

Detailed Project Report

One SMT line for contract PCBA (EMS) • Kochi, Kerala

Sample report. A fictional project prepared by BizTek Consulting to show the structure and standard of a bank-grade DPR. Client, figures and quotations are illustrative. The financial model (BizTek_DPR_Financial_Model_SAMPLE.xlsx) contains every calculation.

Promoter / applicant	Example Circuits Pvt Ltd (proposed)
Project	Contract electronics manufacturing: one SMT line for PCBA, turnkey and consigned
Location	Leased shed, 15,000 sq ft, industrial park, Kochi, Kerala
Project cost	₹600 lakh
Means of finance	Promoter equity ₹200 lakh • term loan ₹400 lakh (debt : equity 2 : 1)
Purpose of this report	Term loan and working-capital limits from a bank; state incentive application
Prepared by	BizTek Consulting, Kochi
Report date / version	2 October 2026 • v1.0 (sample)

1. Executive summary

Example Circuits proposes to set up a contract electronics manufacturing unit in Kochi with one surface-mount (SMT) line, serving industrial, automotive-aftermarket, medical and IoT customers in South India. The unit will build printed circuit board assemblies (PCBA) both turnkey, buying the components, and on a consigned basis, where the customer supplies the material. The project costs ₹600 lakh and is funded 1 : 2 by promoter equity and a term loan.

Project at a glance

Item	Value
Installed capacity	300,000 boards a year (2 shifts, 300 days), half turnkey and half consigned
Capacity utilisation	45% in year 1, 60% in year 2, 70% in year 3, 80% from year 4
Revenue (year 3 / year 4)	₹1,417.5 lakh / ₹1,620.0 lakh
EBITDA margin (year 3)	13.6%
Average DSCR (repayment years)	1.79
Minimum DSCR (repayment years)	1.18 (year 2)
Project IRR (post-tax) / NPV at 12%	14.6% / ₹82.7 lakh
Break-even (year 3)	78% of projected sales; cash break-even 63%
Employment	About 45 people at full capacity

Conclusion and recommendation

The project is technically sound and financially viable in the base case, with an average DSCR of 1.79 and a project IRR of about 15%. Year 2 is the weak year (DSCR 1.18) because repayment starts while the line is still ramping up, and it falls below 1.0 if sales are 10% lower or margins are squeezed. BizTek therefore recommends an 18-month moratorium, or a stepped repayment schedule, and price-variation clauses in turnkey customer contracts. We have not adjusted any assumption to improve these ratios.

2. Promoters and management

[Sample placeholder] The promoters bring [●] years of electronics manufacturing and sales experience. The company will be incorporated as a private limited company in Kerala. A plant head with SMT experience and a quality manager will be hired before Gate 4 of the project.

Name	Role	Qualification and experience	Net worth (₹ lakh)
[Promoter 1]	Managing Director	[●]	[●]
[Promoter 2]	Director, Operations	[●]	[●]
[Key hire]	Plant Head	[●]	—

Net-worth statements, KYC and credit history are attached separately as required by the lender.

3. Market and demand assessment

India's electronics production reached about ₹13.11 lakh crore in 2025-26, up roughly 16% on the previous year, with exports of about ₹4 lakh crore (MeitY, July 2026). Industry studies expect India's electronics manufacturing services (EMS) market to exceed US\$150 billion by 2030 (KPMG, June 2026), helped by domestic demand and the component and semiconductor schemes.

Large EMS firms concentrate on high-volume mobile and consumer work. Smaller OEMs in industrial controls, automotive aftermarket, medical devices and IoT need low-to-medium volumes, quick changeovers and nearby engineering support. In Kerala and the southern districts of Tamil Nadu and Karnataka most such OEMs currently send boards to Bengaluru, Chennai or Pune, with 3–6 week lead times.

Target customers and demand evidence

Segment	Typical products	Evidence (sample)
Industrial controls	Controllers, drives, power supplies	Letter of intent from Customer A: 25,000 boards / year
Automotive aftermarket	Telematics, lighting, chargers	Letter of intent from Customer B: 20,000 boards / year
Medical devices	Monitors, diagnostic sub-assemblies	Trial order discussion with Customer C
IoT and energy	Meters, gateways, solar electronics	4 enquiries from Kerala Startup Mission firms

Capacity justification

Year-1 production of 135,000 boards (45% utilisation) is covered about one-third by letters of intent and the rest by a pipeline of named prospects. Steady-state utilisation is held at 80%, below the 85% ceiling in the BizTek DPR Standard. Prices assume an average turnkey price of ₹1,200 per board and a conversion fee of ₹150 per consigned board, in line with quotes from three regional EMS firms.

4. Technology and process

Process flow: incoming inspection and moisture-sensitive storage → solder-paste printing → solder-paste inspection (SPI) → component placement on two pick-and-place machines → reflow soldering in nitrogen → automated optical inspection (AOI) → through-hole insertion and selective soldering → X-ray for BGA joints → in-circuit and functional test → conformal coating where required → packing and dispatch.

Alternatives considered

Option	Assessment	Decision
One pick-and-place machine	Lower cost but caps throughput and removes redundancy	Rejected
Two pick-and-place machines (chosen)	Balanced line, flexibility for mixed volumes	Selected
Refurbished equipment	About 35% cheaper; weaker warranty and service; lender reluctance	Rejected
Outsourcing SMT, assembling in-house	Low capex but no control over quality or lead time	Rejected

Quality systems: ISO 9001 at start, IPC-A-610 trained operators, ESD control to IEC 61340-5-1, and full board-level traceability through MES. IATF 16949 and ISO 13485 are planned for year 2 to serve automotive and medical customers.

5. Plant, machinery and capacity

Item	₹ lakh	Basis
SMT line: printer, SPI, 2 × pick-and-place, reflow (N2), AOI, conveyors	300.0	Quotation, Bidder A (sample)
Through-hole, selective soldering and rework stations	40.0	Quotation
Test and inspection: X-ray, ICT / FCT fixtures	50.0	Quotation
Utilities: compressor and dryer, N2 generator, UPS, HVAC	45.0	Quotation
IT, MES and traceability	15.0	Quotation
Plant and machinery total	450.0	

Three quotations were obtained for each major item, all dated within 90 days. The SMT line selection followed a two-envelope evaluation (technical first, then price) using the BizTek vendor evaluation matrix. Rated line capacity at the planned product mix is about 300,000 boards a year on two shifts.

6. Site, utilities and approvals

Item	Details
Site	15,000 sq ft leased shed in an industrial park, Kochi; 9-year lease with 3-year lock-in
Power	250 kW connected load; HT connection applied; 125 kVA DG back-up
Water and compressed air	Park supply; oil-free compressor with dryer; N2 generator for reflow
Environment	Low-pollution assembly activity; solder and chemical waste through an authorised handler

Approval	Authority	Status (sample)
Udyam and GST registration	MSME / GST department	To apply at incorporation
Consent to Establish / Operate	State pollution control board	Category to be confirmed; CTE before installation
Factory plan approval and licence	Factories and boilers department	Through state single window
Fire NOC	State fire and rescue services	Before trial production
HT power connection	State power utility	Application filed

Full list with lead times in the Approvals Map (BizTek template).

7. Project cost and means of finance

Item	₹ lakh	Share
Building interiors, ESD flooring and civil works	60.0	10%

Item	₹ lakh	Share
Plant and machinery	450.0	75%
Furniture, ESD furniture, dry storage	20.0	3%
Pre-operative expenses incl. IDC	15.0	2%
Contingency	25.0	4%
Margin money for working capital	30.0	5%
Total project cost	600.0	100%

Means of finance	₹ lakh	Share
Promoter equity	200.0	33%
Term loan	400.0	67%
Total	600.0	100%

Term loan of ₹400 lakh at 10.5%, with a 12-month moratorium on principal and six equal annual instalments. Working capital is funded 75% by a bank limit at 10% and 25% by the promoters. A state capital subsidy (estimated in the Incentive Map) is not counted in the means of finance.

8. Financial projections

₹ lakh	Y1	Y2	Y3	Y4	Y5	Y6	Y7
Capacity utilisation	45%	60%	70%	80%	80%	80%	80%
Total revenue	911	1,215	1,418	1,620	1,620	1,620	1,620
EBITDA	74	148	193	237	225	213	200
EBITDA margin	8%	12%	14%	15%	14%	13%	12%
Depreciation	56	56	56	56	56	56	56
Interest on term loan	42	38	32	24	18	10	4
Profit after tax	-38	27	64	100	97	95	90
Cash accruals	21	85	122	159	155	150	146
TL repayment	0	67	67	67	67	67	67
DSCR	1.50	1.18	1.57	2.01	2.05	2.08	2.13
Current ratio	1.27	1.28	1.43	1.66	1.93	2.18	2.42
Term debt : TNW	2.46	1.76	1.05	0.57	0.30	0.12	0.00

Year 1 is in moratorium: interest only, so its DSCR is shown for information. Working-capital interest is in the model.

Key assumptions

- Prices held flat for seven years; wages and rent rise 5% a year.
- Turnkey material 72% of price; consumables 1.5% of revenue; power at ₹8.5 per kWh.
- Receivables 60 days, inventory 45 days, creditors 45 days.

- Straight-line depreciation at 10%; income tax at 25.17% (company rate under section 115BAA, to be confirmed by the CA).
- Every assumption, its source and date are listed on the Inputs tab of the model.

9. Sensitivity and risk analysis

Scenario	Average DSCR	Minimum DSCR	Project IRR
Base	1.79	1.18	14.6%
Sales volume -10%	1.46	0.95	10.6%
Prices -5%	1.17	0.71	6.9%
Material cost +5 points	1.21	0.75	7.5%
Six-month delay	1.79	1.18	11.3%

The average DSCR stays above 1.15 in every case, but the year-2 DSCR falls below 1.0 if sales are 10% lower, prices 5% lower, or material costs 5 points higher. The cause is timing: repayment starts in year 2 while the line is still at 60% utilisation.

Mitigations proposed

- Extend the moratorium to 18 months, or step the repayment (for example 10% / 15% / 15% / 20% / 20% / 20%).
- Include material price-variation clauses in turnkey contracts; keep at least 40% of capacity on consigned work.
- Secure firm orders for at least 50% of year-1 volume before the SMT line order is placed.
- Keep the 125 kVA DG back-up so trials are not held up by the HT connection.

Risk	Mitigation
Slower customer ramp-up	Letters of intent; pipeline in Kerala and neighbouring states; GTM support
Component price and availability	Pass-through clauses; consigned work; approved alternate sources
Key staff availability	Early hiring of plant head; vendor training; ITI tie-up
Equipment delivery delay	Delivery LDs in POs; weekly expediting through the PMC

10. Manpower and implementation schedule

Category	Number at full capacity	Cost per year (₹ lakh, year 1 basis)
Direct: operators, technicians	30	2.6 each
Engineers, quality, stores, admin	12	6.0 each
Management (promoters)	3	Not charged to project

Milestone	Month from sanction
Loan sanction and lease deed	0
Orders for SMT line and test equipment	1

Milestone	Month from sanction
Interiors, ESD flooring and utilities complete	4
Equipment arrives and is installed	5
IQ / OQ / PQ and trial runs	6
Commercial production	7

11. Environmental and regulatory compliance

PCBA assembly is a low-pollution activity. Lead-free solder is used except where customers require otherwise. Solder dross, flux and chemical waste will be disposed of through an authorised recycler, e-waste through an authorised handler, and fume extraction is provided at reflow and selective soldering. The unit will follow factory, fire, electrical and labour laws as set out in chapter 6.

Annexure A • Financial model

Full workings are in BizTek_DPR_Financial_Model_SAMPLE.xlsx: Inputs, Project Cost, Projections (P&L, cash flow, balance sheet, ratios) and Summary (DSCR, IRR, NPV, break-even, sensitivity). The balance sheet balances in every year.

Annexure B • BizTek DPR Standard sign-off

Check	Done	By
Site seen; land or lease documents sighted	Yes	QA Reviewer
At least three dated quotations per major item	Yes	QA Reviewer
Utilisation justified; steady state $\leq 85\%$	Yes	QA Reviewer
Every assumption in the source register	Yes	QA Reviewer
Model integrity: balances, ties, no hard-coded outputs	Yes	QA Reviewer
Consistency: capacity, headcount, power	Yes	QA Reviewer
Stress tests run and reported honestly	Yes	QA Reviewer
All approvals listed with status and owner	Yes	QA Reviewer

Disclaimer: prepared on information supplied by the promoters and from the sources stated. BizTek does not guarantee sanction, subsidy or investment.