



BUSINESS PLAN · INDIA

Electronics / PCB Assembly Unit (EMS)

Quality, tested, on-time electronic assemblies at competitive cost

MANUFACTURING

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This document is confidential and prepared for planning purposes. All financial figures are illustrative model assumptions for an Indian MSME context and must be validated against live quotes, local rates and professional advice before any investment or borrowing decision.

1. Executive Summary

This plan sets out an **Electronics / PCB Assembly Unit** (EMS — Electronics Manufacturing Services) in India — a contract electronics-manufacturing facility providing PCB assembly (SMT & through-hole), component sourcing, box-build/final assembly, testing & supply for OEMs & brands across consumer electronics, appliances, IoT, industrial, automotive-electronics & medical devices. It earns EMS margins on assembly volume & line utilisation, monetising SMT/assembly capacity, quality & supply-chain capability without owning the end brand — a capex-, utilisation- & supply-chain-driven B2B electronics business.

India's EMS sector is booming, propelled by the PLI schemes (electronics/mobile/IT hardware/components), Make-in-India, import substitution, the electronics & IoT boom, and global supply-chain diversification ("China+1"). An EMS unit earns steady assembly margins with the key levers being SMT-line utilisation, quality/certification, component supply-chain management & cost efficiency. It is SMT-capex-intensive with component-supply & import dependency; success rests on line utilisation, quality, supply chain & OEM/brand relationships. PLI & component-localisation are major tailwinds.

This is a capital-intensive MSME manufacturing business — funded by promoter equity plus bank finance (term loan for SMT lines & equipment + CC/OD for working capital, under CGTMSE/SIDBI & PLI where eligible). This plan models an EMS unit requiring **₹2.5 crore** (₹90 lakh promoter + ₹1.6 crore bank finance), targeting **₹5.5 crore** revenue in Year 1 and **₹11 crore** by Year 3. (*Electronics/PCB assembly (EMS); SMT-utilisation/supply-chain-driven, PLI-tailwind, B2B.*)

2. Business Description, Vision & Legal Structure

Concept: An EMS unit providing PCB assembly (SMT/THT), box-build, testing & supply for OEMs/brands - reliable, quality, cost-efficient electronics manufacturing.

Vision: To be a trusted EMS partner in India's electronics-manufacturing boom.

Mission: Deliver quality, tested, on-time electronic assemblies at competitive cost.

Legal structure options

- **Private Limited** — recommended (for OEM contracts, PLI, finance & scale).
- **LLP** — possible, but EMS contracts & PLI favour a company.

Regulatory anchor: an EMS unit is a factory + electronics producer — Factories Act & factory licence, GST, pollution-board CTE/CTO, e-waste (EPR) & RoHS, fire & labour/safety, BIS (for applicable products), quality (ISO 9001, IPC-A-610, IATF for auto-electronics, ISO 13485 for medical), & PLI (electronics/IT-hardware/components) eligibility. SMT-line utilisation, quality/certification, component supply chain & cost efficiency determine success; SMT-capex-intensive with component-import dependency but strong PLI tailwinds.

3. Promoter & Ownership

Led by a promoter with electronics/EMS, manufacturing or supply-chain experience & OEM relationships. The team includes SMT/assembly operators, process/quality (IPC), test/repair, component sourcing/supply-chain & program management. SMT capability, quality, supply-chain & OEM relationships are the differentiators. Ownership & stakes are editable inputs.

4. Market Analysis — India

India's EMS & electronics-manufacturing market is booming, driven by PLI schemes (mobile/electronics/IT hardware/components), Make-in-India, import substitution, the electronics/IoT/appliance boom, EV & industrial electronics, and global "China+1" supply-chain shifts. OEMs & brands increasingly outsource assembly to Indian EMS players. The market rewards SMT capacity, quality/certification, component supply chain & cost; it is utilisation-, component-supply- & import-sensitive & competitive, met with quality, supply-chain capability, PLI leverage & relationships.

Demand drivers

- **PLI (electronics/mobile/IT-hardware/components).**
- **Make-in-India & import substitution.**
- **Electronics, IoT & appliance boom.**
- **"China+1" supply-chain shift.**
- **EV & industrial electronics.**

Market sizing (illustrative framing)

Layer	Definition	Indicative scale
TAM	EMS/electronics manufacturing in India	Very large & growing
SAM	Segment/region & capacity	Substantial
SOM (Yr 1–3)	OEM/brand assembly volume	Scaling

Target segments

- Consumer electronics & appliance OEMs.
- IoT, industrial & automotive electronics.
- Startups & brands (box-build).
- Medical & defence electronics (certified).

5. Competition & Competitive Advantage

Landscape: large EMS players, other SMT units, in-house OEM assembly & imports. The unit competes on quality/certification, SMT capability, component supply chain, cost, capacity & relationships.

The unit's edge

- **SMT capability & utilisation.**
- **Quality & certifications (IPC/ISO).**
- **Component supply-chain management.**
- **Cost efficiency & testing.**
- **PLI leverage & relationships.**

6. Products & Revenue Model

Stream	Model	Basis
PCB assembly (SMT/THT), consignment	Assembly charge (client components)	Core (low component risk)
Turnkey (component + assembly)	Cost-plus (component + assembly)	Higher value/risk
Box-build / final assembly	Value-added per-unit	Margin/stickiness
Testing & NPI/design support	Fee / value-add	Stickiness
PLI incentives (if eligible)	Production-linked incentive	Margin/support

Consignment (client components, assembly charge) carries low component risk & steady margin; turnkey (component + assembly) is higher value but component-price/supply-exposed. Box-build, testing & NPI lift margin & stickiness; PLI incentives support margins. SMT-line utilisation, quality, supply chain & cost drive economics — the decisive EMS levers.

7. Go-to-Market — Marketing & Sales

- **OEM/brand & startup** business development.
- **Certifications (IPC/ISO) & capability** as credentials.
- **PLI & localisation** positioning.
- **Turnkey & box-build** value-add.
- **Reliability, quality & NPI** support.

Sales approach

Win OEMs/brands/startups (capability, quality, cost, PLI) → prove quality & on-time via NPI/pilot → convert to volume & turnkey/box-build → deepen with testing/design & supply-chain → leverage PLI & diversify segments. SMT utilisation, quality, supply chain & relationships build scalable revenue.

8. Operations Plan

- **Plant & lines:** SMT line(s) (printer, pick-and-place, reflow, AOI), THT/wave, box-build/assembly, test & repair, ESD-controlled environment.
- **Process:** NPI/DFM → component sourcing/kitting → SMT/THT assembly → AOI/testing → box-build → QC → dispatch.
- **Supply chain:** component sourcing (incl. imports), kitting, inventory, obsolescence & lead-time management.
- **Quality:** IPC-A-610, ISO 9001/13485/IATF (as relevant), AOI/testing, traceability, RoHS/e-waste.
- **Tech:** ERP/MES, SMT programming, inventory & traceability, test systems.

EMS workflow

Stage	Activity	Metric
NPI	DFM/pilot	Yield/approval
Source	Components/kit	Lead-time/cost
Assemble	SMT/THT/box	Line utilisation/OEE

Test	AOI/functional	Defect/yield
Dispatch	QC/deliver	On-time

9. Regulatory, Licences & Compliance (India)

- **Factory & safety:** Factories Act & factory licence; fire NOC; labour/ESI/PF; ESD & electrical safety.
- **Product & environment:** BIS (applicable products); RoHS; e-waste (EPR) rules; pollution CTE/CTO.
- **Quality:** ISO 9001, IPC-A-610, IATF (auto), ISO 13485 (medical) as relevant; OEM approvals.
- **Business & schemes:** Pvt Ltd; GST; PAN/TAN; import (IEC) for components; Udyam; PLI (electronics/IT-hardware/components) if eligible.

10. Organisation & Manpower Plan

Role	Yr 1	Yr 2	Yr 3
Promoter & plant head	2	3	4
SMT/assembly operators (shifts)	18	30	46
Process, quality & test	5	8	13
Supply chain, sourcing & stores	4	7	11
Program mgmt, NPI & admin	3	5	8
Total	32	53	82

11. Implementation Timeline & Milestones

Phase	Timeline	Milestone
Setup	Month 0-6	SMT lines, ESD plant, certifications, licences, PLI, first OEMs/NPI
Ramp	Month 6-12	Line utilisation, yield, supply chain, contracts; ₹5.5cr revenue
Deepen	Year 2	Turnkey, box-build, testing, more OEMs
Scale	Year 2-3	PLI, component localisation, exports
Grow	Year 3	₹11cr revenue; higher utilisation & lines

12. Financial Plan (Illustrative)

All figures are illustrative model assumptions for an Indian context, shown so the promoter can replace them with live rates. They are not projections of guaranteed results. EMS; SMT-utilisation/supply-chain-driven, PLI-supported, capex-intensive.

12.1 Project cost & means of finance

Capital requirement	₹
SMT line(s) & assembly equipment	1,30,00,000

Test, AOI & ESD plant setup	35,00,000
Factory setup & utilities	25,00,000
Working capital (components, WIP, receivables)	50,00,000
Certifications, licences & pre-operative	10,00,000
Total project cost	2,50,00,000
Promoter contribution	90,00,000
Bank finance (term + CC; CGTMSE/SIDBI/PLI)	1,60,00,000

12.2 Projected Profit & Loss (3 years)

Particulars	Year 1	Year 2	Year 3
PCB assembly (consignment + turnkey)	4,60,00,000	7,20,00,000	9,20,00,000
Box-build, testing & NPI	70,00,000	1,30,00,000	1,50,00,000
PLI incentives & other	20,00,000	40,00,000	30,00,000
Total revenue	5,50,00,000	8,90,00,000	11,00,00,000
Components & material	3,63,00,000	5,87,00,000	7,26,00,000
Power & direct labour	60,00,000	88,00,000	1,05,00,000
Overheads, quality & maintenance	45,00,000	62,00,000	74,00,000
Admin & selling	28,00,000	40,00,000	48,00,000
Interest & depreciation	42,00,000	46,00,000	48,00,000
Total expenses	5,38,00,000	8,23,00,000	10,01,00,000
Net profit (before tax)	12,00,000	67,00,000	99,00,000
Net margin	2.2%	7.5%	9.0%

12.3 Unit economics & break-even

- **SMT-line utilisation:** the master lever — placements/hour & line uptime against heavy SMT capex/interest/depreciation; high utilisation transforms margins.
- **Component supply chain:** components are the bulk of turnkey cost; consignment lowers risk; lead-time, obsolescence & sourcing efficiency protect margin; PLI supports.
- **Break-even:** at a line-utilisation threshold covering fixed costs; above it incremental volume is highly profitable — utilisation, yield & supply chain decisive.

12.4 Projected Cash Flow — Year 1 (quarterly, illustrative)

Particulars (₹)	Q1	Q2	Q3	Q4
Opening balance	10,00,000	8,80,000	8,50,000	8,70,000
Collections	1,00,00,000	1,25,00,000	1,45,00,000	1,62,00,000
Components, labour, overheads & interest	1,01,20,000	1,25,30,000	1,44,80,000	1,61,00,000

Closing balance	8,80,000	8,50,000	8,70,000	9,70,000
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Turnkey ties up heavy component WC (imports, lead-times, advances) & OEM receivables (45-90 days); consignment & PLI ease it. Utilisation, component supply-chain & WC discipline, receivable & CC management, plus buffer, manage cash; component lead-times/prices, forex & ramp utilisation are the key risks — met with consignment, sourcing & PLI.

12.5 Key Performance Indicators to Monitor

- **Utilisation:** SMT-line utilisation %; placements/hour; OEE.
- **Quality:** first-pass yield; defect/DPMO; IPC/audit status.
- **Supply chain:** component lead-time; obsolescence; consignment vs. turnkey mix.
- **WC:** component inventory; receivable days; CC utilisation; PLI realised.

13. Funding Requirement & Bankability

Total ask: **₹1.6 crore bank finance** against ₹90 lakh promoter contribution — term loan for SMT lines & equipment + CC for working capital (component WC), under CGTMSE/SIDBI & PLI (electronics/components). Bankability rests on SMT utilisation, OEM contracts, quality/certifications & supply-chain capability; strong PLI & Make-in-India tailwinds support the sector; the unit is asset-backed. Year-1 profit ~₹12 lakh scaling to ₹99 lakh supports servicing; PLI incentives & OEM contracts de-risk the ramp.

13.1 Funding utilisation

Use of funds	₹	% of total
SMT line(s) & assembly equipment	1,30,00,000	52%
Working capital (components, WIP, receivables)	50,00,000	20%
Test, AOI & ESD plant setup	35,00,000	14%
Factory setup & utilities	25,00,000	10%
Certifications, licences & pre-operative	10,00,000	4%
Total	2,50,00,000	100%

14. Risk Analysis & Mitigation

Risk	Mitigation
Component supply / lead-time / obsolescence	Consignment; multi-source; sourcing & inventory management; localisation
Low SMT-line utilisation	OEM contracts; box-build/turnkey; diversify; multi-shift
Forex / component-price (imports)	Consignment; hedging; pricing clauses; localisation/PLI
Quality / yield	IPC/ISO, AOI/testing, process control, NPI/DFM
Client concentration & WC	Diversify OEMs; credit control; CC; PLI cash

15. SWOT Analysis

Strengths Strong PLI/Make-in-India tailwind; booming demand; asset-backed; box-build/turnkey value-add; scalable.	Weaknesses SMT-capex-intensive; component-supply/import-dependent; utilisation-/forex-sensitive; WC-heavy (turnkey).
Opportunities PLI & component localisation; "China+1"; IoT/EV/industrial; exports; box-build & design.	Threats Component shortages & forex; competition & imports; utilisation shortfalls; tech/obsolescence.

16. Recommended AiSevak Tools for This Business

This EMS unit would use AiSevak's Manufacturing vertical tools in delivery:

- **Plant ops:** ERP/MES/production-planning, SMT-utilisation/OEE/yield, component-supply-chain/inventory and quality/test tools.
- **Compliance:** factory-licence, RoHS/e-waste (EPR) & BIS, IPC/ISO and PLI (electronics/components) tools (with Legal & Finance verticals).
- **Practice:** Business Plan, utilisation/supply-chain-economics and Break-even tools to model the unit.

17. Key Assumptions & Notes

- EMS/PCB assembly; consignment (client components, low risk) + turnkey (component + assembly) + box-build/testing; PLI supports margins.
- SMT-line utilisation is the master lever; components are the bulk of turnkey cost — supply chain, lead-time & forex management decisive.
- SMT-capex- & WC-heavy; term + CC (CGTMSE/SIDBI; PLI for electronics/components); Factories Act, RoHS/e-waste, BIS, IPC/ISO, IEC (imports).
- Utilisation, quality/yield, supply chain & PLI drive economics; figures illustrative, exclude GST.

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