

AI + Blockchain Powered Supply Chain Verifier for MSMEs

INTRODUCTION

The supply chains of many MSMEs suffer from inefficiency, misreporting, and lack of transparency this kind of errors are common in supply chains .To address this, we propose a different solution using Artificial Intelligence (AI) for real-time demand prediction and Blockchain to verify, store, and audit inventory transactions in a tamper-proof, decentralized manner.This builds trust with suppliers, reduces fraud, and enables smart contract automation for ordering and payments.Blockchain is now used in millions of applications but using it for providing a tamper-free support for managing inventory has huge potential.

MARKET POTENTIAL

India has over 63 million MSMEs, of which a vast majority are still dependent on manual or semi-digital inventory systems. The shift to trusted, intelligent supply chains is critical to reducing wastage and improving B2B relationships. This solution has massive scaling potential across sectors like retail, logistics, healthcare, and manufacturing MSMEs.

MATERIALS

- Cloud hosting (AWS/GCP)
 - IoT sensors for tracking movement and environment
 - Private Blockchain Network & smart contract infrastructure
 - AI Model for predicting
 - Web & Mobile Applications
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BASIS AND ASSUMPTIONS

- Cloud-first, cross-platform compatible
 - IoT data recorded on blockchain in real-time
 - Forecasting AI trained using local inventory and sales history
 - Smart contracts preconfigured for B2B auto-reordering
 - Pilot assumes MSMEs have basic digital literacy and device access
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IMPLEMENTATION SCHEDULE

Sl. No.	Activity	Starting Period	Completion Period
1	Survey of collection of data in respect of demand, technology, etc.	July 15, 2025	July 25, 2025
2	Arrangement for margin money	July 26, 2025	Aug 1, 2025
3	Preparation of project report and registration	Aug 2, 2025	Aug 5, 2025
4	Finance assistance	Aug 6, 2025	Aug 20, 2025
5	Development of Site and construction of the building	Not Applicable	Not Applicable
6	Machine purchasing and installation (IoT, blockchain servers)	Aug 21, 2025	Sep 5, 2025
7	Trial production	Sep 10, 2025	Sep 15, 2025

TECHNICAL ASPECTS Process of Manufacture

1. Data Collection → AI Training
2. Blockchain Network Setup
3. Smart Contract Deployment
4. Web/App Development
5. IoT Integration
6. Final Testing and Rollout

Quality Control and Standards

- Blockchain validation per transaction
- Data integrity checks
- ISO 27001 and OWASP top 10 compliance

Production Capacity (Per year) MSMEs onboarded per day: 3 Quantity (MSMEs): ~1,000 Unit
Price: ₹12,000/year per MSME Approximate Size: 150MB Value = ₹1.2 Cr/year

Pollution Control Fully digital model, no physical pollution

Energy Conservation Uses energy-efficient edge IoT devices; blockchain nodes optimized for low-power operations

FINANCIAL ASPECTS A. Fixed Capital (i) Land and Building: Not Required (ii) Machinery and Equipment:

Description	Ind./Imp	Qty	Price (Rs. In Lakhs)
IoT Trackers	Ind.	50	5.00
Edge Devices	Ind.	10	4.00
Server Setup	Imp.	1	3.00
Development Workstations	Ind.	5	3.00
Blockchain Hosting Infra	Ind.	L.S.	2.00
Misc. Equipment	Ind.	-	1.00
Installation	-	-	1.00
Total			₹19.00 Lakhs

(iii) Pre-operative Expenses = ₹1.00 Lakh

Total Fixed Capital = ₹20.00 Lakhs

B. Working Capital (Per Month) (i) Staff and Labour:

Role	Nos	Salary	Total Salary (Rs. Lakhs)
Manager	1	0.75L	0.75
Blockchain Dev	1	0.80L	0.80
ML Engineer	1	0.70L	0.70
IoT Technician	1	0.50L	0.50
Frontend Dev	1	0.50L	0.50
Backend Dev	1	0.60L	0.60
Clerk	1	0.35L	0.35
Total			₹4.20 Lakhs

Add 15% perquisites = ₹0.63L → **₹4.83**

Lakhs/month

(ii) Digital Raw Materials (licenses, cloud): ₹1.5 Lakhs/month (iii) Utilities (internet, power): ₹0.5

Lakhs/month (iv) Other Contingent Expenses: ₹1.2 Lakhs/month **Total Monthly Working**

Capital = ₹8.03 Lakhs Total for 3 months = ₹24.09 Lakhs

Fixed Capital: ₹20.00 Lakhs Working Capital: ₹24.09 Lakhs Total Capital Investment = ₹44.09 Lakhs

FINANCIAL ANALYSIS (1) Cost of Production per year: ₹96.36 Lakhs Depreciation: ₹2.00 Lakhs Interest @14%: ₹6.17 Lakhs **Total: ₹104.53 Lakhs**

(2) Turnover: 1000 MSMEs x ₹12,000 = ₹1.2 Cr (3) Net Profit = ₹15.47 Lakhs (4) Net Profit Ratio = 12.9% (5) Rate of Return = 35.1% (6) Break-even Point = ₹51.43 Lakhs

Materials: Not Applicable (software product)

Projected Income (5 Years)

Year	Sales (L)	Cost (L)	Profit Before Tax (L)	Tax@30 %	Net Profit (L)	Cumulative Profit (L)
1	120	104.53	15.47	4.64	10.83	10.83
2	180	120	60	18	42.00	52.83
3	250	150	100	30	70.00	122.83
4	350	190	160	48	112.00	234.83
5	500	250	250	75	175.00	409.83