interoperability, and ecosystem diversity.

Frontier-driven: Given the US's structural advantage, their strategy is focused on closed, frontier models (e.g., GPT-5-class, Claude-next, Gemini Ultra) and on building massive compute infrastructure (e.g., hyper-scale GPUs, specialized chips, large data-centers). They invest in pushing the boundaries of innovation on model capability and advanced research.

Ecosystem-led domain specific innovations: AI companies prioritize building the most capable general-purpose models while relying on the broader startup and developer ecosystem for domain-specific applications and vertical solutions.



China approach

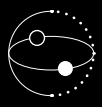
- Vertically-integrated
- Efficiency-first,
- Domain-specific

Full stack integration from chips to models: Chinese companies drive end-to-end integration, from domestic chips to cloud, frameworks, models, and industry apps. Players like Huawei, Baidu, Alibaba, and Tencent control the full stack (Ascend chips, MindSpore/PaddlePaddle frameworks, proprietary LLMs), enabling faster optimization, tighter data loops, and rapid deployment.

Efficiency-first innovation: China focuses on hyper-efficient engineering, training competitive models with fewer GPUs, tightly optimized data pipelines, and cost discipline. Examples include DeepSeek, Yi, and Qwen.

Deeply customized and domain-specific innovation: China builds vertical AI ecosystems tuned for local industries (finance, health, travel, government services) and aligned with local regulatory and linguistic contexts.

India's AI approach



India approach

- Affordable
- Democratized access
- Social focus

The next wave of value creation will come from balancing India's strength to "adopt fast" with a growing emphasis on "invent first".

Affordable:
India is enabling affordable compute at one of the lowest costs globally: The IndiaAI Compute Portal has scaled subsidized compute to 38k+ GPUs live within a year, with plans to develop indigenous high-end GPUs in the next 3-4 years. Subsidized rates of <₹100 per GPU hour are enabling model training and experimentation for startups, academia, MSMEs, and researchers, capabilities previously accessible only to large tech players.

Democratized access:
The IndiaAI Mission provides institutional direction for innovation while encouraging participation across startups, public-private partnerships, and academia. It introduces multiple interventions across the AI stack to lower entry barriers, e.g., combining India-specific datasets through AIKosh, enabling affordable compute via IndiaAI Compute, grants and institutional support for foundational-model development and structured collaboration between government, industry and academia.

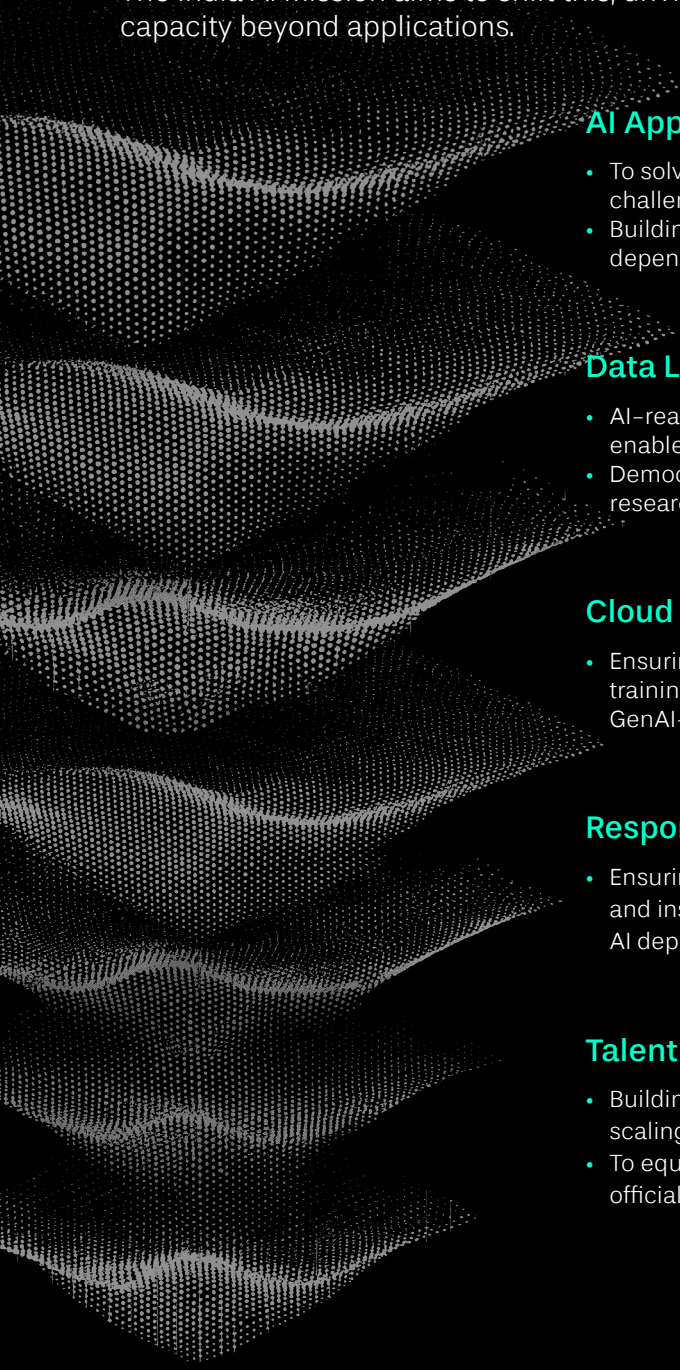
Further, India is explicitly designing AI beyond big cities and elite institutions. 570+ planned data and AI Labs in Tier-2/3 cities are giving youth outside metros access to hands-on learning in AI and thus broadening the AI talent pipeline.

Social focus:
India's AI strategy is built around a strong social-focus, an ambition to deliver "AI for All." Indian institutions aim to extend AI benefits to high-impact sectors like agriculture, healthcare, education, and rural development. A key priority is building a domestic AI stack rooted in indigenous models and context-specific datasets that reflect India's languages, cultural diversity, and regulatory needs. Initiatives like AIKosh and the IndiaAI Datasets Platform support this by providing AI-ready datasets and pre-trained models to democratize access. Further, a growing wave of Indian startups are developing sovereign and vernacular LLMs tailored to local use cases and linguistic ecosystems.

Source: Principal Scientific Adviser's AI Governance Guidelines released in November 2025, India AI Mission

India's AI Stack: Rationale for investing across the AI stack

India's AI landscape remains application-heavy with minimal foundational model innovation. The India AI Mission aims to shift this, driving investment across the full stack and building capacity beyond applications.



AI Applications and Models

- To solve India's highest-priority national and socio-economic challenges at population scale.
- Building domestic LLMs that secure digital sovereignty and reduce dependence on foreign models.

Data Layer

- AI-ready, Indian-context datasets that close the data gap and enable truly contextual, usable AI.
- Democratizing access to interoperable datasets for startups, researchers, and students, fueling inclusive innovation.

Cloud and Infrastructure

- Ensuring affordable and accessible compute for experimentation, training, and at-scale implementation, preparing India for the GenAI-driven surges in compute demand.

Responsible AI and AI Governance

- Ensuring AI is safe, transparent, and trustworthy, to protect citizens and institutions from misuse and enable responsible AI deployment.

Talent and Capacity

- Building AI-fluent talent capable of developing, deploying, and scaling advanced AI.
- To equip India's workforce (students, professionals, and public officials) to power AI-led growth.

India's AI Stack: India's Institutional Push and Partnerships delivering across the stack

Non-exhaustive | Select initiatives mentioned

AI Applications & Models

- IndiaAI Innovation Centre is developing sovereign and vernacular LLMs (Sarvam, Soket, Gnani, BharatGPT, Bhashini).
- Indic LLM-Arena (supported by Google cloud) is an India-specific crowdsourced benchmarking platform to evaluate AI models on Indian languages, cultural contexts and safety measures.
- IndiaAI Startups Global Initiative + Startup India are scaling India's AI startup ecosystem via global scale-up programs (Station F + HEC Paris) and domestic enablers (BHASKAR[1]) , while the National Deep Tech Startup Policy supports on IP frameworks and deep-tech funding.
- AIRAWAT[2] + MeitY[3] & Meta LLM hubs are providing national AI cloud access and open-source model ecosystems for developers and researchers.

Data Layer

- IndiaAI Datasets Platform (AIKosh) is a one-stop repository for AI-ready datasets, pre-trained models, use-cases, an integrated sandbox environment and RAI tools—all in one platform.
- With 3000+ datasets and 243+ models across 20+ sectors, AIKosh is expanding high-quality data and experimentation access for all.
- PPP initiatives like Project Vaani (IISc and Google) and Amplify (IIT-Kharagpur and Google)-aim to build rich, hyperlocal Indian speech and cultural datasets.

Cloud and Infrastructure

- IndiaAI Compute+PPP[4] cloud infrastructure are expanding access to subsidized GPU[5]/TPU[6] compute (38K+ GPUs) for affordable experimentation, model training, and at-scale deployment. (₹65/hour GPU access vs $2.5-$3.5/hour globally)
- Google-Adani AI Hub ($15Bn AI Hub in Vizag with GW-scale infrastructure) and SemiCon India Mission are building India's largest data centre hub till date, significantly expanding domestic compute capacity.
- SemiCon India Mission is building sovereign AI-chip capability, targeting prototypes by 2025 and production by 2029.

Responsible AI and AI Governance

- IndiaAI Safe and Trusted AI Mission + DPDP[7] Act are setting the national baseline and guardrails for safe and accountable large-scale AI deployments.
- Frameworks from NASSCOM, MeitY, NITI Aayog, WEF[8], iSPIRT[9], FICCI and others are guiding sectoral adoption and risk governance.

Talent and Capacity

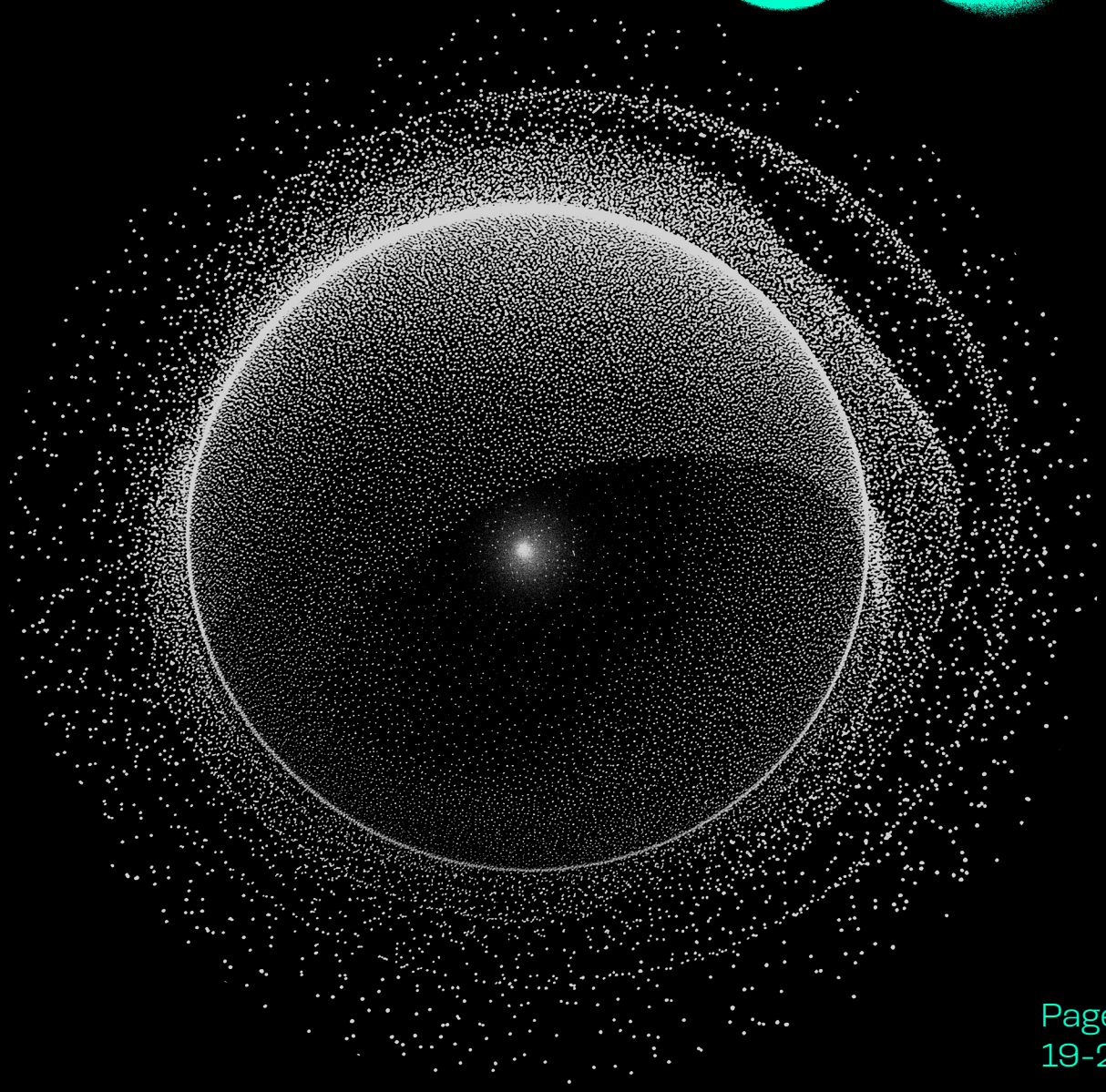
- 570+ AI and data labs planned particularly in Tier 2/3 cities (in partnership with NIELIT10) are creating India's geographically widest base yet for AI learning.
- SERB[11] and INSPIRE[12] are building India's full STEM talent pipeline, from school-level innovation opportunities (SOAR[13]) to scholarships, fellowships and skilling initiatives supporting UG, PG, PhD scholars, and young scientists.

1. BHASKAR: Bharat Startup Knowledge Access Registry **2.** AIRAWAT: AI Research Analytics and Knowledge Dissemination Platform **3.** Meity: Ministry of Electronics and Information Technology **4.** PPP: Public-Private Partnerships **5.** GPU: Graphics Processing Unit **6.** TPU: Tensor Processing Unit **7.** DPDP: Digital Personal Data Protection Act **8.** WEF: World Economic Forum **9.** iSPIRT: Indian Software Product Industry RoundTable **10.** NIELIT: National Institute of Electronics and Information Technology **11.** SERB: Science and Engineering Research Board **12.** INSPIRE: Innovation in Science Pursuit for Inspired Research **13.** SOAR: Skilling for AI Readiness

Source: PIB; AIKosh; Press Release; BCG Analysis; updated till November 2025

03.

Diffuse Inclusively:
Pushing Last-Mile AI Penetration



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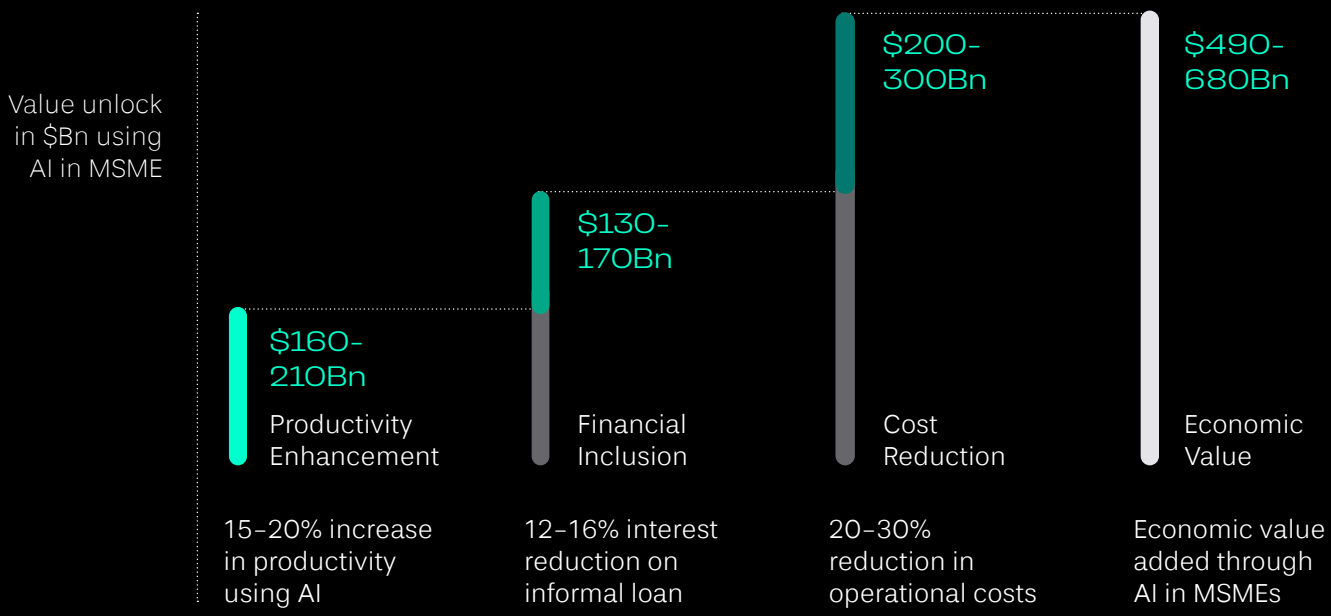
AI adoption in Indian MSMEs can generate $500Bn+ in economic value

Potential to unlock 50%+ growth by AI adoption in MSMEs, creating $500Bn+ in value

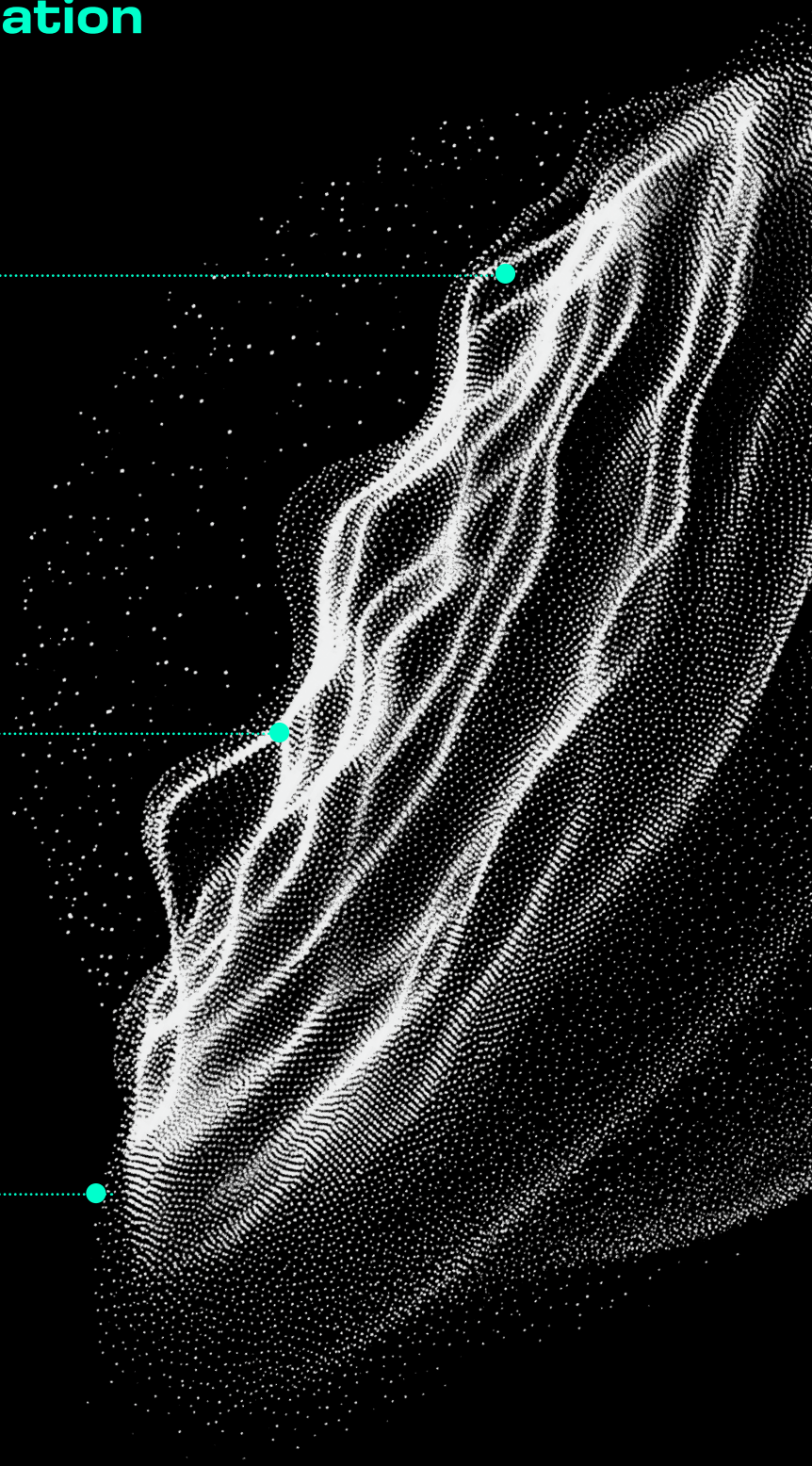


With strong benefits of AI implementation for MSME owners

Lever	Benefit of AI adoption	
Productivity Enhancement	Factory output	~70% increase
	Equipment effectiveness	~40% increase
	Speed-to-market	~40% reduction
Financial Inclusion	Interest rate	12-16% reduction
	Loan processing time	From days to hours
	New-to-credit SME	~45% increase
Cost Reduction	Operating cost	~45% reduction
	Quality cost	~49% reduction
	Energy efficiency	~29% increase

Source: Transforming Small Businesses: AN AI Playbook for MSMEs—WEF—BCGX Publication

Three stakeholders key for last-mile AI penetration



Policy Makers

to enable environments
and infrastructure

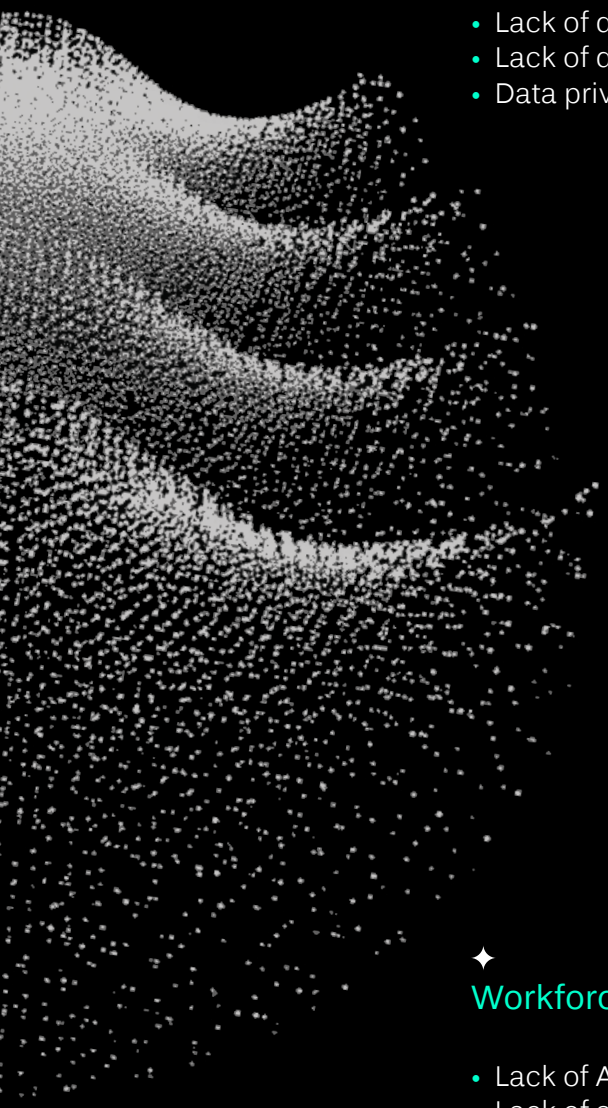
MSME Entrepreneurs

to proactively understand
and adopt AI

AI startups and solution providers

to create Frugal AI solutions
tailored to MSMEs

Essential to solve current challenges to unlock MSME AI adoption



Data and Digital Readiness

- Lack of data infrastructure
- Lack of digital skills for managing data systems
- Data privacy and cybersecurity concerns

AI Awareness

- Lack of knowledge about AI application and benefits
- Lack of inspiration/ success stories/ mentorship
- Difficulty in identifying implementation partners

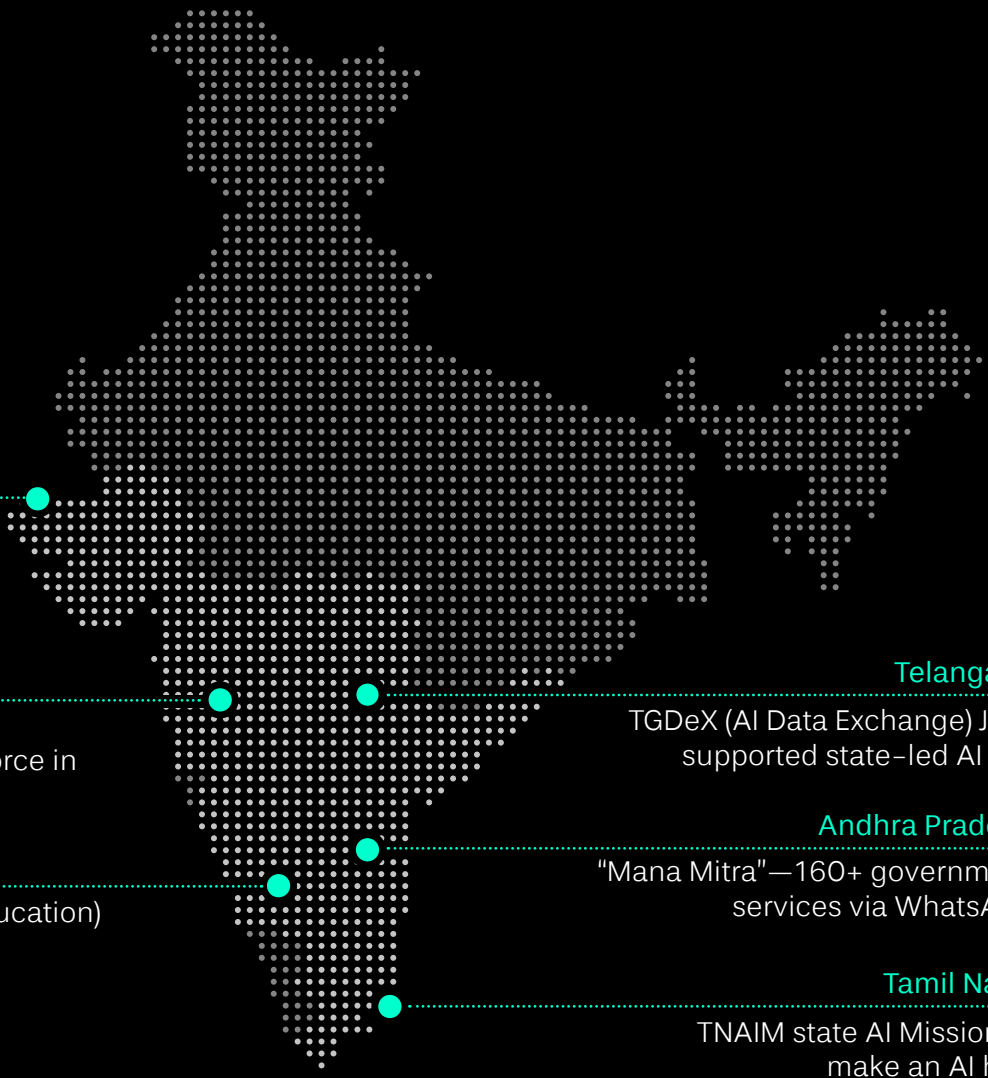
AI Solutions Accessibility

- Lack of SME focused and sector-specific AI solutions
- Lack of AI infrastructure (compute, networking, etc.)
- Unproven ROI and lack of funding

Workforce Capability

- Lack of AI-literate leadership to guide AI implementation
- Lack of a digitally skilled workforce
- Difficulty in attracting and retaining AI professionals

State governments are piloting India's AI push



Gujarat
AI Cluster@GIFT City (IBM) Watsonx-powered AI cluster

Maharashtra
CoEs in AI/Robotics (NIELIT) Train workforce in emerging tech

Karnataka
Shiksha Copilot (education) with Microsoft

Telangana
TGDeX (AI Data Exchange) JICA supported state-led AI DPI

Andhra Pradesh
"Mana Mitra"—160+ government services via WhatsApp

Tamil Nadu
TNAIM state AI Mission to make an AI hub

Source: IndiaAI; TGDeX: Democratizing Ai Innovation through Digital Public Infrastructure (DPI)

AI applications serve as a promising solution to Indian MSME challenges

Category	Challenges	AI Applications
Operational and Supply-Chain Efficiency	Small manufacturers bear 15–20% higher input and logistics costs, with inventory mismanagement and supplier delays driving frequent operational disruptions.	• Procurement & supplier monitoring • Inventory optimization with demand insights • Logistics optimization • Predictive analytics for supply-chain • Aftermarket supply-chain optimization
Financial Efficiency and Credit Access	High capital costs and long receivable cycles strain SME liquidity. SMEs struggle to access timely, affordable credit due to thin credit histories and limited collateral.	• Credit-risk assessment • Unified cash-flow analytics • Integrated financial forecasting • Credit scoring • Predictive analytics for financial distress
Quality and Safety	High defect rates disrupt operations and raise compliance risk. Inadequate safety protocols affect employee retention. Quality inconsistencies harm customer trust and reputation.	• Unified maintenance and quality control • Parameter monitoring and optimization • Safety monitoring • Root-cause analysis
Virtual Prototyping	GenAI-driven virtual prototyping cuts reliance on physical mock-ups, ensures OEM alignment, lowers costs, and speeds time-to-market.	• Virtual prototyping • Real-time design simulations
Customer Experience	Weak customer engagement, poor demand forecasting, and limited feedback loops reduce SMEs' responsiveness and profitability.	• Integrated CRM and demand forecasting • Dynamic pricing algorithms • Sentiment analysis for quality feedback
Workforce and Talent	High turnover and skill shortages hinder productivity, and SMEs often lack the capacity to retrain workers in advanced digital technologies.	• Role–skill mapping • AI-driven retention strategies cross-application • Adaptive learning

Source: Transforming Small Businesses: AN AI Playbook for MSMEs—WEF—BCGX Publication
Derived from insights from the US Smart Manufacturing Executive Council, and expert consultation, SME workshops, and site visits to validate ~25 use cases

Enablers of Last-Mile AI Penetration: The Role of Each Stakeholder

Policy Makers

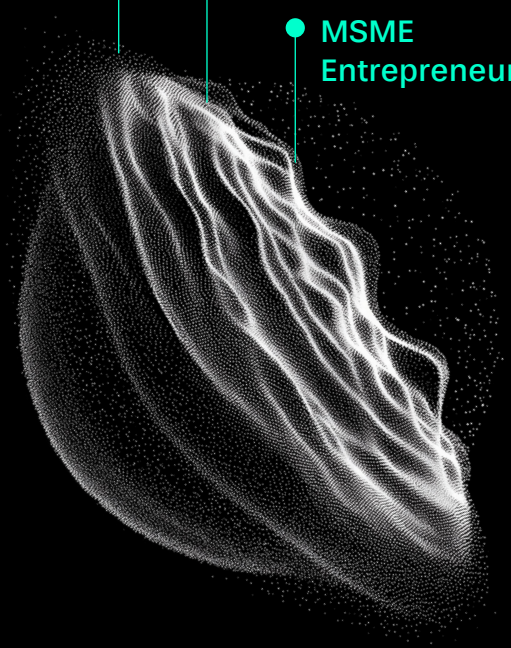
- **Set up cluster-based AI adoption labs for MSMEs.** For top MSME clusters, based on size and prevalence, establish AI adoption labs to bring together tech partners and select pilot MSMEs. These labs can support in identifying the right solutions, creating a playbook to address challenges in adoption, and providing a clear path to ROI. This will address current awareness, knowledge and capability gaps, and access issues.
- **Accelerate adoption through targeted incentives,** like subsidies, tax breaks or grants, that focus on first time adopters of proven AI solutions. National recognition programs that celebrate early adopters across MSME clusters can further build awareness, demonstrate value, and create momentum for broader adoption.

AI Startups and Solution Providers

- **Adopt a value-driven, cluster-focused approach rather than generic solutions.** Solution providers should develop domain-specific solutions optimized for workflows and needs of MSME clusters. Cluster tailored solutions are more robust and practical, while reducing MSME experimentation and learning costs. By partnering with AI adoption labs, solution providers can build higher trust and drive adoption with MSMEs
- **Deliver frugal, launch-ready AI solutions that are modular, low-compute, and easy to adopt.** MSMEs need simple, affordable solutions that work within their existing constraints; e.g., limited digital maturity, low budgets, minimal IT infrastructure. Startups should focus on lightweight, interoperable solutions that integrate seamlessly with current systems. This will minimize adoption frictions to enable at-scale deployment across clusters.

MSME Entrepreneurs

- **Build basic digital and AI readiness with intentional steps.** MSMEs should assess their current digital maturity, and work towards ensuring basic or high repeat processes are not manual. It is important to invest in upskilling teams on use of AI. Larger organizations can also look to invest in an AI champion to drive the agenda.
- **Adopt, test, and generate value quickly from 1-2 simple solutions.** Given a high proportion of MSMEs are first time adopters, prioritizing a high value function and proving measurable value from a simple solution is essential. MSMEs can also look to engage local AI ecosystems and cluster specific solutions to expedite launch and shorten learning cycles



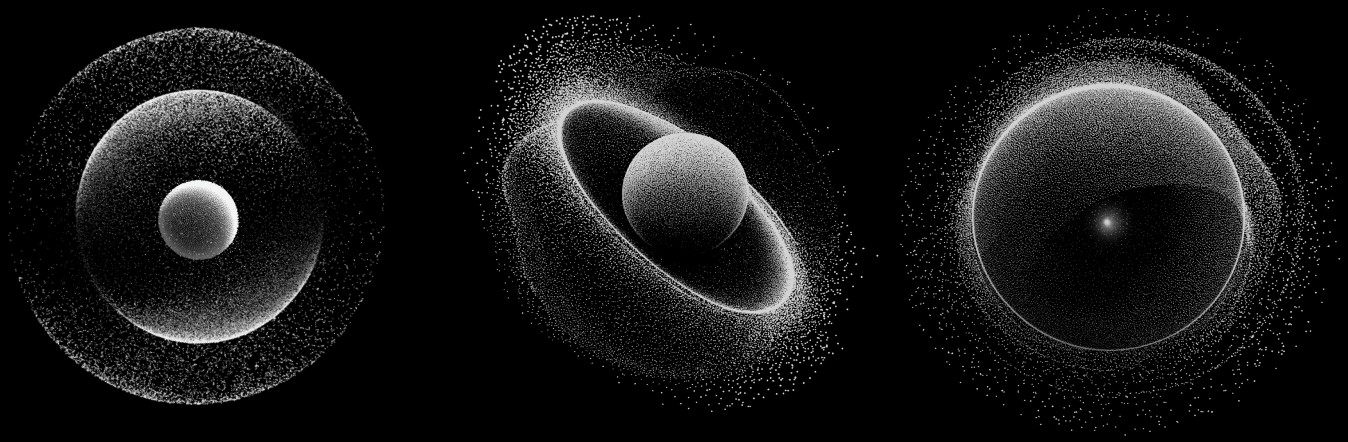
Source: BCG Analysis, Transforming Small Businesses: AN AI Playbook for MSMEs-WEF-BCGX Publication

India's Triple AI Imperative:
Transform | Innovate | Diffuse

TRANSFORM
AT SCALE

INNOVATE
WITH DEPTH

DIFFUSE
INCLUSIVELY



Value Today

Value Tomorrow

Value Everywhere

India can go beyond transforming AI to shaping it.
The imperative is not just economic. It's strategic, national, and generational.

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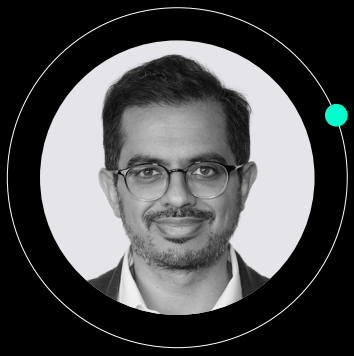

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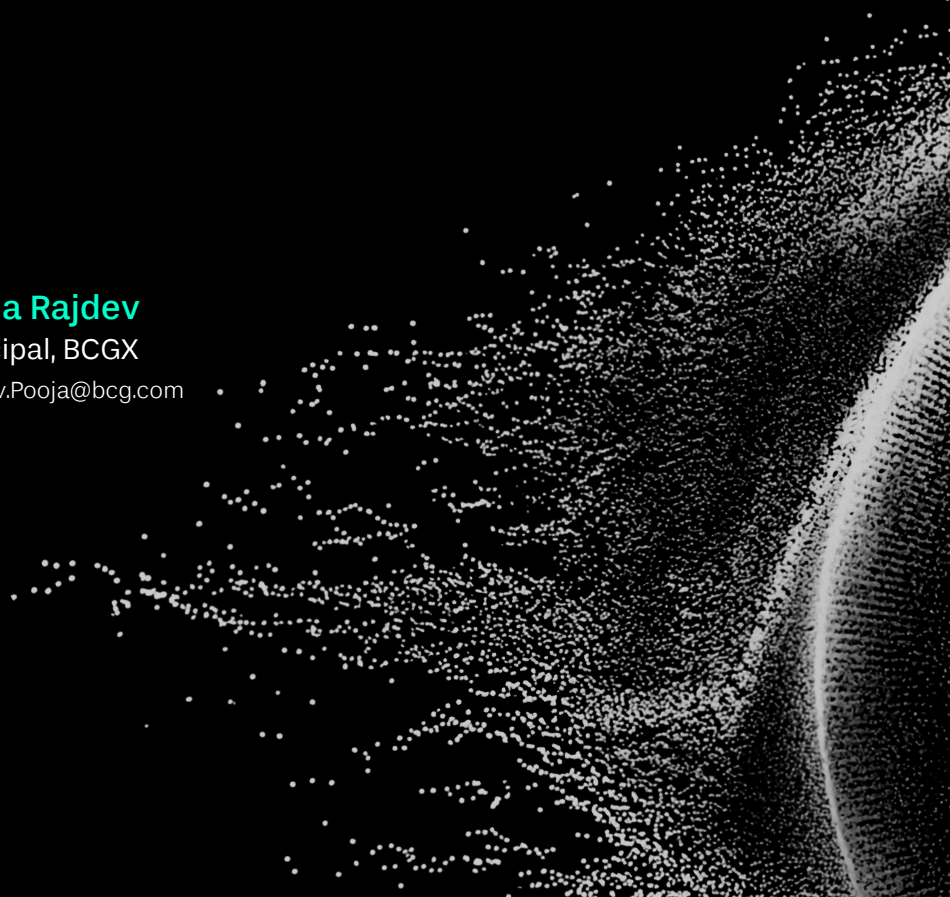

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*All images in this report are generated using GenAI


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