Effect of Globalization and Automation on Small Scale Industry

Nagendra Sohani¹, Burhan Adil²

¹,² Department of Mechanical Engineering, Institute of Engineering & Technology, Devi Ahilya Vishwavidyalaya, Indore (M.P.), India

Abstract: This is an era of highly competitive environment. Small Scale Manufacturing Organizations should be very conscious, while selecting product before starting manufacturing. Because without implementation of atomization it is very difficult to achieve break even small scale industries are facing same problem. Globalization of market also effecting small scale industries because international product quality and cost is better than produced by small scale because better facility & low cost of fund available in china, Korea, Malaysia.

Keywords: Globalization, Industry, Small Scale, Manufacturing, Production, Automation, Quality

1. Introduction

It is a study on small scale industries that are facing a problem of automation in their relevant stream, along with globalization of the market. This study will highlight the problems faced by SSI in facility development.

a) Product selection.
b) Location of plant.
c) Size of plant.
d) Technology.
e) Manpower.
f) Government policies.
g) Funds.

• Availability of similar product due to globalization.
• Cost cutting at each and every level of manufacturing.

2. Literature Review

5. The relationship between cost, quantity, capital, technology has to be taken into consideration in order to achieve highly profit earning SSI and the emphasis should be given to BEA.
6. The data envelopment analysis (DEA) is incorporated as a decision support tool to evaluate the degree to which each combination of automation and cost is feasible for SSI.

3. Problem Definition

1. The framework model is the tradeoff between product cost & product quality and product quantity in terms of investment using Break even analysis.
2. Plant size, facility planning and skilled labor training cost and labor turnover analysis.

4. Methodology

4.1 Break Even Volume

A break even analysis shows the relation between the cost and profit with sale volume. The sales volume which equates total revenue with related cost and result in neither profit nor loss is called break even volume.

1. Algebraic methods.

Fixed Cost

\[
\text{BEP (Units)} = \frac{\text{Fixed Costs}}{(\text{Sales Price} - \text{Unit Variable Cost})}
\]

\[
\text{BEP (Units)} = \frac{\text{Fixed Costs}}{(\text{Contribution Margin (Cm)} \times \text{Per Unit})}
\]

5. Discussion

5.1 Banking Facilities for Large scale industries for Cash Flows

1. Banking Nursing Program
2. Banking Exposure of Limits,
3. Limits on Stocks & Exports
4. Concessional Rate of Interest

5.2 Banking Nursing Program

For large scale industries RBI has provided a Bank Nursing Program at the time of recession and for seek units in which RBI provides special funds with large time
for its re-payment without any co-laterals. This is one of the biggest financial supports for any industry. For small scale industries there is no provision for any financial support from RBI.

5.3 Banking Exposure of Limits

For large scale industries RBI has provided interchangeability of limits like Term Loan (FITL) into CC and (FITL) into Working Capital Term Loan (WCTL) which is a backbone of any large scale industry because CC and WCTL are the basic sources of Cash Flow.

5.4 Limits on Stocks & Exports

For Large scale industries RBI has provided a special facility of floating loan exposure on available stocks and export orders. For small scale industries only exposure of fund is totally based on the co-lateral securities which are a financial restriction for small scale industries to execute big export orders, generally for non excisable units.

5.5 Concessional Rate of Interest

For Large scale industries RBI has provided a special facility to manipulate cash crunch by simply providing excess limits without increasing monthly re-payment by adjusting rate of interest in CC or FITL or WCTL. Such facilities are not available for small scale industries.

6. Globalization of Indian Market

Globalization of Indian market has changed the Indian business scenario largely affecting small scale industries because of free import policy and easy fund transfer facility. Very economical products manufactured in China, Korea and Malaysia are easily available in India due to less duty on raw materials, easy availability of funds at small interest rates and high technology production systems as compared to India. Due to globalization very high productive machines are coming in India market at a very low import duty because of which small scale manufacturers are facing survival problems with upcoming medium scale manufacturers. Global competition has put large scale industries on a thinking process of reverse integration and to reduce their venders for cost cutting which in turn is directly affecting the small scale industries. Global vender development is again a big hindrance for the survival of small scale industries. Indian companies are sharing profit with global companies for technology hiring and that to by sharing a thin margin with Indian venders.

7. Global Holdings in Indian Market

7.1 Automobile

Honda, Hyundai, Chevrolet, Renault, Suzuki, Toyota, Ford, BMW, Mercedes, Audi, Skoda, FiatWolksvagen, Nissan.

1. Electronics

L.G., Samsung, Sony, Nokia, Motorola, Haier, Sansui, Sharp, Philips,Brown, Morphy Richards, Lenovo, H.P., Boss ,canon Nikon.

2. Consumer Durable


3. Hard Core Industries


8. Case Study 1

Rigid P.V.C. Pipes
Field Irrigation Pvt. Ltd. Ramabli Nagar Indore.
Phone no 07314046002
Plant capacity per annum: 700 mt.

8.1 Raw Materials

1. PVC Resin 52,000kg
2. D.O.P. 24000Lt
3. Stabilizers 16000kg
4. Lubricants 14000Ltt
5. Colors 6000
6. Fillers 120000

8.2 PVC Compound Formulation: Manufacturing Process:

1. PVC Resin 100
2. Stabilizer (Non toxic) 5
3. Primary Plasticizer 1.5
4. Secondary Plasticizer 5
5. Internal Lubricant 3
6. External Lubricant 4
7. Epoxy Plasticizer 1.5
8. Pigment base 3
9. Fillers 20

8.3 Production Capacity: 700 MT.

8.4 Financial Aspects:

8.4.1 Fixed capital:

a) Land and Building
1. Land : Purchase from MPDIC 2 acres Rs. 32,00,000/-
2. Work shop shed: 10,000 sq. ft. X 2 nos. @ 300/sq. ft. Rs.60,00,000/-
3. Office Building : 1000 sq. ft. @ 400/sq. ft. Rs. 4,00,000/-
4. Store cum godown 10,000 sq. ft. @ 300/sq. ft. Rs.30,00,000/-
5. Watchman shed , Parking stand Boundary etc. LS Rs. 5,00,000/-
6. Bore well LS Rs. 1,00,000/- Rs.1,86,00,000/-
b) Machinery and Equipment:
1. High speed Mixer, cap.50 kg. per batch/hr. filled with complete controls and cooling arrangement. 4 @ 90,000 - 3,60,000
2. 65 mm/18 V PVC rigid pipe extrusion plant consisting of twin screw extruder, vacuum sizing unit, cooling tank, haul off unit and cutting device complete with controls and motor, etc. 200 kg/hr. 1 @ 1100000
3. Dies size 63, 75, 90, 110 mm and mandrel size 2.5 kg/cm2, 4 kg/cm2, 6 kg/cm2, 10 kg/cm2. 1 set each 1,00,000
4. Scraper, grinder, heavy duty fitted with electric motor 5 HP 1 90,000
5. Overhead water tank and recycling pump units 1 35,000
6. Weighing balance, heavy type industrial model 100 gm to 5 kg. 1 10,000
7. Weighing balance, heavy type industrial model 1 kg. to 100 kg 1 15,000
8. Pipe storage, racks, maintenance of small hand tools, greasing, oiling equipment, etc. 30,000
9. Lab. Equipment consisting of capacity testing apparatus, Impact tests, compressive strength, Hydraulic pressure (long term, short term) apparatus. 2,30,000
10. Office furniture & stationery 80,000
Total 13150000

8.4.3 Raw Material P.M.
1. PVC Resin 48,000 @ Rs.78 3743952
2. D.O.P. 2200 @ 85/- 187000
3. Stabilizers 1200 @ 85/- 102000
4. Lubricants 600 @ 82/- 49200
5. Colours 200 @ 140/- 28000
6. Fillers 9800 @ 18/- 176400
Total 4286552

8.4.4 Utilities P.M.
Electricity 1500 KWH @ 6.20 , For factory & water supply 9300@25 , 232500per month

8.4.5 Other contingent Expenditure (P.M.):
1. Postage and stationery 3,000
2. Advertisement and publicity 10,000 ,
3. Traveling Marketing 44,000
4. Telephone 1700
5. Total= 58700
Sales per year: 700 MT.
Total working capital per month = Rs. 4580800
Working capital for 4 months = Rs. 18323200
Total Capital investment= Rs.3193700
Working capital investment= Rs.18323200
Total Rs. 46260200

8.4.6 Financial Analysis:
1. Working capital for 12 months 45808000
2. Depreciation on plant and machinery @ 10% 131500
3. Dep. On shed @ 5% 50000
4. Depreciation on office furniture @ 20% 6,000
5. Interest on total investment. @ 12% 46260200 5551224

8.4.7 Turnover (Per annum):
Rigid PVC pipe produced per month using 80% efficiency of machinery 62,000 kg.
Turnover = 700 MT @ 80 5810000
Rate of return = Profit x 100/total invt = 10%
Net profit ratio = Profit x 100/Turnover = 20.4%

8.4.8 Break Even Analysis: Fixed cost:
1. Depreciation on plant and machinery @ 10% 111500
2. Dep. On shed @ 5% 50000
3. Depreciation on office furniture @ 20% 6,000
4. Interest on total investment. @ 12% 5551224
5. 80% salary 1574400
6. 50% other exp. 29000
7. Power min 120000 8522124
B.E.P. = Fixed cost x profit /Fixed cost + profit
B.E.P. = 55%

9. Case Study 2:
Product: Rigid P.V.C. Pipes
Kirti Industry Pvt. Ltd. Pithampur Dist Dhar. UNDER BRAND NAME KASTA
9.1 Plant Capacity per Annum: 9000 MT.

a) Raw Materials
1. PVC Resin 668,2000kg
2. D.O.P. 308880Lt
3. Stabilizers 205990kg
4. Lubricants 179990Lt
5. Colors 77100Kg 7. Fillers 1546000Kg

b) Production Capacity: 9000 MT.

c) Utility: Approx.

9.2 Financial Aspects:

9.2.1 Fixed Capital

a) Land and Building
Land: Purchase from MPDIC 25 acres Rs. 1800,00,000/-
Work shed: 100,000 sq. ft. X 2 nos. @ 300/sq. ft.
Rs.6000,00,000/-
Office Building : 12000 sq. ft. @ 400/sq. ft.
Rs. 48,00,000/-
Store cum godown 100,000 sq. ft. @ 300/sq. ft.
Rs.300,00,000/-
Watchman shed, Parking stand, Boundary etc. LS Rs. 50,00,000/-
Bore well LS Rs. 10,00,000/-
Total Rs.2808,00,000/-

b) Machinery and Equipment
1. High speed Mixer, cap.100 kg. per batch/hr. filled with complete controls and cooling arrangement. 20 @ 90,000 -360,000
2. 100 mm/36 V PVC rigid pipe extrusion plant consisting of twin screw extruder, vacuum sizing unit, cooling tank, haul off unit and cutting device complete with controls and motor, etc. 360 kg/hr. 5 @ 28800000- 144000000
3. Dies size 63, 75, 90, 110 mm and mandrel size 2.5 kg/cm², 4 kg/cm², 6 kg/cm², 10 kg/cm². 8 set each 1,00,000 – 8,00,000
4. Scrapper, grinder, heavy duty fitted with electric motor 10 HP- 6 - 800,000
5. Overhead water tank and recycling pump units 8 240,000
6. Weighing balance, heavy type industrial model 100 gm to 5 kg. 6 200,000
7. Weighing balance, heavy type industrial model 1 kg. to 100 kg 2 70,000
8. Pipe storage, racks, maintenance of small hand tools, greasing, oiling equipment, etc. 120,000
9. Testing and Quality controls apparatus. 4860,000
10. Expr. For electrification, installation of machinery, water supply, etc. 80,00,000
11. Office furniture & stationery 2000,000 164970000

c) Pre-Operative Experiment
1. Preparation of project profile 100,000
2. Contingency 100,000
3. Sale tax regn. (CST & OST) 500,000
4. Telephone 50,000
5. Travelling 400,000
6. Trial run 500,000
7. Misc. exp. 1000,000
8. Excise regn. 200000

9.3 Working Capital P.M.

A) Staff and Labour payment :
1. Director 2 @150000 – 300000
2. GM 2 @ Rs.80000 – 160000
3. Assistant Manager 3 @ Rs 40000 – 120000
4. Production in charge 2@ Rs 27000 - 54000
5. Production chemist cum supervisor 4 @ Rs.14000 – 56000
6. Clerk cum typist 4 @ Rs10000 – 40000
7. Charted Accountant 1@ Rs 50000 – 50000
8. Company CS 1@ Rs 35000 - 35000
9. Accountant 4 @ Rs.8000 - 32000
10. Storekeeper 6 @Rs6000 - 36000
11. Skilled workers 20 @ Rs.8,000 -160,000
12. Semi skilled workers 30 @ Rs.5,000 - 150,000
13. Peon cum watchman 8 @ Rs.4,000 - 32,000
14. Operator 10 @15000 - 15000
15. Manger sale 2 @30000 - 60000
16. Sales team 10 @15000 - 150000
Total 1585000

B) Raw material P.M.
1. PVC Resin 668,2000 @ Rs.75 501150000
2. D.O.P. 308880 @ 80/- 24710400
3. Stabilizers 205990 @ 80/- 16479200
4. Lubricants 179990 @ 2/- 14759180
5. Colours 77100 @ 140/- 10794000
6. Fillers 1546000 @ 18/- 27828000
Total: 595720780

C) Utilities P.M.
Electricity 210000 KWH @ 6.20 1302000
For factory & water supply 400@ 25 100000
Total 1402000

D) Other contingent Expenditure (P.M.):
1. Postage and stationery 3,000
2. Advertisement and publicity 500,000
3. Traveling Marketing 44,000
4. Telephone 17000
Total=987000

Sales per year: 9000 MT.
Total working capital per month = Rs. 52032398
Working capital for 4 months = Rs. 208129593
Total Capital investment = Rs. 395020000
Total 603149593

9.4 Financial Analysis:
1. Working capital for 12 months 624388776
2. Depreciation on plant and machinery @ 10%
3. On shed @ 5% 100000
4. Depreciation on office furniture @ 20% 400000
5. Interest on total invt. @ 12% @ 35% 21713385
   Total 663999161

9.5 Turnover (Per annum):

Rigid PVC pipe produced per month using 80% efficiency of machinery.
Turnover = 9000 MT @ 85Rs/Kg 765000000
Profit: Rs 765000000 – 663999161 = 101000838
Rate of return = Profit x 100/Total invt = 16%
Net profit ratio = Profit x 100/Turnover = 34.4%

9.6 Break Even Analysis: Fixed cost:
1. Depreciation on plant and machinery @ 10% 16497000
2. Dep. On shed @ 5% 1000000
3. Depreciation on office furniture @ 20% 400000
4. Interest on total invt. @ 12% 21713385
5. 80% salary 15744000
6. 50% other exp. 600000
7. Power min3660000 Total 68614785

B.E.P. = Fixed cost x profit /Fixed cost + profit B.E.P
=34%

10. Finding and Conclusion

Due to large scale production pre operational costs and operational costs reduces by 12%. Due to large scale production purchase cost of raw material and its price protection increases profit by 5.6%. Due to large scale production and synchronized working labor loses and labor requirements get reduced by 6.2%. Due to open global market 33% of total production is consumed at higher premium value which increases the net profit by 6%. Due to market capitalization and public sharing, low interest rate capital is available which reduces overall working capital investment up to 8.8%.

Deducting the followings:
- Average excise duty is 12.5%. Export duty drawback
  2% Average sales tax 5%.
- Yearly Rs.114558600 is an extra saving.

This reduces the breakeven point by further 11%. This increases the net profit by 9%.
1. At small scale production cost is high and difficult to achieve breakeven point.
2. Banking polices are not supportive to small industry
3. Government polices and tax benefits are more for large scale industry.
4. Global market is open for all due to relaxation in dumping act.
5. India is huge market for global business.

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Author Profile
B.E Mechanical (I.E.T Dav) Perusing M.E Industrial Engineering (I.E.T DAVV M.P Indore)
Ex Director V Indore M.P 2001)
Field Irrigation Pvt Ltd (Indore M.P), Ex Director Qualitek Plastics Pvt Ltd (Indore M.P)