# India's Technology Services – Reimagination Ahead

Acknowledgment

We are indebted to the Expert Council for its strategic foresight and guidance in shaping this project. Their contribution has ensured that the roadmap reflects both ambition and pragmatism, making the recommendations actionable.

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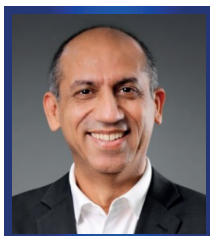
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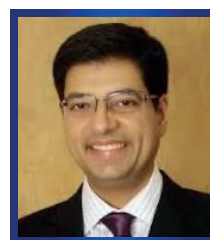Goldman Sachs India

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Foreword

India's technology services industry stands at a crucial AI Inflection point. Over the past three decades, it has been a cornerstone of India's economic rise driving exports, creating millions of jobs, and establishing India as a trusted global technology partner. As the world now enters the era of Artificial Intelligence, this sector faces a profound transition that will shape not only its own future, but also India's broader economic future and strategic positioning in the global digital order.

AI is fundamentally reshaping how technology is built, deployed, and consumed. Traditional service delivery models anchored in scale, cost efficiency, and incremental productivity are being challenged by AI-driven automation, platform-based solutions, and outcome-oriented engagements. Simultaneously, geopolitical realignments, supply-chain reconfiguration, and rising concerns around digital sovereignty are reshaping how nations compete—and collaborate—on technology leadership.

Against this backdrop, this roadmap offers a forward-looking pathway for India to sustain and extend its global leadership. To meet India's aspiration of becoming Viksit Bharat by 2047, the technology services sector must evolve into an innovation-led, AI-native ecosystem capable of creating new value pools.

Equally important is the central role of people in this transition. AI will transform roles, workflows, and skill requirements across the industry. The challenge before us is not one of displacement, but of transition redeploying talent, reskilling at scale, and building a workforce that can work alongside intelligent systems with confidence and judgment. India's demographic strength and talent base provide a unique advantage, provided we act with foresight, coordination, and urgency.

This transformation requires a shared national effort. Industry must invest in innovation, intellectual property, and new delivery models, while government must enable speed, ease of doing business, global market access, and a robust skilling ecosystem. NITI Aayog remains committed to playing its role as a strategic catalyst in this partnership.

With timely action, collaborative leadership, and a clear focus on trust, inclusivity, and innovation, India can emerge not merely as a technology services provider, but as the world's preferred partner in the AI era.

B.V. R. Subrahmanyam
CEO, NITI Aayog

Foreword

For three decades, India's technology sector has been the global benchmark for scale and resilience. However, we have reached a decisive strategic inflection point. The emergence of AI is fundamentally compressing traditional service value pools—moving the industry from labor-intensive "effort" to high-impact "outcomes."

The industry is currently navigating three fundamental transitions:

From Effort to Outcome: Moving away from billable hours toward value-based, result-driven engagements.

From Bespoke to Productized: Shifting from manual, one-off coding to scalable, IP-led platforms.

From Siloed IT to Enterprise Transformation: Evolving from back-office support to being the primary engine of business strategy.

As a strategic pillar of the Indian economy, the technology services sector contributes nearly 7% of GDP and remains a primary engine for high-value employment. As we march toward Viksit Bharat, the sector's evolution is not merely a corporate necessity but a national imperative. To maintain technological sovereignty and global competitiveness, we must transition from being the world's "back office" to becoming the world's AI-native architect.

Leadership in the next decade will be defined by an industry that transcends traditional service boundaries. This roadmap is shaped by that imperative. It recognizes that leadership will depend on expanding into software, platforms, data infrastructure, and innovation-led offerings. While protecting the core remains essential, future growth will increasingly arise from adjacent value pools where services converge with products, intellectual property, and AI-native operating models—reshaping how value is created, captured, and scaled.

At the NITI Frontier Tech Hub, our role is to work alongside industry, startups, academia, and policymakers to track emerging technology trajectories, assess their implications for India's core sectors, and translate these insights into actionable recommendations that strengthen national readiness and unlock new growth opportunities.

This roadmap is intended as a shared reference for strategic choices, investment priorities, and ecosystem collaboration rather than a prescriptive blueprint. India's advantage lies not only in its talent and scale, but in its capacity to act decisively at moments of transition. With alignment between government and industry, India can evolve from being the world's largest technology services provider into one of the most influential builders of AI-native, globally relevant technology systems.

Debjani Ghosh
Distinguished Fellow,
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Table of Content

Executive Summary

India's tech services industry (comprises of players that design, build, implement, manage, and support technology solutions for clients, primarily through IT services, software development, digital transformation, and operations) stands at an inflection point. Contributing nearly 7 percent to GDP and generating around $265 billion in annual revenue, the sector remains integral to national growth and exports. Yet, post-pandemic headwinds—including macroeconomic uncertainty, AI-led automation, and intensifying competition—have slowed annual growth to 4–5 percent p.a. and compressed margins.

To align with the vision of *Viksit Bharat@2047*, the sector needs to aim to achieve $750–850 billion in annual revenue by 2035 to sustain a 7–8 percent share of GDP and expanding its global market share beyond 25 percent. However, current trajectories indicate a $250–300 billion shortfall, underscoring the need for decisive action. Emerging technologies such as generative and agentic AI, cloud infrastructure, and digital engineering present India with a historic opportunity to bridge this gap and reposition itself as a leader in trusted, innovation-driven digital services.

Realising this ambition requires a dual approach:

— **Protecting the core:** The industry must strengthen its existing growth engines—data and AI, cloud, digital transformation, engineering services, and cybersecurity.

— **Pivoting to new growth vectors:** Advancing into five frontier pathways:

  • **Agentic AI play:** Leverage AI to build hybrid 'human + agent' service models and productized solutions, targeting mid-market businesses and legacy modernization.

  • **Software play:** Strengthen India's position as the global SaaS capital by capturing a disproportionate share in high-growth areas such as CRM, ERP, DataOps, cybersecurity, and vertical-specific SaaS.

  • **Infrastructure play:** Consider establishing India as the world's data services and AI infrastructure hub, with AI-native cloud stacks, sovereign infra, and data center orchestration capabilities.

  • **Innovation play:** Harness R&D spend pools with India-based innovation centers, vertical-specific CoEs, and frontier technology partnerships.

  • **India for India play:** Leverage India's rapidly growing domestic demand with customized AI, multi-lingual platforms, and delivery model innovations tailored to the local context.

Achieving this vision will require joint industry–government effort:

— Industry must lead the shift into the AI era by reimagining its delivery model, deepening innovation, and investing in the next wave of growth. Firms need to pivot from cost-based services to outcome-driven, AI-enabled solutions—embedding 'human + agent + platform' models across operations. Strategic investment in R&D and IP creation, particularly in fast-growing areas such as healthcare, semiconductors, and cybersecurity, can unlock new value pools. Building global partnerships, scaling AI focused mergers and acquisitions, and driving large-scale workforce reskilling will be critical to maintaining India's global edge and expanding its market share beyond 25 percent by 2035.

— Government policy must enable this transition by strengthening innovation, talent, and ease of doing business. This includes scaling digital R&D and IP creation through a clear national digital R&D framework and shared infrastructure, simplifying and accelerating approvals through a National Tech-Services Single Window, and creating a supportive policy environment for SaaS and high-growth technology firms through capital targeted R&D support, ESOP clarifications and regulatory reforms. In parallel, a nationally coordinated AI talent mission will prepare India's talent base for AI-driven shifts. Together, these measures will position India as a preferred destination for global technology operations and investment.

Swift execution will be critical to sustain competitiveness, close the aspiration gap, and strengthen India's position as the global hub for AI, data, and digital innovation.

Chapter 01

India's Technology Services Industry: At An Inflection Point

1.1 A Potential Growth Lever For India In 2047

India's technology services sector is a cornerstone of the national economy, accounting for a 7 percent relative share of Gross Domestic Product (GDP).[1] With about $265 billion in total annual revenue across domestic demand and exports, it accounts for nearly 20 percent of the $1.3 trillion global technology services market, consistently outpacing global growth by 200 to 300 basis points.[2]

However, the coming decade will be marked by transformation more than continuity. As India strives to become a $30 trillion economy by 2047[3], technology services could evolve from being an export engine to a potential growth lever — one that drives innovation, productivity, and global competitiveness.

The objective is to catalyze the transformation of the sector in the era of AI by maintaining the relative share of GDP at 7 to 8 percent, and increasing global share 20 to 25%+ by 2035

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[1] Nasscom strategic review, 2025.
[2] Nasscom strategic review, 2025; Technology services and the BPM market = ~$190 billion out of the ~$265 billion.
[3] India sets ambitious target to become a US$ 30 trillion economy by 2047, Ministry of external affairs, Government of India, July 30, 2024.

1.2 The Evolving Industry Landscape For Technology Services

Over the past decade, the technology services industry has undergone three major shifts, each marked by changing growth drivers and disruptive tailwinds (Exhibit 1):

— **Rapid adoption (2015–2020): The foundation of digital transformation**

- The global technology services industry crossed the $1 trillion mark in 2019[4], driven by rapid consumer technology adoption (internet, smartphones, social platforms) and large-scale enterprise modernization Enterprise resource planning (ERP), cloud, 4G, etc.

- India's low-cost, high-quality talent pool and emerging digital execution infrastructure led to a 6-7% CAGR growth in technology services.[5]

— **COVID surge (2020–2022): A period of hyper-acceleration**

- Global growth surged at an 8 to 10 percent CAGR, fueled by pandemic-driven demand for digital transformation, cloud migration, and remote work enablement.[6]

- India outpaced global trends at an 11 to 13 percent CAGR, on the back of scaled digital engineering capabilities.[7]

Exhibit 1

Global and India tech services market, YoY growth %
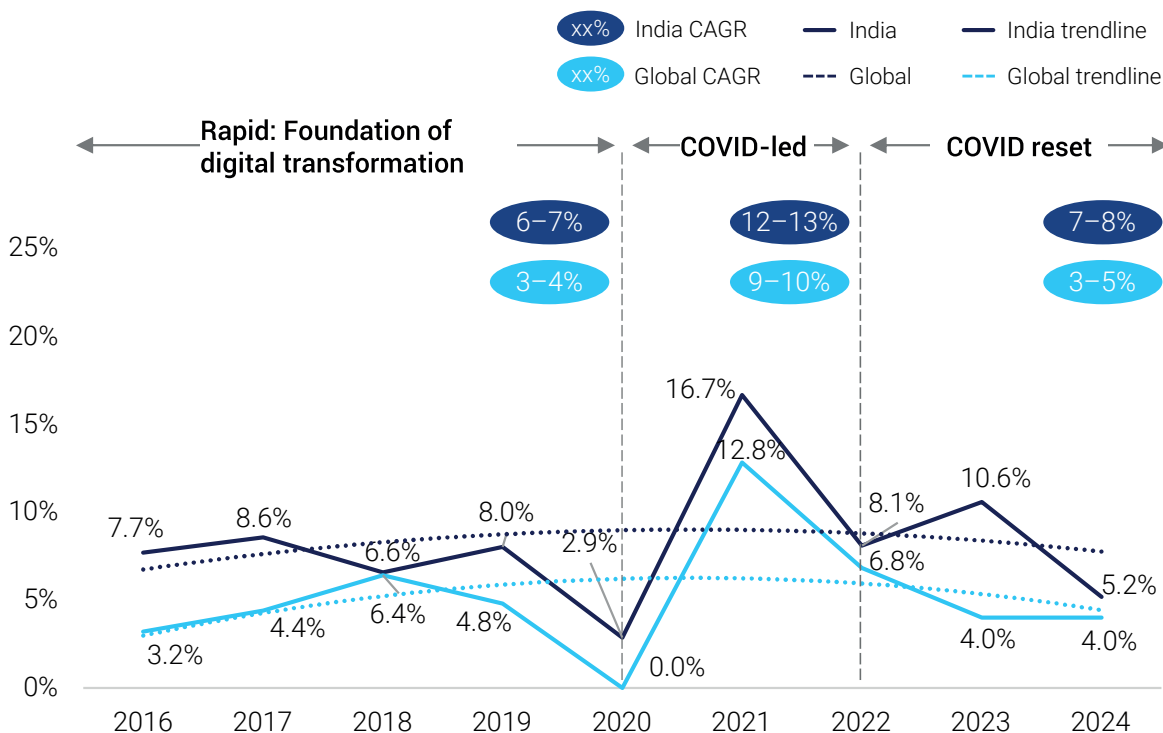
Source: Gartner, IDC, Nasscom strategic review

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[4] Future of Technology services – Winning in this Decade, Nasscom, 2021.
[5] Ibid.
[6] Future of Technology services – Leading with AI, Nasscom, 2025.
[7] Nasscom Strategic Review.

— **Early AI era and post-COVID reset (2022–2024): Disruption in the growth model**

- Global growth moderated at a 3 to 5 percent CAGR, while India's growth declined to between 7 and 8 percent CAGR[8] driven by few key factors – macroeconomic uncertainty in key markets, early-stage AI disruption, structural change in software development with GenAI.

1.3 Realities Of Today

The industry today is characterized by a slow growth environment facing geopolitical uncertainty and AI-led discontinuity.

— **Slowing growth environment:** Over the past year, large global technology players have maintained steady momentum, while specialist providers have recorded strong growth driven by demand for AI, cloud, and data transformation services. In contrast, large Indian technology services players see growth slowdown to about 3–5 percent, as reflected in recent quarterly results of Tier-1 India-headquartered providers—marking one of the most challenging growth periods for the sector in recent years.

Mergers and acquisitions (M&A) have become a key driver of transformation and growth as technology firms look to expand capabilities in AI, cloud, and digital engineering. Leading players such as Accenture are using programmatic M&A—often executing 50 or more acquisitions annually—to rapidly acquire niche skills, strengthen innovation pipelines, and enter new markets. This approach is allowing providers to stay ahead of technology shifts, integrate emerging capabilities faster, and maintain resilience in a slowing growth environment.

— **Geopolitical tensions:** The global environment is characterized by tightening visa regimes, tariff adjustments, and potential barriers to cross-border services. Increased restrictions and higher H-1B costs for skilled worker mobility are constraining talent deployment across key markets. Changes in trade and tariff policies are disrupting global supply chains and creating uncertainty around delivery timelines and cost structures. At the same time, growing emphasis on data localization and digital sovereignty is adding regulatory complexity and reinforcing a shift toward regionally governed technology ecosystems.

— **Dependence on US Markets:** The technology services sector exports have a large concentration in the US with a market share of almost 60%. US multinational companies including GCCs are also the largest employers in India and are playing a significant role in reshaping the India value proposition from cost and efficiency to higher value-added services. While the sector has been focussed on market diversification beyond US, given the disproportionate share of US, industry's performance will continue to be shaped by shifts in the US market across enterprise and mid-sized customers.

— **Technology becoming a strategic lever for trade:** Technology is emerging as a central instrument of global trade negotiations, shaping access, alignment, and competitiveness. Nations are increasingly using technology standards, data governance, and control over critical supply chains as tools of economic diplomacy and strategic influence. Export controls, digital trade clauses, and data localization norms are redefining global value chains and market access. As digital infrastructure, AI, semiconductors, and rare earth ecosystems become closely linked with trade policy, technology is shifting from a neutral enabler to a core bargaining asset.

— **AI discontinuity:** Of the 13 foundational technologies expected to shape the next decade, AI is the most immediate and transformative disruptor. It is redefining how technology services are delivered, with GenAI / Agentic AI transforming software development, testing, support, and business operations. This shift is compressing traditional service markets through automation and efficiency gains while opening new value pools in AI integration, model engineering, data infrastructure, and governance. The transition offers India a significant opportunity to position itself as a global hub for AI-driven delivery and innovation.

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[8] Future of Technology services – Leading with AI, Nasscom, 2025; Nasscom Strategic Review.

Chapter 02

India's Technology Services: Reimagination Ahead

2.1 Setting A Bold Aspiration For 2035

Chapter 1 highlighted factors shaping India's technology services sector today: a visible decline in growth post-COVID and the rise of AI-led disruptions, alongside the fastest technology adoption wave in decades. While these factors have posed significant headwinds, they also present a timely inflection point — one where the sector can reimagine its growth trajectory by embracing foundational shifts in value pools, delivery models, and global positioning.

The government has set an ambitious national vision to become a $30 trillion economy by 2047.[9] Within this, the technology services sector is expected to play a crucial role, with aspirations to contribute 7 to 8 percent of GDP or approximately $750 billion to $850 billion in annual revenue by 2035, based on the government's Viksit Bharat goals, up from about $265 billion today (Exhibit 2).[10]

Exhibit 2

Indian Technology Services Industry − Aspiration for 2035

~10-11% p.a.

$750−850B

~$265B

	2024	2035E
India's GDP	~$3.7T	~$11T
Share relative to GDP[1] (%)	~7%	7−8%
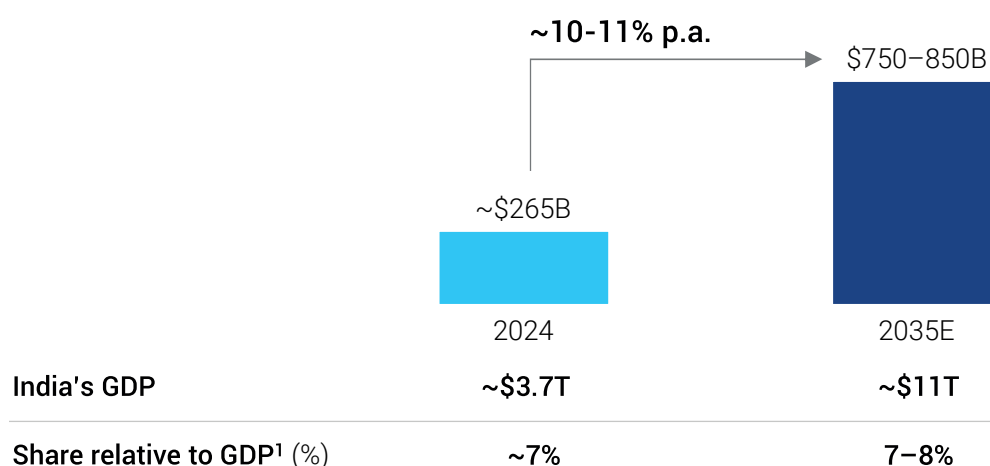
Source: Nasscom Future of Technology Services 2030: Leading with AI, Viksit Bharat goals

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[9] India sets ambitious target to become a US$ 30 trillion economy by 2047, Ministry of external affairs, Government of India, July 30, 2024.
[10] Nasscom strategic review, 2025.

2.2 The Path To Achieving The 2035 Aspiration

To meet the 2035 aspiration, India will likely need to drive 10%+ CAGR over the next decade. However, the current outlook for industry is 5-7% growth including $100-120 billion expansion from new Total Addressable Market (TAM) opportunities. There is a likely $250-300 billion gap to meet this objective (Exhibit 3).

Exhibit 3

Path to 2035−aspirations and gaps to fill

	Current size (2024)	Protect the core	Pivot to new growth vectors	Expected size (2035)	Gaps to aspiration	2035 − aspiration
	~$265B	$150−180B	$100−120B	$500−580B	$250−300B	$750−850B
Share relative to GDP (%)		3−4%		4.5−5%		7−8%

CAGR labels: 10−11%, 6−7%, 4−5%, XX% CAGR
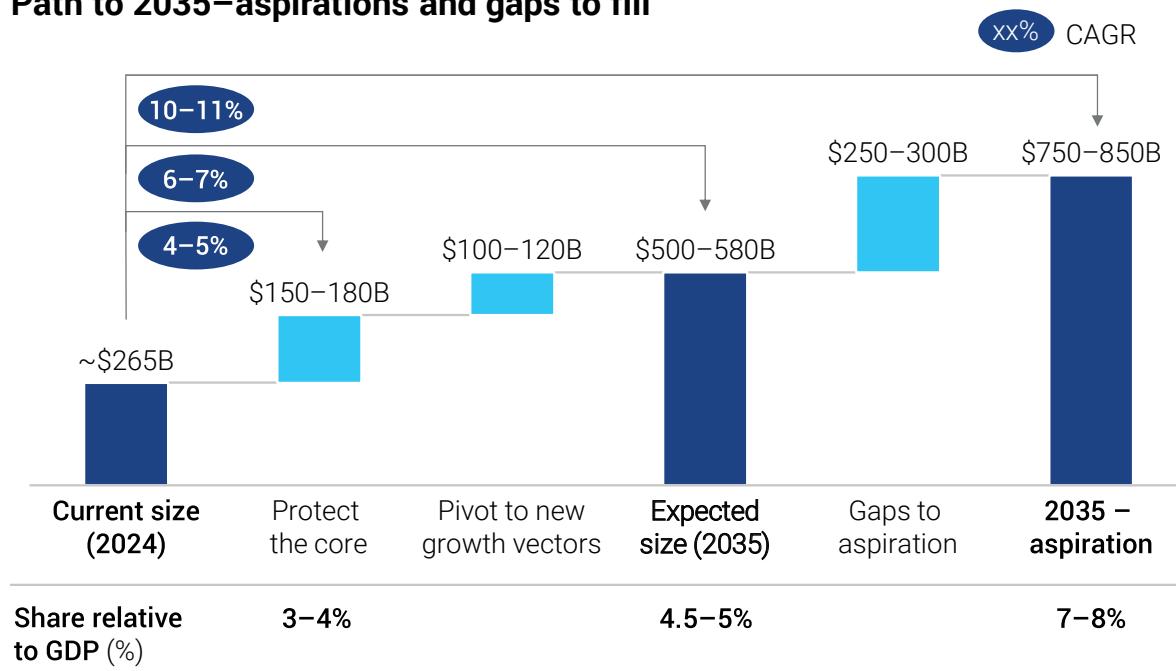
Source: Viksit Bharat goals, expert conversations

While the government's aspiration for India's technology services sector is to contribute 7−8% of GDP ($750–850 billion) by 2035 to meet its Viksit Bharat goals, current market growth outlook indicates a gap of $250–300 billion

Protecting the core:

The current base of about $265 billion, driven by India's strengths in exports, cost arbitrage, and engineering depth, could potentially grow at 4 to 5 percent annually if **India strengthens its presence in data and AI, cloud, cybersecurity, new markets** such as the Middle East and Japan, and **verticals such as defense and healthcare**, as well as **deep technology and high-value segments** like engineering services.

However, even this sustained growth may not be enough. To accelerate growth, India could pivot to white spaces beyond the services sector while continuing its global leadership within the sector.

A pivot to new growth vectors:

Expanding into adjacent high-growth enterprise markets could open additional opportunities for India, helping it break into adjacent spend pools and unlock value from the accelerating shift toward software-defined and AI-powered delivery models.

This would require transition in the industry's focus from a **service-only to full-stack digital enablement, spanning software, infrastructure, operations, and AI-driven automation.** The industry could also expand to new buying centres such as the CIO, COO, and CXO roles, which account for larger share of tech spending.

Five major adjacent pools could be considered, with a global TAM of about $14 trillion today[11]:

— **Core operations** spend of about $8,000 billion in AI-led automation of human operational work.

— **Enterprise operations** – General & Administrative (G&A) spend of about $3,000 billion in the automation of finance, procurement, and HR.

— **Hardware and infrastructure** spend of about $1,100 billion in data centers, hybrid infra, and infra orchestration.

— **Software** spend of about $1,100 billion in SaaS, cloud-native tools, and low-code platforms.

— **R&D operations** spend of about $1,100 billion in product design, co-development, and frontier technology innovation.

India's technology services players currently have limited penetration in these areas. However, by reimagining value propositions, products, and platforms across these spaces, the sector could build the potential to considerably improve its share-of-wallet within enterprise technology spending.

Exhibit 4 outlines the five plays that cut across these new markets/enterprises' spend areas, offering the potential to unlock the next phase of growth in the adjacent TAM opportunities for service providers beyond their core technology services sector. Each of these plays would require reinvention of the proposition, GTM approach, and delivery model, with strengths in technology-led re-imagination of value for enterprises.

— **Agentic AI play:** Leverage AI to build hybrid 'human + agent' service models and productized solutions, targeting mid-market businesses and legacy modernization.

— **Software play:** Strengthen India's position as the global SaaS capital by capturing a disproportionate share in high-growth areas such as CRM, ERP, DataOps, cybersecurity, and vertical-specific SaaS.

— **Infrastructure play:** Consider establishing India as the world's data services and AI infrastructure hub, with AI-native cloud stacks, sovereign infra, and data center orchestration capabilities.

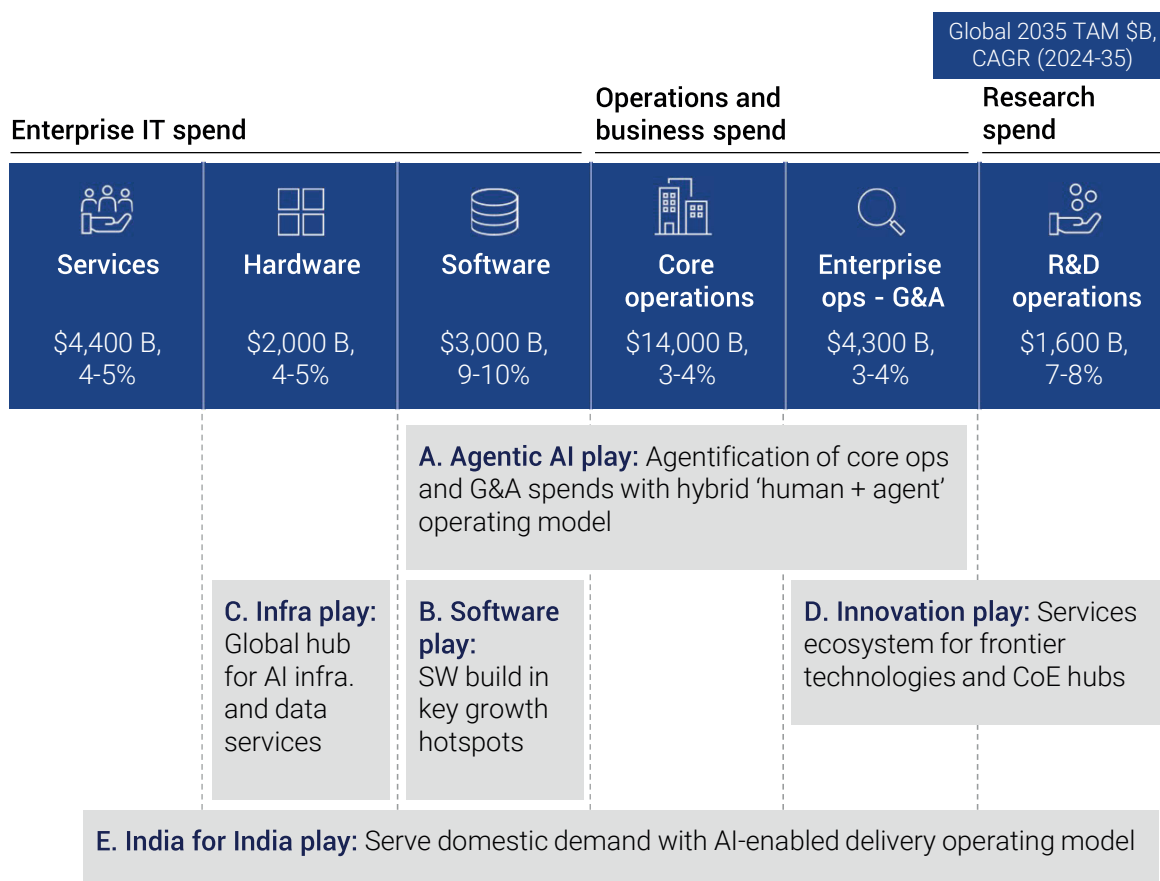[11] Analysis from Gartner, IDC and expert conversations.

— **Innovation play:** Harness R&D spend pools with India-based innovation centers, vertical-specific CoEs, and frontier technology partnerships.

— **India for India play:** Leverage India's rapidly growing domestic demand with customized AI, multi-lingual platforms, and delivery model innovations tailored to the local context.

Together, these five plays could potentially generate incremental value by 2035—delivering on the government's national aspiration and repositioning India as the world's technology partner for the AI era.

2.3 Five Potential Plays For The Sector

Exhibit 4

Total Addressable Market (TAM) map across key enterprise spend areas

					Global 2035 TAM $B, CAGR (2024-35)
Enterprise IT spend			**Operations and business spend**		**Research spend**
Services $4,400 B, 4-5%	Hardware $2,000 B, 4-5%	Software $3,000 B, 9-10%	Core operations $14,000 B, 3-4%	Enterprise ops - G&A $4,300 B, 3-4%	R&D operations $1,600 B, 7-8%

A. Agentic AI play: Agentification of core ops and G&A spends with hybrid 'human + agent' operating model

C. Infra play: Global hub for AI infra. and data services

B. Software play: SW build in key growth hotspots

D. Innovation play: Services ecosystem for frontier technologies and CoE hubs

E. India for India play: Serve domestic demand with AI-enabled delivery operating model

Source: Future of Technology services – Leading with AI, Nasscom, 2025.
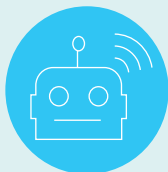
A. Agentic AI play

As the Agentic AI technology advances, it is set to reshape core service offerings and deliver non-linear efficiency gains across technology services and software spending—particularly within the Software Development Lifecycle. Establishing a strong position in Agentic AI will lay the foundation for future progress toward Artificial General Intelligence (AGI) and Artificial Superintelligence (ASI), securing technological, data, and ecosystem leadership for the next phase of innovation.

Potential opportunities for the industry:

— **Scale a 'Services as Software' proposition**

Industry could focus on three key moves. First, develop **productized services** for targeted areas in the enterprise software value pool across horizontal applications such as marketing campaign management and development or infrastructure tools. Second, create **customized agent-led solutions** for medium-scale businesses—an under-served segment—with use cases like AI lifecycle management, security analytics, and digital commerce. Third, drive **agentic AI-led legacy modernization** through productized services for enterprises and mid-market players with legacy software spends, enabling faster and more efficient transformation.

> **India's projected potential (2035)[12] :** $15–20 billion

— **Introduce the 'human and technology hybrid workforce model'** powered by AI agent services for higher productivity in enterprise operations. Potential move includes building domain-specific 'AI Agent workforces' which could drive substitution of labor spend across enterprise functions, which are currently insourced across existing and new work archetypes, such as legal (automated outcome simulation and clause extraction), and can deliver business outcomes.

> **India's projected potential (2035)[13] :** $25–30 billion

Potential enablers

India's readiness for the AI economy depends on strengthening four core enablers — **infrastructure, talent, R&D, and policy**. Current industry compute capacity remains largely CPU-based and inadequate for training AI models at scale, underscoring the need for AI-ready infrastructure with GPUs and sector-specific training platforms. Despite multiple re-skilling initiatives, shortages in next-generation AI talent—including prompt engineers, GenAI researchers, and LLMOps specialists—are widening, highlighting the need to cultivate a stronger product and solution mindset. Building indigenous capability will also require higher R&D investment to develop proprietary AI solutions, such as **small or domain-specific language models** for sectors like banking, cybersecurity, and telecom. Finally, policy modernization—covering cross-border data usage, responsible AI, and research incentives—will be key to enabling innovation and collaboration while ensuring governance and ethical deployment.

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[12] Analysis based on SaaS and on-premise software.
[13] Analysis based on the outsourcing potential of existing and new work archetypes.

B. Software play

There has been rapid growth in the global software and SaaS market, driven by increasing demand for automation, productivity enhancements, and cloud adoption. However, India remains relatively small, currently capturing only 1 to 3 percent of the global SaaS market despite the success story in services.[14] India has about 3,500 SaaS players[15], including 20+ unicorns[16], but there is significant potential for the industry in the software play. Two potential ideas could be considered:

— Focus on capturing a greater market share by rearchitecting existing software value pools across CRM, ERM, data management and development tools.

— Rapidly build capabilities and pursue new software value pools by building scalable SaaS products across cybersecurity software, Applied AI and other vertical specific solutions.

India's projected potential (2035)[17] : $20–25 billion

Potential enablers

Talent, business environment, and R&D are critical enablers for scaling India's software and SaaS ecosystem. The current technology talent pipeline remains service-oriented, requiring a shift toward **product lifecycle capabilities** and skills in areas like DevSecOps and product management. The ease of doing business also needs improvement, as complex regulations—such as ESOP taxation, and cross-border payment hurdles—continue to constrain SaaS operations. **Streamlined procedures for IP** registration, export compliance, and talent retention would enhance competitiveness.

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[14] Shaping India's SaaS LandScape – SaaSBoomi, 2021.
[15] The Rise Of The Indian SaaS Industry: Revealing Its Growth, TechJury, September 10, 2024.
[16] SaaS Unicorn Tracker – SaaSBoomi, as of September 2025.
[17] Analysis based on India's share of the global SaaS market.

C. Infrastructure play

India generates about **20% of global data**, with current data center capacity of **1.4 GW** expected to expand by **6–7 GW** over the next decade. This growth must accelerate to meet **data localization mandates** and l**ow-latency performance needs** for real-time applications like UPI. At the same time, **sovereign AI and cloud technologies** are gaining momentum globally, as countries adopt national data center strategies to support locally developed foundational models trained on domestic datasets. Such moves promote **localized innovation and competition**, creating space for new players to complement large hyperscalers. Three potential ideas could be explored to enable this growth.

— **Data Center-as-a-Service (DCaaS)** with end-to-end data center buildouts to drive capacity growth from the current 1.4 GW to between 10 and 12GW by 2035[18].

— **Global hub for AI-ready data centers: Develop GPU-enabled data centers** for enhanced compute capacity for AI workloads, driving an increase in GPU share from about 3 to 4 percent to around 15 to 20 percent in line with global demand.

— **Monetization of open-source datasets** such as transportation and mobility data sets for public transport and traffic congestion, with a value-added data analytics services ecosystem, such as drug discovery based on disease outbreak patterns from public health data, for domestic and international innovation.

India's projected potential (2035)[19] : $10–15 billion

Potential enablers

Data centers remain capital-intensive and face infrastructure and regulatory bottlenecks that slow expansion. Establishing special **data center economic zones** could accelerate growth by ensuring reliable access to affordable, high-quality power—including renewable and nuclear sources—and deploying advanced cooling solutions such as underwater or floating facilities seen in other countries. Simplified single-window clearances for land, power, and hardware resources, supported by dedicated facilitation units and supplier partnerships, would further streamline setup and attract large-scale investments.

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[18] Analysis based on India's share of the global SaaS market.
[19] Analysis based on data center capacity requirements and data monetization potential..

D. Innovation play

The rapid emergence of frontier technologies, including AI, quantum technology, bioengineering, and space technology, underscores the importance for India to show its leadership in innovation and play to its strengths in offering services around these. Currently, China holds a significant share of about 70 percent of these critical technology domains,[20] posing competitive challenges and potential IP lock-out risks.

India's ER&D exports are nearly $56 billion, with potential to reach $78 billion to $100 billion by FY30.[21] Evidence also shows a strong, positive relationship between a nation's R&D intensity and long run GDP growth.[22] By executing the focus points in this play, India can lift its R&D share of GDP toward peer benchmarks among innovation leaders e.g., South Korea, US, accelerating productivity and growth.

Two potential opportunities could help India expand its presence in global technological innovation:

— **Position India as a global hub for ER&D and innovation:** India can strengthen its role in engineering R&D outsourcing, co-innovation, and IP creation, enabling end-to-end product lifecycles. The focus should be on platform- and outcome-based models, validation, and compliance-as-a-service, targeting the $1.1 trillion global R&D operations market across sectors such as automotive, MedTech, defense, semiconductors, industrials, energy, and telecom. In parallel, India can expand its global leadership in setting up CoEs across R&D, sales and marketing, legal, and HR, with R&D centers focusing on horizontal technologies like AI, ML, data science, and cybersecurity, and sector-specific innovation in digital health, automotive, and embedded software.

India's projected potential (2035)[23] : $15–20 billion

— **Innovate and offer services around frontier technologies:** Offer a service catalog of industry-specific services for sectors like pharma, bioengineering, space technology, and defense technology, and across advisory and implementation services, such as clinical trial acceleration, AI-enabled target identification, drug repositioning, and clinical control tower.

India's projected potential (2035)[24] : $10–15 billion

Potential enablers

— **Value proposition in high-value services:** The Indian technology industry must move beyond traditional delivery models and capture higher-value innovation services. This requires developing **dedicated innovation hubs and R&D SEZs** with fiscal incentives and showcasing India as the **global CoE and R&D capital** through success stories and scalable infrastructure. Leveraging **AI-driven ER&D** can accelerate design, testing, and compliance cycles by up to 30%, enhancing speed and cost efficiency in product development.

— **STEM talent infrastructure:** India needs to strengthen its **innovation-oriented talent base**, expanding beyond service skills to deep domain expertise. Building a **specialized CoE and R&D workforce** skilled in enterprise functions (sales, marketing, legal) and frontier technologies such as **quantum computing and bioengineering** will be critical to sustain long-term competitiveness.

— **Ease of doing business and collaboration:** Faster CoE setup, stronger IP protection, and R&D-linked tax and market access incentives can unlock greater innovation investment. Establishing R&D-specific SEZs, sectoral co-innovation corridors, and shared testbeds across industries like MedTech, SDV, and telecom—supported by digital twin platforms and regulatory sandboxes—can position India as the global pre-certification and design hub for advanced engineering sectors.

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[20] Who is leading the critical technology race? Australian Strategic Policy Institute, March 1, 2023.
[21] Why Global Enterprises Are Doubling Down on India for Engineering the Future, Nasscom, September 2025.
[22] Impact of R&D expenditure on economic growth, Journal of Science and Technology Policy Management, April 18, 2024.
[23] Analysis based on horizontal technology spend, enterprise R&D spend and other enterprise spends.
[24] Analysis based on current R&D and ER&D spends.

E. India for India play

The India for India play represents a convergence of India's technological capabilities to serve its rapidly expanding domestic market, expected to be between $40 billion and $60 billion by 2035.[25] Today, domestic revenue is $40 billion, indicating that domestic demand is being met by non-Indian providers.[26] By integrating advances from Agentic AI, software, infrastructure, and innovation, this play could address India's requirements while leveraging the country's position as a global technology hub. Two potential opportunities could be considered:

— **Customized software** across key growth hotspots, including healthcare, manufacturing, and BFSI, and **AI-enabled offerings for India**, such as multi-lingual agents supporting Indic languages and agri-advisory agents. India's scale in healthcare, agriculture, financial inclusion, and logistics makes it a natural laboratory for converged technologies. Piloting AI + IoT + bioengineering for Agri-advisory or AI + fintech + digital trust for MSME credit can create exportable models.

— **Reimagine delivery models with AI, including a 'human + agent' workforce** to drive higher efficiency and enhance the ability to service low-margin markets at scale effectively using productized solutions as opposed to a pure services play.

Together, these five plays could generate an additional $100 billion to $120 billion of revenue for India by 2035 and help deliver on the new growth path (Exhibit 5).

All of these are meaningful and at-scale opportunities for India. The industry can make an effort to build and reinvent itself, embed the capabilities required to serve these opportunities, and compete at scale globally.

Exhibit 5

5 plays to achieve 2035−aspiration
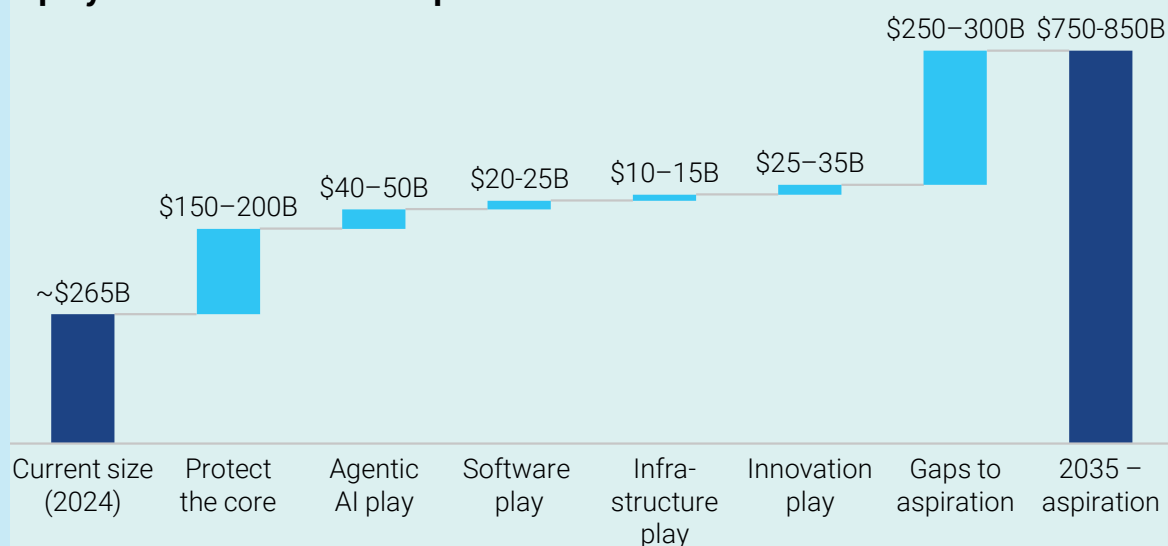
India for India play: $40−60B opportunity across plays highlighted above

Source: Expert conversations

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[25] Analysis based on expert conversations and historical share as per historical Nasscom strategic review.
[26] Nasscom strategic review, FY25.

Chapter 03
Recommendations

3.1 Recommendations for industry

1. Invest behind fast growth hotspots to counter near term headwinds

— The next decade's growth will come from new verticals and geographies—particularly healthcare, semiconductors, defense, and cybersecurity, and regions such as Japan, the Middle East, and India's domestic market. Tech services players should prioritize localized solutions and domain expertise in these high-growth areas, investing in partnerships and regional delivery models to capture value from emerging demand for AI, cloud, and digital engineering services

2. Rearchitect offerings to deliver step change in productivity and reimagine operating / commercial models

— Tech services players must reimagine their service offerings to deliver step-change productivity—targeting 70% or more efficiency gains across delivery value chains. This will require embedding Agentic AI and automation across every stage of work—from requirements to operations—through code generation, autonomous testing, document synthesis, and workflow orchestration.

— As delivery becomes more AI-augmented, players must shift from people-heavy operations to human + agent + platform models. These integrate human judgment with AI-driven execution and platform-led orchestration, enabling faster scaling, higher accuracy, and predictive service quality. This provides an opportunity for players to move from effort-based billing to outcome-linked models that tie pricing to measurable productivity and business impact.

3. Invest in defensible IP (e.g., platforms) with clear value proposition and scale R&D to 1-2% of revenues

— Differentiation will increasingly depend on intellectual property and platform-led delivery. Tech services players should allocate 1–2% of revenues to R&D, focusing on vertical-specific tools, reusable accelerators, and AI-native software IP that deepen client stickiness and create scalable margin levers. Platformization of services—turning repeatable solutions into productized offerings—will define the next cycle of growth.

— R&D in technology services is technical work that creates new software, AI, or digital engineering methods with genuine technical uncertainty and outcomes that are reusable or protectable as IP, rather than routine delivery or implementation.

— It includes development of new algorithms, models, platforms, or reusable tools, and pre-commercial experimentation that advances technical capability. It excludes client-specific development or integration, routine engineering or maintenance, deployment of existing AI tools, business process automation, and innovation lab or pilot work done for specific clients that does not result in transferable IP or reusable assets.

4. **Reimagine industry approach to R&D by partnering with ANRF and the RDI fund.**

— ANRF's recently launched RDI fund offers avenues for corporate entities and consortia to partner deeply in India's R&D acceleration trajectory. Industry bodies like NASSCOM in consultation with ANRF should chart a pioneering partnership approach for the industry and RDI. First, companies/ consortia should consider joining SLFMs as limited partners and co-invest in relevant sectors. Second, companies can partner with RDI (through SLFMs) strategically as domain & technology experts supporting engineering, deployment and commercialization. Thirdly, companies can also consider partnering with ANRF specific missions that drive R&D through academic partnerships.

5. **Drive focused reskilling for AI beyond technical skills for problem-solving, business judgment etc.**

— AI adoption demands more than technical skills—it requires a workforce adept at problem-solving, business judgment, and working effectively with AI systems. Players should scale targeted reskilling for roles such as AI engineers, prompt designers, and LLMOps specialists, while reorienting mid-level managers toward governance, orchestration, and client engagement. A focus on "learnability" and adaptive capability will be key to maintaining a competitive edge.

6. **Drive change management for AI adoption through leadership alignment and workforce communication**

— Embedding AI at scale requires cultural and organizational change. Players should lead structured change management programs—aligning leadership around AI strategy, ensuring transparent communication, and integrating "AI literacy" across roles. This will help overcome resistance, accelerate adoption, and ensure consistent ROI realization from AI-led investments, addressing one of the biggest barriers to value capture in the industry.

7. **Accelerate change with AI focused M&A and frontier-AI partnerships**

— Tech services players should adopt a more strategic and capability-led approach to M&A and ecosystem partnerships to build speed, scale, and differentiation in the AI era. The focus should be on acquiring or co-developing specialized AI, data, and engineering capabilities, integrating them rapidly into delivery models, and using joint innovation programs with startups, hyperscalers, and research institutions to expand solution breadth and accelerate time-to-market.

3.2 Recommendations for Government

1. Improve the speed and ease of doing business to attract global investments in GCCs and anchor high-growth companies in India

From	To
• **Fragmented, sequential approvals with limited adoption of existing DPIIT NSWS and repeated KYC/documentation:** Multiple central (GSTN, DGFT, RBI/Softex, STPI/SEZ), state (labour, Shops and Establishments), and municipal clearances operate through separate portals; existing IDs and repositories (PAN, GSTIN, ROC, Aadhaar, EntityLocker, GSTN) are not connected; and timelines lack escalation—resulting in prolonged, multi-month operationalisation	• **Integrated approval workflows with unified verification:** A single, end-to-end digital process enables parallel approvals across government tiers, with one-time authentication, shared documentation, backend integration, and enforceable service-level timelines

Recommendations:

— **Strengthen and expand the existing National Single Window System (NSWS) into an integrated, fully transactional National Tech-Services Single Window (NTSW), anchored by an inter-ministerial group** India should build on the current NSWS by transforming it into a fully transactional NTSW that provides a unified, end-to-end approval journey across central, state, and municipal authorities. This should include parallel routing of approvals; backend API integration with GSTN, DGFT, RBI/Softex, STPI/SEZ, state labour systems, Shops and Establishments, and municipal clearances; one-time authentication and document reuse leveraging existing datasets (PAN, GSTIN, ROC, Aadhaar-authenticated signatories, EntityLocker, GSTN); standardised data and form formats across departments and States; and enforceable service-level timelines supported by automated escalation and accountability mechanisms.

Learnings from the world:

United Arab Emirates – Basher Platform: The UAE's Basher platform provides a single digital interface that consolidates approvals across both federal and emirate-level authorities. Through one application, tech services players can initiate commercial registration, tax registration, and labor establishment processes at the federal level, while simultaneously triggering municipal licensing, economic department clearances, tenancy verification, and other local approvals. Unlike informational portals that only guide users to relevant permits, Basher enables end-to-end transactional processing, routing information across agencies, eliminating repetitive submissions, and coordinating decisions within a unified workflow across a multi-tier regulatory system.

2. Enable tech services growth cohorts (e.g., small and specialized players) with market access to global high-growth hotspots e.g., Japan, the Middle East, and Germany

From	To
• **Limited visibility in global markets:** Small and specialist tech services players lack the brand recognition and credibility required to engage effectively with enterprise buyers, digital ministries, and innovation ecosystems	• **Greater global visibility and positioning** where small and specialist players are recognised as credible partners for AI, digital engineering, cybersecurity, and other advanced services
• **Broad, multi-sector export missions with lack of structured channels for market access:** Current export-promotion efforts are generic and not tailored to specialist technology services, offering limited engagement with digital decision-makers and no dedicated tracks for priority domains	• **Sector-focused and curated engagement channels** with dedicated tracks for high-growth service areas and direct access to relevant digital agencies, enterprise technology buyers, and engineering ecosystems
• **Difficulty meeting market-entry norms:** Smaller providers struggle with region-specific regulatory, certification, procurement, and partnership requirements due to limited institutional capacity and support	• **Improved readiness for advanced markets** through structured support on compliance, certifications, contracting norms, and partnership pathways tailored to priority regions

Recommendations:

— **Launch structured Tech-services Trade Missions** led by MeitY, DPIIT, and industry associations, with defined representation for small and specialist players. Missions should target priority regions—Japan, the Middle East, and Germany—and include coordinated meetings with enterprise buyers, digital agencies, and innovation ecosystems.

— **Develop a unified India Tech-Services brand platform** that positions small and specialist Indian players as trusted partners in AI, digital engineering, cybersecurity, and next-generation technology services. This platform should provide co-branding, marketing assets, and visibility support for tech services players participating in trade missions.

— **Establish a Market Access Facilitation Cell** that provides structured assistance on market-entry compliance, sector certifications, contracting norms, and local partnership pathways, enabling specialist players to meet region-specific requirements more effectively.

Learnings from the world:

South Korea's KOTRA-led ICT and engineering missions to Germany: Focus on creating structured opportunities for engineering and digital-engineering players to engage with industrial clusters, applied research institutes, and leading enterprise buyers. These missions are organized around thematic tracks such as mobility, industrial IoT, and advanced manufacturing, and integrate smaller specialist providers into curated B2B meetings, technical workshops, and ecosystem visits. This approach helps players understand local requirements, explore collaborative projects, and establish credibility in highly sophisticated engineering markets.

3. Prepare India's workforce for the AI transition by proactively managing role shifts, workforce renewal, and large-scale reskilling

From	To
• **Fragmented visibility into workforce shifts:** No coordinated signal on which roles are declining, evolving, or emerging in an AI-driven labour market, resulting in unaligned planning and investment across the skilling and employment ecosystem • **Ad-hoc and reactive workforce transition within firms:** Tech services players—especially small and mid-sized—lack structured processes for role redesign, skill benchmarking, and redeployment, leading to inconsistent adoption of AI-augmented workflows • **Fragmented and weakly aligned skilling ecosystem:** Skilling programs across ministries, industry bodies, and private providers operate in silos with uneven standards and limited linkage to hiring or redeployment outcomes	• **Nationally coordinated view of AI-driven role transformation:** A central workforce transition map identifying sunset, evolving, and emerging roles, guiding skilling priorities, curriculum updates, and labour-market programs • **Structured transition standards for employers:** Clear expectations, tools, and templates for assessing AI impact on roles, redesigning workflows, and managing planned reskilling and redeployment • **Unified AI skilling and transition pathways:** A national skilling engine delivering modular AI micro-credentials, bridge programs, and outcome-linked assessments supporting movement from at-risk roles to emerging opportunities

Recommendations:

— As highlighted in NITI Aayog's 'Roadmap for Job Creation in the AI Economy', setup an **India AI Talent Mission** to drive –

- **Operationalise a Unified AI Skilling Engine:** Build a national, modular skilling platform—integrated with NAPS/PMKVY—that delivers role-based AI upskilling, micro-credentials, and bridge programs enabling workers in at-risk roles to transition into adjacent or emerging occupations. Align funding, assessments, and certifications to measurable employment outcomes.

- **Embed AI Across Education:** Integrate AI literacy and applied AI learning across school and higher-education curricula, expand AI+X interdisciplinary programs through UGC/AICTE, strengthen faculty development via industry immersion, and significantly scale research fellowships to create a deep pipeline of advanced AI talent.

— **In addition, partner with industry bodies like NASSCOM to define a centralised National Workforce Transition Framework:** Establish a unified architecture that continuously maps AI's impact on job families, identifies sunset and emerging high-demand roles, and provides structured transition pathways. Embed clear expectations for tech services players through standardised AI-readiness assessments, role redesign templates, human–AI collaboration practices, and skill benchmarking tools. Use this integrated framework to steer skilling priorities, curriculum updates, and labour-market programmes across ministries and sectors.

Chapter 04
The Case For Action For India

India stands at a critical inflection point in the global technology services industry. While its vast talent base and unparalleled data endowments provide a unique advantage, delaying the transformation for AI could erode decades of progress. This delay could lead to job losses, a decline in its global technology leadership, and loss of opportunities in data-driven growth—which may be difficult to reverse.

1. Redeploy rather than displace jobs

India will have substantial number of technology professionals, estimated to be between 7.5 million and 8 million individuals, mainly in entry and junior positions and at a significant risk of disruption caused by AI. India will need to consider how to reskill and redeploy these workers, doing so can help protect about 1.5 million at-risk industry jobs.[27]

2. Protect India's global technology services leadership

India's leading position as a global services hub is at a tipping point. If the industry embraces AI, India could see growth in the global technology services market, with an estimated annual share of over 20 percent. Not acting could potentially jeopardize decades of competitive edge, allowing other countries to take the lead in next-gen, AI-driven services.

3. Capture the data opportunity ahead of competition

Data is crucial for the country's success – one that matches India's significant talent-driven growth story in scale and impact. Globally, competitors are moving quickly to move into the data-driven services and innovation, positioning themselves as leaders in this new value frontier. If India is able to take decisive action it can capture on this opportunity and maintain their strategic advantage, from having strong endowments, such as the largest data sets in the country.
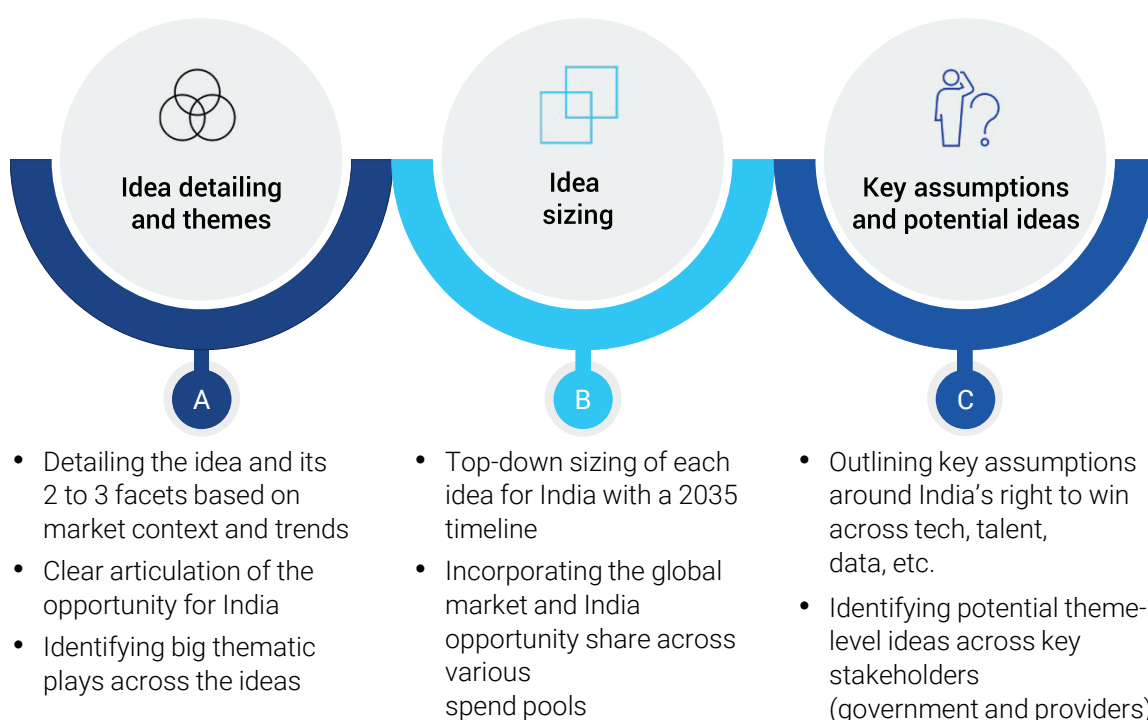
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27   Projection based on Nasscom strategic review 2025 and Future of Technology services – Leading with AI, Nasscom, 2025.

Appendix

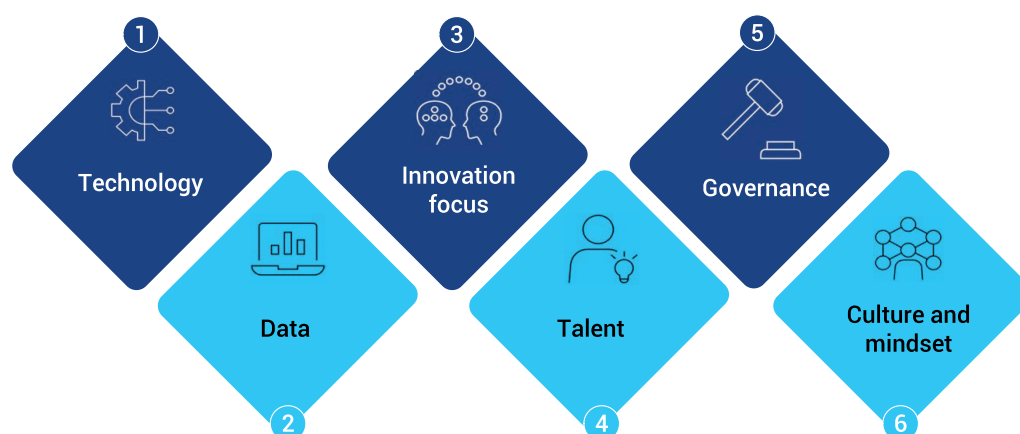## Approach to idea detailing and deep dives across plays

The approach to detailing ideas and themes

Idea detailing and themes

Idea sizing

Key assumptions and potential ideas

A
- Detailing the idea and its 2 to 3 facets based on market context and trends
- Clear articulation of the opportunity for India
- Identifying big thematic plays across the ideas

B
- Top-down sizing of each idea for India with a 2035 timeline
- Incorporating the global market and India opportunity share across various spend pools

C
- Outlining key assumptions around India's right to win across tech, talent, data, etc.
- Identifying potential theme-level ideas across key stakeholders (government and providers)

Each play and its respective opportunities have been assessed using a 6-part enabler framework that covers technology, talent, regulations, innovation, governance, data, and culture (Exhibit 10) to identify what it will take for India to develop and maintain an advantage over the next 10 years.

Six-part enabler framework

1 Technology

2 Data

3 Innovation focus

4 Talent

5 Governance

6 Culture and mindset

Source: Expert conversations

Agentic AI play

Description	Context	Potential measures	Value at stake,$, fiscal year 2035
Human + technology workforce			
Human + technology workforce of the future encompassing new services work archetypes with Agentic AI, capturing share of CXO spends (CMO, CHRO, CFO, COO, etc.) and direct people spends, such as knowledge workers	• Global population growth of 0.5 to 1 percent is expected to lag GDP growth of 2 to 3 percent[1] • TechOps buying pattern expanding beyond CIOs to capture other CXO stacks such as CMO, CHRO, and COOs	**Substitution of labor spend in enterprise functions:** Focus on insourced activities across existing and new work archetypes: • **Existing:** FP&A (variance analysis), HR (employee engagement-based attrition prediction), IT (GenAI-led unit and performance testing, code base optimization) • **New:** Legal (automated outcome simulation and clause extraction) **Substitution of labor spend from direct people spend:** Vertical-specific complex workflows, such as healthcare (pathologists – agent-led report interpretation), automotive (simulation engineer – agent-led crash simulation)	25–30 billion
'Service as Software' proposition			
'Service as Software' proposition across legacy modernization, productized services for enterprises, and custom solutions for MBs	• Rising enterprise technology debt and lock-in with legacy software • Increased preference for 'outcome-based' solutions over owning complex tools • Cost-inhibitive for SMBs to customize software; OTS plays a dominant role in the current setup	**Productized services for enterprise software value pools:** Horizontal apps such as marketing campaign management – Vtiger, Trello, and Dev + Infra tools such as AI analytics software – Kubeflow **Custom Agentic solutions for the medium-scale businesses:** SaaS unlock for MB software spend pools such as Workday human capital management **Packaged legacy software modernization:** Agentic AI-led productized services for the long tail of enterprises/mid-market players with legacy software spends, such as Oracle E-business Suite (ERP platform)	15–20 billion

Potential Risks: Ethical concerns of using AI, such as algorithmic bias and data privacy issues, and evolving regulatory landscape, significant digital divide across sectors, environmental impact of AI's rising energy demands, and risk of substantial job displacement, particularly in sectors reliant on repetitive tasks, pose a risk of influencing and restricting development and enterprise adoption of Agentic AI.

Software play

Description	Context	Potential measures	Value at stake,$, fiscal year 2035
Scale up India as a software hub			
Scale up India as a software hub in select existing and emerging value pools	• Global software market currently at about $1.1 trillion, expected to grow at 10 to 11 percent,[1] driven by faster public cloud adoption among SMBs, standardized services in SaaS model, and new SaaS categories such as AI and GenAI • India SaaS players account for only 1 to 3 percent of the global SaaS share despite leadership in IT services[2] • India founded about 3,500 new SaaS companies,[3] including 20+ unicorns,[4] in the past few years	**Existing value pools:** Focus on capturing disproportionate market share • **CRM:** Sales pipeline management, marketing campaign management automation • **ERM:** Unified suite comprising multiple business operations, including finance for tax filing, general accounting, and HR • **Data Management:** Data integration and ETL/ELT platforms, customer data platforms, and analytics. Development tools: DevOps, API management, BI, and visualization	20–25 billion

1. Future of Technology services – Leading with AI, Nasscom, 2025.
2. Shaping India's SaaS LandScape - SaaSBoomi, 2021.
3. The Rise Of The Indian SaaS Industry: Revealing Its Growth, TechJury, September 10, 2024.

Source: Expert conversations

Potential Risks: Cybersecurity threats, sluggish SaaS funding, and competition from other markets and software players pose operational risks; unclear data ownership regulations and IP enforcement gaps risk service delivery and innovation.

Infrastructure play

Description	Context	Potential measures	Value at stake,$, fiscal year 2035
India as the data and data services capital of the world			
India as the data and data services capital of the world with enhanced data center capacity, data monetization, and value-added DnA services	• About 20 percent of global data is generated in India, resulting in a rising demand for data center capacity, with a 6 to 7 GW additional demand in the next 10 years[1] • Regulatory push for data localization • Localized infrastructure access for performance objectives such as low latency for real-time UPI workloads	• Data center as a service (DCaaS) for E2E data center buildouts to drive capacity growth from 1.3 GW currently to 10 to 12 GW by 2035 • Develop GPU-enabled data centers for enhanced compute capacity for Agentic workloads, driving uptick of GPU share from 3 to 4 percent to 15 to 20 percent in line with global momentum[2] • Drive monetization of open-source datasets, such as transportation and mobility data sets for public transport, traffic congestion, with a value-added data analytics services ecosystem, such as drug discovery based on disease outbreak patterns from public health data	10−15 billion

1.Projection based on data center capacity requirements by 2035.

2.Projection based on AI based data center capacity requirements by 2035.

Source: Expert conversations

Potential Risks: The pace of data center setup and modernization to ensure AI readiness poses a significant risk to fulfilling demand.

Innovation play

Description	Context	Potential measures	Value at stake,$, fiscal year 2035
CoE hubs for running global businesses from India			
Develop CoE hubs for running global businesses from India across enterprise functions, technologies, and R&D	• Rapidly expanding GCC market in India at 6 to 7 percent CAGR[1] • GCCs are transitioning from cost centers to profit centers, focusing on high-value services such as AI, cloud computing, and cybersecurity • Large talent pool for technology and beyond, e.g., expanding PhD researchers • Tier-2 Indian cities, such as Jaipur and Kochi, are becoming GCC hubs given improved infrastructure, favorable state policies, and lower real estate and talent costs	**Enterprise function CoEs:** Reimagine the role of GCCs in India in efficiently managing common enterprise functions such as sales and marketing, procurement, F&A, legal, risk, and HR at scale **Horizontal technology CoEs:** Consider CoEs for emerging technology hotspots, such as AI/ML and data science, cybersecurity, ESG, creating use cases for improved CX, and threat detection **Industry innovation specific CoEs:** Leverage deep domain expertise to build vertical-specific CoEs, such as CoEs for digital health, retail pricing, automotive embedded software, biotech, and pharma R&D	15–20 billion

1.Indian IT Sector Projected to Achieve 6-7% Growth in FY27 Amid Global Uncertainties, ETGCC, August 21, 2025.

Source: Expert conversations

Description	Context	Potential measures	Value at stake,$, fiscal year 2035
Set up a Services ecosystem to drive innovation			
Services ecosystem to drive innovation: Vertical R&D disruption and frontier technology R&D enablement, such as bio-engineering, space, and quantum technology	• Three times rise in global R&D spend over the last two decades, accounting for approximately 2.5 percent of global GDP—an increase from less than 1.5 percent in the 2000s[1] • Rising cost pressures and specialist needs are driving a boom in R&D outsourcing • 13 frontier technologies are expected to generate $25 trillion to $45 trillion in economic impact by 2030[2] • China is leading global research on about 70 percent of these technologies; risk of IP lockout for India with delays as other nations gain market share with first mover advantage[3]	**Vertical R&D disruption:** Process innovation focused R&D targeting efficiency gains such as: • **Pharma:** Computational chemistry and in silico modeling for drug discovery, bio marker analysis for preclinical testing, real-time remote monitoring for clinical trials, dossiers and responses for approvals etc. • **Mining:** Workflow optimization to reduce environmental impact through processes such as improved waste management and water recycling • **Modular construction:** Concrete formulations and reinforcement innovation using existing methods • **Frontier technology and surround ecosystem build:** Lead global services for the three prioritized technologies from India: – **Bio-engineering:** Cloud (architecture design and build for genomics and bioinformatics workloads), DnA (predictive models for drug efficacy), prototyping (3D printing) – **Space:** Simulation models (spacecraft/satellites/launch system simulation), DnA (earth imagery analytics), cyber (secure comms link) – **Quantum:** Cybersecurity (encryption), simulation and modeling (molecular structures and chemical reactions)	10−15 billion

1. End of Year Edition – Against All Odds, Global R&D Has Grown Close to USD 3 Trillion in 2023, WIPO, December 18, 2024.
2. McKinsey technology trends outlook 2025 | McKinsey, July 22, 2025.
3. Who is leading the critical technology race? Australian Strategic Policy Institute, March 1, 2023.

Potential Risks: Decreasing talent retention because of high attrition rates, competition from other innovation focused economies and widespread adoption of prioritized technologies to realize value pose significant risk to innovation play.

India for India play

Potential Risks: Limited enterprise technology spending, public sector procurement hurdles, talent shortages beyond metro cities, and digital infrastructure gaps in Tier 2 and 3 cities may constrain both scale and execution speed unless addressed proactively.

Glossary

AGI (Artificial General Intelligence): Form of AI that can understand, learn, and apply intelligence across a broad range of tasks, matching or exceeding human cognitive ability.

AI (Artificial Intelligence): Includes software capabilities such as machine learning, data analytics, and hardware-driven automation such as robotics.

AICTE (All India Council for Technical Education): Statutory body and national-level council for technical education under the Ministry of Education, India.

AML (Anti-Money Laundering): Regulations and systems designed to prevent illegal money transactions and funding sources.

ANRF (Anusandhan National Research Foundation): India's R&D funding body under the Ministry of Science and Technology.

API (Application Programming Interface): A software interface that enables interaction and data exchange between two systems, applications, or platforms.

ASI (Artificial Superintelligence): Future intelligence that far surpasses human intellectual capabilities and creativity.

ASIC (Application-Specific Integrated Circuit): A microchip designed for a particular use, such as AI acceleration or telecommunications, rather than for general-purpose use.

B2B (Business-to-Business): Refers to commercial transactions or services conducted between two businesses rather than between a business and consumers.

BERD (Business Enterprise Research & Development): The portion of total R&D expenditure funded and performed by private business enterprises.

BFSI (Banking, Financial Services and Insurance): A broad industry grouping that includes companies providing banking, finance, and insurance services.

BI (Business Intelligence): Technologies and processes used for analyzing business data to support decision-making and strategic planning.

BPM (Business Process Management): A service line in the industry that uses methods and tools to design, analyze, optimize, and automate business processes.

CAGR (Compound Annual Growth Rate): Financial metric.

CBDT (Central Board of Direct Taxes): Responsible for direct tax policy formulation and enforcement in India.

CDPI (Common Digital Payment Interface): A unified framework for enabling interoperable and secure digital payments across systems.

CFO (Chief Financial Officer)

CHRO (Chief Human Resources Officer)

CIO (Chief Information Officer)

CMO (Chief Marketing Officer)

CoE (Center of Excellence): Specialized institutional setup for applied research, talent development, and innovation.

COO (Chief Operating Officer)

CPU (Central Processing Unit): The main processor in a computer that executes instructions and performs calculations for programs.

CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats): Gene-editing technology used in bioengineering and pharma contexts.

CRM (Customer Relationship Management): Systems and strategies for managing a company's interactions with current and potential customers.

CX (Customer Experience): The overall perception and satisfaction customers have when interacting with an organization across all touchpoints.

CXO (Chief X Officer)

DC (Data Center): A facility used to house computer systems and related components such as servers, storage, and networking infrastructure.

DCaaS (Data Center as a Service): Cloud-based model providing scalable data center infrastructure and management services.

DEPA 2.0 (Data Empowerment and Protection Architecture 2.0): Framework enabling users to share personal data securely and with consent, enhancing privacy and portability.

DevOps (Development and Operations): Approach that integrates software development and IT operations to shorten system development life cycles.

DevSecOps (Development, Security, and Operations): Extension of DevOps incorporating security practices into the development and deployment processes.

DGFT (Directorate General of Foreign Trade): Government body under the Ministry of Commerce and Industry responsible for regulating and promoting India's foreign trade.

DnA (Data and Analytics): The use of data-driven insights and analytical models to improve decision-making and performance.

DO-178C (Software Considerations in Airborne Systems and Equipment Certification): International standard specifying software safety and certification for avionics systems.

DPDP (Digital Personal Data Protection): India's legislative framework to safeguard personal data and regulate its processing.

DPIIT (Department for Promotion of Industry and Internal Trade): Indian ministry responsible for IP frameworks, industry regulations and startup innovation policies.

eKYC (Electronic Know Your Customer): Digital process for verifying a customer's identity using electronic data sources.

ELT (Extract, Load, Transform): Data integration process where data is extracted, loaded into a destination system, and then transformed for analysis.

ER&D (Engineering Research & Development): Engineering-led design, innovation, and development of new products and services.

ERM (Enterprise Resource Management): Integrated management of core business processes using enterprise software systems.

ERP (Enterprise Resource Planning): Software that integrates core business processes such as finance, HR, and supply chain into a unified system.

ESG (Environmental, Social, and Governance): Framework for assessing an organization's sustainability and ethical impact.

ESOP (Employee Stock Ownership Plan): Program that provides employees with ownership interest in the company through shares.

EXIM (Export-Import)

FP&A (Financial Planning and Analysis): Budgeting, forecasting, and analytical processes supporting strategic financial decisions.

FTE (Full-Time Equivalent): A unit that measures an employee's workload to make workloads comparable across contexts.

FY (Fiscal Year): A 12-month accounting period used for preparing financial statements and budgets.

G&A (General and Administrative): Expenses related to the general operations of a business that are not directly tied to production.

GCC (Global Capability Center): Offshore units established by multinational firms in India to perform technology, analytics, and business functions.

GDP (Gross Domestic Product): The total value of all goods and services produced in a country in a given time.

GenAI (Generative Artificial Intelligence): Subset of AI that creates new content (text, images, code) using machine-learning models like LLMs.

GERD (Gross Expenditure on Research and Development): Total domestic expenditure on R&D by all sectors (government, private, academia).

GPU (Graphics Processing Unit): High-performance processor ideal for AI workloads, simulations, and image processing.

GSTIN (Goods and Services Tax Identification Number): Unique identification number assigned to every registered taxpayer under India's Goods and Services Tax regime.

GSTN (Goods and Services Tax Network): IT platform managing the digital infrastructure and data systems supporting India's GST ecosystem.

GTM (Go To Market): Strategy defining how a company delivers its product or service to customers and achieves competitive advantage.

HR (Human Resources): Function within organizations responsible for managing people, talent development, and culture.

ICT (Information and Communication Technology): Technologies enabling communication, processing, and transmission of information through digital systems and networks.

IEC (International Electrotechnical Commission): International standards body.

IoT (Internet of Things): Interconnection of physical devices via the internet to collect and exchange data.

IP (Intellectual Property): Legal rights granted over inventions, datasets, models, and processes that are original and provide economic benefit.

ISO (International Organization for Standardization): International standards body that sets quality, safety, and interoperability norms.

iSPIRT (Indian Software Product Industry Round Table): Think tank and industry group promoting India's software product ecosystem.

IT (Information Technology): The use of systems and computers for processing, storing, and transmitting information.

ITeS (Information Technology–enabled Services): Outsourced processes and services that use IT for delivery, including BPO, customer support, and analytics.

KOTRA (Korea Trade-Investment Promotion Agency): South Korea's national agency promoting international trade, investment, and industrial cooperation.

KYC (Know Your Customer): Regulatory process to verify the identity of clients to prevent fraud, money laundering, or illegal activities.

LEO (Low Earth Orbit): Region of space around Earth used for satellite operations at altitudes between 160 and 2,000 km.

LLM (Large Language Model): AI model that understands and generates human-like text based on large datasets.

LLMOps (Large Language Model Operations): Set of practices and tools for deploying, managing, and optimizing large language models in production environments.

M&A (Mergers and Acquisitions): Corporate strategy involving the consolidation or purchase of companies to enhance capabilities, scale, or market presence.

MB (Medium Business)

MedTech (Medical Technology): Use of technology, devices, and data to improve healthcare delivery and outcomes.

MeitY (Ministry of Electronics and Information Technology): Indian ministry overseeing digital and AI technology advancement.

ML (Machine Learning): Form of AI where systems learn from data to make predictions or decisions.

MLM (Micro Language Model): Smaller, domain-specific AI language model trained for efficiency and lower compute requirements.

MSME (Micro, Small and Medium Enterprises): Businesses classified based on investment size and number of employees.

NAPS (National Apprenticeship Promotion Scheme): Government program providing financial support and incentives to promote apprenticeship training.

NMDS (National Mission on Digital Skilling): Government initiative aimed at large-scale skilling in emerging digital and AI technologies.

NSWS (National Single Window System): Existing platform facilitating investor and business approvals through a centralized government interface.

NTSW (National Tech-Services Single Window): Proposed unified digital platform for integrated approvals and clearances across government agencies for tech services.

OEM (Original Equipment Manufacturer): Company that makes parts or products used in another company's end product.

OPGSP (Online Payment Gateway Service Provider): Entities authorized to facilitate cross-border and online payment processing.

OT (Operational Technology): Hardware and software that detects or causes changes through direct monitoring and control of physical devices.

OTS (Off-The-Shelf): Pre-built commercial software or hardware products available for general use.

PAN (Permanent Account Number): Unique 10-digit alphanumeric identifier issued by India's Income Tax Department for individuals and entities.

PLI (Production-Linked Incentive): Government scheme offering financial rewards to boost domestic manufacturing output.

PMKVY (Pradhan Mantri Kaushal Vikas Yojana): Flagship skill development scheme aimed at training and certifying India's workforce in emerging sectors.

QKD (Quantum Key Distribution): Secure communication method that uses quantum mechanics to encrypt data.

R&D (Research and Development): Systematic investigation to innovate and introduce new products, processes, or technologies.

RBI (Reserve Bank of India): India's central bank responsible for monetary policy, financial regulation, and economic stability.

RDEC (Research and Development Expenditure Credit): UK tax incentive program offering credits for eligible R&D activities conducted by large firms.

RDI (Research, Development, and Innovation): Combined framework promoting scientific research, development, and applied innovation.

ROC (Registrar of Companies): Government authority responsible for registering companies and maintaining statutory corporate records.

ROI (Return on Investment): Financial metric used to evaluate the profitability or efficiency of an investment relative to its cost.

RPO (Rendezvous and Proximity Operations): Spaceflight activities involving maneuvering and docking between spacecraft in close orbit.

S&P (Standard & Poor's): Global credit rating agency and financial market analytics provider.

SaaS (Software as a Service): Cloud-based software delivery model where applications are hosted and accessed via the internet.

SaaSBOOMi (Software as a Service Boom India): Community of Indian SaaS founders promoting collaboration and growth in the SaaS ecosystem.

SDV (Software-Defined Vehicle): Vehicle where software controls most functionality, including safety, navigation, and user experience.

SDX (Software-Defined Everything): Architecture where IT infrastructure elements (networks, storage, data centers) are virtualized and software-controlled.

SEZ (Special Economic Zone): Designated area offering tax and regulatory incentives to promote trade and investment.

SLM (Small Language Model): Compact AI language model optimized for efficiency and lower-latency tasks.

SMB (Small and Medium Business)

SQAF (Statistical Quality Assessment Framework): Framework for measuring data quality and reliability using statistical methods.

STEM (Science, Technology, Engineering, and Mathematics): Academic and professional fields driving innovation, technology, and industrial growth.

STPI (Software Technology Parks of India): Autonomous society under MeitY supporting IT/ITeS exports through infrastructure, incubation, and policy incentives.

T&M (Time and Material): Pricing model in services where billing is based on actual time spent and resources used.

TAM (Total Addressable Market): Total revenue opportunity available for a product or service if it achieves 100% market share.

TP (Transfer Pricing): Method of setting prices for transactions between related entities to ensure compliance with tax regulations.

UGC (University Grants Commission): Statutory body under the Ministry of Education responsible for coordination, determination, and maintenance of university standards.

UPI (Unified Payments Interface): Real-time payment system that enables instant money transfer between bank accounts via mobile platforms.

xRAN (Extensible / Open Radio Access Network): Open and interoperable approach to radio access networks allowing multiple vendors and flexible configurations.

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