

Electronic Manufacturing Services (EMS)

4th March, 2026

Summary

The Electronic Manufacturing Services (EMS) industry is one of the fastest-growing segments of India's manufacturing economy. OEMs worldwide increasingly outsource electronics design, assembly, testing, and logistics to specialized EMS players to remain asset-light and accelerate product launches.

Global EMS is already a USD 648 bn industry (2024), expected to reach USD 1.17 trillion by 2032–34 (CAGR ~6%) (Source – *Fortune Business Insights*).

India, however, is growing far faster at CAGR ~11–14%—driven by China+1, PLI incentives, labour cost advantage, and rising electronics consumption.

Global EMS

- EMS market rising from USD 648 bn → USD 1,167 bn (2034) (Source – *Fortune Business Insights*).
- India is the fastest-growing EMS market globally (~11% CAGR).
- Asia Pacific remains dominant, but share is shifting from China to India.

Key Drivers Worldwide –

- Rapid increase in electronics content (EVs, industrial automation, medical devices).
- OEMs outsourcing to stay asset-light.
- Industry 4.0 improving yields and reducing defects.
- Global supply chain re-engineering (China+1).

Leading Global Players – Foxconn, Flex, Jabil, Celestica, Plexus, Sanmina.

India EMS

India's EMS industry is **USD 55 bn today** and is expected to reach **USD 155 bn in the next decade** (~11% CAGR). Only **20% of this universe by size is listed**, giving substantial room for value creation.

Key Tailwinds

- PLI schemes boosting margins & capacity creation
- China+1 shift – apple shifting 20-25% of iPhone production to India
- Domestic demand – consumer durables, smart meters, medical devices, telecom, EVs
- Labour arbitrage & improving ecosystem – Indian manufacturing wages ~30–40% of China.

Foxconn – India's Breakout Success Story

Foxconn India is the best demonstration of India's EMS opportunity. From a **single Chennai plant assembling budget Android phones**, it has **grown into India's single largest electronics exporter, employing 80,000+ people.**



With revenue growing from USD 1 billion in FY-2019 to USD 20 billion in FY-2025, this indicates the growth potential of the EMS space in India, backed by with policy support + anchor OEM demand + capital + labour alignment. (Source – Tracxn Foxconn Technology India Pvt Ltd).

EMS in India – Two Clear Segments

Consumer Durables (high volume; low margin)	Industrial (low volume; high margin)
<p>Examples: Dixon, Amber, PG Electroplast, Elin</p> <p>Business: mobiles, TVs, ACs, washing machines</p> <p>Margins: 3–8% EBITDA</p> <p>Characteristics - high revenue PLI driven earnings visibility Margin pressure constant</p>	<p>Examples: Kaynes, Syrma SGS, Avalon, Cyient DLM</p> <p>Business: EV electronics, defence, aerospace, medical devices, smart meters</p> <p>Margins: 10–18% EBITDA</p> <p>Characteristics - high entry barriers higher ROCE structural visibility</p>

Why EMS Commands High Valuations

- Fastest-growing part of India's manufacturing economy.
- Capital-light with strong operating leverage.
- Scarcity value: few listed players, high investor demand.
- High visibility due to PLI, long-term contracts, and structural demand.

Key Risks

- BOM inflation compresses margins for consumer EMS.
- PLI tapering will test which companies have real moats.
- Working capital build-up (inventory + receivables).
- Tech obsolescence and OEM pricing pressure.
- Need for backward integration for sustainable margins.

India's Japanese Moment in EMS

India today stands where Japan did in the 1960s—on the verge of transforming from a maker of “good-enough” products to a global manufacturing force. Japan’s rise was built on patient capital, disciplined execution, and a relentless commitment to learning and improving.

India now has a similar alignment of forces: supportive policy, ambitious private investment, a large skilled workforce, PLI-driven capacity building, China+1 demand, and a massive domestic market Japan never enjoyed.



The path will be long and execution-heavy, but India has repeatedly shown its ability to scale the learning curve in sectors like software, pharma, and space. This could be India’s “Japanese Moment”—a structural, generational opportunity, provided it is pursued with both boldness and patience.

Portfolio Implications

We would like to position this theme in client portfolios as a part of the growth allocation in the Next Frontier Growth (NFG) portfolio from a 3–5-year investment standpoint.

We have previously recommended Direct Equity allocation in the consumer EMS space, and would come up with further stock notes with as per our evaluation.

Overview

Electronic Manufacturing Services (EMS) refers to the outsourcing of electronics design, manufacturing, testing, logistics, and after-sales services by Original Equipment Manufacturer (OEMs) to specialized third-party manufacturers. So, it essentially involves the **entire workflow outsourcing**.

EMS players enable OEMs to **remain asset-light, accelerate product time-to-market, and focus on core competencies** such as branding, R&D, and distribution.

In a pure B2B model, EMS companies never sell directly to end consumers. Their clients are OEM brands who bring the design (or collaborate on the design) while the EMS partner handles the actual manufacturing ecosystem — procurement of components, PCB assembly, final assembly, quality testing, and logistics.

The EMS value chain encompasses –

- Engineering services
- Electronic manufacturing
- Testing & Validation
- Supply-chain management
- After-sales support

Global

Market Size and Outlook –

As per Fortune Business Insights; the global EMS market was valued at ~USD 648 billion in 2024, and is expected to reach **~USD 1,167 billion by 2032–34**, implying a **~6.06% CAGR over the 2026–2034 period**.

Growth is primarily driven by increasing electronics penetration across industries, rising product complexity, and OEM preference for outsourced manufacturing. Although the industry is expected to grow at 6.06%, **emerging markets such as India, are expected to grow faster due to supply chain re-alignment, availability of know-how, etc.**

EMS growth broadly tracks global electronics demand but benefits from outsourcing intensity, which is steadily increasing across sectors.

Landscape

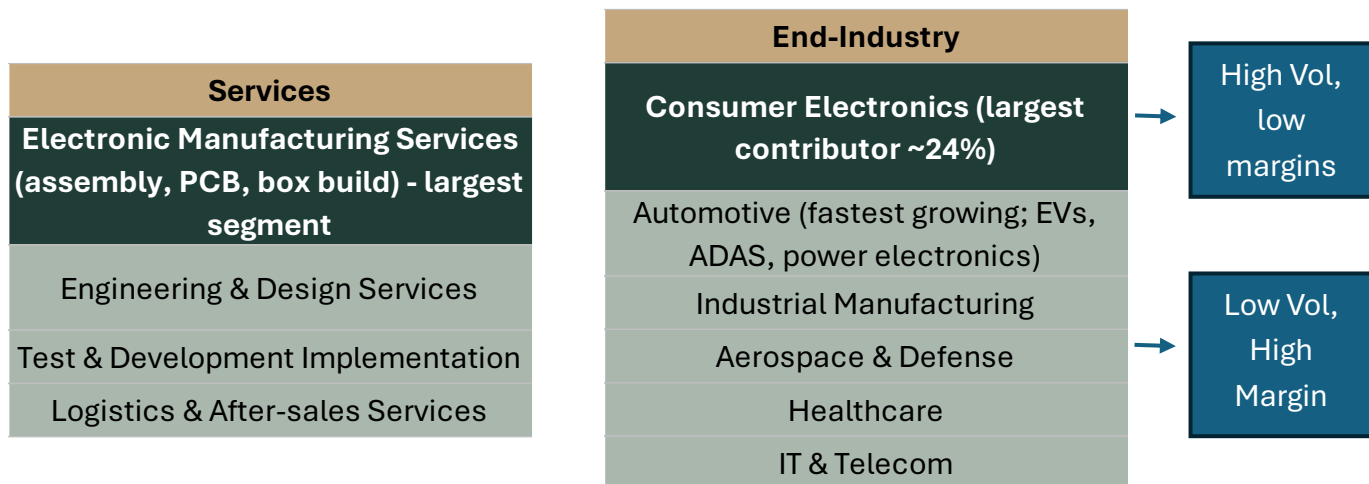
Market Metric	2025 (A)	share (%)	2035 (F)	share (%)	Growth
Global EMS Size	648		1,167		6.06%
Asia Pacific Region	290	44.8%	420	36.0%	3.76%
China Market	86	13.3%	150	12.9%	5.70%
India Market	55	8.5%	155	13.3%	10.9%

Numbers in (billion USD); Source – Fortune Business Insight



Global EMS market is **undergoing consolidation**, with Asia Pacific region having a significant share in the global EMS market. India is expected to become the largest market in Asia in EMS manufacturing by 2035; due to China+1, and the governments focus on promoting the industry.

Industry Segmentation



Key Growth Drivers

- **Rising Electronics Content Across Industries** – EVs, smart factories, medical devices, and telecom infrastructure are structurally increasing electronics intensity.
- **OEM Outsourcing and Asset-Light Strategies** – OEMs increasingly prefer EMS partners to manage capex-heavy manufacturing and volatile demand cycles.
- **Industry 4.0 Adoption** – Automation, AI-enabled quality inspection, digital twins, and predictive maintenance are improving yields and margins at scale.
- **Supply Chain Re-Engineering (China+1)** – Geopolitical risk, trade policies, and resilience requirements are driving multi-geography EMS footprints.

Competitive Landscape

The global EMS industry is **moderately consolidated**, with large players enjoying scale advantages in procurement, automation, and customer relationships.

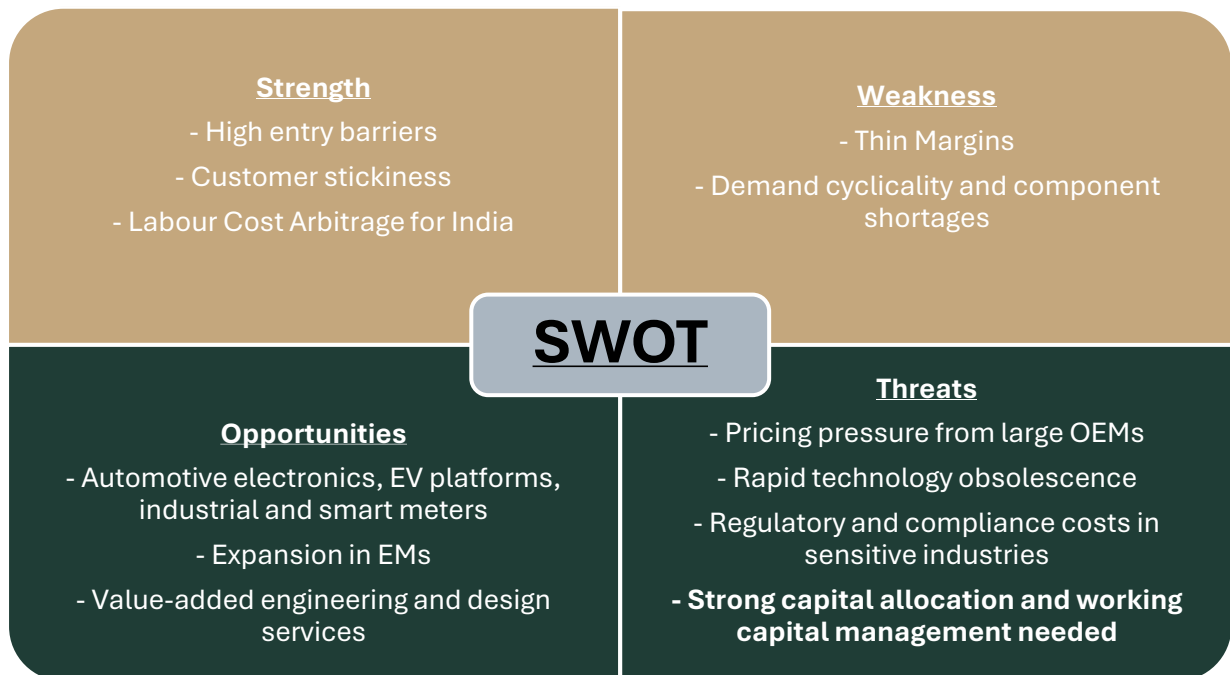
Key global players include: Foxconn (Hon Hai Precision); Flex; Jabil; Sanmina; Celestica; Benchmark Electronics; Plexus

Competitive differentiation is driven by –

- End-to-end service capability
- Scale and global manufacturing footprint
- Ability to serve regulated and high-reliability industries
- Capital allocation discipline and automation intensity



Industry Structure – SWOT Snapshot



India EMS Market

The EMS industry is expected to touch USD 155 billion over the next decade from the current valuation of USD 55 billion, providing ample growth opportunities to strategic and financial investors, implying a 11% CAGR which is higher than the global average CAGR of ~6%. Of the overall EMS market – **currently only 20% is in the listed universe.**

What do EMS companies do –

Functional segmentation

Function	Description	Value Addition
Design & Engineering (ODM/JDM)	Co-designing products with OEM clients; owning some IP	High — commands premium margins
PCB/PCBA Manufacturing	Printed Circuit Board Assembly — the core skill of any EMS	Medium-High
Component Procurement	Sourcing ICs, passives, connectors at scale	Moderate (BOM ownership)
Box Build / Final Assembly	Assembling complete units from sub-assemblies	Moderate
Testing & Quality	Functional, environmental, reliability testing	High — reduces OEM risk
After-Sales / Repair	Return merchandise authorization, field repair	Medium
Logistics & Warehousing	Kitting, packaging, distribution support	Low-Medium



Business-Model – Segmentation

Model	Full Form	Characteristic	Margin Profile
CM	Contract Manufacturing	Pure manufacturing — OEM provides all design, BOM, components	Lowest: 2-5% EBITDA
EMS	Electronics Mfg. Services	Mfg + some procurement + testing	3-8% EBITDA
ODM	Original Design Mfg.	Design + Manufacture; OEM white-labels it	8-14% EBITDA
JDM	Joint Design Mfg.	Co-design; shared IP between OEM and manufacturer	10-16% EBITDA
OEM	Original Equipment Mfg.	Owns entire chain — rare in pure EMS context	12-20%+ EBITDA

Indian EMS companies largely operate in the CM to EMS zone for large consumer electronics clients (thin margins, high volumes), but are gradually moving toward ODM/JDM in industrial and automotive segments (better margins, stickier relationships).

Sector Tailwinds –

Policy & Regulatory Tailwinds

Scheme	Description	Beneficiary Companies	Scale (Rs Cr)
PLI - Smartphones	Production Linked Incentive for Mobile Phones. 4-6% incentive on incremental production over base year	Dixon, Optiemus, Bharat FIH	~₹41,000 Cr scheme
PLI - White Goods (ACs + LEDs)	5-6% incentive for AC and LED components manufacturing	Amber, Dixon, PG Electroplast, Elin	~₹6,238 Cr scheme
PLI - IT Hardware	4% incentive on laptops, tablets, servers	Dixon, Optiemus	~₹7,350 Cr scheme
PLI - Advanced Chemistry Cell	Battery cell manufacturing incentive	Indirect: Amber, Kaynes (BMS)	~₹18,100 Cr scheme
SPECS Scheme	Electronics cluster and component subsidy	All EMS capex plans	~₹3,762 Cr
Semiconductor Mission	India Semiconductor Mission — chip design and OSAT	Kaynes (OSAT), Tata Electronics	~₹76,000 Cr

Structural Demand Tailwinds

India's electronics production growing from \$125 Bn in FY25 to \$500 Bn target by FY31 (Source – PIB)

AC penetration at only 6% in India vs 60%+ in China — decade-long growth runway

EV revolution: Indian EV market growing 60%+ YoY

5G rollout: Tower electronics, small cells, CPE devices

Digitization of infrastructure: Smart meters, SCADA, IoT nodes, surveillance systems

Medical device manufacturing: Government pushing domestic production



Smartphone penetration rising — India's 750Mn+ mobile users (replacement demand)

▪ **China+1 Global Supply Shift**

- US-China trade war + Taiwan risk driving global MNCs to diversify supply chains
- Apple moving ~20-25% of iPhone production to India (via Foxconn, Pegatron)
- India's labour arbitrage: Manufacturing wages at ~30-40% of Chinese costs
- Japan, Korea, EU industrial policy pushing their OEMs to diversify away from China
- Indian EMS companies receiving RFQs (Request for Quotes) from global industrial OEMs

The Foxconn Case –

Given all the above-mentioned tailwinds – we would like to present the case of Foxconn India - which became a **USD 20 billion juggernaut** – and what it signals for the EMS sector’s multi-fold opportunity.



Foxconn’s India story is one of the most striking industrial transformations of this decade. From a **single Chennai plant assembling budget Android phones**, the company has **grown into India’s single largest electronics exporter, employing 80,000+ people.**

The catalyst: iPhone manufacturing at scale, enabled by a perfect confluence of PLI incentives, China+1 supply chain rebalancing, and Foxconn’s calculated long-term bet on India.

▪ **The Early Years (2006–2021): Laying the Foundation**

- Entered India in 2007 with a plant in Sriperumbudur (Tamil Nadu).
- Initially assembled low-cost Android phones.
- Faced structural barriers: complex labour laws, infrastructure gaps, weak supplier ecosystem.
- After the 2014 Nokia exit, Foxconn retained its footprint, waiting for macro conditions to improve.

▪ **The Inflection Point (2021–2023): PLI + Apple + China+1**

- The turning point came with India’s PLI scheme (2020–21), offering 4–6% incentives on incremental sales.
- Strategic alliance with Apple
 - US-China tensions
 - Pandemic supply chain disruptions
 - “China+1” diversification strategy

▪ **Major Investments (2022–24)**

- \$700M Sriperumbudur expansion
- New Bengaluru iPhone facility

India moved from peripheral supplier to strategic production hub.



- Hyderabad AirPods/iPad campus
- \$1.54B additional investment (2023)
- Semiconductor OSAT JV with HCL Technologies

▪ **Revenue Explosion: The FY25 Step-Change**

Fiscal Year	Revenue (Est.)	Employees	Key Development
FY2018-19	~\$1-2B	~12,000	Budget Android assembly; minimal PLI impact
FY2020-21	~\$3-4B	~18,000	PLI scheme launched; first iPhone models approved
FY2021-22	~\$5-6B	~25,000	iPhone 12/13 ramp in India; Sriperumbudur expansion begins
FY2022-23	~\$7-8B	~35,000	iPhone 14 first-ever same-cycle India production
FY2023-24	~\$9-10B	~48,000	iPhone 15 volume; Bengaluru plant operational
FY2024-25	>\$20B	~80,000+	Revenue more than doubled; iPhone exports hit Rs 1.5 lakh crore

20x jump in 5 years

Sources: Business Standard, PTI, Outlook Business, India Briefing, Tracxn (Foxconn Technology India Pvt Ltd).

▪ **What Drove the Doubling?**

- iPhone exports surged from ₹ 85,000 crores to ₹ 1.5 lakh crores (FY24 to FY25)
- Multi-site scale – operating at Chennai + Bengaluru + Hyderabad simultaneously
- India manufactured iPhones alongside China at launch — a milestone in capability.
- PLI disbursements – lowered effective production costs

▪ **The Bigger Picture: India’s EMS Opportunity (2nd largest mobile manufacturer globally)**

- Mobile phones led the surge, but diversification is accelerating into:
 - Automotive electronics
 - Defence & aerospace
 - Smart meters & infrastructure
 - Medical devices
 - Data centre hardware

▪ **The Multiplier Thesis** – Foxconn’s growth proves the exponential growth prospects in the EMS sector – with policy support + anchor OEM demand + capital + labour alignment.

The broader EMS sector now mirrors the same setup:

- Volume expansion (more OEMs entering India)
- Value chain deepening (components, semiconductors)
- Ecosystem compounding (suppliers, logistics, talent)

Indian EMS Ecosystem Evaluation –

We bifurcate the EMS ecosystem into two broad categories based on the OEMs catered to viz. – consumer durables, and industrials.



Consumer Durable - HV, LM	Industrial - LV, HM
Dixon Technologies	Kaynes Technology
Amber Enterprises	Syrma SGS
PG Electroplast	Avalon Technologies
Elin Electronics	Cyient DLM

HV – High Volume, LM – Low Margin, LV – Low Volume, HM – High Margin

We are positive on both segments – particularly AC manufacturing in the consumer durable segment and the industrial segment as a whole, hence we will evaluate opportunities in both segment

Revenue and margin Analysis –

Indian EMS companies have delivered exceptional revenue growth — often 30-60% CAGR over 3-5 years — driven by PLI scheme ramp-ups, new client additions, and India's rising electronics production. However, revenue growth in consumer EMS is often misleading because:

- **High Bill of Material (BOM) passthrough:** When component costs rise, revenues rise without any margin improvement. Revenue growth ≠ profit growth.
- **PLI-driven surge:** Some revenue growth is simply inventory/production buildup to hit PLI targets, not genuine end-demand growth.
- **Client mix concentration:** 60-80% of Dixon's mobile revenue from 2-3 clients means their growth = those brands' India market share.

Industrial EMS revenue quality is fundamentally better — milestone-based billing means recognized revenue corresponds to actual delivery, order books provide 12–24-month visibility, and customer switching costs are high.

Company	EBITDA Margin	PAT Margin	PLI Dependency	Margin Trend
Dixon Technologies	4-4.5%	2-2.5%	Moderate	Slight improvement
Amber Enterprises	6-7%	1.5-2.5%	Low	Improving slowly
PG Electroplast	7-8%	3-3.5%	Low	Improving — ODM shift
Kaynes Technology	14-16%	9-10%	Very Low	Expanding
Syrma SGS	9-10%	4.5-5%	Low	Stable to improving
Avalon Technologies	11-12%	5.5-6.5%	Low	Improving
Cyient DLM	10-12%	4.5-6%	Very Low	Expanding

Source – Screener

The margin gap between consumer EMS (3-8%) and industrial EMS (10-18%) reflects the fundamental difference in value addition. Consumer EMS companies are essentially assembly factories with BOM passthrough. Industrial EMS companies co-design, hold technical certifications, and have long qualification processes — **real moats.**



High Valuations to EMS companies –

- These are **high growth companies**, capital efficient (asset light), and a core part of the manufacturing renaissance in India
- **PLI scheme makes near-term earnings trajectory highly visible** — markets price in growth certainty
- **India-listed EMS companies have no direct comparable globally** — Foxconn (Taiwan), Flex, Jabil are 5-10% EBITDA margin Western EMS, but Indian companies are growing 30-50% revenues while those companies are growing 3-5%
- **Scarcity value:** Very few listed industrial-grade EMS options; investors willing to pay for the rare combination of high quality + high growth.

We remain mindful of balancing valuations against growth prospects as part of our detailed evaluation. Historically, most market participants have valued this universe on a PEG basis — however, we believe the relevant metrics going forward must extend well beyond growth alone. Factors such as working capital efficiency, EBITDA-to-cash flow conversion, ROE, and ROCE will be equally critical, as will the quality of capital allocation — particularly how capex is being funded. Given the strong growth outlook embedded in these businesses, premium valuations are inevitable, but we believe disciplined investors must look through the headline PE multiple and assess the true quality of earnings and capital efficiency underlying it.

Risks –

- **Bill of Materials (BOM) Inflation** – The Biggest Threat to Consumer EMS – as the pass on happens with a lag and might lead to a margin compression.
- **PLI Incentive Risk** – Several companies' PAT margins are significantly supported by PLI scheme incentives. As PLI cycle ends, **only players with backward integration** into component manufacturing will be able to sustain margins.
- **Working Capital cycle** – it is important to ascertain the working capital management, and cash conversion in EMS companies as they are subject to inventory, receivables buildup, etc – delaying cash conversion.
- **Backward Integration** – Currently, the profit margins of EMS companies are in part funded by the PLI schemes announced by the government. Only those players that are backward integrated will be able to preserve margins, once the PLI incentives are withdrawn.

India's Japanese Moment

In the 1960s, "Made in Japan" was a punchline. Electronics from Japan were considered cheap imitations — functional at best, forgettable at worst. Two decades later, the world was wearing Walkmans and trusting Japanese washing machines with their laundry. That transformation wasn't accidental. It was the compounding result of deliberate policy, patient capital, disciplined labour, and a generational willingness to absorb, adapt, and eventually master technology. Japan didn't just manufacture — it learned, iterated, and built franchises that redefined global quality standards.

India stands at a strikingly similar inflection point today.



The stars are aligning in a way that is rare in economic history — government intent, private sector ambition, and a vast, trainable workforce are moving in the same direction, at the same time. PLI schemes are seeding capacity. China+1 is creating demand pull. And a domestic consumption story of unparalleled scale is providing the home market that Japan never quite had. The learning curve is steep, but India has shown — in software, in pharma, in space — that it climbs fast.

This is India's Japanese Moment. Whether it becomes a Walkman story or a footnote depends on how boldly and how patiently the opportunity is pursued. We invest in this theme with mindfulness — eyes open to execution risk and the long gestation this transformation demands — and with equal measure of conviction, because the tailwinds at India's back are as structural as they come.

Conclusion

The **Indian EMS sector is a generational opportunity** — India building domestic electronics manufacturing capacity over 15-20 years mirrors China's electronics manufacturing surge from 1995-2015. The total addressable opportunity is enormous.

India is in the early stages of a structural electronics manufacturing renaissance – driven by

- PLI schemes
- China+1 supply chain diversification
- Rising domestic consumption
- Atmanirbhar Bharat defense indigenization

The addressable market for Indian EMS is growing from \$20 Bn today to potentially \$100 Bn+ by 2030.

The sector bifurcates cleanly – consumer EMS companies (Dixon, Amber, PGEL) are high-volume, low-margin businesses that benefit from India's demand growth but face perpetual margin pressure; while industrial EMS companies (Kaynes, Syrma, Avalon, Cyient DLM) operate in a completely different universe; complex, mission-critical, relationship-driven, and consequently far more profitable.

We bifurcate the approach of evaluation into two segments – consumer EMS evaluated based on volume momentum and ODM progression; and industrial EMS on margin sustainability, order book quality, and ROCE trajectory.

The opportunity landscape is immense, as we have seen in the case of Foxconn which grew multi-fold due to the structural opportunity available. Currently, only ~20% of the overall EMS market is available in the listed space.

We would like to position this theme in client portfolios as a part of the growth allocation in the Next Frontier Growth (NFG) portfolio from a 3–5-year investment standpoint.

We have previously recommended Direct Equity allocation in the consumer EMS space, and would come up with further stock notes with as per our evaluation.

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Statutory Information:

- Pravia Investment Advisors Private Limited: CIN: U66309MH2025PTC451047; Regd Off Address: 801, A-Wing 215 Atrium, CTS No 215, Andheri-Kurla Road, Andheri East, Chakala MIDC, Mumbai - 400093; Contact: **+91 9004139937**
- Corporate Investment Adviser SEBI Registration no. INA000021322, Validity of Registration: Nov 04, 2025 – Perpetual. BSE Enlistment No.2375,
- Principal Officer: Ms. Vaibhavi Shah (E-mail: info@pravia.in), Contact: **+91 9004139937**
- Compliance Officer and Grievances Redressal Officer: Ms. Nishma Desai (E-mail: compliance@pravia.in) Contact: **+91 9004139937**

SEBI Regional Office: SEBI Bhavan, Plot No. C-4 A, G Block, Bandra Kurla Complex, Bandra East, Mumbai 400 051.