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Business Standard

Reimagining TAMIL NADU

A Business Standard Report from the Tamil Nadu Round Table 2025



Path to knowledge economy

GCCs and advanced manufacturing
are combining social justice,
with a focus on women
empowerment, to foster growth

PREFACE

Is a new world being reimagined? With tariffs and counter tariffs unleashing a trade war, sending global markets in a tizzy, that is a question on everybody's mind.

Even if things for India are not quite out of hand yet, the country is staring at some disadvantages too.

India is witnessing a significant surge in some areas, and its states are on a performance path. Take Tamil Nadu, for example, where the State Planning Commission and Guidance Bureau came together with Business Standard to organise 'Business Standard Tamil Nadu Round Table 2025' in March.

The state has been focusing on Global Capability Centres (GCCs) and manufacturing, the two strong pillars of growth for it, as also the country.

The insights from that conclave are deep. We find that multinational corporations are increasingly recognising India's strategic advantages, putting India on a robust growth path in terms of the number of GCCs.

According to a report by Nasscom and Zinnov, India's GCC market size is projected to expand from \$64.6 billion in 2023-24 to between \$99 billion and \$105 billion by 2030.

The Indian government is creating policies that bring focus to non-metro cities as the next big frontier for GCCs. Untapped talent pools, cost efficiencies, and rapidly improving infrastructure can be the big leverage.

This strategic shift aligns with India's broader ambition to become a developed nation by fostering balanced, inclusive growth across its regions. This report on GCCs, the global context, Tamil Nadu's current GCC landscape, and state's role and vision for the future, capture the essence of how India, through its states, can look to somewhat insulate itself from the wars that threaten to singe economy after economy.

Similarly, manufacturing is at the centre of a storm. Change in tariffs might reduce foreign competition and stimulate local investment.

But globally, they disrupt established supply chains.

Manufacturers in countries facing higher tariffs, such as China, may see reduced demand from the US, their key market, prompting them to either absorb costs, raise prices, or shift production elsewhere. Our report on the global context in manufacturing shows where the world has stood till now — before it is all disrupted.

The manufacturing story of India, a services champion, was just about starting, again with states like Tamil Nadu leading the show.

How do we brace for the impact?

This report on the state's current status on manufacturing and how it is redefining manufacturing with its growth model is worth reviewing to get the big picture.

And, finally, the report also discusses the broad essence of the discussions on Tamil Nadu at the 'Business Standard Tamil Nadu Round Table 2025'.



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INTRODUCTION

Reimagining Tamil Nadu

Steep reciprocal tariffs, if not reversed, have all the ingredients to rattle the world economy. Countries are bracing for it, so is India. Centre, states and industries are in a huddle. Tamil Nadu, the country's second largest economy, will also have to negotiate some tough terms. But, history tells us that it may not be that difficult for the southern state. It brought down the poverty rate (headcount ratio) from 36.54 per cent in FY06 to just 1.43 per cent in FY23.

There are quite a few ways Tamil Nadu can surge ahead. For example, it has consolidated its position in the country, blending a robust Global Capability Centre (GCC) ecosystem with cutting-edge advancements in manufacturing. As of April 2025, the state is home to over 350 GCCs, with Chennai leading as a primary hub. Tier-II cities like Coimbatore, Madurai, and Tiruchirapalli are fast gaining traction. Tamil Nadu, perhaps, is today the most urbanised and economically charged state in India. Around 42 per cent of the working women in India are in Tamil Nadu

GCCs of global giants such as Amazon, AstraZeneca, and Ford, are leveraging Tamil Nadu's deep talent pool — over 500,000 graduates annually, many in IT, engineering, and technology — to drive innovation, research, and high-end back-office operations.

The state's strategic focus on fostering a knowledge economy, supported by government incentives like payroll subsidies (30 per cent in year one, 20 per cent in year two, and 10 per cent in year three for jobs above ₹100,000 monthly), has positioned it as a magnet for high-value job creation, with over 2,25,000 professionals currently engaged in the sector.

Before scaling up its GCC play, the southern

state had already shown the world its manufacturing prowess, particularly in electronics, automotive, and emerging fields like electric vehicles (EVs).

The state's industrial base, bolstered by investments from companies like Ola Electric, Foxconn, and Hyundai, benefits from excellent infrastructure— ports, airports, and industrial clusters— and a skilled workforce nurtured by institutions like IIT Madras and Anna University.

Initiatives like the Tamil Nadu Centre of Excellence for Advanced Manufacturing (TANCAM) and collaborations with global firms such as Siemens and Dassault Systèmes enhance capabilities in product design, digital transformation, and sustainable production.

With cities like Coimbatore topping Tier-II GCC rankings and Chennai registering record office space absorption (10 million square feet in 2023), Tamil Nadu is seamlessly integrating its GCC and manufacturing strengths, aiming to become a \$1 trillion economy by 2030.

This report, based on the 'Business Standard Tamil Nadu Round Table 2025', jointly organised by State Planning Commission and Guidance Bureau with technical support from *Business Standard*, sets the context for the prospering of Tamil Nadu, against the backdrop of a global and India's industrial growth.

'Making in Tamil Nadu for the world' is the mantra the state wants to map onto in reimagining from a more social standpoint. Recharging the Micro, Small and Medium Enterprises for more innovation to emerge as a "product nation" is one big idea. This report provides the base from where the state can leapfrog.



GCCs: The global context

Mapping the global evolution, scale, policy and strategic relevance of GCCs in driving innovation, technology and enterprise resilience



Two facts:

Number One: The market size of Asia Pacific Global Capability Centres (GCCs), according to markets research analyst S&S Insider, was pegged at US \$81.61 billion in 2023 and is expected to reach US \$310.73 billion by 2032, growing at a compound annual growth rate (CAGR) of 14.46 per cent over the forecast period 2024-2032.

Number Two: With over 1,700 GCCs, revenues at US \$64.6 billion (a 40 per cent jump over FY23 numbers) and a 17 per cent global share of the GCC capacity base, India is the GCC

capital of the world. The GCC market in India is projected to grow to US \$99-105 billion by 2030 with nearly 2,100-2,200 GCCs and a headcount of 2.5-2.8 million.

These above two points can reasonably set the context for the growing economic significance of the sector globally. But it is not just the growth numbers. The hunger for excellence in an environment being taken over by Artificial Intelligence and Quantum Technology is unfathomable. The criticality of GCCs sits right at the heart of it. So, let us start from a bit in the past.

GCCs, also known as Global In-

House Centres (GICs) or Captive Centres, have emerged as critical components of modern multinational corporations' (MNCs) operational strategies. Initially established as cost-saving offshore units, GCCs have evolved into strategic hubs driving innovation, digital transformation, research and development (R&D), and strategic enterprise management, with overall operational excellence.

As of April 2025, the global GCC landscape reflects a dynamic interplay of economic, technological, and geopolitical factors, with countries like India leading the charge, while other regions such as Eastern Europe, Latin America, and Southeast Asia carving out their niches. This report examines the evolution, current state, regional variations, trends, challenges, and

OVERALL GROWTH TRENDS

Expansion: The number of GCCs is growing worldwide, with over 1,900 active centres in major economies, and new centres emerging in Southeast Asia, Latin America, and Eastern Europe.

Growth: Annual GCC market growth is estimated at 10-15%, driven by increasing investments in technology, automation, and AI.



future prospects of GCCs worldwide.

Evolution of GCCs: Cost arbitrage model to strategic hubs

The concept of GCCs traces its roots back to the 1980s and 1990s when MNCs began exploring offshore locations, primarily in the emerging economies, to reduce operational costs. Early GCCs, primarily located in India and the Philippines, focused on back-office functions such as IT services, finance, and back-office functions. The primary driver was cost arbitrage, leveraging lower labour costs, but skilled workforce in emerging markets to perform routine tasks. Over time, however, the role of GCCs expanded significantly.

Organisations invested in developing domain expertise, intellectual property (IP), and sophisticated solutions within their GCCs. This shift was fuelled by the rising need for process automation, analytics, and digital transformation. And, consequently, it marked their evolution from mere cost centres to value-adding entities aligned with corporate goals.

The advent of digital technologies in the 2010s, such as cloud computing, and data analytics, further transformed GCCs into innovation hubs. Today, GCCs handle complex functions like research and development (R&D), product development, and end-to-end digital transformation initiatives, positioning them as strategic assets rather than peripheral units.

MNCs now view GCCs as integral to their competitive advantage, tapping into diverse skill sets, fostering agility, and driving enterprise-wide innovation.

Domain: India remains the dominant GCC hub, with over 1,700 centres contributing over \$64.6 billion in revenues (2024 data).

New pastures: Emerging markets like Vietnam, Mexico, Poland, and Kenya are attracting new GCC investments due to cost advantages and government incentives.

Current state of the global GCC landscape

Over 2,000 GCCs are operating worldwide, employing millions of professionals and contributing significantly to host economies.

India: The GCC capital

India hosts over 1,700 GCCs, employing approximately 1.9 million people and generating revenues exceeding \$64 billion in 2024. Cities like Bengaluru, Hyderabad, and Delhi NCR dominate, accounting for over 50 per cent of India's GCC footprint, thanks to their robust IT infrastructure, skilled workforce, and supportive ecosystems.

The country's GCCs span diverse sectors, including technology, financial services, healthcare, and manufacturing, with giants like Microsoft, Cisco, and JPMorgan expanding their operations.

India's dominance stems from its unique advantages: a vast pool of English-speaking, tech-savvy talent, cost efficiencies, and a mature digital ecosystem. GCCs in India are increasingly focused on high-value functions, such as AI, machine learning (ML), and cloud computing, with over 60 per cent of centres establishing Centres of Excellence (CoEs) in emerging technologies. The sector is projected to grow to US \$110 billion by 2030, driven by government incentives like Special Economic Zones (SEZs) and a push toward Tier-II cities like Ahmedabad and Coimbatore.

Emerging hotspots

Beyond India, several regions are emerging as GCC hubs, each offering distinct advantages:

Eastern Europe: Countries like

KEY INDUSTRIES DRIVING GCC GROWTH

GCCs are expanding across industries, with these sectors leading the charge:

Technology & IT Services:

35% of GCCs (AI, cybersecurity, cloud computing)

Banking, Financial Services & Insurance (BFSI):

25% (risk management, analytics, fraud detection)

Healthcare & Life Sciences:

15% (drug discovery,

digital health solutions)

Retail & Consumer Goods:

10% (e-commerce, supply chain management)

Industrial and Automotive:

10% (EVs, R&D, automation)

Others

5% Energy, Logistics, etc.

FUTURE OUTLOOK

● Global GCC spending is projected to exceed \$400 billion by 2030.

● Automation and AI will reshape GCC operations, reducing reliance on manual processes.

● Sustainability and ESG (Environmental, Social, and Governance) initiatives will drive new investments.

● Smaller, high-impact GCCs will emerge in new locations, diversifying global operations.

specialised skills, such as cybersecurity, data analytics, and robotics process automation (RPA), is reshaping GCC talent strategies. Organisations are investing in upskilling programs and partnering with local universities to build future-ready workforces.

Sustainability and ESG Focus:

Environmental, Social, and Governance (ESG) considerations are increasingly integrated into GCC operations. In 2023, 47 per cent of GCCs supported sustainability initiatives, up from 17 per cent in 2021, focusing on areas like sustainable supply chain management and carbon footprint analysis.

Regional dynamics and comparative advantages

The global GCC landscape is shaped by regional strengths and competitive dynamics:

Cost Efficiency: India and the Philippines offer the lowest operational costs, with savings of 40-60 per cent compared to Western markets. Latin America and Eastern Europe provide moderate cost advantages, balanced by proximity to key markets.

Talent Availability: India's vast talent pool, with over five million tech professionals, dwarfs other regions. Eastern Europe excels in engineering talent, while the Philippines leads in multilingual customer support.

Geopolitical Stability: Eastern Europe faces challenges from regional conflicts (e.g., Ukraine), while India and Southeast Asia offer relative stability, enhancing their appeal.

These factors influence MNCs' location strategies. For instance, US-based firms often choose Mexico for nearshoring, while European companies favour Poland for proximity and cultural alignment.

Challenges facing GCCs

Despite their growth, GCCs encounter several challenges:

Talent Retention and Attrition: High demand for skilled professionals has led to attrition rates of 12-15 per cent in India, driven by a competitive talent

Poland, Romania, and Ukraine are attracting GCCs due to their proximity to Western Europe, competitive costs, and strong technical talent. Poland, with over 150 GCCs, is a leader in IT and engineering services, serving companies like Google and IBM.

Latin America: Mexico, Brazil, and Costa Rica are gaining prominence, particularly for North American firms seeking nearshore options. Mexico's GCCs, numbering over 100, benefit from time zone alignment with the US and a growing tech workforce.

Southeast Asia: The Philippines, with over 200 GCCs, remains a key player in customer support and business process outsourcing (BPO), while Malaysia and Vietnam are emerging as hubs for engineering and R&D.

Middle East and Africa: The United Arab Emirates (UAE) and South Africa are positioning themselves as regional GCC hubs, leveraging strategic locations and multilingual talent. Dubai, for instance, hosts GCCs focused on finance and logistics.

Industry distribution

GCCs are no longer confined to IT and BPO. Financial services, healthcare, and manufacturing sectors are increasingly adopting the model. For example, healthcare GCCs in India support global clinical trials and

telemedicine platforms, while manufacturing GCCs in Eastern Europe focus on engineering and supply chain optimisation. This diversification reflects GCCs' adaptability to industry-specific needs.

Key trends shaping the GCC landscape

The global GCC landscape is evolving rapidly, driven by several transformative trends:

Digital Transformation and Emerging Technologies: GCCs are at the forefront of adopting AI, ML, generative AI, and cloud computing. Over 70 per cent of GCCs globally have integrated these technologies into their operations, enhancing efficiency and enabling innovation. For instance, GCCs in India are leading the development of generative AI solutions, with roles like Generative AI Engineers commanding salaries upwards of US \$50,000 annually.

Shift to Innovation Hubs: Modern GCCs are moving beyond execution to transformation. They manage end-to-end product lifecycles, develop intellectual property (IP), and spearhead global R&D initiatives. This shift is evident in companies like BlackRock, whose Indian GCC drives technology-led transformation across its global operations.

Talent Evolution: The demand for

market.

Cybersecurity Risks: The shift to hybrid work has heightened cybersecurity threats. While 92 per cent of GCCs report robust policies, evolving cyber tactics required continuous investment in security infrastructure.

Regulatory Complexity: Navigating diverse regulatory landscapes, such as India's tax laws or the EU's GDPR, poses compliance challenges.

Operational Complexity: Establishing and scaling GCCs involves significant complexity, with 34 per cent of enterprises citing it as a top concern. Lack of in-house expertise often necessitates partnerships with third-party providers.

Economic Volatility: Global inflation and currency fluctuations impact GCC cost structures, particularly in emerging markets. MNCs must adopt flexible financial models to mitigate risks.

The role of third-party providers

Third-party service providers play a crucial role in the GCC ecosystem, particularly in setup and scaling phases. Historically, less than 25 per cent of GCCs involved providers, but this figure has risen to 50 per cent by 2025. Providers offer expertise in site selection, talent acquisition, and operational management, enabling faster time-to-market and scalability.

Expansion into New Geographies: Tier-II cities in India (e.g., Kochi, Jaipur) and emerging markets like Vietnam and Kenya will see increased GCC activity, driven by cost advantages and untapped talent pools.

Strategic Transformation: GCCs will fully transition into transformation hubs, leading enterprise-wide initiatives in AI, sustainability, and digitalisation. Systems leadership -- holistic, interconnected management -- will become essential to maximise their potential.

Economic Impact: By 2030, the global GCC market could reach US \$150 billion, with India alone contributing over US \$110 billion. Employment is expected to exceed 4.5

million in India, with a 5X multiplier effect on indirect jobs.

Policy Support: Governments will play a larger role, with incentives like tax breaks and infrastructure investments accelerating GCC growth. India's vision of a 'Viksit Bharat' by 2047 aligns with this trend, aiming to solidify its status as a global innovation hub.

The India context

In the India context, as of 2024, the global landscape of GCCs has expanded significantly, with India emerging as a central hub. The country hosts over 1,700 GCCs, accounting for approximately 17 per cent of the world's technology capability centres. This positions India as the GCC capital of the world.

Economic impact

The economic contributions of GCCs in India have been substantial:

Revenue Generation: In the

"GCCs are no longer confined to IT and BPO. Financial services, health care, and manufacturing sectors are increasingly adopting the model. For example, health care GCCs in India support global clinical trials and telemedicine platforms"

financial year 2024, GCCs in India generated \$64.6 billion in export revenue, marking a 40 per cent increase from the previous year's \$46 billion.

Employment: These centres employ over 1.9 million professionals, reflecting a significant growth from approximately 1.66 million in the prior year.

Future Projections: By 2030, the GCC market in India is projected to grow to \$99-105 billion, with the number of GCCs reaching between 2,100 and 2,200, and employment rising to 2.5-2.8 million.

Policy and strategic relevance

The Indian government's proactive policies have been instrumental in fostering the growth of GCCs:

Ease of Doing Business: Initiatives like Digital India and streamlined online approvals have facilitated the establishment and operation of GCCs.

State-Level Initiatives: States such as Karnataka, Telangana, and Tamil Nadu have launched R&D policies to attract GCCs in sectors like automotive, electronics, pharmaceuticals, and life sciences.

Infrastructure Development: The creation of SEZs has provided tax benefits and incentives, encouraging MNCs to set up GCCs.

Enhancing enterprise resilience

The strategic roles of GCCs contribute significantly to enterprise resilience:

Risk Management: By diversifying operations geographically, companies mitigate risks associated with geopolitical tensions and economic fluctuations.

Agility and Flexibility: GCCs enable organisations to respond swiftly to market changes by leveraging local expertise and resources.

Future outlook

The trajectory for GCCs in India is

poised for continued growth:

Expansion into Emerging Cities: The trend of establishing GCCs in Tier-II and Tier-III cities is expected to continue, tapping into new talent pools.

Emerging Technologies: Investment in areas like AI, blockchain, and IoT will further enhance the strategic importance of GCCs.

Conclusion

The global landscape of GCCs reflects a remarkable journey from cost-centric units to strategic powerhouses. India remains the epicentre, but emerging hotspots in Eastern Europe, Latin America, and Southeast Asia are diversifying the ecosystem.

India's emergence as a leading destination for GCCs underscores its robust talent pool and favourable policies. As these centres continue to evolve, they are set to play a pivotal role in shaping the future of global business operations.



GCCs in India & Tamil Nadu: Current landscape

India is witnessing a significant surge in the numbers of global capability centres (GCCs), as multinational corporations are increasingly recognising the country's strategic advantages



Initially perceived as cost-effective outsourcing hubs, Indian GCCs have evolved into integral components of global enterprises, supporting diverse functions such as daily operations, finance,

research and development, and cyber-security. Add to this the rise of the latest technologies like artificial intelligence (AI) and GenAI.

This transformation underscores India's growing prominence in the global business landscape.

The growth trajectory

The GCC market in India is on a robust growth path. According to a report by Nasscom and Zinnov, the market size is projected to expand from \$64.6 billion in the financial year 2024 to between \$99 billion and \$105 billion by 2030. This growth is driven by India's

In the financial year 2024 (FY24), GCCs surpassed IT services players in hiring. India has emerged as the top GCC destination, and GCCs are expected to generate 1 million jobs over the next six years



vast and skilled talent pool, making it a preferred destination for offshoring. The number of companies with GCCs in India is expected to increase to approximately 2,100-2,200 by 2030, employing around 25,00,000 to 28,00,000 individuals, up from the current over 1,760 companies and 19,00,000 employees.

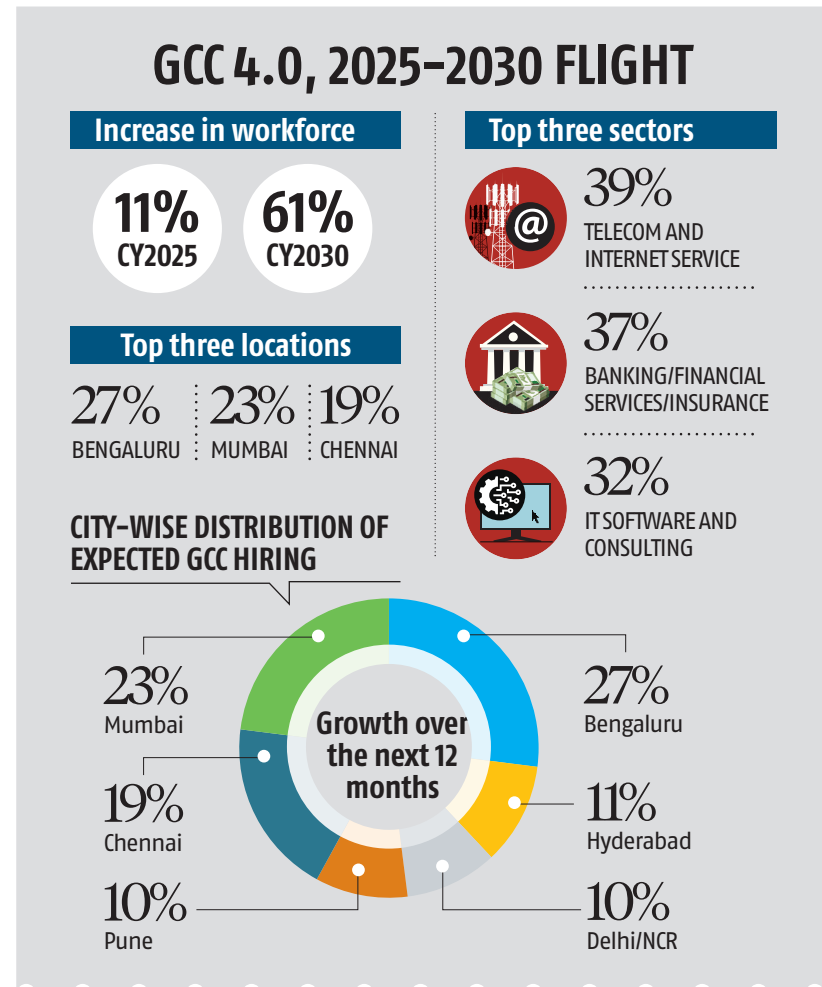
There are economic reasons for India to attract GCCs. According to a latest report, GCCs led the real estate absorption in India. GCCs have leased or committed themselves to taking about 27.7 million square feet (sq ft) of grade A commercial real estate in 2024 and 24.1 million sq ft in 2023, which represented 36 per cent and 38 per cent of overall absorption, respectively, according to the data sourced from real estate consultant JLL.

In comparison, the space absorbed in 2019 and 2020 was 18.5 million sq ft and 23.8 million sq ft, respectively. This represents an absorption rate of 31.4 per cent and almost 57 per cent in 2019 and 2020, respectively.

GCCs are no more just the out-sourcing centres of the global parent and doing only work for the company. Many GCCs are also tapping into India as a potential growth market. Additionally, for many, India serves as a test base for launching products for global markets.

This growth of GCCs and its pivotal role in the Indian economy was also highlighted in the Economic Survey for 2024-2025. The survey said that GCCs are altering the technology landscape of India as they evolve to become strategic hubs in the country's corporate landscape.

Over the last five years, the setup rate of engineering research & devel-



opment GCCs has grown 1.3 times faster than the overall GCC setup, highlighting a continued shift towards high-value-added work.

Furthermore, global roles within GCCs are expanding rapidly, expected to grow from 6,500 to over 30,000 by 2030, supported by robust training programmes to develop leadership.

The other reason why states want to attract GCCs is the employment generation. In the financial year 2024 (FY24), GCCs surpassed IT services players in hiring.

According to an NLB Services report, GCC 4.0 is expected to create 4,25,000-4,50,000 new jobs this year, with 35 per cent of GCCs eyeing 50-100 per cent workforce expansion. Fuelled by its vast skilled workforce and supportive policies, India has emerged as the top GCC destination, and GCCs are expected to generate 1 million jobs in the next six years.

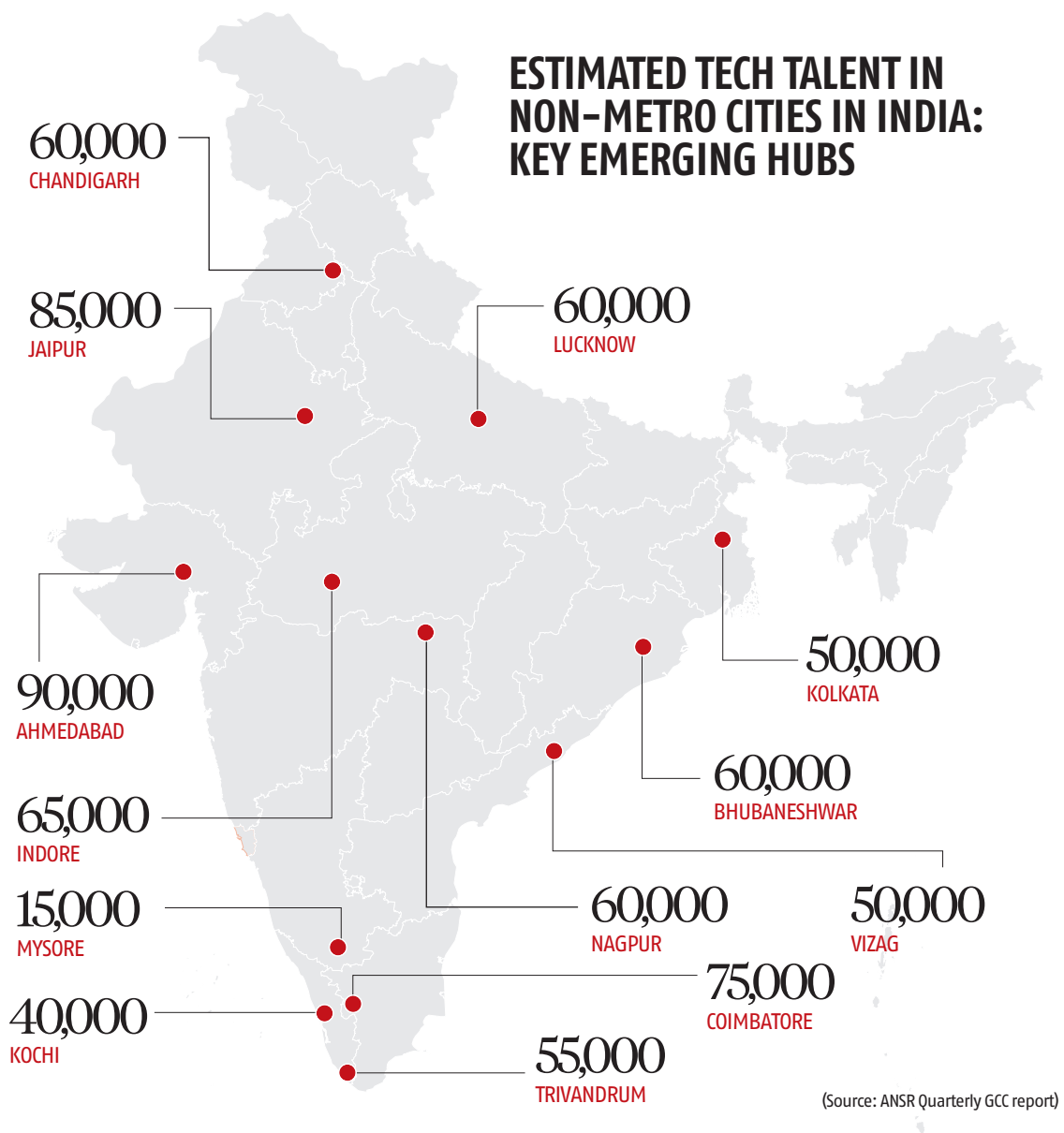
Overall the sector is expected to employ 3.3 million professionals by

calendar year 2030.

“Over the last three years, India has also witnessed the emergence of new GCC hubs, and GCCs are fast outpacing IT Services in job creation. The recent introduction of the national framework in FY26 budget will further propel GCC growth across Tier-II and Tier-III locations, and the demand for niche skills will continue to rise,” said Sachin Alug, CEO, NLB Services.

The report further indicates GCCs are not only offering higher salaries but also investing in specialised talent to drive global innovation. As GCCs compete for top talent, their premium compensation strategy is distinguishing them from traditional IT sectors.

The primary driver of this premium is the demand for niche skills (39 per cent) such as AI, cloud computing, and advanced analytics. A majority (66 per cent) believe GCCs offer higher salaries due to the need for data science, AI, and automation expertise, along with global exposure and faster career



advancement.

While 18 per cent favour IT Services and 16 per cent eye both sectors as equally competitive, GCCs are expected to be top players in Hyderabad (19 per cent) and Mumbai (19 per cent), particularly in IT Software & Consulting and Banking/Financial Services.

Delhi/NCR (21 per cent) and Bengaluru (24 per cent) will also remain competitive, especially in Telecom & Internet Services.

State initiatives to attract GCCs

Recognising the economic potential of GCCs, various Indian states are formu-

lating dedicated policies to attract and support these centres:

Karnataka: Home to Bengaluru, often dubbed the 'Silicon Valley of India', Karnataka has launched a draft policy aiming to double the number of GCCs to 1,000 and create 350,000 new jobs by 2029. The policy proposes incentives such as rental reimbursements, patent fee concessions, and electricity tax exemptions, contingent on the number of employees added by the GCCs. Additionally, the state plans to establish three new tech parks and promote expansion into cities beyond Bengaluru.

At over 500, almost 30 per cent of

the country's GCC are in Karnataka. And it accounts for 35 per cent of India's GCC workforce.

Telangana: After Karnataka, the other state that has taken early strides to attract GCCs is Telangana. The state contributes for 12 per cent of India's GCC, with Hyderabad emerging as a leading destination due to its over 1 million tech workforce and advanced infrastructure. The state boasts over 355 GCCs.

Moreover, premier institutes like IIT-Hyderabad and JNTU continue to be pools of the best talent that the state has to offer. According to a Zinnov report, the state's focus on dig-

ital literacy and e-governance, along with innovative programmes in drones, IoT, and AI for agriculture has enhanced the business environment.

Maharashtra: Between Mumbai and Pune, there are over 720 GCCs dominated by the financial sector. Mumbai ranks second only to Bengaluru in BFSI and Professional Services GCCs, leveraging its deep financial services talent pool. Pune, on the other hand, leads the nation in automotive sector GCCs, while commanding an impressive 65 per cent of its GCC talent pool in software and internet, BFSI, and automotive sectors combined, said a Zinnov report.

Chief Minister of Maharashtra Devendra Fadnavis has recently announced that the government of Maharashtra is in the process of formulating a dedicated policy around AI, and creating dedicated GCC parks to enable tech innovation in the state.

The state is creating a GCC park in Navi Mumbai. It also wants to create an ecosystem for GCCs in cities like Pune, Nagpur, Nasik and Sambhajnagar (Aurangabad) in addition to Mumbai. Among the initiatives being taken include ensuring consistent power supply for which the state plans to ramp up power capacity from the current 45 Gigawatts to 75 Gigawatts by 2030.

Tamil Nadu: Home to over 305 GCCs including global leaders like Walmart, Societe Generale, and Renault Nissan, Chennai has built its reputation on two key pillars: engineering prowess and workforce stability. Chennai, also known as the SaaS capital, contributes to over 10 per cent of India's GCC presence.

According to the state's 2024-25 budget, it plans to transform the city of Hosur into a new hub for GCCs. The state's premier educational institutes like IIT-Madras and SRM Institute of Engineering and Technology have not only contributed to the innovation quotient of the state but is also a thriving startup ecosystem in deeptech and advanced electronics.

Gujarat: Through initiatives like the Vibrant Gujarat Global Summit, the state is actively courting investments across various sectors. The 2024

summit saw the signing of Memorandums of Understanding (MoUs) for over 98,540 projects, with a total investment commitment exceeding ₹45 trillion. While traditionally focused on manufacturing and pharmaceuticals, Gujarat is now extending its outreach to include GCCs, leveraging its robust infrastructure and investor-friendly policies.

Gujarat's GCC expansion has been concentrated mainly in Ahmedabad and Vadodara. Of the 2,740 GCC units in India, only 215 are in Tier-II and Tier-III cities, with Ahmedabad (17 per cent) and Vadodara (12 per cent) leading the state's footprint.

To unlock Gujarat's full potential, the Gujarat GCC Policy (2025-30) aims to create a dynamic, innovation-driven ecosystem that strengthens infrastructure, fosters high-skilled employment, and accelerates the expansion of GCCs across emerging sectors.

The policy envisions Gujarat as a global GCC destination, leveraging its

state. The policy is aimed at attracting over 50 GCCs and generating more than 37,000 direct jobs. The state has over 300 engineering colleges, producing more than 50,000 technology graduates annually.

Conclusion: The rising trend of GCCs in India is a testament to the country's evolving role in the global economy. With GCCs making their mark by expanding into Tier-I cities, it is now the turn of smaller cities to attract this industry.

The Indian government is now focused on creating policies that bring the focus on non-metro cities as the next big frontier. These policies aim to establish non-metro hubs as vibrant destinations for GCCs, leveraging untapped talent pools, cost efficiencies, and rapidly improving infrastructure. This strategic shift aligns with India's broader ambition to become a developed nation by fostering balanced, inclusive growth across its regions.

Home to over 305 GCCs including global leaders like Walmart and Renault-Nissan, Chennai has built its reputation on two key pillars: engineering prowess and workforce stability. The city contributes to over 10 per cent of India's GCC presence

strategic location, advanced logistics, digital connectivity, green energy leadership, and pro-business governance.

The state's GCC policy aims to attract a minimum of 250 new GCC units through investment promotion, incentives, and streamlined regulations. It also intends to generate more than 50,000 employment opportunities in the state, and attract an investment of ₹10,000 crore.

Madhya Pradesh: Earlier this year, the state unveiled its dedicated GCC policy that aims to make the state a leading destination for global innovation and collaboration.

'The Madhya Pradesh GCC Policy 2025' combines incentives for capital expenditure, payroll, upskilling, and research and development with a designated nodal agency responsible for its implementation, according to a state government note.

The state's GCC policy is the first such attempt to attract GCCs to Tier-II

Announced in the Union Budget 2025, the National Framework for GCCs will drive strategic workforce expansion into Tier-II cities, allowing India to strengthen its position as a global talent hub.

The trend toward expanding into non-metro cities is expected to grow, with a projected 15-20 per cent increase in GCCs opting for these locations by 2025. The combination of a growing talent pool, reduced operational costs, and government support will drive this shift further, said an ANSR study.

With proactive state policies, a skilled workforce, and a conducive business environment, India is well-positioned to become a global hub for these centres, driving innovation and economic growth in the years to come.



Shaping Tamil Nadu's future: The role and vision for GCCs

A forward-looking perspective on policies, incentives, infrastructure and talent strategies to position Tamil Nadu as a next-gen GCC powerhouse



Tamil Nadu, one of the richest states in India, is poised to become India's global capability centre (GCC) hub. Favourable government policies, numerous engineering colleges, already established automobile hub and an industry-friendly image has set the perfect stage.

State capital Chennai is home to GCCs of some of the biggest companies of the world, including World Bank Group, Ford, Pfizer, Amazon, Walmart, Expeditors, Standard Chartered, Citibank, and Bank of America, among others. Last year, British-Swedish pharmaceutical major AstraZeneca expanded its GCC in Chennai, marking it as the company's largest such centre worldwide.

GCCs have emerged as an important pillar in India's services industry, with the Central government in process of coming up with a sector specific policy. Several other states too are busy wooing GCCs.

Tamil Nadu, meanwhile, with its R&D Policy of 2022, already has guidelines and well-drawn out processes that can help companies set up technology centres in various parts of the state.

TRB Rajaa, the state's minister for industries, investment promotion and commerce summed up his government's vision at the Business Standard event.

"Tamil Nadu is the most urbanised state in the country. This is the only state where you can just close your eyes, put your finger on the map, and start an industry there. Everything is already in place," the minister said.

The state's skilled workforce, infrastructure, and pro-business policies continue to attract global firms, bolstering its reputation as a leader in innovation and technology.

Tamil Nadu, one of the most industrialised states in India, has over 250 GCCs out of over 1,700 operating in India, employing 150,000 people. That number of GCCs is expected to go up to 460 by 2030. Such an influx of GCCs can help the state become a \$1 trillion economy by 2030.

While the number of GCCs are still less compared to Bengaluru, Chennai has the potential to become the next

GCC hotbed.

GCCs operate across business verticals such as banking, financial services and insurance (BFSI), retail, healthcare, aerospace and oil and gas, as per a recent report by IT industry body Nasscom. These centres have contributed about \$112 billion in IT export revenue for the financial year 2025 (FY25). The industry body identified FY25 as one where growth was driven by GCCs and when these companies hired more compared to IT services companies.

Tamil Nadu's pole position as an automobile hub will also help the state take a leap towards more engineering research and development (ER&D) GCCs. The state boasts of automobile companies such as Ford, Renault, and Hyundai. As more of these automotive companies aspire to make their vehicles 'software on wheels' with new age technologies such as artificial intelligence (AI), generative AI (GenAI), Tamil Nadu, with its engineering talent can emerge as a pivotal hub for this work.

That was the central idea of a panel discussion organised by Business Standard in association with Tamil Nadu government and Guidance Tamil Nadu. The panellists included Gangapriya Chakraverti, managing director, Ford Business Solutions, Siva Padmanabhan managing director, AstraZeneca India, Kewyn George, global director of information services at Expeditors, and Jaikumar Subramanian, partner at Deloitte India.

Chakraverti said, "There has been a rapid transformation of what GCCs can deliver. From basic processes and service level agreements (SLAs), we had joint ownerships with the headquarters to deliver on important projects. And then we have ownership for new work which is being led, managed and run from here. We take ownership, drive a project, and engage in product development using high end analytics to make the right decisions."

Ford, which started operations in Tamil Nadu in 1998, has 12,000 employees in the state.

Chakraverti added that her centre provides services to Ford Motors across functions which include busi-

ness process management, finance and accounting, supply chain, human resource, and engineering research and development (ER&D).

“There is access to talent in this state and the talent base has to be willing to go out of their comfort zone. There is this huge ecosystem of automobile talent for this business and we have the highest number of managers here after the US,” Chakraverti said.

Favourable state policies

A critical tool to build the state as a GCC powerhouse lies with industry-friendly policies. And Tamil Nadu has long realised that without the government support, industries will not be able to extract full potential from a vibrant ecosystem.

The tremendous growth in ER&D over the last decade has led to innovation across sectors and industries. World leaders in the manufacturing and services sectors are investing heavily in R&D to achieve competitiveness and production efficiency in the international market.

Post-pandemic, companies have realised that they need more efficient supply chains and investment in technologies to improve efficiency and reduce cost from their operations.

Innovation and digital disruption in advanced manufacturing have further altered the global supply chains and facilitated improved interface with the end-users. Among various segments of engineering R&D, the automotive segment and designing accounted for the largest market share in 2019 in the global market.

In the global race for innovation, Tamil Nadu has proved to be a leading destination for R&D and innovation. Globally, technology exports are dominated by pharmaceutical products, high-performance computers, aerospace, scientific instruments, and electric machinery.

Innovation in sectors like fin-tech, clean energy systems, biotechnology, precision medicine, genomics, electric vehicles and components, smart grids, and semiconductors, has resulted in higher R&D in advanced technologies.

Areas like analytics, AI and machine learning contribute to greater efficiencies. Therefore, the state has a huge opportunity to foster innovation and increase productivity in the above



mentioned areas given its strength in segments such as automobiles, heavy machinery, and electronics led by its highly-skilled workforce.

Since R&D centres and GCCs are highly interlinked in Tamil Nadu, a well-defined R&D policy will help the state achieve its objectives. The current R&D policy 2022 of the state reflects the following aspirations:

- To move up the value chain in manufacturing and capitalise the economic opportunities created by the evolution of manufacturing and value-added services by encouraging product development in R&D centres & GCCs
- To increase supply of scientists and researchers, and catalyse creation of high-value jobs and its retention in the state
- To create a conducive ecosystem for R&D that is competitive nationally and globally
- To encourage R&D and innovation in the private sector for socio-economic development
- To address information asymmetry, accelerate intellectual property generation and improve probability of commercialisation
- To monitor the R&D performance and outcomes in the state

Further, the policy shall encourage R&D with a commercial potential, the process also known as “valorisation of research”. The state shall encourage valorisation of all aspects of research -- basic, applied or experimental, through which research is made more accessible and usable by society at large. In the ‘Tamil Nadu Industrial Policy 2021’, the state had recognised

focus and sunrise sectors as the engines of future growth. This policy adopts a challenge-driven approach to identify R&D that serves societal challenges and caters to developmental opportunities.

The scope of this policy shall be limited to R&D projects undertaken by private companies and research institutes independently, or in partnership with private companies that are in focus and sunrise sectors, and are aligned to the challenges.

As part of the policy, Tamil Nadu will also create a dedicated platform catering to opportunities and information on Industries 4.0. This platform shall act as a rich and up-to-date knowledge repository of contextual and useful information that can help all stakeholders. The digital platform shall provide information to industries related to accredited service providers/skilled personnel, case studies and toolkits on Industries 4.0, CoE, academicians, start-ups, and independent researchers, their areas of specialisation, recent patents and publications.

This platform will help GCCs and R&D companies find high-tech solutions from researchers and scientists for their industrial problems.

Incentives

Government incentives are an integral part of any sound policy. And Tamil Nadu has been quick to realise this. Promoting and incentivising R&D increases competitiveness within industries which is intrinsic to their growth. Since the state recognises the private sector as a key growth engine

for the state, it supports business initiatives related to establishment and expansion of R&D centres and GCCs through various targeted incentives.

The incentives are divided into three parts, according to the state's R&D Policy, 2022.

The state shall incentivise GCCs at a par with engineering R&D centres. This is because R&D intensive processes and product development is undertaken in both.

The state shall provide targeted incentives over and above the Industrial Policy to cater to the unique requirements and nature of R&D.

The state shall relax and modify eligibility criteria as identification of an R&D firm is difficult.

GCCs, which are looking for incentives from the state, have to be part of the Forbes Global 2000 or Forbes 1000 list. They also have to be greenfield projects or expansion of existing GCCs within the state prior to December 31, 2027. It must also create a minimum of 500 jobs within the standard investment period of four years.

Once these criteria are met these firms will be entitled to incentives based on the Tamil Nadu Industrial Policy (TNIP), 2021. These include

Land cost: R&D projects shall be given an incentive of 50 per cent of the cost of purchase or lease of land for up to 20 acres, subject to a ceiling of ₹500,000 per acre.

R&D training: R&D Training Incentive of ₹10,000 per person per month can be availed for 12 months for the residents of Tamil Nadu. This incentive is intended for employees engaged in core R&D who have an undergraduate degree in technology/sciences and a work experience of 7 years, or a post-graduate degree in technology/sciences and a work experience of 5 years, or a doctorate in sciences/technology.

Enhanced quality certification incentive: Projects obtaining certifications like ISO, ISI, BIS, FPO, BEE, AGMARK, and ECOMARK or any other national or international certification shall be given a subsidy of 50 per cent of the total cost incurred for obtaining the certification, as certified by the chartered accountant, limited to ₹1 crore.

Enhanced intellectual property: Reimbursement of 50 per cent of the

Tamil Nadu is the only state where you can close your eyes, put your finger on the map, and start an industry there, says TRB Rajaa, the state's minister for industries, investment promotion and commerce



expenditure incurred by the project subject to a maximum of ₹1 crore for the period of investment for in-house R&D for a patent, copyright, trademarks, and Geographical Indicators registration.

Standard incentive: These will include electricity tax exemption for five years, stamp duty exemption, and green industry incentives of up to ₹1 crore. Besides this, the project will also be eligible for state GST (SGST) refund on capital goods.

Other subsidies include special capital subsidy, innovation lab incentive, license cost incentive and product testing and prototyping incentives.

"R&D firms shall be provided exemption from Factories Act for demarcated in-house R&D units. GCCs operating in ICT can avail of administrative incentives as offered under ICT Policy 2018 or as updated from time to time. This can be availed for GCC expansion operations also," according to the policy.

Infrastructure and talent

According to a report by real estate consultancy firm CBRE, Chennai is set to add about 12-13 million square feet of premium office space between 2025 and 2026 following strong demand from corporates engaged in various sectors and industry.

Besides Chennai, other cities like Coimbatore, Madurai and Tiruchirappalli are emerging as key hubs for the manufacturing sector, providing significant investment opportunities to set up GCCs. According to a Cushman & Wakefield report, Coimbatore ranks as the top Tier-II city for GCCs, based on factors like availability of engineering gradu-

ates, quality of life, ease of doing business, and good governance.

Tamil Nadu is perhaps most uniquely placed when it comes to harnessing talent and skilling it for the needs of the industry. It is often referred to as the knowledge capital of the country with 59 universities, 2639 colleges, 860 standalone institutes, 200 central and state research institutes, 2 central universities, and 7 institutes of national importance.

It has 900,000 students graduating from various levels such as PhD, M Phil, post-graduate, graduate, and diploma. In the 'India Innovation Report 2020', it is ranked number one in human capital with 100 per cent score in enrolment in engineering and technology.

During the panel discussion organised by Business Standard last month, Siva Padmanabhan managing director, AstraZeneca India, said setting up more GCCs in Tamil Nadu will boost the knowledge economy of the state by creating high quality jobs and attracting talent from other states.

The drug maker has employed about 3,500 people since setting up an office in Chennai a decade back. "The mission of GCCs should be to build world class products and platforms for the world which means a lot of focus on R&D. However, that should not be confined to physical laboratories and scientists. We are talking about the digital avatar of R&D. We can have a digital twin of a human being or a machine and apply AI on it to take it to another level," Padmanabhan said.

According to the panellists, what makes Tamil Nadu an attractive destination for GCCs is the engineering talent. Kewyn George, global director of information services at Expeditors, said 20 per cent of STEM graduates in India are from Tamil Nadu and 25 per cent of the total hiring are from the state, which is the highest.

"Product management knowledge is important along with R&D. While 90 per cent of the centres are in Chennai, there are also other viable places such as Coimbatore, Trichi, Salem and Madurai because those cities are also close to many engineering colleges. Talent is the new currency and Tamil Nadu is printing it," added George.





The manufacturing sector: A global context

Global manufacturing trends, key technology drivers and strategic policies shaping the future of industrial production



The global manufacturing sector is navigating a transformative phase marked by technological breakthroughs, economic realignments, and environmental imperatives. It's no longer just a race for cost efficiency. Industrial production now prioritises resilience, sustainability, and innovation amid the fallout of tariffs imposed by the world's largest economy, the United States.

The World Bank estimates global manufacturing output at \$15 trillion in 2024, a 5 per cent increase from 2020, despite disruptions like pandemics and ongoing trade wars.

This report delves into the key trends driving this evolution, the technological drivers powering change, the strategic policies steering the industry, and the risks threatening its stability. From Asia's production dominance to Africa's emerging potential, the manufacturing landscape is becoming

ing multipolar, interconnected, and complex. Understanding these dynamics is critical for stakeholders aiming to thrive in the decades ahead.

Global manufacturing Trends

Reshoring and nearshoring: Supply chain resilience

Global supply chain vulnerabilities, exposed by Covid-19 and the Russia-Ukraine war, have spurred reshoring and nearshoring. The US Reshoring Initiative reports 360,000 jobs returned since 2020, driven by policies like the CHIPS Act (\$52 billion for semiconductors). Europe followed the suit, with Germany relocating 15 per cent of its Asian production to Poland and Hungary by 2024 (Eurostat).

Statistics: US imports from China dropped 20 per cent (\$100 billion) from 2019 to 2023, while Mexico's exports to the US rose 25 per cent (\$60 billion).

Regional comparison: Asia loses ground as Vietnam's exports grow 18 per cent annually, but North America gains with a 10 per cent rise in domestic manufacturing output.

Impact: Shorter supply chains reduce risks but inflate costs, US labour is 30 per cent costlier than China's.

Sustainability and circular economy: Green manufacturing Climate goals and consumer pressure are pushing sustainability. The Ellen MacArthur Foundation projects circular economy practices could cut material costs by \$1 trillion by 2030. The EU's manufacturing emissions fell 8 per cent from 2019 to 2023, targeting 55 per cent reduction by 2030.

Statistics: Globally, 25 per cent of manufacturers use recycled inputs, up from 10 per cent in 2015 (UNIDO).

Regional comparison: Europe leads with 40 per cent adoption, Asia lags at 20 per cent, and Africa trails at 5 per cent due to infrastructure gaps.

Case study: Adidas produced 20 million pairs of recycled sneakers in 2024, reducing waste by 15 per cent.

Digitalisation and industry 4.0: Smart production

Industry 4.0 integrates Internet of Things (IoT), artificial intelligence (AI), and automation. The global smart



Asia produces 50% of global goods, while Africa produces just about 3%, but its manufacturing grew 12% annually since 2020. Latin America's output rose 8% due to the US nearshoring



manufacturing market hit \$300 billion in 2024 (Statista), with China's 'Made in China 2025' driving 30 per cent of this growth.

Statistics: 35 per cent of factories worldwide use digital twins, up from 10 per cent in 2020 (Gartner).

Regional comparison: Japan's smart factory adoption is 60 per cent, the US 45 per cent, and India 15 per cent.

Case study: Siemens' Amberg plant achieves 99.99885 per cent defect-free output with digital systems.

Workforce transformation: Skills shift

Automation displaces low-skill jobs while creating demand for tech expertise. The WEF predicts machines will handle 52 per cent of tasks by 2025, up from 29 per cent in 2018. Global spend-

ing on workforce training reached \$200 billion in 2024 (ILO).

Statistics: 40 per cent of US manufacturers report skill shortages, versus 25 per cent in Germany.

Regional comparison: Germany trains 1.3 million apprentices yearly, while India's 500,000 tech graduates struggle with practical skills.

Impact: Upskilling determines competitiveness.

Regional shifts: A Multipolar landscape

Asia produces 50 per cent of global goods (\$7.5 trillion, IMF 2024), while Africa produces just about 3 per cent, but its manufacturing grew 12 per cent annually since 2020. Latin America's output rose 8 per cent due to US nearshoring.

Statistics: China's share fell from 28 per cent to 26 per cent (2020-2024), while Vietnam's doubled to 4 per cent.

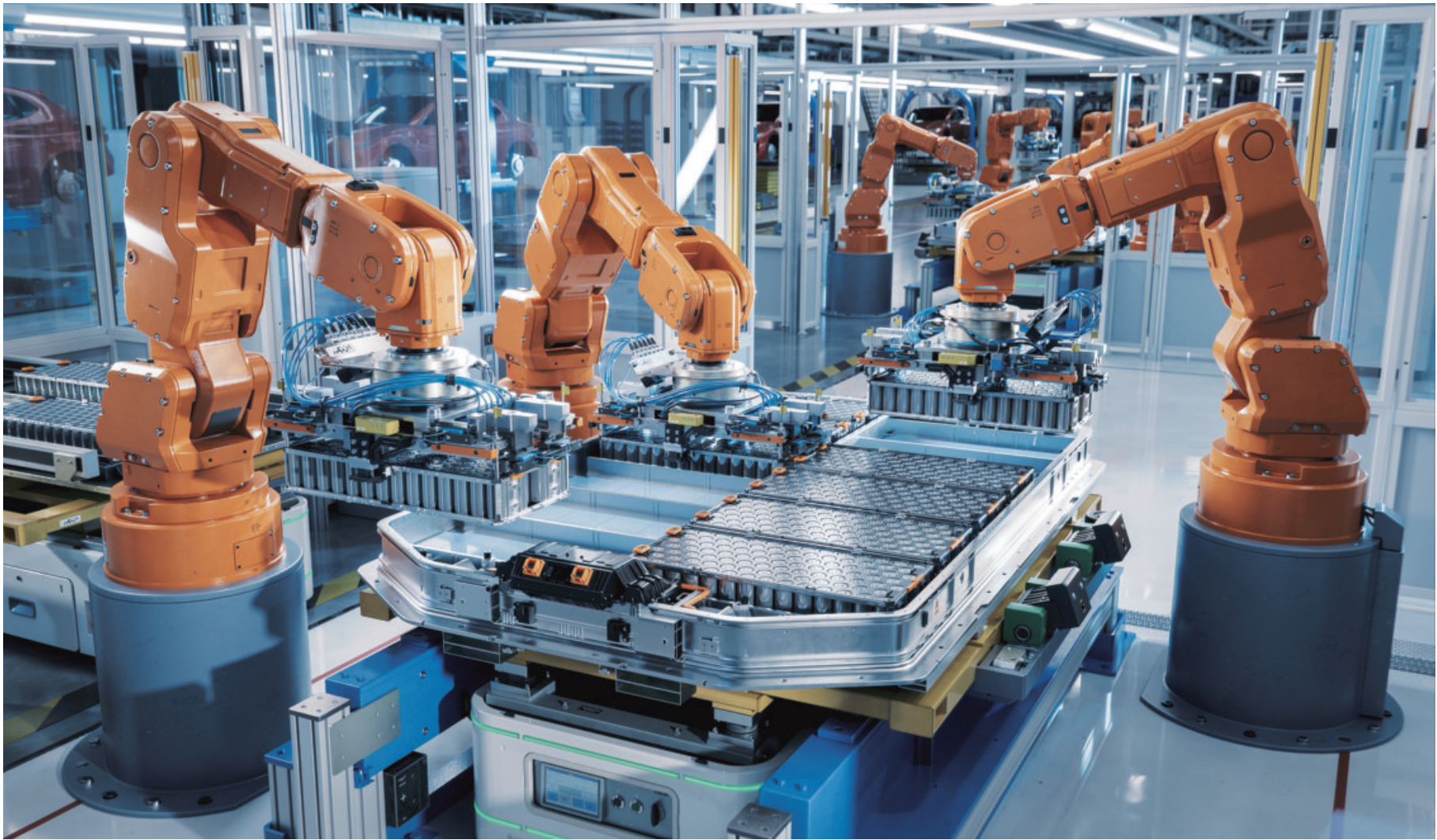
Regional comparison: Africa's \$500 billion sector is dwarfed by Asia's \$7.5 trillion, but growth rates signal potential.

Case study: Ethiopia's textile exports hit \$1 billion in 2024, up 50 per cent in five years.

Key technology drivers

1- Artificial intelligence (AI) and machine learning

AI optimises production, cutting costs and downtime. General Electric's Predix saves \$1 billion yearly, while 40 per cent of manufacturers use AI for quality control (Deloitte, 2024).



Statistics: AI adoption rose from 20 per cent in 2020 to 35 per cent in 2025 globally.

Regional comparison: US leads at 50 per cent, China 45 per cent, Africa 5 per cent.

Challenge: Costs (\$500,000 per system) exclude SMEs.

2- Robotics and automation

Robotics enhances precision and scale. The IFR reports 3.5 million industrial robots in use by 2024, with Japan at 390 robots per 10,000 workers.

Statistics: Automation cut production time 25 per cent in South Korea (2023).

Regional comparison: Europe’s robot density is 130, India’s 10.

Case study: Foxconn’s China plants produce 30 per cent more with full automation.

3- Additive manufacturing (3D

Printing)

3D printing enables customisation. The market grew to \$20 billion in 2024, projected at \$44 billion by 2027 (Statista).

Statistics: 15 per cent of aerospace parts are 3D-printed globally.

Regional comparison: US dominates with 40 per cent market share, Asia 30 per cent.

Challenge: Material costs (\$100-\$300/kg) limit scale.

4- Internet of things (IoT)

IoT connects systems for real-time insights. The manufacturing IoT market reached \$200 billion in 2024 (McKinsey).

Statistics: 50 per cent of large factories use IoT, up from 20 per cent in 2020.

Regional comparison: Germany leads at 70 per cent, Brazil 25per cent.

Case study: Bosch saves 15 per cent

on energy with IoT.

5- Green technologies

Green tech cuts emissions. The IEA estimates a 25 per cent CO2 reduction potential by 2040. Solar-powered plants now account for 10 per cent of global manufacturing energy (IRENA).

Statistics: 20 per cent of firms use carbon capture, up from 5 per cent in 2020.

Regional comparison: EU adoption is 35 per cent, Asia 15 per cent.

Case study: Tesla’s Giga factory runs 40 per cent on renewables.

Strategic policies shaping the future

1- National industrial strategies

China’s ‘Made in China 2025’ targets 70 per cent domestic tech content by 2030. The US CHIPS Act spurred \$200 billion in private investment, while India’s ‘Make in India’ grew electronics to \$120 billion by 2024.

Statistics: China’s R&D spending hit \$600 billion in 2024 (UNESCO).

Impact: Innovation rises, but trade tensions escalate.

2- Trade and tariffs

US tariffs on China (\$300 billion at 25 per cent) and the EU’s CBAM shift production. Vietnam’s US exports rose 35 per cent since 2020.

Statistics: Global trade barriers cost \$500 billion annually (WTO).

Regional comparison: Asia faces 60 per cent of tariffs, North America 20 per cent.

3- Sustainability regulations

The EU’s Green Deal fines non-compliant firms €10 million, while Japan offers \$5 billion in green subsidies. California’s emissions rules cover 15 per cent of US manufacturing.

Statistics: 30 per cent of global firms face green penalties (OECD).

Impact: Decarbonisation accelerates unevenly.

4- Workforce development

Germany trains 1.3 million apprentices yearly, South Korea 500,000 via K-MOOC. Vietnam’s Samsung partnership trains 10,000 engineers.

Statistics: 25 per cent of global workers need reskilling by 2030 (WEF).

Regional comparison: Europe leads, Africa lags at 5 per cent trained.

5- Innovation funding

The UK’s Catapult Network invested £1 billion since 2011. The US DARPA spends \$3 billion yearly on tech R&D.

Statistics: Global R&D hit \$2.5 trillion in 2024 (World Bank).

Impact: Tech advances favour rich nations.

Risks threatening the manufacturing landscape

1- Geopolitical instability

Trade wars and resource conflicts (e.g., rare earths, 90 per cent controlled by China) disrupt supply chains. The Russia-Ukraine war cut global metal supplies by 10 per cent (2022-2024).

Statistics: Geopolitical risks cost \$1 trillion annually (IMF).

Mitigation: Diversifying suppliers, though costly.

2- Economic disparities

Advanced economies adopt tech 3x faster than developing ones. Africa’s manufacturing GDP per capita is \$150, versus \$5,000 in Europe (World Bank).

Statistics: 60 per cent of tech investment flows to G20 nations.

Mitigation: Global aid and tech transfer programs.

3- Cybersecurity threats

IoT and digitalisation increase vulnerabilities. Cyberattacks on manufacturers rose 50 per cent since 2020, costing \$200 billion yearly (IBM).

Statistics: 40 per cent of smart factories report breaches.

Mitigation: Enhanced encryption and training.

4- Workforce displacement

Automation may displace 20 million jobs by 2030 (Oxford Economics). India’s textile sector lost 1 million jobs since 2020.

Statistics: 15 per cent of global workers face automation risk.

Mitigation: Retraining and social safety nets.

5- Environmental backlash

Green tech adoption lags in 40percent of firms, risking regulatory fines and consumer boycotts. Global emissions from manufacturing rose 5percent since 2020 (IEA).

Statistics: 25percent of firms miss sustainability targets.

Mitigation: Incentives and stricter enforcement.

The future of industrial production

By 2030, manufacturing will be smarter, greener, and more regionalised. Deloitte forecasts 70 per cent of tasks automated, with green tech cutting emissions 30 per cent. Asia will retain scale (\$8 trillion output), North America and Europe innovation (\$5 trillion combined), and Africa growth (15 per cent annually).

Risks -- geopolitical, economic, and social-- require proactive strategies. Collaboration via public-private partnerships, like the US Manufacturing (\$500 million invested), will bridge gaps. Sustainability will be mandatory, with net-zero production standard by 2040.



CONCLUSION

The global manufacturing landscape is evolving rapidly, driven by reshoring, digitalisation, and sustainability. Technologies like AI, robotics, and green innovations fuel this shift, while policies—from trade tariffs to R&D funding— shape its trajectory.

Regional disparities and risks, from cyberattacks to job losses, pose challenges, but opportunities abound for adaptable players. Manufacturers must balance efficiency, resilience, and responsibility to lead in this new era, ensuring industrial production meets the demands of a complex, interconnected world.

Past dreams to present reality: Manufacturing in India and Tamil Nadu

Tamil Nadu's rich manufacturing history, and how the country's second largest economy is seeing growth with social justice



Glorious legacy

The history of Tamil Nadu's industrial prowess dates back to the Sangam era — 300 BCE to 300 CE — a period marked by the versatility of skilled artisans and vibrant trade networks.

Historical evidence suggests that the mighty Chola, Chera, and Pandya empires that ruled the region had trade links with ancient Rome, China, and Southeast Asia.

From textiles and weaving, metal and stone works, and salt production to shipbuilding, the industrial fame of ancient Tamilakam (today's Tamil Nadu, Kerala, Puducherry, Lakshadweep, and southern parts of Andhra Pradesh and Karnataka) was widely recognised.

Despite this rich tradition, the region saw minimal industrial activity during the colonial era, even with improvements in logistics, such as the introduc-

tion of railways. The exception was industries that served British interests, such as tea plantations, textiles, and cotton mills.

It was only after independence that the birth of public sector majors like Integral Coach Factory (ICF), automobile majors like Ashok Leyland and TVS Motor, the revival of the textile industry in the Coimbatore region, electronics, and small and medium enterprises transformed the state into an industrial powerhouse.

Unique model

Fast forward to now, Tamil Nadu is the second-largest state economy and the seventh-largest state in terms of population¹. And this economic growth has a unique feature, "Growth with Social Justice," developed over a century. In a crux, it is one of the examples of welfare-oriented governance, making it a role model for other states and even many developing countries.

For the financial year 2025-26 (FY26), the state's Gross State Domestic Product (GSDP) at current prices is likely to be around ₹35.68 trillion, second only to Maharashtra, which is expected to be ₹49.4 trillion by then².

Tamil Nadu reportedly contributed to over 9 per cent of the country's economy in FY24, despite being covered by only 4 per cent of its land area and 6 per cent of its population.

The southern state has set an ambitious target of turning into a \$1 trillion economy by 2030.

Its welfare-driven approach has helped Tamil Nadu become a leader in India in many key social parameters, including education, healthcare, and social welfare, showing signs of inclusive and sustainable development. Owing to this approach, the state's poverty rate (Headcount Ratio) declined

from 36.54 per cent in FY06 to just 1.43 per cent in FY23. Meanwhile, India's Headcount Ratio declined from 55.34 per cent to 11.28 per cent during the same period³.

This balanced growth approach resulted in the state enjoying one of the lowest proportions of multi-dimensional poverty⁴, the highest gross enrolment in higher education⁵, and a top spot in accomplishing the Sustainable Development Goals⁶. Interestingly, government data indicates that around 42 per cent of the working women in India are in Tamil Nadu, with 64 per cent dependent on the manufacturing and service sectors.

During the previous financial year, Tamil Nadu contributed to 11.46 per cent of India's Industrial Gross Value Addition (GVA) and 13.12 per cent of India's manufacturing GVA. Within the state, the manufacturing sector contributed to 18.33 per cent of the state's GDP, generating a GVA of ₹4.9 trillion⁷.

According to the latest Annual Survey of Industries (FY23), Tamil Nadu is the top state in terms of the number of operational factories in the country with 31,517 units. Interestingly, the closest competitor, Gujarat, has 24,811 units, followed by Maharashtra at 20,739, Uttar Pradesh at 16,263, and Karnataka at 11,391. (SEE CHART 1)

In terms of the number of industrial workers too, the state is on the top, touching 2.77 million, up 14 per cent from the largest state's economy, Maharashtra. The state is also in the third slot in terms of total output, which was seen at ₹14.44 trillion, after Gujarat at ₹25.68 trillion and Maharashtra ₹21.22 trillion.

Considering the rest of the country's manufacturing sector, Tamil Nadu is holding the top slot in several areas.

Its traditional stronghold of automobiles, where the total output stands at ₹2.69 trillion with the largest share of 24 per cent. Guidance Tamil Nadu data indicates that the state contributes to around 36 per cent of the total two-wheelers and 25 per cent of the four-wheelers manufactured in India, powered by over 1,500 factories. The state also accounts for 70 per cent of the total electric vehicles manufactured in India and 30 per cent of the country's auto exports. The other sectors in which the state is leading the manufacturing chart include wearing apparel, leather

CHART 1

THE ELITE LEAGUE

Principal industrial characteristics of top five states

State	Operating Factories Nos	Fixed Capital (₹/trillion)	Invested Capital (₹/trillion)	Total Workers (In Million)	Total Input (₹/trillion)	Total Output (₹/trillion)
TN's Rank	1	4*	3	1	3	3
Tamil Nadu	31517	3.27	5.35	2.77	12.17	14.44
Maharashtra	20739	4.93	8.04	2.37	17.63	21.22
Gujarat	24811	8.09	11.48	2.33	22.43	25.68
Karnataka	11391	2.51	3.77	1.22	7.39	8.94
Uttar Pradesh	16263	2.29	3.99	1.49	8.85	10.19
TN's Change Vs Previous fiscal (%)	-0.28	6	8	6	26	24

*Odisha is in third place with Rs 3.32 tn, Source: Annual Survey Of Industries 2022-23 (Released on October 2024)

CHART 2

PRODUCTION POWERHOUSE

Top sectors for Tamil Nadu

Sector	TN's Rank	Total Output (₹/trillion)	Total Output (% share of India)
Motor vehicles, trailers	1	2.69	24
Wearing Apparel	1	0.7	31
Leather & Leather Products	1	0.2	27
Textiles	2	1.4	24
Machinery & Equipment	2	1.17	18
Computer, Electronic & Optical Products	2	1.14	26

Source: Annual Survey Of Industries 2022-23 (Released on October 2024)

CHART 3

INVESTOR HOTSPOT

FDI inflow

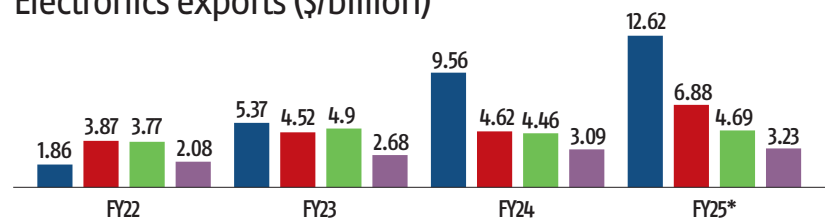
Source: DIPP
*estimated

Year	₹/crore
2019-20	5,909
2020-21	17,208
2021-22	22,396
2022-23	17,247
2023-24	20,157
2024-25*	28,324

CHART 4

IN POLE POSITION

Electronics exports (\$/billion)



Source: Govt of India * April to February

and leather products, textiles, machinery and equipment, and electronics. (SEE CHART 2)

According to the data shared by the central government, Tamil Nadu has also seen a considerable spike in foreign direct investment (FDI), which shot up from ₹5,909 crore in FY20 to around ₹28,324 crore (SEE CHART 3) in FY25. In FY24, this foreign inflow was ₹20,157 crore.

Soaring exports

Consider the case of exports. Based on the National Import Export data, the state's exports were seen at \$43.56 billion in FY24, which has already touched \$46.51 billion between April and February of FY25 (March figures are not published). During the last financial year, engineering goods exports from the state were seen at \$16.9 billion, followed by electronics at \$9.6 billion, ready-made garments at \$4.7 billion, cotton yarn and fabrics at \$2.1 billion, and leather at \$1.7 billion. (SEE CHART 5)

A major gain in Tamil Nadu's export basket in recent years is electronics, which has already crossed \$12.6 billion till February if FY25, and is poised to cross \$14 billion at the current pace. What makes the numbers even more attractive is the fact that electronics exports were hardly \$1.86 billion in FY22, thereby posting over a six-fold rise in a span of just three years. (SEE CHART 4)

Major credit for this goes to the rise in mobile phone production in the state, led by the global giant Apple and its suppliers.

India's electronic hub

In recent years, the state has also gained the reputation of being the electric vehicle hub of India. Take the Federation of Automobile Dealers Associations (FADA) retail sales numbers for the month of March as an example. It is a known fact that two-wheelers are the most evolved segment in terms of electric mobility in India. The FADA numbers show that out of the 76,086 units sold during the month, the top five players contributed to around 85 per cent of the sales. Interestingly, four out of the top five manufacturers in the segment were from Tamil Nadu, with a cumulative production of 42,916 units by those four — TVS Motor, Ather Energy, Ola

CHART:5

RAKING IN

Major commodity exports from Tamil Nadu

Commodity	\$/billion (April to Feb FY25)	% of total exports
Engineering Goods	16.27	35
Electronic Goods	12.62	27
Ready-made Garments	4.96	11
Cotton yarn/fabs/madeup/handloom	1.94	4
Gems and Jewellery	1.69	4
Leather and Leather Manufacturers	1.5	3

Source: Govt of India

Electric, and Greaves Electric Mobility.

Promises turning into action

A key reason for the recent spike in the state's industrial activity and investments was the Global Investors Meet held in 2024 that attracted investment commitments to the tune of around ₹6.6 trillion through 631 memoranda of understanding with a commitment to generate around 2.7 million direct and indirect jobs.

Looking into the details of these commitments, a majority of them came in the manufacturing sector and a good share of them are already becoming realistic too.

This includes investments from Tata Power (₹70,800 crore), Sembcorp (₹37,538 crore), Adani Group (₹42,768 crore), Vinfast (₹16,000 crore), Tata Electronics (₹12,082 crore), JSW (₹12,000 crore), Hyundai (₹6,180 crore), TVS (₹5,000 crore), Saint Gobain (₹3,400 crore), and Pegatron (₹1,000 crore).

This is considered to be a key achievement, considering the turnaround rate of such investment commitments announced by similar meets in other leading states, based on media reports.

One major advantage with Tamil Nadu is also its vast land bank, giving multiple options to investors through its distributed growth through several industrial clusters. Based on the 2011 census, on average, a village in Tamil Nadu is hardly 10 kilometres from a town.

According to the Department for Promotion of Industry and Internal Trade (DPIIT), out of a total of 1,23,515 hectares (ha) industrial land bank in India, around 13 per cent or 15,856 ha are

in Tamil Nadu, spread across 370 parks. For Maharashtra, this is 17,433 ha, Gujarat around 17,398 ha, Karnataka around 3,568 ha, and Uttar Pradesh around 1,939 ha, among the above-mentioned top five manufacturing powerhouses of India.

In the case of micro, small, and medium enterprises too, the state is not far behind. MSMEs are considered to be the major growth drivers of the manufacturing sector. As per the latest data available (January 2025), the state has a total of 1.21 million micro, small and medium enterprises, over 10 per cent of around 12 million units the entire country has.

The only state ahead of Tamil Nadu is Maharashtra with 1.4 million units, while other competitors Uttar Pradesh (1.09 million), Gujarat (9,29,000), and Karnataka (8,64,000) are much behind Tamil Nadu. However, an interesting catch here is the number of jobs created in the sector. Tamil Nadu tops this list with 85,00,000 jobs, followed by Maharashtra (73,00,000), Uttar Pradesh (72,00,000), Karnataka (53,00,000), and Gujarat (52,00,000). This indicates that in terms of employment generation, Tamil Nadu is ahead of others, a sign that the majority of the investments in MSME are coming in job-intense sectors.

Rising competition

According to the India Industrial Development Report (2024–25)8, the country has the potential to more than double the manufacturing value added from \$717 billion in 2024 to \$1.45 trillion by 2030, out of the \$7.5 trillion GDP, creating, in that process, millions of direct and indirect jobs.

Hence, an evolving healthy competition among states in terms of policies is an encouraging sign. Some of the major drivers of this growth are likely to be Making-for-India and Making-for-the-World, in labour-intensive, skill-intensive, resource-intensive, and strategic and defence industries, besides opportunities presented by green industrialisation and the digital revolution.

The majority of states are coming up with updated policies focusing on sectors like semiconductors, green mobility, solar PV cells and modules, green hydrogen, and pharmaceutical APIs, among others.

In addition to this, Tamil Nadu is witnessing a spike in investments in sectors having product-linked incentives. The 14 key sectors are: (1) Mobile Manufacturing and Specified Electronic Components, (2) Critical Key Starting Materials/Drug Intermediaries & Active Pharmaceutical Ingredients, (3) Manufacturing of Medical Devices, (4) Automobiles and Auto Components, (5) Pharmaceutical Drugs, (6) Specialty Steel, (7) Telecom & Networking Products, (8) Electronic/Technology Products, (9) White Goods (ACs and LEDs), (10) Food Products, (11) Textile Products: MMF segment and technical textiles, (12) High-Efficiency Solar PV Modules, (13) Advanced Chemistry Cell (ACC) Battery, and (14) Drones and Drone Components.

Based on the latest available data, investments to the tune of around ₹1.46 trillion have been realised in these sectors, which has resulted in incremental production/sales of over ₹12.50 trillion, employment generation of over 9,50,000, and exports surpassing ₹4 trillion, with significant contributions from sectors such as electronics, pharmaceuticals, and food processing⁹. State-wise data is not available as beneficiary companies may have multiple manufacturing units across the country. However, the recent growth in the electronics sector in Tamil Nadu is a clear indicator of its results.

With competition among states to attract investors, Tamil Nadu was seen as a top performer in multiple categories with regard to the implementation of the Business Reforms Action Plan (BRAP). In the last few years, states such as Telangana, Andhra Pradesh, Tamil Nadu, Gujarat, Maharashtra, and Karnataka have intensified their competi-

tion to attract investments, particularly in new-age industries such as mobile phone and laptop assembly, semiconductor manufacturing and packaging, electric vehicle assembly, battery production, and solar and wind energy equipment manufacturing¹⁰.

All these states have dedicated government or semi-government bodies working to attract investment with competitive policies -- similar to Guidance Tamil Nadu. This has resulted in concepts like single-window clearances, flexible policies, minimal red tape, and handholding by the state at every decision-making level. However, many of the states are going out of the way and being aggressive with regard to the sops lined up for investors. States like Telangana have publicly stated that they are following a "meet or beat" policy that aims to offer incentives that "either match or surpass" those offered anywhere else -- not just in India but globally. This strategy has definitely raised competitiveness in the Indian manufacturing space.

The limitations in the growth of the services sector, the success of Tamil Nadu and Karnataka in attracting new-age manufacturing industries (mobile phone and electronics), the rising share of women employees in states like Tamil Nadu through sunrise sectors like footwear, and, last but not least, the positive impact on upcoming investments once a state grabs a major investment are seen as the major reasons for this rising competition by experts.

The ripple effect

In addition to all this, a major investor also comes along with an ecosystem of suppliers or may require suppliers from the existing MSME network, which creates additional investments and jobs in the MSME sector as a ripple effect.

The state has also focused on ensuring regionally distributed growth, which can be observed from the fact that 50 per cent of its GDP is reportedly spread over 25 per cent of districts, compared to 10-15 per cent for peer states¹¹. This regional distribution of growth has, in turn, led to widespread urbanisation rates across the state, with an average urbanisation of 48 per cent, which is among the highest in India¹².

Interestingly, compared to its rivals, one of the key advantages for Tamil Nadu is its Labour Force Participation

Rate (LFPR) of 63 per cent, one of the best in the country, with a larger pool of skilled labour. A key indicator of this is the Gross Enrollment Ratio (GER) of the state, among the best in India. Tamil Nadu's secondary school GER is at 96 per cent, compared to 80 per cent for India; higher secondary education GER is at 82 per cent as against 58 per cent for India; and, more importantly, higher education GER is seen at 47 per cent compared to only 27 per cent for the rest of India¹³.

Among the major industrialised states, Tamil Nadu has the lowest poverty rate too, based on NITI Aayog data, mostly credited to the inclusive welfare-driven growth approach. People below the poverty line in Tamil Nadu constitute a mere 4.89 per cent, much below the national average of 21.92 per cent. In Maharashtra, it is 14.85 per cent; Gujarat, 18.6 per cent; Karnataka, 13.2 per cent; and Uttar Pradesh, 37.79 per cent. The only states ahead of Tamil Nadu in this indicator are Kerala (0.71 per cent), Goa (3.76 per cent), and Sikkim (3.82 per cent), which are less industrialised small states. This is a clear indicator of the success of the inclusive growth model adopted by the state.

The state's advantages in various human, social, and infrastructure parameters, along with the policy initiatives taken by the government, are expected to be the major drivers for Tamil Nadu on its road to a \$1 trillion economy by 2030, and in becoming a global manufacturing powerhouse.

1. Projected population for 2019 provided by National Commission on Population, Ministry of Health & Family Welfare.
2. State Budgets of Tamil Nadu, and Maharashtra 2025-26.
3. Tamil Nadu Economic Survey 2024-25
4. National Multidimensional Poverty Index 2023, Niti Aayog
5. Tamil Nadu's Gross Enrolment Ratio
6. SDG Goals Index, Niti Aayog
7. Policy Note, TN Industries Department
8. India Industrial Development Report (2024-25) by Institute of Studies and Industrial Development
9. Parliament question: December 2024
10. https://www.business-standard.com/politics/from-telangana-to-gujarat-states-compete-fiercely-for-new-age-investments-125030200695_1.html
11. Department of Economics and Statistics, Government of Tamil Nadu
12. MoSPI, Government of India; Census 2011
13. Unified District Information System for Education Plus 2021-22; Annual India Survey on Higher Education 2020-21

Road Ahead

Growth & need to redefine manufacturing



Changing global order and how Tamil Nadu can chart its own path to minimise the impact



Uncertain world order

The financial year 2025-26 (FY26) kicked-off with massive announcements from the United States, and sending shock waves across the world by imposing steep tariffs on all exports to the country. Amid the ongoing uncertainty, trading companies all over the world are reinventing themselves for the fast changing order, as a relocation of the global supply chain is on the horizon.

Industry majors are already looking at various trade dynamics to determine which country can provide an edge in terms of sourcing for the US market.

For India, the US market is one of its major revenue drivers in sectors like engineering goods (\$17.62 billion or 23 per cent of the product exports from India), electronics (\$10.04 billion or 13 per cent), gems and jewellery (\$9.9 billion or 13 per cent), drugs and pharmaceuticals (\$8.8 bil-

lion or 11 per cent), petroleum (\$5.8 billion or 8 per cent), and readymade garments (\$4.8 billion or 6 per cent), out of India's total exports of \$77.52 billion in FY24.

Between the April to February period of FY25, electronics exports were seen at \$11.87 billion (or 16 per cent), indicating the importance of this market in India's growth as an electronics superpower. Interestingly, in FY22, electronics exports were hardly \$2.6 billion (or 4 per cent).

The sectors that are likely to be impacted most are electronics, precious stones and machinery, besides readymade garments, industry reports highlighted.

Further, these sectors -- which have a high concentration of Micro, Small and Medium Enterprises (MSMEs) -- may face increased challenges, requiring possible government support through special schemes to buffer this impact.

Considering the fact that Tamil Nadu is one of the major gainers in the electronics sector (SEE CHART 4 – CHAPTER 5), the changing world order is a cause of concern, with China too upping the ante with harsh tariffs and strategic export bans.

Media reports indicate that between April and January, India exported nearly ₹1 trillion worth of iPhones, up from ₹60,000 crore in the same period last year, owing to the strategic shift as part of the 'China Plus One' policy by Apple to manufacture 15 per cent of iPhone in India.

In this scenario, this is one of the major sectors in which Tamil Nadu should ensure that the Central government intervenes and provides relief, in addition to the existing PLI, to compete with global rivals. This move is crucial as Vietnam has already approached the US with its willingness to cut tariffs to zero.

However, there are sectors that may bring some cheers to Tamil Nadu -- a mixed bag though -- which include textiles and the state's sunrise sector, footwear. In footwear, with suppliers to global majors like Nike, and Adidas setting up their units in India, and the US being dependent on imports for 95 per cent of its footwear requirement, the sector may open up new opportu-



nities to Tamil Nadu.

This only if the state ensures that a raw material ecosystem is developed at a faster pace, for which India is almost 90 per cent import dependent.

In textiles, for example, India's key rivals, Vietnam, Bangladesh, Sri Lanka, and China, may see a higher tariff rate of 46 per cent, 37 per cent, 44 per cent, and 54 per cent, respectively, if the current situation prevails.

According to the US textile shipment data and the US bill of lading data for 2024, China's share in its textile imports was nearly 30 per cent at \$36 billion, followed by \$15.5 billion by Vietnam with a share of 13 per cent, and \$9.7 billion by India with an 8 per cent share. The total textile imports to the US in 2024 were \$107.72 billion. However, Germany, Ireland, Japan, and Korea, with lower tariffs, may emerge as the fresh competitors.

It should be noted that the current uncertainty is coming at a time when the world is in the process of coming out of the pandemic, and amid geopolitical uncertainties in Ukraine and

West Asia, extreme weather events, supply chain disruptions, and crises in the food and energy sectors.

New US tariffs could reduce global merchandise trade volumes by around 1 per cent this year, an estimate by the World Trade Organisation suggest. In this context, it is time for Tamil Nadu to redefine its manufacturing roadmap.

Drawing a new manufacturing landscape

Based on the outlook for 2025 by the World Manufacturing Report, technological advancements, such as artificial intelligence (AI), robotics, and the Industrial Internet of Things (IIoT), are revolutionising many manufacturing industries by enhancing efficiency, reducing costs, and enabling new product innovations³.

To ensure ease of doing business, the state has already launched the Tamil Nadu Single Window Portal (TNSWP), a one-stop shop for securing all clearances from 29 state agencies.

While Industry 4.0 may bring in

more connected factories that can optimise production resources and reduce waste, adopting this transition may well be a major challenge for smaller manufacturing companies.

Moreover, with the rising cases of cyberattacks, governments across the world will have to be ready with new policies to minimise cybersecurity threats, as more connected systems create new vulnerabilities. Another major development globally is the green transition, where Tamil Nadu is already taking giant strides through sustainable development goals (SDG).

The 'Tamil Nadu Industrial Policy 2021' is giving special thrust to the growth of high-potential sectors like automobiles, electronics, textiles, and renewable energy by aligning its economic, environmental, and social strategies with the UN's SDGs.

The state's key goals include the achievement of the \$1 trillion economy target by 2030.

According to a Boston Consulting Group (BCG) report, the state needs an investment of around \$3.8–4.3 trillion (public and private) to accelerate growth to achieve this target. This also requires skilling 10 million people and adding around 6 million women to the workforce.

One of the major concerns for India and China in the longer run is the drop in fertility rates. It is these workforce issues that the World Manufacturing Report highlighted, indicating that India and China may lose the labour-intensive competitive advantage they historically enjoyed due to the declining fertility rate.

This change has raised the prospect of labour-intensive manufacturing relocating to Africa, the only continent where fertility rates remain high, potentially providing a young workforce for the future, the report added.

It is this gap that states like Tamil Nadu should fill by bringing more women into the workforce, while simultaneously embracing technology for more precise and flexible production processes, better quality control, and the ability to respond to market changes rapidly.

Another policy focus that the government may require is on diversity, equity, and inclusion (DEI) in manufacturing. In 2020, the global expenditure on DEI initiatives by companies

(including those in the manufacturing sector) totalled \$7.5 billion, and there are projections that these investments will rise significantly, reaching \$15.4 billion by 2026.

One such remarkable move on gender inclusion by Tamil Nadu, roping in the private sector in manufacturing, is the 5 per cent reservation offered for LGBTQI and people with disabilities at Godrej Consumer Products (GCPL)'s fast-moving consumer goods manufacturing unit in Thiruporur in Chengalpattu district.

According to industry experts and activists, while Indian companies acknowledge transgender communities, this was the first time the entire spectrum of gender minorities, including lesbian, gay, bisexual, transgender, queer/questioning (one's sexual or gender identity), and intersex, is

Tariffs imposed by the new US administration could reduce global merchandise trade volumes by around 1 per cent this year, an estimate by the World Trade Organization suggests



receiving such a notable share of job participation in the private sector while signing memoranda of understanding with states. This is cited as a rare example in the Indian manufacturing sector. Going forward, the state should consider taking more steps to include the various gender and ethnic groups in the workforce, while ensuring fair treatment and opportunities by addressing and overcoming people's historical and systemic barriers. More important to this is the last part of ensuring that an inclusive workplace environment is created where all individuals feel appreciated and fully integrated into the organization.

Major growth drivers

Automobile: Traditionally, the automobile is one of the major drivers of

the manufacturing sector in Tamil Nadu, with a developed supplier ecosystem also in place. This is one of the major reasons why global majors like Tata-JLR, VinFast, and Hyundai Motor are investing heavily in the state. Tamil Nadu is already the automotive capital of India, producing a passenger vehicle every 20 seconds and a commercial vehicle every 90 seconds. The state also accounts for 45 per cent of India's auto exports and 35 per cent of auto component exports. Hence, the BCG report calls for positioning the state as a key destination for other mobility manufacturing, including aerospace, railways, ships, and defense. The Integral Coach Factory in Chennai, one of the oldest railway manufacturing units in India, is already taking measures towards this. Efforts are also required to revive the shipbuilding industry in the state. In auto components, while the state should take efforts to look for import substitutions, it should also ensure that its strongholds in export are given further impetus.

Renewables: With the renewable energy sector gathering momentum and Tamil Nadu being one of the leaders in solar and wind energy, a related ecosystem should also be developed simultaneously. Ministry of New and Renewable Energy (MNRE) data indicates that India's solar cell capacity increased from 9 gigawatts (GW) in March 2024 to 25 GW in March 2025. During the period under review, the country's solar module manufacturing capacity also nearly doubled from 38 GW in March 2024 to 74 GW in March 2025. Further upstream, the country commissioned its first 2 GW of ingot and wafer manufacturing capacity during that period. The state government may also play its part in lining up more SOPs for the industry that may generate more jobs going ahead.

Electronics: With the state already taking a lion's share in the country's electronics exports, more steps should be considered to develop it into a global investment destination.

This requires simultaneous development of upstream (semiconductor value chain), midstream (component, design, and electronics manufacturing services), and downstream (aftermarket), the BCG report said.

"The state also has a strong starting



point in Electronics Manufacturing Services (EMS), with the presence of major global and Indian players across mobiles, PCs, consumer electronics, automotive, industrial, networking, aerospace, and defense sectors. To recognise the sector's full potential, it is essential for the state to encourage investments in cutting-edge semiconductor manufacturing facilities, backward integrate to component manufacturing, focus on creating policies that incentivise the growth of local businesses to create an ecosystem in this sector, and develop a skilled workforce specialised in electronics and semiconductor technology," the report said.

Reports indicate that India's EMS market is expected to touch \$200 billion by 2030, from around \$20 billion in 2022, giving more opportunities for Tamil Nadu.

Other areas of focus lined up include chemicals, machinery, leather and footwear, textile and apparel, among others. With the emergence of the new world order after the tariff decision by the Donald Trump administration in the US, some of these sectors need to undergo rapid changes to adapt to the situation. This includes lining up discounts for the customers in the US, to ensure that India gets a

competitive advantage over its rivals. In such a scenario, more sops from the government is required to provide additional cushion to such industries.

This is crucial as the Export Promotion Strategy of Tamil Nadu has set an ambitious goal of achieving \$100 billion exports by 2030, almost double from around \$50 billion expected in 2024-25.

Infrastructure: The state should also capitalise on its logistics advantage of having air and sea connectivity. Though the state has four ports, Chennai Port, Kamarajar Port (Ennore, near Chennai), VO Chidambaranar Port (Thoothukudi), and Kattupalli Port (north of Chennai), and has the second-largest coastline, it is still lagging behind states like Gujarat in terms of cargo and container handling.

This shows the need for immediate capacity augmentation. The strategic location of Tamil Nadu enables the state to be positioned as both a domestic and international trans-shipment hub, with container traffic in the Asia and Pacific region set to grow to 531 million TEUs in 2030, a FICCI-Deloitte report said.

Experts are also battling for a Chennai-Bengaluru dedicated rail corridor project to improve logistics for the industry.

Startups: The state also has a thriving startup ecosystem. Based on data available with Startup TN, the state has around 10,440 registered startups and 124 incubation centres, spread across 30 sectors. Chennai was ranked 18th in Asia in the Global Startup Ecosystem Report 2023 by Startup Genome. This indicates the need for further research and development in new sectors and further government support to boost startups in the manufacturing ecosystem.

An assessment by industry body FICCI and Deloitte indicates that the state needs an investment of \$598 billion in the manufacturing sector alone to achieve the \$1 trillion goal. This in itself shows the need to redefine the manufacturing sector in the state. Hence, a structured strategic intervention in these key growth areas is the need of the hour for Tamil Nadu.

1. National Import Export Record Bank of Baroda report on the impact of trump tariff
2. The World Manufacturing Forum, an annual whitepaper, the World Manufacturing Report,
3. Policy Note: Industries Department
4. Tamil Nadu Vision \$1 trillion report by BCG
5. WEF (2023). Global Parity Alliance: Diversity, Equity and Inclusion Lighthouses
6. SIAM estimates

ANNEXURE

Tamil Nadu Round Table 2025 An overview

Reimagining Tamil Nadu was at the core of the ‘Business Standard Tamil Nadu Round Table 2025’. The insights were decisive.



Tamil Nadu is the second largest contributor to India’s gross domestic product and it is expected to be a key beneficiary of the so-called China plus one trade, getting investments from international manufacturers of electronics, automobiles, and consumer goods.

At a panel discussion titled ‘Redefining Manufacturing: The Power of Policy’ during the event held in Chennai in March, experts spoke about the manufacturing sector’s future in the state and the changes it is going through.

The panellists argued that Tamil Nadu should not compete with Indian states, but with the United States (US) and China to realise its ambition of being a knowledge economy.

Manufacturing contributed around 24 per cent of the Gross State Domestic Product (GSDP) in the financial year 2024 (FY24). A key suggestion at the event for the state was to promote research and development to create manufacturing products over the next decade.

The other point in the agenda was about Global Capability Centres (GCCs). From Chennai to Coimbatore, how the state was working to become India’s GCC hub.

After setting up a thriving network in Chennai and Coimbatore, Tamil Nadu has now announced plans to make the industrial city Hosur a hub

for GCCs.

GCCs in Tamil Nadu are spread out, giving the state an edge over Karnataka and Telangana, where such infrastructure is largely in Bengaluru and Hyderabad.

Tamil Nadu has more than 250 of the 1,700 GCCs in India, employing 150,000 people. It is expected to have 460 GCCs by 2030.

What GCCs can do?

“There has been a rapid transformation in what GCCs can deliver. From basic processes and SLAs (service-level agreements), we have had joint ownerships with the headquarters to deliver on important projects,” a panellist said.

“And then, we have ownership for new work which is being led, managed, and run from here. We take ownership, drive a project, and engage in product development using high-end analytics to make the right decisions,” he said.

TRB Rajaa, the state’s minister for industries, investment promotion and commerce summed up his government’s vision. He told Business Standard at a fireside chat, “Industry today talks about diversity, equity, and inclusivity, and that’s what we have been saying for 100 years. We just call it social justice. Social justice is also about addressing issues related to cli-

mate change. The first people who get hit because of climate change are the ones at the bottom.”

“Tamil Nadu is the most urbanised state in the country. This is the only state where you can just close your eyes, put your finger on the map, and start an industry there. Everything is already in place,” the minister said.

Road ahead for Tamil Nadu

Rajaa asserted that MSMEs [micro, small and medium enterprises], which are the largest employers, need to be empowered.

“Enabling MSMEs is the best way to encourage more innovation. MSMEs need to be empowered in a big way, and that is why we are doing this,” the minister said.

He also said that Tamil Nadu is up against global powers, and it is not competing with states.

“Reimagining Tamil Nadu for the world is what this is actually about. It is about reimagining and giving a fresh image of Tamil Nadu to the world. It is more like rebranding it, which aligns with the product nation vision. I know the world thinks we are doing absolutely great, but you are comparing us to other states. Compare us to other countries, that is what we want to do. Our goals, our competition, our fight, it’s up there, not here,” the minister said.

Business 50 Standard

Years of Insight



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State Planning Commission

Guidance
INVEST
INNOVATE
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