

**INTERNATIONAL BACCALEAUREATE**  
**INTERNAL ASSESSMENT**  
**HIGHER-LEVEL**



**RESEARCH QUESTION**

Should Prabha Engineering Private Limited expand by building a manufacturing unit in Europe to increase profitability?

**Candidate Session: May 2023**

**Research Proposal: 495 words**

**Executive Summary: 200 Words**

**Written Report: 2000 Words**

## Research Proposal

**Research Question:** Should Prabha Engineering Private Limited expand by building a manufacturing unit in Europe to increase profitability in the future?

### **The Rationale for Study:**

Prabha Engineering Private Limited incorporated in 1979, is a private limited company headquartered in Mumbai, Maharashtra, with its production plant located in Pune. The company specialises in manufacturing electrical parts and sheet metal products for utility vehicles and have joint ventures with a cohort of successful companies such as Caterpillar, DY Auto, Tata Motors, Mahindra, Lippert etc.

Prabha Engineering's biggest B2B customer has been DY Auto, a firm based in South Korea. In 2018, DY Auto expanded their firm into the European sector to obtain the benefits that could make them more profitable. DY Auto which accounts for approximately 40% of Prabha Engineering's revenue, considered expanding to Western Europe, primarily because exportation would yield them relatively low profits. Expanding to Western Europe would help Prabha Engineering increase brand recognition and enable additional business opportunities, enhancing their venture with their B2B customers because transportation costs and obligations would be lower. Throughout this report, the probability of the company expanding to Europe will be investigated and supported by analysis of qualitative and quantitative tools to narrow down a strong decision, to improve the business profitability.

### Theoretical Framework and Area of the syllabus to be covered:

Tools to be Used	Purpose
<b>Lewin Force Field Analysis</b>	Shows the driving and restraining forces that are in favor of or against a decision.
<b>Profitability/Efficiency Ratio</b>	Calculates profits annually and compares them with sales to determine whether there is an increase or decline in financial performance.
<b>Decision Tree</b>	Diagrammatic representation and quantitative calculations to support the best decision for company to pursue.

1

	Methods To be Employed	Rationale link
<b>PRIMARY RESEARCH</b>	<ul style="list-style-type: none"> <li>- Interview with the Managing Director (MD) of the company Mr. Shrikant Chaphekar</li> </ul>	Interview would provide information on the company; productivity rate, history of the company, drawbacks and problems that the firm encounters.
	<ul style="list-style-type: none"> <li>- Interview with the Head of Production</li> </ul>	Obtain accurate probabilities to construct an efficient decision tree.
	<u>Surveys to:</u> <ul style="list-style-type: none"> <li>- Employees of the company</li> </ul>	To interpret whether the employees are satisfied with their work and workplace and obtain their support over company's future decision.
<b>SECONDARY RESEARCH</b>	<ul style="list-style-type: none"> <li>- Financial Data</li> </ul>	Used in quantitative business tools to make a decision based on tabulating the results and findings.
	<ul style="list-style-type: none"> <li>- Business Management Textbook and other Informative books</li> </ul>	To understand business theories, tools and implement them efficiently.
	<ul style="list-style-type: none"> <li>- Internship in the company</li> </ul>	Grasp a deeper understanding of the company and its financials.

<sup>1</sup> Refer to Appendix 1: Interview with MD of Prabha Engineering Private Limited

### Anticipated Difficulties and Possible Solutions

Difficulties	Solution
Confidential Financial Data	Because the company is not public, there are no shareholders and thus financial records are not publicized. Solution would be to persuade the company's MD by providing them a letter of confidentiality.
Insufficient time for interview with the MD and other managers	Contact and connect with the employees ahead of time to develop a suitable schedule that fits everyone's time.
Getting Customers to fill surveys or forms	With the surge in Covid-19, the government has imposed restrictions such as social distance and masks thus conducting physical interviews becomes increasingly difficult.

## ACTION PLAN / GANTT CHART

March	April	May	June	July	August	September	October	Nov	Dec
	BM IA INTRODUCED								
		READ THE BUSINESS MANAGEMENT GUIDE							
			COMPANY AND RESEARCH QUESTION SHORTLISTED						
			INTERVIEW OF MD AND CHAIRMAN TAKEN						
				CONDUCT PRIMARY AND SECONDARY RESEARCH					
				WRITING RESEARCH PROPOSAL					
				RESEARCH PROPOSAL SUBMITTED					
				FISHBONE TOOL SELECTED					
					FISHBONE CHANGED TO DECISION TREE FOR IMPROVEMENT				
					INTERVIEW WITH PRODUCTION HEAD OF COMPANY TO MAKE DECISION TREE ACCURATE DO RATIO FORECASTING ACCURATELY				
					COMPLETING ALL BUSINESS TOOLS				
					CONCLUSION AND RECOMMENDATION				
					BIBLIOGRAPHY AND APPENDICES				
					FIRST DRAFT SUBMITTED				
						EDITING FIRST DRAFT			
						2 <sup>nd</sup> DRAFT SUBMITTED			
							FEED-BACK ON 2 <sup>nd</sup> Draft		
							FINAL DRAFT SUBMITTED		

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**RESEARCH QUESTION**

Should Prabha Engineering Private Limited expand by building a manufacturing unit in Europe to increase profitability in the future?

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## Acknowledgements

I would like to express my deepest gratitude towards Mr. Shrikant Chaphekar; MD of Prabha Engineering Private Limited, for his guidance and sharing details, and information about Prabha Engineering which has been very vital for the progress of this report. I would also like to appreciate the rest of the Prabha Engineering team including the directors, managers and employees for their support and participation.

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Date: - 22<sup>nd</sup> August 2022

**LETTER OF AUTHENTICATION**

**TO WHOMSOEVER IT MAY CONCERN**

This letter confirms that Mr. [REDACTED] has conducted research on the company, Prabha Engineering Private Limited and has conducted an interview with the Managing Director of the company Mr. Shrikant Chaphekar.

The company has approved his access to the financial records and hence he had analysed the company's financial records.

**For Prabha Engineering Pvt. Ltd.**

**Avinash Admuthe**  
**Sr. Manager-HR & Admin**



## Executive Summary :

Prabha Engineering Private Limited, manufacturing automotive-electrical components, has been experiencing declining profitability catapulting them to contemplate expanding to Western Europe due to the presence of their biggest B2B customers “Lippert”. Therefore owing to the investigation, the research question articulated was: **“Should Prabha Engineering Private Limited expand by building a production plant in Europe to increase profitability?”**

Interviews with the MD<sup>2</sup> and Head of Production<sup>3</sup>, along with employee surveys were conducted for primary research that formed the foundation of this report in addition to academic references that were used. The information gathered was processed and presented using business tools: Lewin FFA, Profitability Ratios, and Decision Tree to make an informed decision for the company.

The research concluded that Prabha Engineering should expand to Europe to their increase profitability supported by excess driving forces with higher ranking of **26** over restraining forces with **14** in the Lewin FFA and higher net expected revenue of ₹**2763856242** than ₹**632368582** for exporting the products and the progressively improving sales and financial ratio's from a plummeted value of **0.85%** in 2019 to a predicted **1.35%** in 2025 over pursuing the expansion option. Furthermore, the firm is recommended to efficiently plan out budgets and undertake widespread market-research.

**Word Count: 200 Words**

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<sup>2</sup> Refer to Appendix 1: Interview with MD of Prabha Engineering Private Limited

<sup>3</sup> Refer to Appendix 2: Interview with the Head of Production (PPC Head) of Prabha Engineering Private Limited.

## Introduction:

Prabha Engineering Private Limited is a company headquartered in Mumbai, Maharashtra, with its production plant in Pune. The firm specialises in manufacturing automotive products such as electrical motors, windshield wipers and other sheet-metal products. The company's mission is to become a world-class preferred source by innovatively building products that enhance and improve value proposition for customers.

The global pandemic caused by the coronavirus surge was the primary reason behind inflationary rises in the price of raw materials which increased the firm's manufacturing cost of finished goods causing sales and profitability to decline and for the company to experience complications with the supply chain and obtaining raw materials and attracting, retaining workers. DY Auto, based in Korea, has been Prabha Engineering's biggest B2B customer: accounting approximately 40% of the company's revenue. Lately, DY Auto has established a dominant presence in Europe, and they pose a significant amount of income for the company because exporting products to DY Auto in Europe would not be a feasible alternative because the financial strains outweigh the benefits. A manufacturing plant in Europe would give Prabha Engineering an advantage over competitors. Recently, the company announced plans to build its production plant in Western Europe. The expansion would nurture the firm's ability to generate higher revenue as they can increase their geographical footprint and brand awareness. The main objective of this analysis is to investigate whether expanding to Europe would benefit the company and thus I have articulated my final research question:

**“Should Prabha Engineering Private Limited expand by building a manufacturing unit in Europe to increase profitability in the future?”**

## **Methodology Employed:**

Interview with the MD of Prabha Engineering was conducted as a subset of the primary research to understand the present situation and profitability trend of the company. Widespread insights and information pertaining to company objectives, issues being faced, different product lines and expansion plans of Prabha Engineering were obtained. Another interview was conducted with the company's Marketing and Production Head to understand how to efficiently allocate probabilities and perform appropriate calculations in a decision tree to obtain accurate net expected revenues.

Secondary Research mainly included the Business Management textbook for the reference of business qualitative and quantitative tools. Range of academic sources were utilised to understand different theories and concepts<sup>4</sup> making the research refined. In contrast, information regarding any rules and regulations were obtained from news webpages and magazines. Moreover, online research was performed to understand the automotive industry and market in the EU region to analyse and discuss the business tools.

Lewin Force Field Analysis was used to qualitatively support whether the expansion to Europe is feasible for the company. Moreover, decision tree will be used to effectively narrow down to one practical solution for Prabha Engineering Private Limited to pursue. Financial data of the company for the past 5 years was analysed and represented in form of profitability ratios to interpret the profitability trend and and forecast future values for ratio's to understand whether expansion would help improve firm financials in the future.

## **Main Results and Findings<sup>5</sup>:**

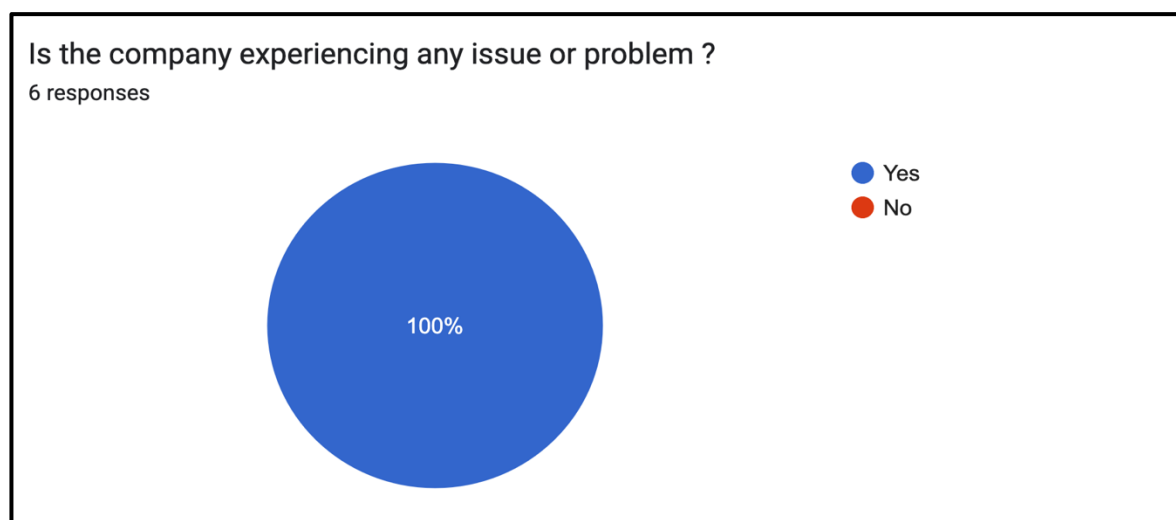
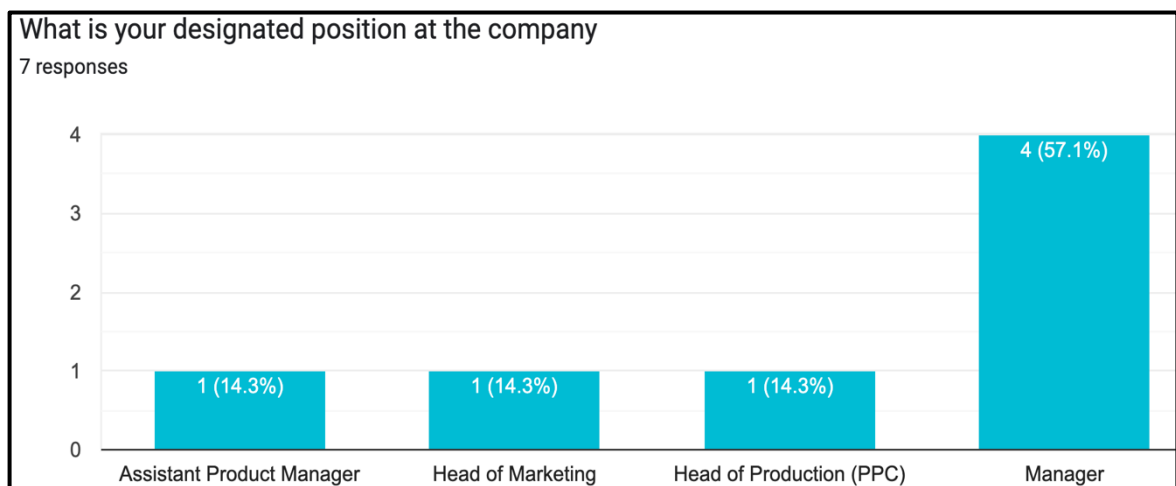
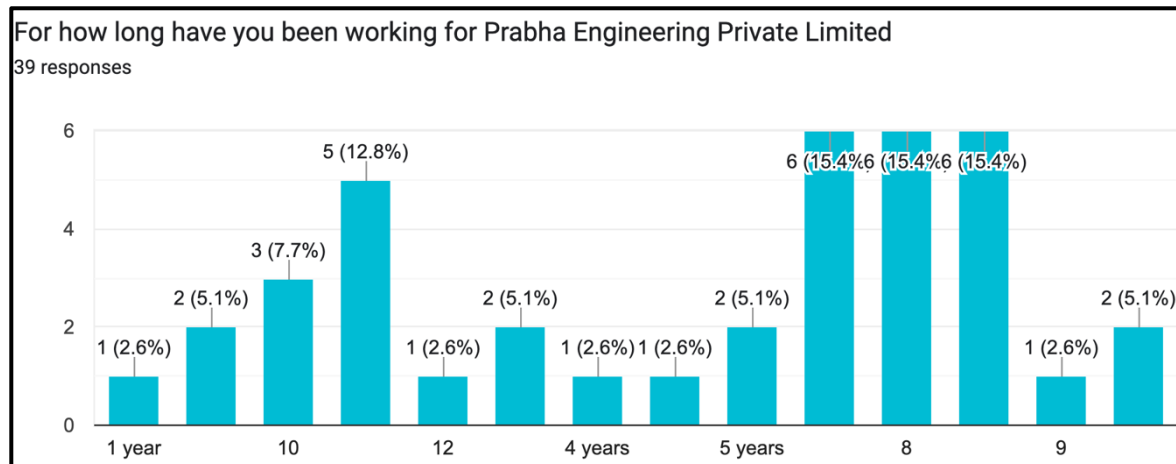
Graphs, Results and Commentary pertaining to the employee survey have been shown.

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<sup>4</sup> Mark Fischer, Medi Houghton, Veenoo Jain Cambridge IGCSE and O Level Business Studies Coursebook Third Edition

<sup>5</sup> Refer to Appendix 5 for the detailed discussion pertaining to the employee survey

Analysis of employee survey has led to the conclusion that majority of workers are aware of the firms declining profitability and consider that it's salient that the firm pursues a decision to expand to Europe to tackle this detrimental issue.



If yes, please elaborate regarding the difficulties or challenges faced by the company ?

6 responses

The company is experiencing a decrease in their profit recently

The difficult to obtain raw materials due to covid pandemic

Fall in sales revenue

The company has lost some of it's sales revenue and a decline has been observed

Raw materials issue, declining profitability

Profitability issues.

How would you recommend the company to tackle such an issue ?

6 responses

Probably look at more B2B customers or probably expand overseas, because they have 80% more potential for Joint Venture

Joint Venture overseas, since they have their major customer already present there.

introduce a new product line, expand into another market that would enable the firm to reap profits in the long run

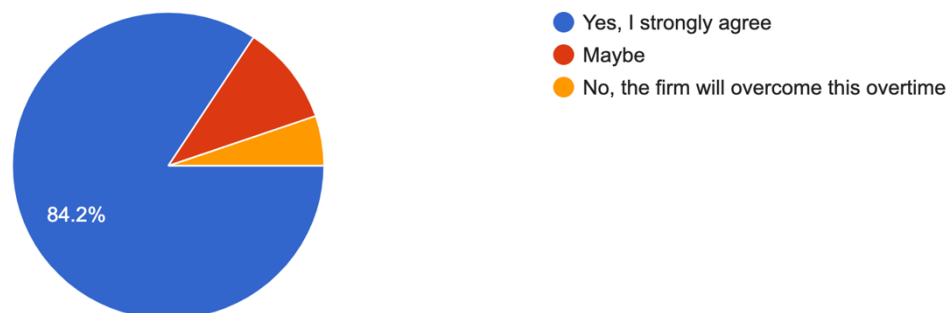
Probably the most feasible option for the company to increase their sales revenue and extend their profit margin would be to expand overseas. Europe is a potential market that is beneficial for the company since the propose relatively many customers for the company in the form of synergy and joint ventures

Mergers, Joint Venture

Offshoring the company, or expanding the firm in order improvise our current footprint of the company

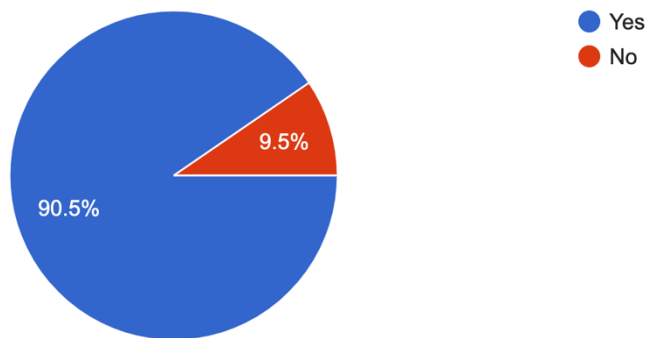
Do you think the firm needs to significantly increase it's declining profitability by making a strategic decision

19 responses



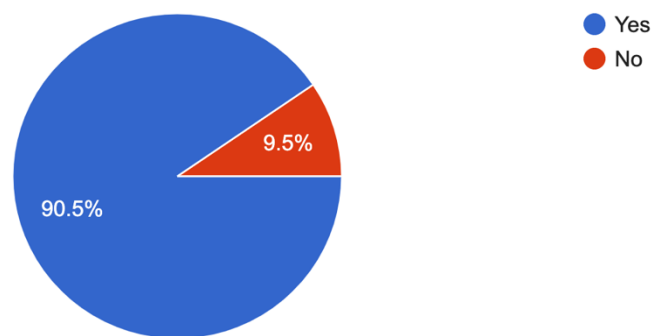
### Are you aware of the company's expansion plan to Europe

21 responses



### If yes, are you in support of this decision made by the company or against it.

21 responses



### If no, any particular reason for this ?

6 responses

-

Because it's a very high expenditure investment

-

Seeing the impact of covid, I feel like we should plan this expansion a bit later on.

### What is your contribution to this expansion ?

7 responses

As the production head, I have articulated presentations regarding the forecast as to how the production process and coordination will be once expansion into Western Europe is successful.

Allocation of resources calculation.

Planning the marketing of the company

-

Planning of the forecast

-

Planning as to how the marketing will be carried out to attract B2B customers.

### Any recommendations to the company, as to how it can expand more successfully or efficiently

6 responses

Definitely, end numerous market research much be done before expanding, the impact of Corona virus must be taken into account to interpret the effect it has had on the market.

-

A lot of calculations need to be carried out since, this is a new venture for the company which is unexplored, thus its very important to have calculations implemented and planning out the future strategies and objectives. Setting a mission is another important part of this new tenure, that the company forecasts.

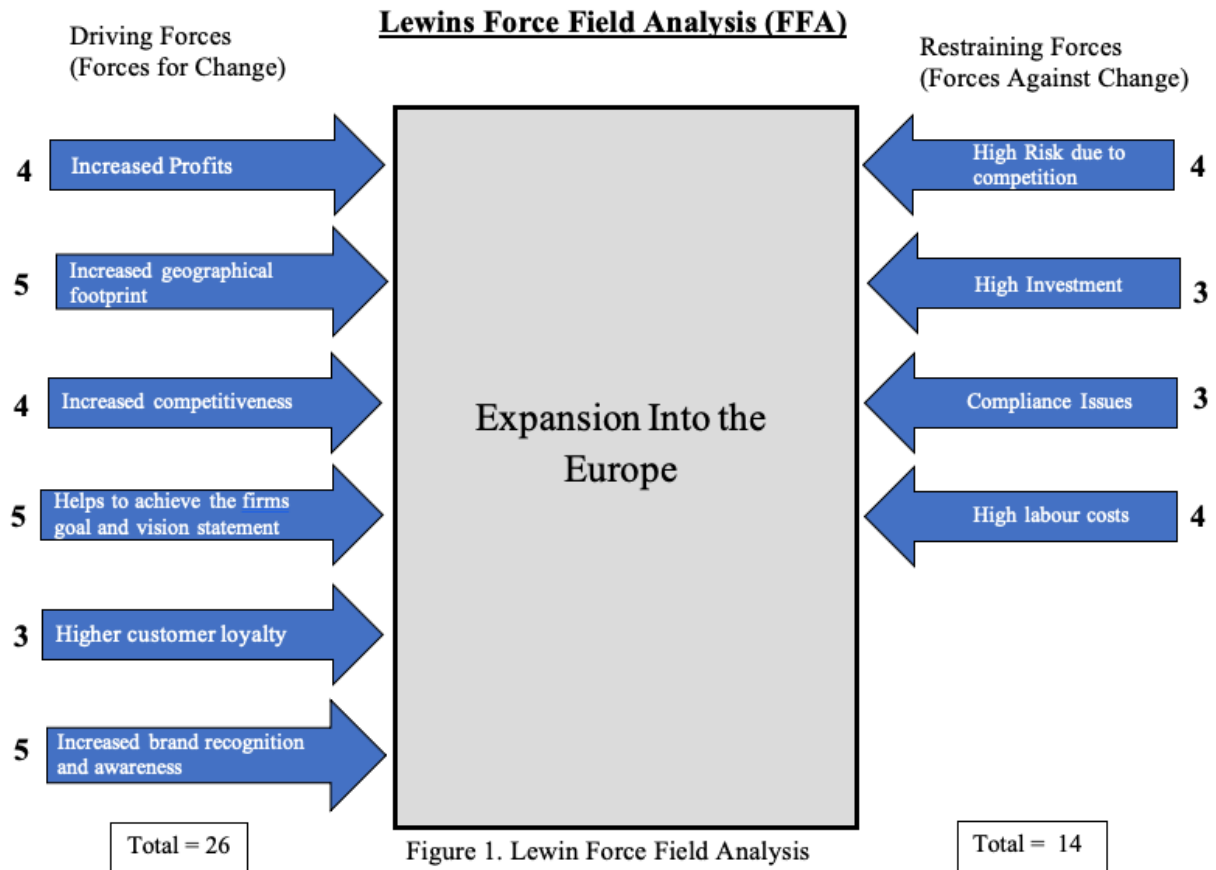
Decision tree should be applied as a tool in order to interpret the feasibility.

-

Efficiently spend time and with maximum accuracy execute a decision.



## Analysis and Discussion



Six forces **for** and four forces **against** Prabha Engineering's decision to expand were ranked on a scale from 0-5 according to the importance of the future effect on the company.

The Lewin Force Field Analysis is a qualitative tool<sup>6</sup> used to help businesses make decisions, in the context of strategic planning or organizational change. The framework has forces regarded as driving<sup>7</sup> (for) or restraining<sup>8</sup> (against) forces which help to bring in a conclusion for the expansion decision: where driving forces act in favour of expansion and restraining forces act against the decision of the company to expand. According to the interview<sup>9</sup> taken with the MD of the company, majority of the factors layed out in response to expansion to Europe are driving forces which would benefit the company such as: rising geopgraphical

<sup>6</sup> Hoang, Paul. Business Management. 4<sup>th</sup> Edition , Victoria, Australia; IBID, 2016 Print

<sup>7</sup> "The Complete Guide to Business Analytics (Collection)." O'Reilly Online Learning, [www.oreilly.com, https://www.oreilly.com/library/view/the-complete-guide/9780133091281/book2\\_ch05.html](https://www.oreilly.com/library/view/the-complete-guide/9780133091281/book2_ch05.html). Accessed 7 Aug. 2022.

<sup>8</sup> "Lewin's Driving & Restraining Forces Explained | Ifioque.Com." Lewin's Driving & Restraining Forces Explained | Ifioque.Com, [ifioque.com, https://ifioque.com/miscellaneous/driving-and-restraining-forces](https://ifioque.com/miscellaneous/driving-and-restraining-forces). Accessed 7 Aug. 2022.

<sup>9</sup> Refer to Appendix 1 Interview with Mr.Shrikant Chaphekar; MD of Prabha Engineering Private Limited.

footprint, increased brand awareness and the most salient, profitability which has been given a weight of 5 based on input from Prabha Engineering Team.<sup>1011</sup> The firm heavily values brand recognition and awareness thus, expansion would increase the firms geographical footprint garnering greater support from customers, leading to rising revenue and profitability thus producing a very high weight of 5/5.

In response to the restraining forces, high compliance and initial investment costs would be a major barrier, contributing to the uncertainty of having relatively high sales revenue and profitability. Fierce competition from overseas poses a threat to the company's success in a relatively new market, which is why it has a high ranking of 4/5. The force field analysis has constraints, such as biased valuation and rating of each factor, which could have resulted in inaccurate decisions. Each force is worked out and discussed with the company team for their input.<sup>12</sup> Overall, driving forces have a total of 26, which outweighs the relatively low total of 14 for restraining forces ( $26 > 14$ ), so driving forces were ranked 12 points higher than restraining forces. This substantial difference strongly favors the company's decision to expand by opening a manufacturing unit in Europe.

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<sup>10</sup> Refer to Appendix 1 Interview with Mr.Shrikant Chaphekar; MD of Prabha Engineering Private Limited.

<sup>11</sup> Interview with the Head of Production (PPC Head) of Prabha Engineering Private Limited.

<sup>12</sup> Refer to Appendix 1 Interview with Mr.Shrikant Chaphekar; MD of Prabha Engineering Private Limited.

### Decision Tree<sup>1314</sup>:

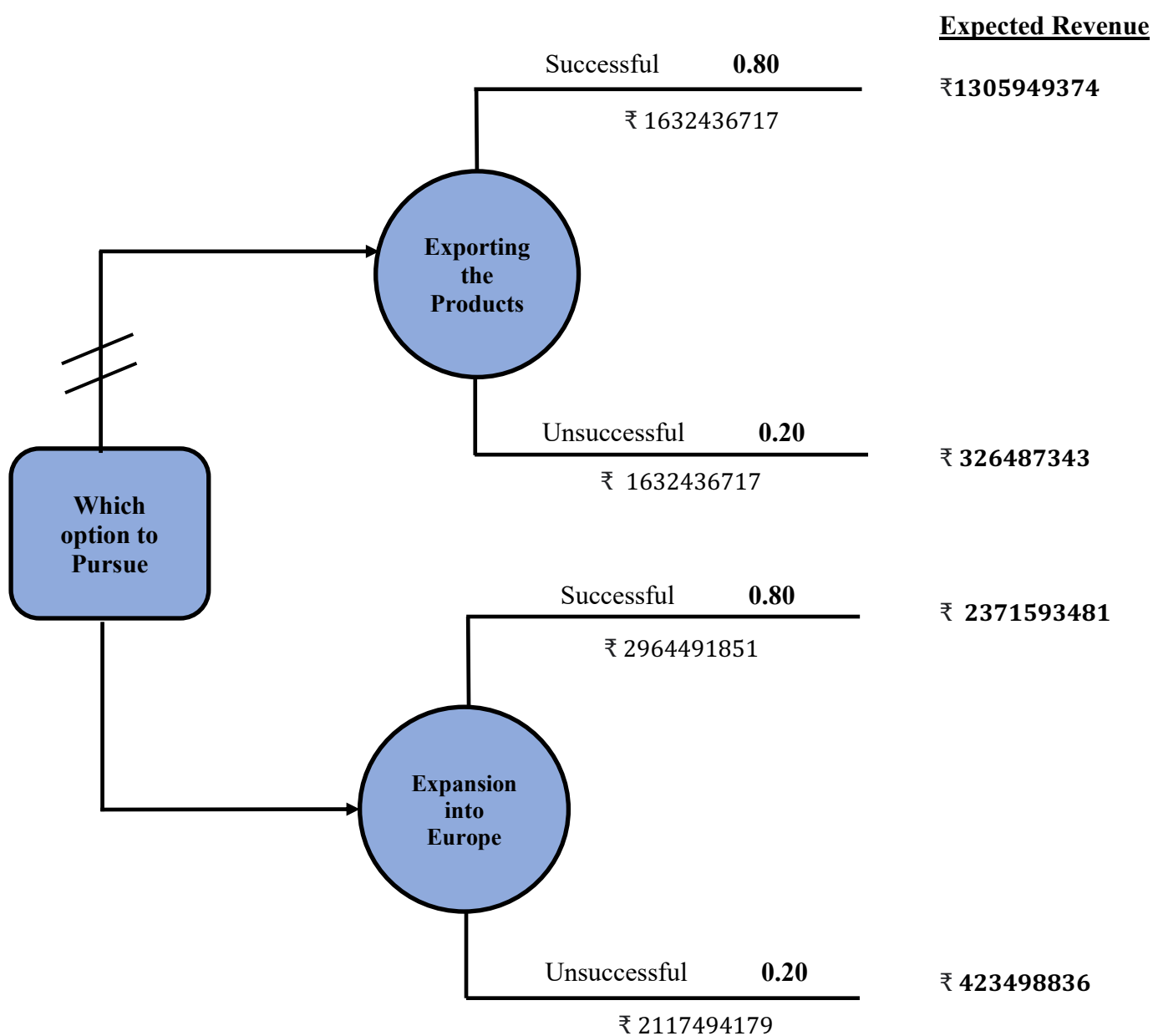
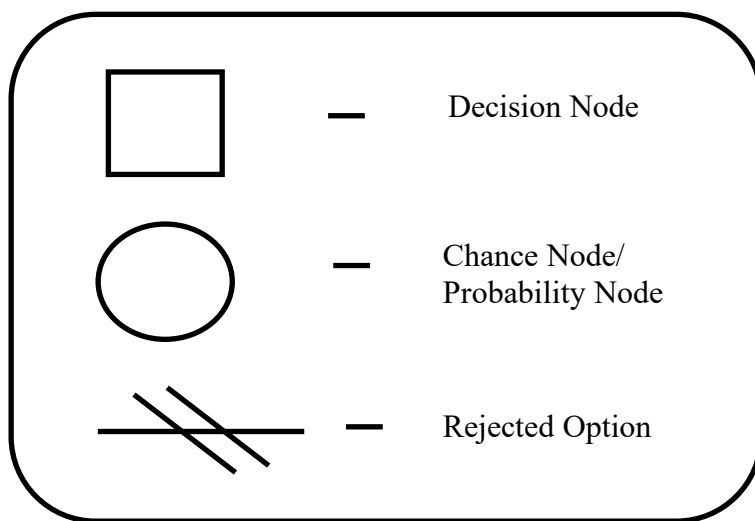
A decision tree is a quantitative decision-making tool and a diagrammatic representation of the different options that are available to a business in the decision making process, showing their probable outcomes by employing estimates and probabilities. The company either plans to export products overseas or plans expanding to Europe, since their potential customers “DY Auto” already have a dominant presence in Europe, thus providing a safeguard that the expansion would be worthwhile for the company.

However, taking account of the impact Covid-19 had on the market and its ramifications, if expanding to Europe does not yield the company the forecasted benefits and revenue it will cause the company to be detrimentally affected causing furthermore financial decay, because success in a new market is not guaranteed due to several forces.

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<sup>13</sup> “How to Make and Use a Decision Tree - Businessnewsdaily.Com.” Business News Daily, [www.businessnewsdaily.com](https://www.businessnewsdaily.com/6147-decision-tree.html), <https://www.businessnewsdaily.com/6147-decision-tree.html>. Accessed 10 Aug. 2022.

<sup>14</sup> Hoang, Paul. Business Management. 4<sup>th</sup> Edition , Victoria, Australia; 1.7 Organizational Planning Tools IBID, 2016 Print



**Figure 2: Decision Tree for Prabha Engineering Private Limited**

- The probability than the Expansion to Europe would be successful is 0.8
- Thus as a result the probability that the expansion to Europe is not successful is;

$$0.8 + x = 1$$

$$x = 1 - 0.8$$

$$x = 0.2$$

### Decision Tree

Options	Costs	Expected Revenue
Option 1: Exporting the Product	1000068135	₹ 632368582
Option 2: Expansion into Europe	31236075	₹ 2763856242

### Calculations;

### Decision Tree

Options	Calculations	Expected Revenue
<b>Option 1: Exporting the Product</b> Referring back to Appendix 2: Interview with the Production head of Prabha Engineering Private Limited, the firms alternative option is exporting the product.	<p><b>Successful: Target Revenue x Probability</b></p> <p><b>Unsuccessful: Target Revenue x Probability</b></p> <p><b>Successful:</b> ₹ 1632436717 x 0.80 = ₹ <b>1305949374</b></p> <p><b>Unsuccessful:</b> ₹ 1632436717 x 0.20 = <b>326487343</b></p> <p><math>[(1632436717 \times 0.80) + (1632436717 \times 0.20)] - [(1000068135)]</math></p> <p><math>= [(1305949374) + (326487343)] - [1000068135]</math></p> <p><math>= ₹ 632368582</math></p>	₹ 632368582
<b>Option 2: Expansion into Europe</b> Referring back to Appendix 2: Interview with the Production head of Prabha Engineering Private Limited, the expected revenue generated would be 40% higher than the current revenue.	$\frac{100 + 40}{100} \times 2117494179$ $\frac{140}{100} \times 2117494179 = ₹ 2964491851$ <p><b>Successful = Current Reveue + 40% increase x probability</b></p> <p>₹ 2964491851 x 0.80</p> <p><math>= ₹ 2371593481</math></p> <p><b>Unsuccessful = Current Revenue x probability</b></p> <p><math>= ₹ 2117494179 \times 0.20 = ₹ 423498836</math></p> <p><b>Incorporation Cost = €5650 (4.96 Lakhs Inr)</b></p> <p><b>Cost to expand overseas : 3.0 cr Inr</b></p> <p><math>[(2964491851 \times 0.80) + (2117494179 \times 0.20)] - [(476000) + (30000000)]</math></p> <p><math>= [(2371593481) + (423498836)] - [30760075 + 476000]</math></p> <p><math>= ₹ 2763856242</math></p>	₹ 2763856242

### Suggestion:

Probabilities were allocated based on the discussion with the company's MD & Head of Production that spoke about the expected improvements on firm financials after expansion<sup>15</sup> Based on the calculations performed for both: the decision of exportation of products and expansion to Europe the results were that the overall net expected revenue for the company is higher if they expand to Europe with a figure equating to ₹**2763856242** in comparison to exporting the products overseas yielding a net expected revenue of ₹**632368582**, a significant difference in revenue between both the options. Higher net expected revenue through expansion to Europe resonates that this is a more profitable option as it would improve the firm's cash inflow and increase profitability in the future hence Prabha Engineering should pursue expansion to Europe to increase their profitability.

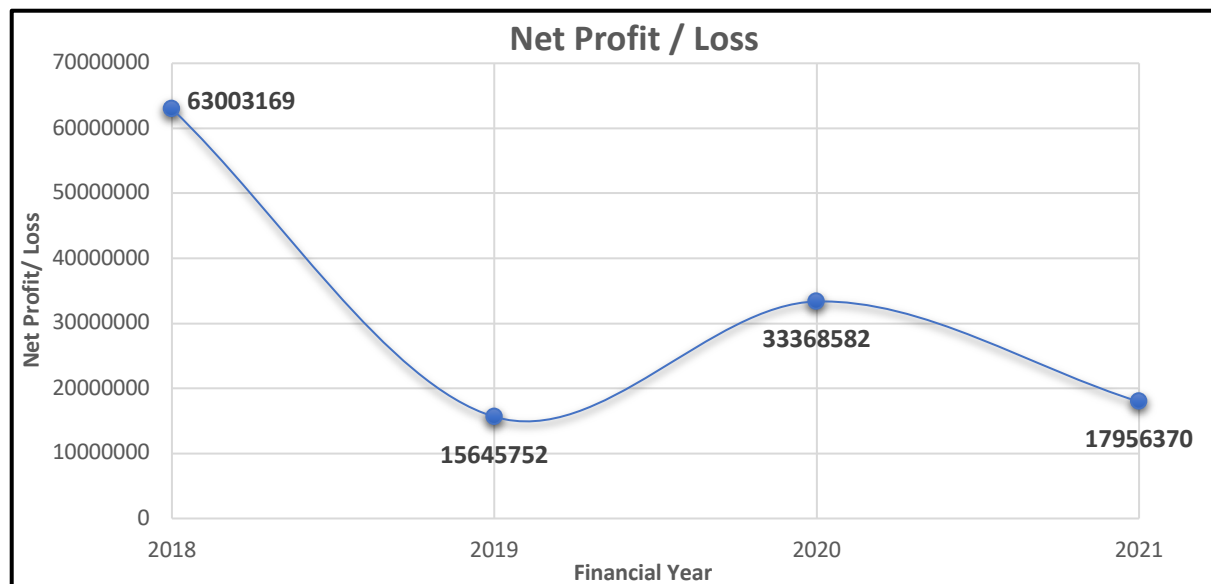
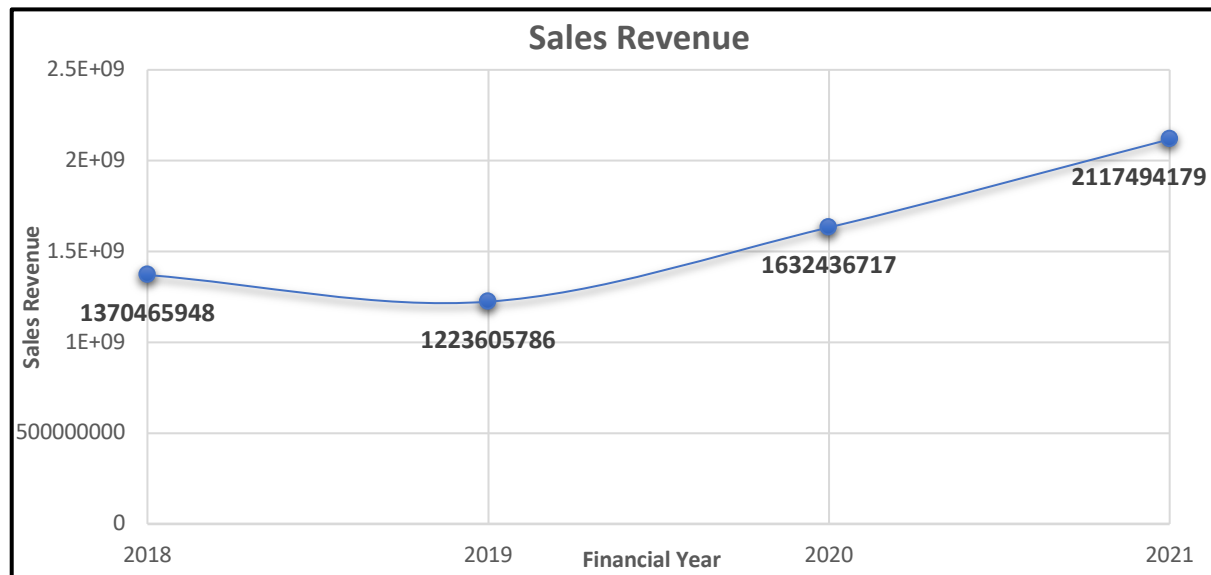
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<sup>15</sup> Appendix 2: Interview with the Head of Production (PPC Head) of Prabha Engineering Private Limited.

# <sup>16</sup>Sales Revenue of Prabha Engineering Private Limited:

Financial year	Sales Revenue (₹)	Net Profit/Loss
2018	1370465948	63003169
2019	1223605786	15645752
2020	1632436717	33368582
2021	2117494179	17956370

**Table 1: Prabha Engineering Sales Revenue 2018-2021**



Financial Year	Net Profit / Loss Percentage Change
2018	4.03% (decrease) from 2017
2019	75.17% (decrease) from 2018
2020	113.28% (increase from 2019) 49.17% (decrease from 2018)

**Table1: Year on Year Net Profit or Loss Percentage**

<sup>16</sup> Hoang, Paul. Business Management. 4<sup>th</sup> Edition , Victoria, Australia; IBID, 2016 Print

### <sup>17</sup>4.3 Profitability and Liquidity Ratio Analysis for 2018

Type of Ratio	Ratio	Calculation
<b>Profitability<sup>18</sup></b>	<b>Gross Profit Margin</b>	$\frac{\text{Gross Profit Margin}}{\text{Sales Revenue}} \times 100$ $\frac{467602981.5}{1370465948} \times 100$ $= \mathbf{34.12\%}$
<b>Profitability</b>	<b>Net Profit Margin</b>	$\frac{\text{Net Profit Margin}}{\text{Sales Revenue}} \times 100$ $\frac{63041433.61}{1370465948} \times 100$ $= \mathbf{4.60\%}$
<b>Profitability</b>	<b>Earnings Before Interest, Tax, Depreciation and Ammortization (EBITDA)</b>	$\frac{\text{EBITDA}}{\text{Sales Revenue}} \times 100$ $\frac{110459555.4}{1370465948} \times 100$ $= \mathbf{8.06\%}$
<b>Efficiency<sup>19</sup></b>	<b>Return On Capital Employed (ROCE);</b>	$\frac{\text{Profit Before Interest And Tax}}{\text{Capital Employed}} \times 100$ $\frac{86588251}{567048140} \times 100$ $= \mathbf{15.27\%}$

<sup>17</sup> Hoang, Paul. Business Management. 4<sup>th</sup> Edition , Victoria, Australia; IBID, 2016 Print

<sup>18</sup> Hoang Paul, 4<sup>th</sup> Edition, 2016 IBID Print; Fishbone diagram, 3.5 Profitability Ratios

<sup>19</sup> Hoang Paul, 4<sup>th</sup> Edition, 2016 IBID Print; Fishbone diagram, 3.5 Profitability Ratios



## <sup>20</sup>Profitability and Liquidity Ratio Analysis for 2019

Type of Ratio	Ratio	Calculation
<b>Profitability<sup>21</sup></b>	<b>Gross Profit Margin</b>	$\frac{\text{Gross Profit Margin}}{\text{Sales Revenue}} \times 100$ $\frac{433890611.7}{1223605786} \times 100$ $= \mathbf{35.46\%}$
<b>Profitability</b>	<b>Net Profit Margin</b>	$\frac{\text{Net Profit Margin}}{\text{Sales Revenue}} \times 100$ $\frac{15662154.06}{1223605786} \times 100$ $= \mathbf{1.28\%}$
<b>Profitability</b>	<b>Earnings Before Interest, Tax, Depreciation and Ammortization (EBITDA)</b>	$\frac{\text{EBITDA}}{\text{Sales Revenue}} \times 100$ $\frac{69623169.22}{1223605786} \times 100$ $= \mathbf{5.69}$
<b>Efficiency<sup>22</sup></b>	<b>Return On Capital Employed (ROCE);</b>	$\frac{\text{Profit Before Interest And Tax}}{\text{Capital Employed}} \times 100$ $\frac{23374932}{643937520.7} \times 100$ $= \mathbf{3.63\%}$

<sup>20</sup> Hoang, Paul. Business Management. 4<sup>th</sup> Edition , Victoria, Australia; IBID, 2016 Print

<sup>21</sup> Hoang Paul, 4<sup>th</sup> Edition, 2016 IBID Print; Fishbone diagram, 3.5 Profitability Ratios

<sup>22</sup> Hoang Paul, 4<sup>th</sup> Edition, 2016 IBID Print; Fishbone diagram, 3.5 Profitability Ratios

## Profitability and Liquidity Ratio Analysis for 2020

Type of Ratio	Ratio	Calculation
<b>Profitability<sup>23</sup></b>	<b>Gross Profit Margin</b>	$\frac{\text{Gross Profit Margin}}{\text{Sales Revenue}} \times 100$ $\frac{607902987}{1632436717} \times 100$ $= 37.24\%$
<b>Profitability</b>	<b>Net Profit Margin</b>	$\frac{\text{Net Profit Margin}}{\text{Sales Revenue}} \times 100$ $\frac{33368582}{1632436717} \times 100$ $= 2.04\%$
<b>Profitability</b>	<b>Earnings Before Interest, Tax, Depreciation and Ammortization (EBITDA)</b>	$\frac{\text{EBITDA}}{\text{Sales Revenue}} \times 100$ $\frac{88478070}{1632436717} \times 100$ $= 5.42\%$
<b>Efficiency<sup>24</sup></b>	<b>Return On Capital Employed (ROCE);</b>	$\frac{\text{Profit Before Interest And Tax}}{\text{Capital Employed}} \times 100$ $\frac{44708021}{626162700.59} \times 100$ $= 7.14\%$

<sup>23</sup> Hoang Paul, 4<sup>th</sup> Edition, 2016 IBID Print; Fishbone diagram, 3.5 Profitability Ratios

<sup>24</sup> Hoang Paul, 4<sup>th</sup> Edition, 2016 IBID Print; Fishbone diagram, 3.5 Profitability Ratios

## Profitability and Liquidity Ratio Analysis for 2021

Type of Ratio	Ratio	Calculation
Profitability <sup>25</sup>	Gross Profit Margin	$\frac{\text{Gross Profit Margin}}{\text{Sales Revenue}} \times 100$ $\frac{721614505}{2117494179} \times 100$ $= \mathbf{34.08\%}$
Profitability	Net Profit Margin	$\frac{\text{Net Profit Margin}}{\text{Sales Revenue}} \times 100$ $\frac{17956370}{2117494179} \times 100$ $= \mathbf{0.85\%}$
Profitability	Earnings Before Interest, Tax, Depreciation and Ammortization (EBITDA)	$\frac{\text{EBITDA}}{\text{Sales Revenue}} \times 100$ $\frac{88478070.00}{2117494179} \times 100$ $= \mathbf{5.42\%}$
Efficiency <sup>26</sup>	Return On Capital Employed (ROCE);	$\frac{\text{Profit Before Interest And Tax}}{\text{Capital Employed}} \times 100$ $\frac{24283050}{21174941790} \times 100$ $= \mathbf{1.15\%}$

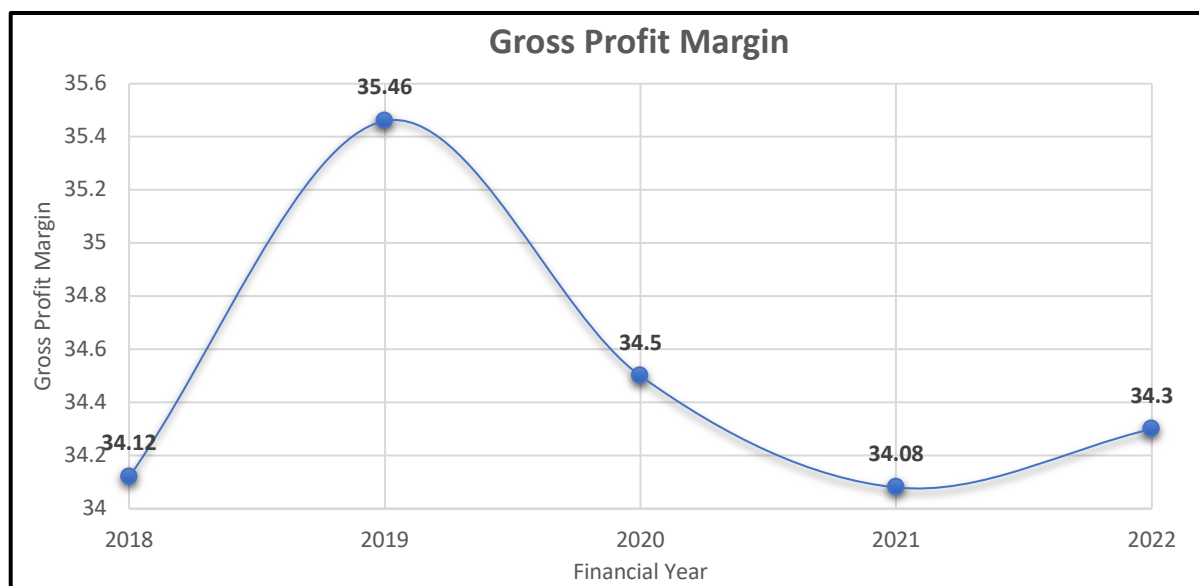
<sup>25</sup> Hoang Paul, 4<sup>th</sup> Edition, 2016 IBID Print; Fishbone diagram, 3.5 Profitability Ratios

<sup>26</sup> Hoang Paul, 4<sup>th</sup> Edition, 2016 IBID Print; Fishbone diagram, 3.5 Profitability Ratios

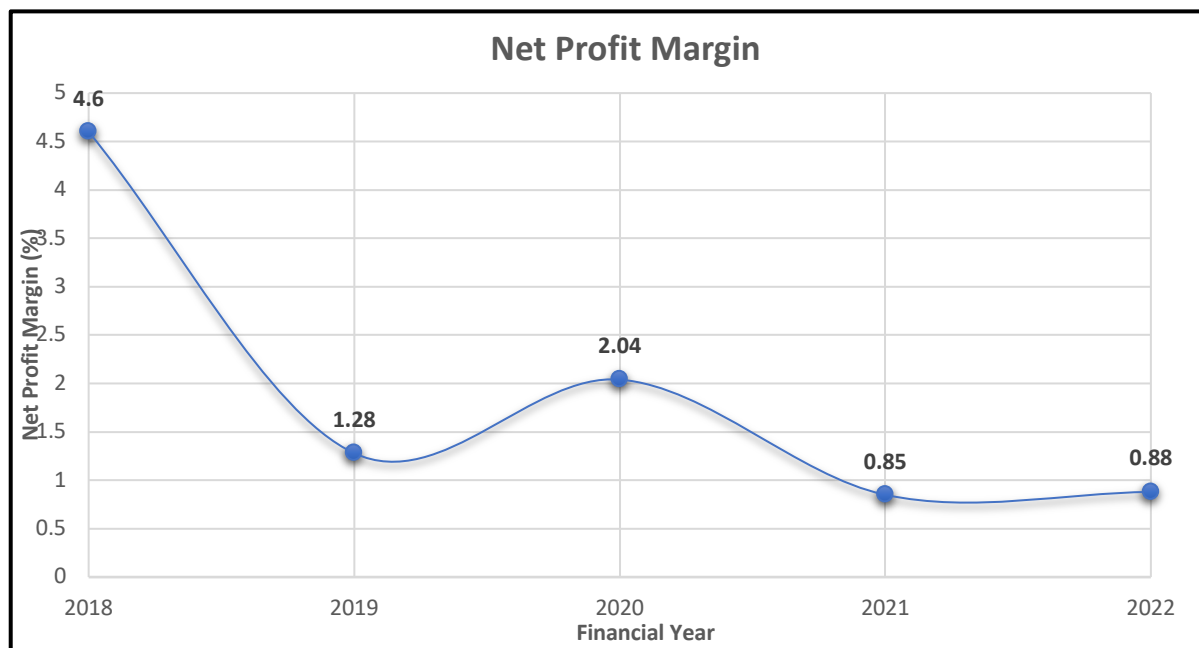
## Processed Data and Graphical Representation of Ratio with Trendlines

	Financial Year				
Ratios	2018	2019	2020	2021	2022
Gross Profit Margin (%)	34.12	35.46	34.50	34.08	34.30
Net Profit Margin (%)	4.60	1.28	2.04	0.85	0.65
EBITDA Margin (%)	8.06	5.69	5.42	5.35	5.44
ROCE Ratio (%)	15.27	3.63	7.13	1.15	6.12

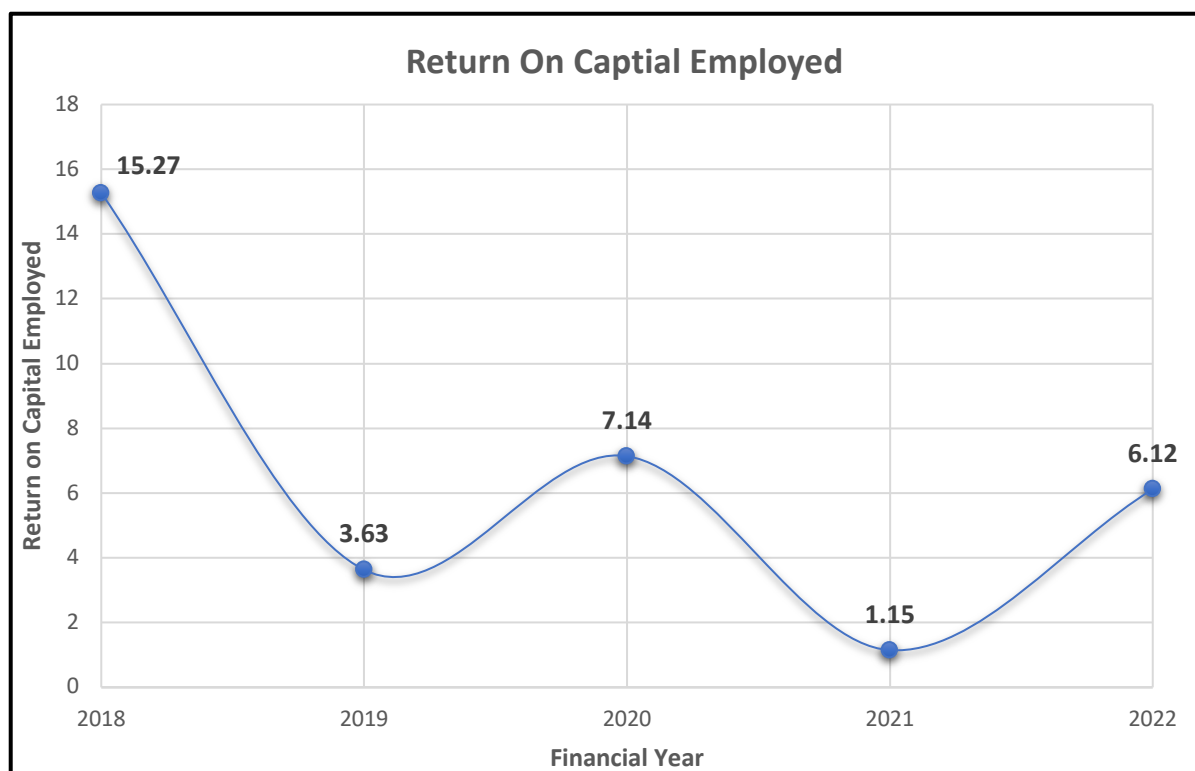
Table 2: Calculate Profitability and Liquidity Ratios for PEPL in the last 3 financial years



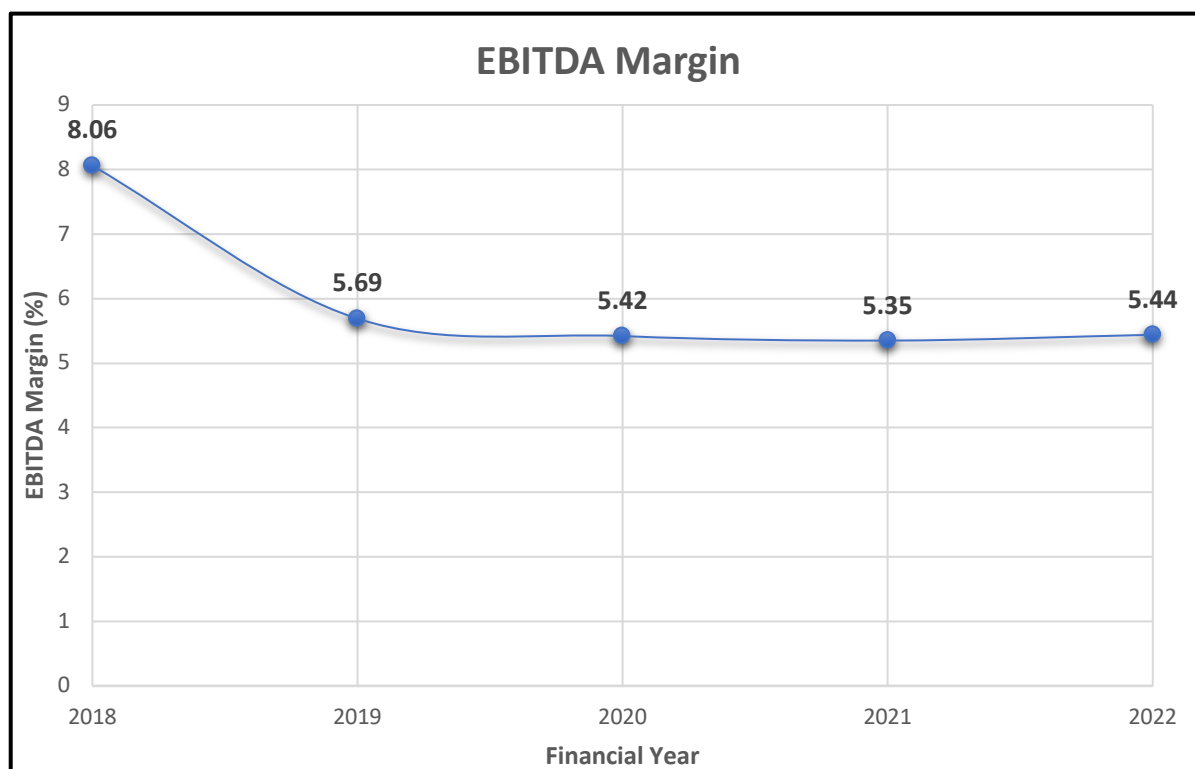
Graph 1: Gross Profit Margin from 2018 to 2022 of Prabha Engineering Private Limited



Graph 2: Net Profit Margin from 2018 to 2022 of Prabha Engineering Private Limited



**Graph 1: ROCE from 2018 to 2022 of Prabha Engineering Private Limited**



**Graph 1: EBITDA Margin from 2018 to 2022 of Prabha Engineering Private Limited**

### Forecasting the improvement in the ratios of the company after the fiscal year 2022

Based on the interview with the MD of Prabha Engineering. Taking into context inflationary pressures and other factors as well as expansion being a relatively new venture, the MD and his financial team forecast that in the first year the firm would achieve a **20% improvement** on the financials<sup>27</sup> they were generating in 2021 and a furthermore growth of 10-15% onwards from that particular year. Thus as a result 20% increment on the firms sales revenue:

$$\frac{120}{100} \times 2117494717 = ₹ 2540993660$$

The estimations for the financial ratios have been made:

Year 2023	
Ratio	Calculation (Forecast)
<b>Gross Profit Margin (%)</b>	<p>Sales Revenue of ₹ 211749471 → 34.08% GPM</p> $\therefore ₹ 2540993660 \rightarrow \frac{34.08}{2117494717} \times 2540993660$ $= 40.90\%$
<b>Net Profit Margin (%)</b>	<p>Sales Revenue of ₹ 2117494717 → 0.85% NPM</p> $\therefore ₹ 2540993660 \rightarrow \frac{0.85}{2117494717} \times 2540993660$ $= 1.02\%$
<b>EBITDA Margin (%)</b>	<p>Sales Revenue of ₹ 2117494717 → 5.35% EBITDA</p> $\therefore ₹ 2540993660 \rightarrow \frac{5.35}{2117494717} \times 2540993660$ $= 6.42\%$
<b>Return On Capital Employed (%)</b>	<p>Sales Revenue of ₹ 2117494717 → 1.15% ROCE</p> $\therefore ₹ 2540993660 \rightarrow \frac{1.15}{2117494717} \times 2540993660$ $= 1.38\%$

<sup>27</sup> Appendix 2: Interview with the Head of Production (PPC Head) of Prabha Engineering Private Limited.

**With the 20% growth in sales revenue from 2022 to 2023. Furthermore a growth of 10-15% is achieved next year onwards:**

$$\frac{115}{100} \times 2540993660 = ₹ 2922142709$$

Year 2024	
Ratio	Calculation (Forecast)
<b>Gross Profit Margin (%)</b>	<p>Sales Revenue of ₹ 2540993660 → 40.90% GPM</p> $\therefore ₹ 2922142709 \rightarrow \frac{40.90}{2540993660} \times ₹ 2922142709$ $= 47.04\%$
<b>Net Profit Margin (%)</b>	<p>Sales Revenue of ₹ 2540993660 → 1.02% NPM</p> $\therefore ₹ 2922142709 \rightarrow \frac{1.02}{2540993660} \times ₹ 2922142709$ $= 1.17\%$
<b>EBITDA Margin (%)</b>	<p>Sales Revenue of ₹ 2540993660 → 6.42% EBITDA</p> $\therefore ₹ 2922142709 \rightarrow \frac{6.42}{2540993660} \times ₹ 2922142709$ $= 7.38\%$
<b>Return On Capital Employed (%)</b>	<p>Sales Revenue of ₹ 2540993660 → 1.38% ROCE</p> $\therefore ₹ 2922142709 \rightarrow \frac{1.38}{2540993660} \times ₹ 2922142709$ $= 1.59\%$

Sales revenue and other financial ratio's is prediced to increase furthermore by 15% next financial year, denoting a 15% increment from the Year 2024. Forecast for the Year 2025 is as following:

$$\frac{115}{100} \times 2922142709 = ₹ 3360464115$$

Year 2025	
Ratio	Calculation (Forecast)
<b>Gross Profit Margin (%)</b>	<p>Sales Revenue of ₹ 2922142709 → 47.04% GPM</p> $\therefore ₹ 3360464115 \rightarrow \frac{47.04}{2922142709} \times 3360464115$ $= 54.10\%$
<b>Net Profit Margin (%)</b>	<p>Sales Revenue of ₹ 2922142709 → 1.17% NPM</p> $\therefore ₹ 3360464115 \rightarrow \frac{1.17}{2922142709} \times 3360464115$ $= 1.35\%$
<b>EBITDA Margin (%)</b>	<p>Sales Revenue of ₹ 2922142709 → 7.38% EBITDA</p> $\therefore ₹ 3360464115 \rightarrow \frac{7.38}{2922142709} \times 3360464115$ $= 8.49\%$
<b>Return On Captial Employed (%)</b>	<p>Sales Revenue of ₹ 2922142709 → 1.59% ROCE</p> $\therefore ₹ 3360464115 \rightarrow \frac{1.59}{2922142709} \times 3360464115$ $= 1.83\%$



Financial year	Sales Revenue (₹)
2018	1370465948
2019	1223605786
2020	1632436717
2021	2117494179
2022	2232316638
2023 (forecasted)	2540993660
2024 (forecasted)	2922142709
2025 (forecasted)	3360464115

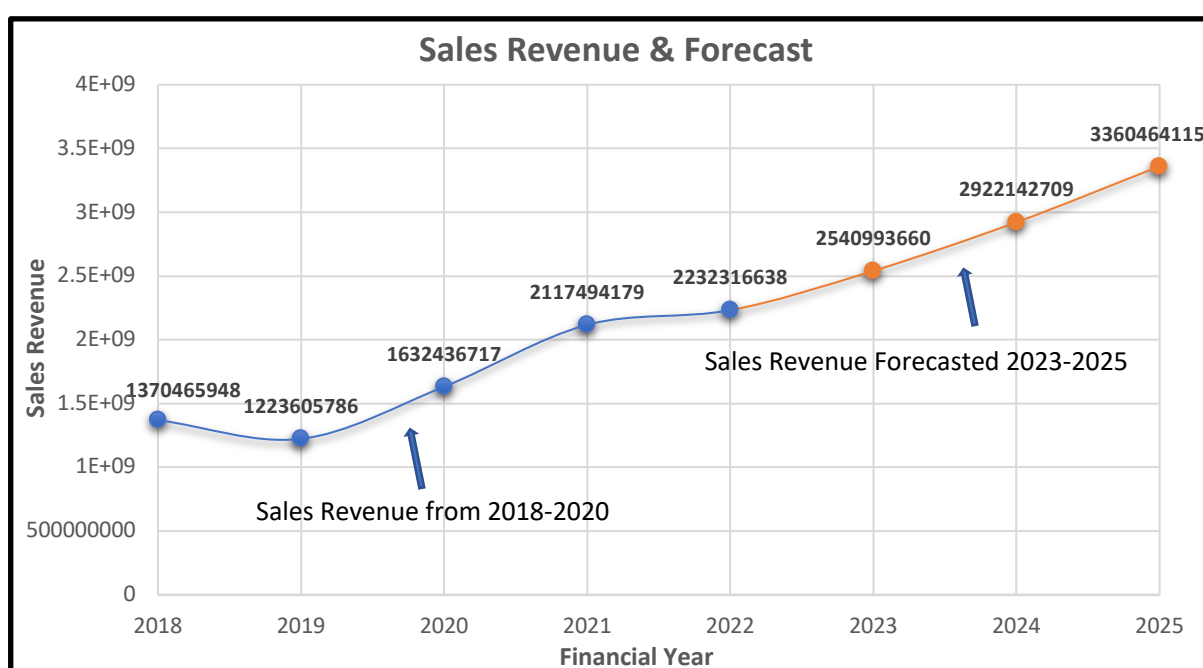
**Table 2: Sales Revenue of Prabha Engineering and Forecasted Revenue**

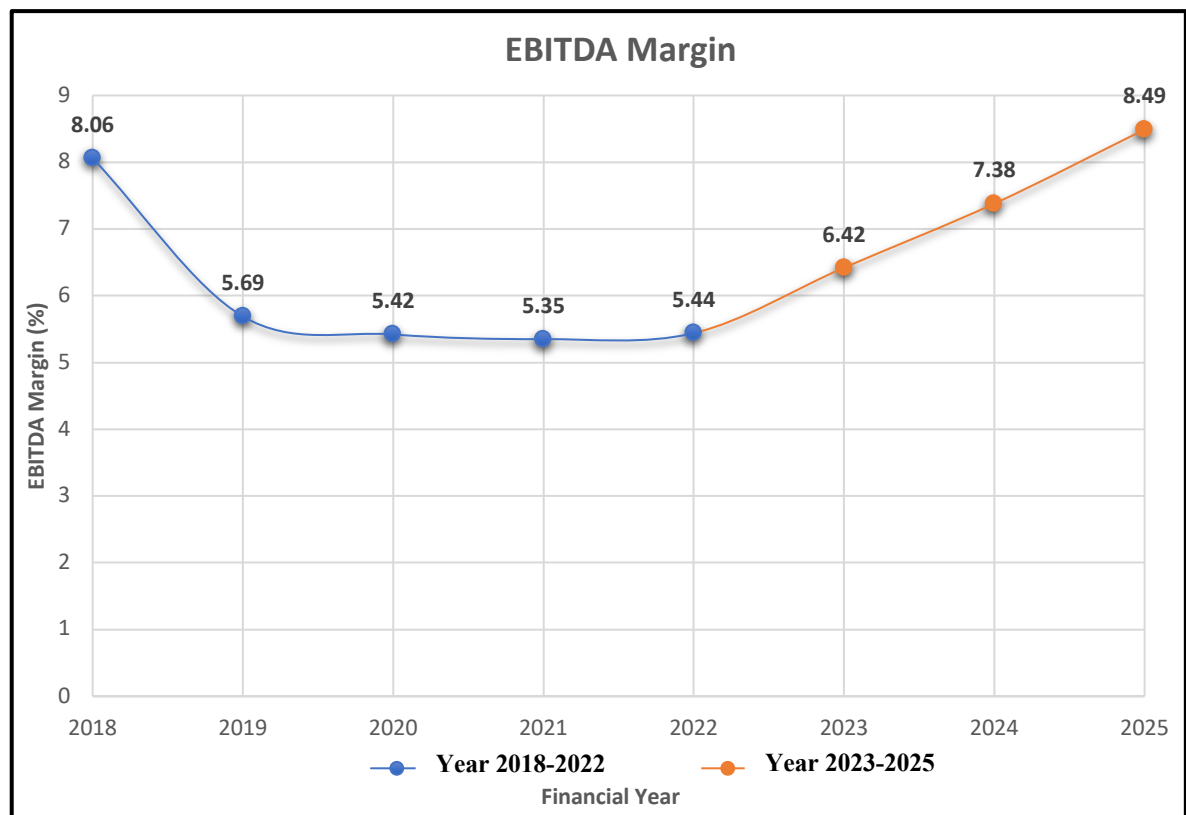
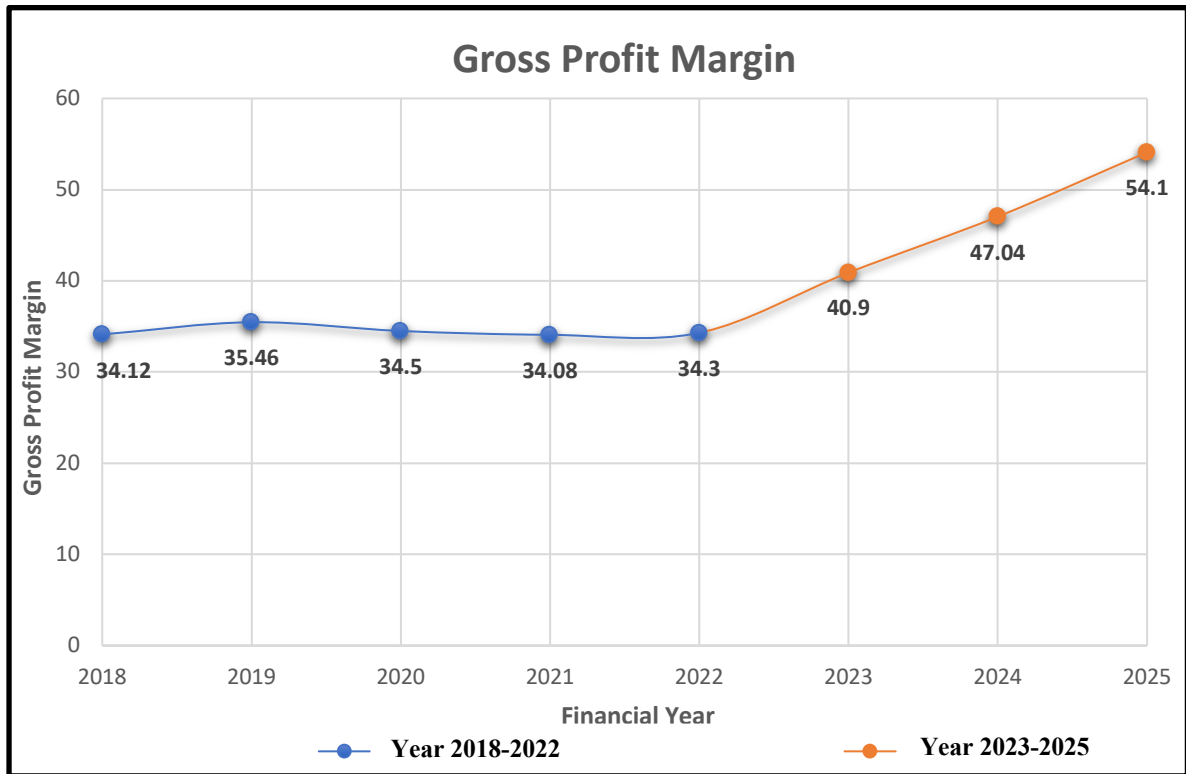
	Financial Year							
Ratios	2018	2019	2020	2021	2022	2023	2024	2025
Gross Profit Margin (%)	34.12	35.46	34.50	34.08	34.30	40.90	47.04	54.10
Net Profit Margin (%)	4.60	1.28	2.04	0.85	0.88	1.02	1.17	1.35
EBITDA Margin (%)	8.06	5.69	5.42	5.35	5.44	6.42	7.38	8.49
ROCE Ratio (%)	15.27	3.63	7.13	1.15	6.12	1.38	1.59	1.83

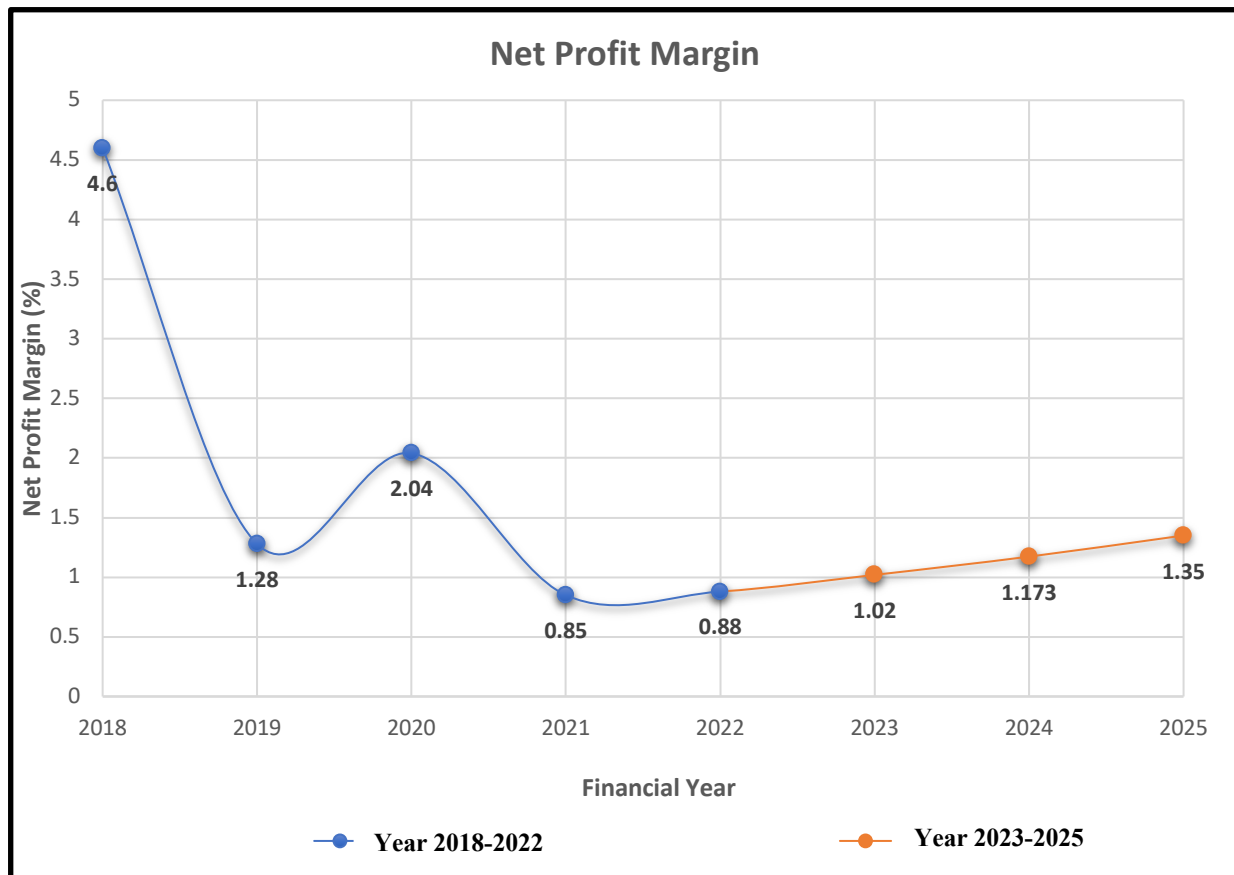
**Table 3: Financial Ratios of Prabha Engineering 2018-2022 and Forecasted Values of Ratios**

— Past and Present Year Values

— Forecasted/Predicted Year Values







Profitability and efficiency ratios examine a company's profit and efficiency of utilisation of a firm's resources through capital usage, in relation to other figures. Analysis of these financial ratios assists the firm in tabulating its performance over time and identifying areas of improvement. The ratio values in the graphs above were calculated from the firm's profit and loss account and balance sheet from 2018 to 2022. Prabha Engineering has been having a declining profitability, wherein net profit margin plummeted from **4.6%** in 2018 to lowest of **0.85%** in 2021 despite having a stagnant gross profit margin averaging at **34.49%** from 2018-2021, causing poor financial health due to little available profit. There's slight increase in net profit margin from **0.85%** to **0.88%** from 2021 to 2022 nurturing the ability for company to plan an expansion overseas driving the investigation domain of this research to make predictions and forecasting ratio's ahead of 2022. Thus to recover the firm's profitability, expansion to Europe was considered, and according to an interview with the company's Head

of Production<sup>28</sup> and Managing Director<sup>29</sup>, first year of expansion would yield **20% improvements** in sales revenue and profit followed by **15% improvement** from next year onwards of expansion. Efficient calculations were made to forecast the company's future financials whilst taking all factors into account. The net profit margin is forecasted to increase from lowest of **0.85%** in 2021 to **1.35%** in 2025. In contrast the sales revenue is expected to significantly rise from ₹ **1370465948** to ₹ **3360464115** strongly favouring the company's decision to expand to Europe.

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<sup>28</sup> Appendix 2: Interview with the Head of Production (PPC Head) of Prabha Engineering Private Limited.

<sup>29</sup> Refer to Appendix 1: Interview with Mr.Shrikant Chaphekar; MD of Prabha Engineering Private Limited.

## Conclusion:

This investigation report strongly recommends that the company should pursue the option of expanding by opening a new production plant in Europe. The decision is highly backed up both qualitative and quantitative data showcasing that the benefits and advantages outweigh the costs and risks.

Overall, Prabha Engineering's decision to expand is beneficial for the company, as supported by stellar evidence from the Lewin Force Field analysis with driving forces totalling to a weight of **24** above the restraining forces with total weight of **16**, wherein Prabha Engineering can increase its geographical footprint, enhancing brand recognition. Quantitatively, pursuing the expansion options yields a net expected revenue of ₹ **2763856242** in contrast to the low figure of exportation of ₹ **632368582** supported by the decision tree tabulation. Sales revenue and net profit margin analysis revealed that the company has a downward trendline profitability, however predictions show increase in net profit margin from **0.85%** to **1.35%** from 2021 to 2025 resonating an upward rising graph with improving ratio's furthermore supporting the expansion decision for the firm.

To summarise, based on the analysis of various aspects of Prabha Engineering Private Limited the firm should expand to Europe as the overall benefits are relatively high, endeavouring to increase their revenue and profitability margin by expanding to Europe.

### Recommendations:

Based on analysis of the business tools, the recommendation is being made to the company to successfully expand to Europe.

- Primarily the company should articulate an accurate budgetary and budget allocation plan to have an efficient transition.
- Detailed market research should be undertaken to understand the potential competition and market structure overseas since it would be a relatively new market for the company itself.
- Research, to tabulate and forecast cost, expected sales revenues and profit margins must be carried out, to ensure a stable growth of the company without facing the catastrophe of a liquidity crisis.
- Net cashflow must be analysed to see if the company would make profits or loss or stay at a breakeven point.

### Limitations:

- Due to differing market and economic conditions in EU Region and India, it is difficult to make accurate predictions pertaining to the future.
- Their geographical footprint remains constrained even with expansion due to the brand name erosion.
- Lewin Force Field Analysis could be inaccurate due to the uncertainty that might arise in the future, similar to the pandemic and detrimental impact of corona virus.

### Unresolved Questions:

- 1) **Should Prabha Engineering manufacture their own raw materials to avoid the issue of supplier unreliability?**

## Bibliography

- 24 Best Business Management Software (2022 Update) | Scoro.” Scoro, [www.scoro.com](https://www.scoro.com/blog/best-business-management-software/), 24 Oct. 2017, <https://www.scoro.com/blog/best-business-management-software/>.
- BEST Revenue 2017-2022 | BEST | MacroTrends.” BEST Revenue 2017-2022 | BEST | MacroTrends, [www.macrotrends.net](https://www.macrotrends.net/stocks/charts/BEST/best/revenue), <https://www.macrotrends.net/stocks/charts/BEST/best/revenue>. Accessed 25 July 2022.
- Frost, Aja. “The Ultimate Guide to Sales Forecasting.” The Ultimate Guide to Sales Forecasting, [blog.hubspot.com](https://blog.hubspot.com/sales/sales-forecasting), <https://blog.hubspot.com/sales/sales-forecasting>. Accessed 4 Aug. 2022.
- Hoang, Paul. Business Management. 4<sup>th</sup> Edition , Victoria, Australia; IBID, 2016 Print
- posts by Amanda Athuraliya &rarr;, View all. “Force Field Analysis | A Comprehensive Guide with Templates.” Creately Blog, [creately.com](https://creately.com/blog/business/force-field-analysis/), 16 Mar. 2020, <https://creately.com/blog/business/force-field-analysis/>.
- “Profitability Ratios - Calculate Margin, Profits, Return on Equity (ROE).” Corporate Finance Institute, [corporatefinanceinstitute.com](https://corporatefinanceinstitute.com/resources/knowledge/finance/profitability-ratios/), 24 Jan. 2022, <https://corporatefinanceinstitute.com/resources/knowledge/finance/profitability-ratios/>.
- “The Complete Guide to Business Analytics (Collection).” O’Reilly Online Learning, [www.oreilly.com](https://www.oreilly.com/library/view/the-complete-guide/9780133091281/book2_ch05.html), [https://www.oreilly.com/library/view/the-complete-guide/9780133091281/book2\\_ch05.html](https://www.oreilly.com/library/view/the-complete-guide/9780133091281/book2_ch05.html). Accessed 7 Aug. 2022.
- “Lewin’s Driving & Restraining Forces Explained | Ifioque.Com.” Lewin’s Driving & Restraining Forces Explained | Ifioque.Com, [ifioque.com](https://ifioque.com/miscellaneous/driving-and-restraining-forces), <https://ifioque.com/miscellaneous/driving-and-restraining-forces>. Accessed 7 Aug 2022.
- “How to Create a Graph in Excel.” YouTube, [www.youtube.com](https://www.youtube.com/watch?v=yIm18GFrGuI), 26 Apr. 2012, <https://www.youtube.com/watch?v=yIm18GFrGuI>.
- “How to Make and Use a Decision Tree - Businessnewsdaily.Com.” Business News Daily, [www.businessnewsdaily.com](https://www.businessnewsdaily.com/6147-decision-tree.html), <https://www.businessnewsdaily.com/6147-decision-tree.html>. Accessed 10 Aug. 2022.
- Fischer Mark, Houghton Medi, Jain Venu, Cambridge IGCSE and O Level Business Studies Coursebook Revised 3rd Edition, 3 May 2018

## References

- Thiel Peter, Zero To One, 16<sup>th</sup> September 2014
- Johnson M.D Spencer and Blanchard Ph.D. Kenneth 1- The New One Minute Manager, 1982
- Buckingham Marcus and Coffman Curt, *First, Break All The Rules*, May 1999
- “How to Structure an SL Business Management Internal Assessment.” How to Structure an SL Business Management Internal Assessment, [www.ibmastery.com](https://www.ibmastery.com), 12 Apr. 2022, <https://www.ibmastery.com/blog/how-to-structure-an-sl-business-management-internal-assessment>.
- Lab, Purdue Writing. “MLA Works Cited Page: Books // Purdue Writing Lab.” Purdue Writing Lab, [owl.purdue.edu](http://owl.purdue.edu)

## Appendices

### ***Appendix 1: Interview with Mr.Shrikant Chaphekar; MD of Prabha Engineering Private Limited.***

#### Questions:

- 1) **Could you pls describe the business and what your company specializes in?**
  - So the company specializes in Automotive products. So we have got 3 verticals wherein 1 vertical is one Automotive where we are doing wiper systems and windshield washers which we regard as the clear vision division because it gives clear vision to the cars. The 2<sup>nd</sup> division or vertical is, we are doing Mechanical Products for recreation vehicle industry so we make the electrical stairs for the caravans or other vehicles. We have got around 75% of the market share for these steps in North America. So basically these are Mechanical products that have motorization in it. We are also doing products like The Slider Door Mechanism, wherein we make a motor drive for that. The 3<sup>rd</sup> or final vertical is what we regard as Contract Manufacturing where we make motors and motors parts based on the customer design.
- 2) **What is the major goal of the company?**
  - We have different objectives for each vertical we have. On the automotive side we are currently on number 4 on our vision system. Our goal is to be number 1 in a few years and be the top competitors and players in the country. In the recreation vehicle industry were doing 5 products for the industry currently so our forecast and objective is to reach the potential where we have a contribution for every vehicle of at least 1000 dollars since right now we have a contribution per vehicle of \$200. On the contract manufacturing front we’re currently catering 2 million motors this year and over time from 2 we want to reach 20 million in the next 5 years.



**3) What is the vision and mission statement of Prabha Engineering Private Limited?**

- So our vision statement is to become a world-class preferred source by innovatively building products that enhance the value proposition for customers.

**4) Who are your usual customers purchasing the commodities your company sells?**

- Now since the business is B2B (Business to Business) in this case the number of units being sold is fixed, thus our main customers are business organizations or firms that buy the products in a certain quantity and then use the product in their own vehicle or commodity and sell it to the market.

-

**5) What problems you think Prabha Engineering might be facing currently taking consideration of the recent times?**

- So today one of the biggest problems is the supply chain in China. So whatever we are sourcing from China is becoming very unreliable and it's causing too much stress on the manufacturing as well as the **cost**, because there are frequent shutdowns and we don't get the raw materials so we have to do air freight shipments and so that's the number one challenge. The next is about talent, we're doing rapidly, acquiring new talent and retaining the current talent is a second challenge. I think the third challenge is because of the second challenge which is attraction and retention, the execution pace which are the 3 challenges.

**6) What options have you considered to boost the sales of Prabha Engineering?**

- So, we are getting into higher-value products in automotive, earlier we only did 3 wheeler and commercial vehicles but now we have gotten into passenger cars and in recreation vehicle segment also we're doing more motorized products so when you do motorization the price of the product starts going higher. Plus, we are getting into a lot of Automation to reduce our costs.

**7) So since your company forecasts to launch new products regarded by the name "Awning and QuickDrop Jack" by expanding into Europe what do you think will be the outcome of the product?**

- So since we're B2B there's not as such a question mark on the product's volume. Our volume is already defined at the start of the program. But the probability is definitely high for its success. Once you win the business your success depends on the customer's (B2B business buying the product) success. So for instance Mahindra had launched TUV 300, which was a flop, but that's nothing got to do with the success of our products since the volume has already been bought and assembled by them and then they sell their utility vehicles which later on became unsuccessful.

**8) Any marketing strategies you have planned for the company?**

- So now in automotive, we have a good technology and a good product, we want to grow our products to the top 2. Our strategy is to add more customers (B2B businesses) to the same product domain and second is adding more products to the same customers

(B2B business). We have also hired an agency that revamps the website so as to articulate a better logo and make certain changes.

**9) Particularly has any expansion strategy been articulated for the company since this expansion venture into Europe would be massive?**

-

**10) To what extent would it be a successful venture of expanding into Western Europe**

- So it could be highly successful owing to the fact that our venture in North America has already got us massive consignment orders for our products which similarly would be in Europe's case.

**11) What are your views on cultural issues that the company could face in Europe and would it impact the company in any field?**

- Yes, so there's always a cultural transition challenge, but the good part is, we have an American handling our marketing in the North American base and since he understands the Indian and North American cultures well the communication barrier is taken care off. So doing something in Italy (Western Europe) where we are currently looking at expanding it could certainly be beneficial so that any cultural difference gets absorbed and balanced.

**12) How do you plan to keep your relation with your suppliers, any issues you might face with your suppliers and how you might tackle it?**

- The Chinese suppliers are a massive problem due to the shutdowns, so we are connecting with critical suppliers and there's a good engagement with them. Then there are periodic audits conducted by the company to make sure the quality of the materials remain constant and are not affected to make sure the product output quality remains the same.

**13) Also, this is just a brief question, in how many years does Prabha Engineering forecast to recover their initial cost of investment when you launch the product?**

- 3 years

**14) How fast is the market growing for the particular product segment you plan to specialize selling, in Europe?**

- Its pretty exponential if you got to see it because overtime with the growth in the number of vehicles being utilized, it has proportionally extended the market for automotive products.

## **Appendix 2: Interview with the Head of Production (PPC Head) of Prabha Engineering Private Limited.**

### **Questions**

**1) Could you pls describe the business and what your company specializes in?**

- Prabha Engineering Private Limited manufactures sheet metal and electrical products. Like the company makes, electrical stair cases, quike drop stabilizers for vanity vans. Moreover wiper motos, sprinkler motors and tanks are made for vehicles. Like we have tie ups with Mahindra, Tata, MG Hector and we make the motors for these companies. We make the wiper motors for XUV 700, TUV 300, MG Hector. The Slider Door Mechanism is being looked at, as an option to manufacture for the company.

**2) What values and principles does the company hold?**

- It is a mission for the company to become a world class preferred source by innovatively building products that enhance value proposition for customers. In addition, the company abides by 5 core values which are:
  - Pursuit Of Excellence
  - Customer Centricity
  - Commitment
  - Concern for People
  - Transparency

**3) Is Prabha Engineering currently facing any issue, which they hope to tackle in the coming future**

- Yes definitely, every company has a point wherein they are faced with a set of challenges and they must overcome these barriers to survive in the market and prevent themselves from closing down. We as a company faced such a catastrophic situation during the covid pandemic because of its immense negative impact. Several issues regarding, unreliability of suppliers, transportation issues, reducing demand, ultimately affected the company's profitability and soon the high rise peak we were sitting on was gradually taking a hit. The company is working on finding out solutions as to how the situation can be avoided. Because the net profit taking an impact would erode the company worst.

**4) The company is planning to offshore to Europe, what are your thoughts on such a big milestone for the company ?**

- The plan of expanding Prabha Engineering Private Limited has been one of the most important deicison being made for the company. Since the company's biggest and most loyal customers "Lippert" are having a presence in Italy (Western Europe) thus as a result it offers the company with extremely beneficial prospects in the future. With the ever growing demand for vehicles, Prabha Engineering seeks to obtain the benefit for each and every potential possible. For instance, exportation of products would be must more costly and so expanding there could potentially be a much feasible option for the firm since its benefits weigh out its costs.

5) **Since I am making a highly detailed report for the company, I would require your guidance regarding certain details and financials?**

- Certainly, please go ahead with your questions. It's appreciating for you to work on this.

6) **To what extent do you think that this expansion would be successful**

- The expansion would definitely be successful primarily because we are a B2B business and our consignment orders are usually fixed.

7) **In order to support the decision that your company should expand to Europe, a special quantitative business tool will be applied which is regarded as "Decision Tree". Calculations would be carried out to support the decision. Here the question that I wanted to ask you was, what according to you would be the probability of success when the expansion expands to Europe**

- I would say, a definite 80% success rate is achievable with the expansion since the company already has potential customers as Joint Ventures and for their products

8) **What would be the sales revenue you think that the company can generate when it expands overseas to Europe?**

- Seeing the current future prospects, since the expansion venture would be relatively new but since the firm will be making efficient estimations and calculations to ensure that the expansion is worthwhile thus in the first year of expanding, we expect around 20% increment in our overall sales generated. Net income being aside, sales revenue definitely would grow by 20%, the first year of expansion. Furthermore an addition 10-15% will be achieved. So overall, the company revenue would grow by 45% in 3 years.

9) **What would be a good estimation of the time period it would take the company to generate enough sales revenue in order to neutralise the initial cost of investment?**

- In my view, it would take more than 2 years and less than 4, to cover the initial cost of investment.

### **Appendix 3: Lewin Force Field Analysis**

#### **Driving Forces:**

- Rising profits could be achieved through expansion if the firm is quickly able to reap the benefits of the expansion and entail in joint ventures that would lead to further success.
- The firm's geographical footprint would increase due to greater and stronger presence in international markets. This will help to improve the company's brand awareness in the market within the customers.
- Higher degree of competitiveness would benefit the company, since competition would force the company to be highly efficient and efficiently allocate resources to maximise the difference between revenue and cost. The company would also approach ideas innovatively since they would want to stand out from the immense competition.
- The fact that the firm's would accomplish its vision and mission would incentivize the stakeholders related to the company and furthermore drive it to achieve more of its ambitions.

#### **Restraining Forces:**

- Since the company is expanding into a relatively new and inexperienced market thus the firm is likely to face severe competition from rival firms. This could harm their profitability.
- Expansion overseas is expensive since making a new manufacturing plant requires a relatively high amount of capital.
- Because the firm would have to employ skilled and specialized workers, thus labour costs would be relatively high.

## **Appendix 4: Employee Survey**

### Questions:

1. For how long have you been working for Prabha Engineering Private Limited  

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2. What is your designated position at the company?  

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3. Is the company experiencing any issue or problem ?  

---
4. If yes, please elaborate regarding the difficulties or challenges faced by the company ?  

---
5. How would you recommend the company to tackle such an issue ?  

---
6. Are you aware of the company's expansion plan to Europe  
  - ☐ Yes
  - ☐ No
7. If yes, are you in support of this decision made by the company or against it?  
  - ☐ Yes
  - ☐ No
8. If no, any particular reason for this?  

---



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9. What is your contribution to this expansion?  

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10. Any recommendations to the company, as to how it can expand more successfully or efficiently

## **Appendix 5: Employee Survey Form Evidence**

### Prabha Engineering Employee Survey

 yugmore20@gmail.com (not shared) [Switch accounts](#) 

**\*Required**

For how long have you been working for Prabha Engineering Private Limited \*

Your answer

What is your designated position at the company

Your answer

Is the company experiencing any issue or problem ?

☐ Yes

☐ No

If yes, please elaborate regarding the difficulties or challenges faced by the company ?

Your answer

How would you recommend the company to tackle such an issue ?

Your answer

Are you aware of the company's expansion plan to Europe

☐ Yes

☐ No

If yes, are you in support of this decision made by the company or against it.

☐ Yes

☐ No

If no, any particular reason for this ?

Your answer

What is your contribution to this expansion ?

Your answer

☐ Yes

☐ No

If no, any particular reason for this ?

Your answer

What is your contribution to this expansion ?

Your answer

Any recommendations to the company, as to how it can expand more successfully or efficiently

Your answer

[Submit](#) [Clear form](#)

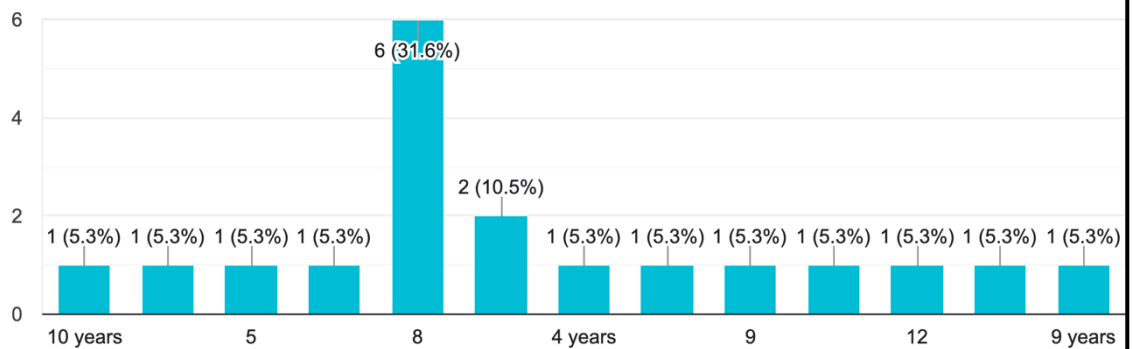
Never submit passwords through Google Forms.

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**Google Forms**

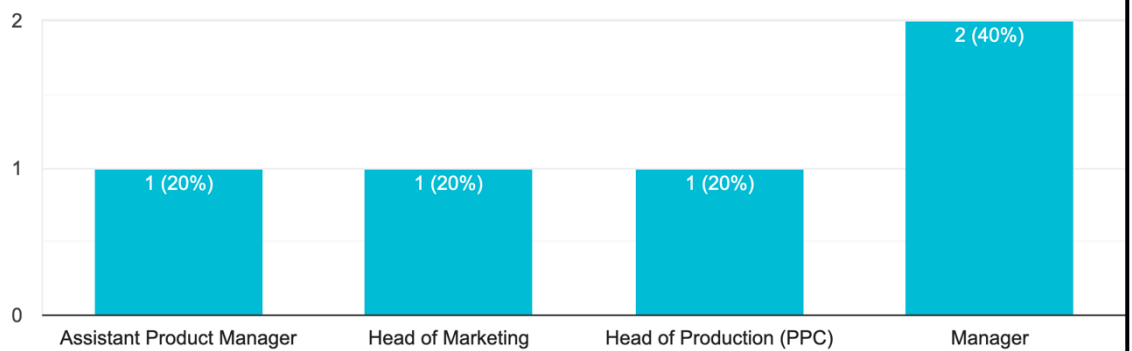
### For how long have you been working for Prabha Engineering Private Limited

19 responses



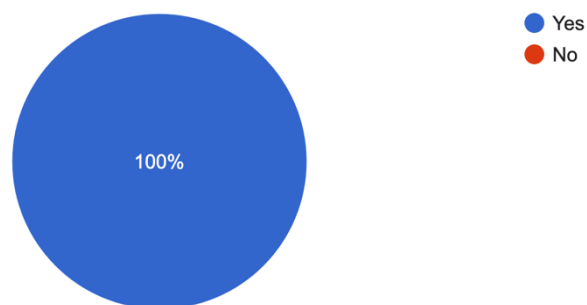
### What is your designated position at the company

5 responses



### Is the company experiencing any issue or problem ?

4 responses





If yes, please elaborate regarding the difficulties or challenges faced by the company ?

4 responses

The company is experiencing a decrease in their profit recently

The difficult to obtain raw materials due to covid pandemic

Fall in sales revenue

The company has lost some of it's sales revenue and a decline has been observed

How would you recommend the company to tackle such an issue ?

4 responses

Probably look at more B2B customers or probably expand overseas, because they have 80% more potential for Join Venture

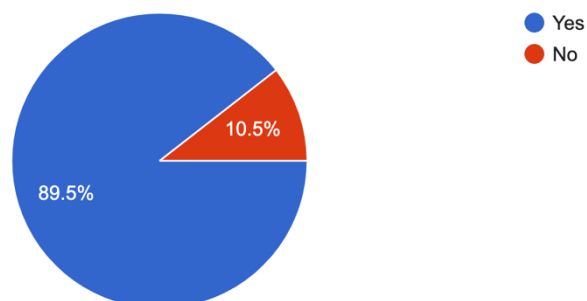
Joint Venture overseas, since they have their major customer already present there.

introduce a new product line, expand into another market that would enable the firm to reap profits in the long run

Probably the most feasible option for the company to increase their sales revenue and extend their profit margin would be to expand overseas. Europe is a potential market that is beneficial for the company since the propose relatively many customers for the company in the form of synergy and joint ventures

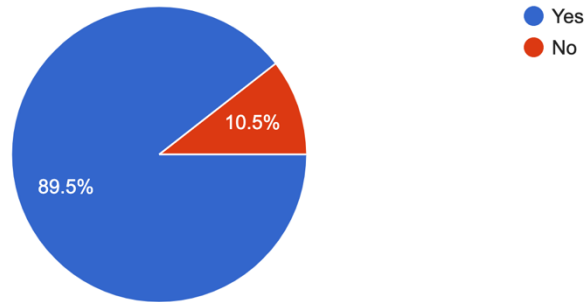
Are you aware of the company's expansion plan to Europe

19 responses



If yes, are you in support of this decision made by the company or against it.

19 responses



If no, any particular reason for this ?

5 responses

-

Seeing the impact of covid, I feel like we should plan this expansion a bit later on.

Because it's a very high expenditure investment

What is your contribution to this expansion ?

6 responses

As the production head, I have articulated presentations regarding the forecast as to how the production process and coordination will be once expansion into Western Europe is successful.

-

Planning of the forecast

Allocation of resources calculation.

Planning as to how the marketing will be carried out to attract B2B customers.

Planning the marketing of the company

Any recommendations to the company, as to how it can expand more successfully or efficiently

4 responses

Definitely, end numerous market research much be done before expanding, the impact of Corona virus must be taken into account to interpret the effect it has had on the market.

Decision tree should be applied as a tool in order to interpret the feasibility.

-

Efficiently spend time and with maximum accuracy execute a decision.

### **Appendix 6 Analysis of the Employee Survey:**

Primary research was implemented within the company, in the form of interview and surveys. The employee survey was mainly obtained in order to get a refined clarity about the company and its management structure and workforce. Starting with how many years have the managers or employees been working for in the company, so as to interpret another area of study, whether the employees are satisfied or dissatisfied with the company's ethics and work timings for them. Positively through the survey, majority of the respondents had worked in the company for a prolonged period of time, denoting the fact that the company has a loyal workforce and they are satisfied with the work place, environment, working hours and any compliance related things. In contrast, instead, if the plethora of workers, worked for less than a year, thus it nurtures to understand that there might be a case of labour attrition or labour turnover within the company, which could be an area of investigation.

The follow up question requests the respondents to provide their designated position that they specialise in within the company. Managers and directors, are key decision makers, thus opinions and details from their survey hold a colossal weightage and thus it's salient to analyse them.

Moreover, the next questions ask the employee from their point of view, whether they think that the company is having any flaws, or issues that they experience (having an adverse and detrimental effect). The follow up questions, ask them to elaborate about the issue, so as to deeply understand the concern and how dominantly it affects the business altogether.

In order to make the survey positive and incentivising the next question asks the employee to give their opinion as to how the issue or problem can be tackled. This makes them feel valued and evade alienation which certainly, urges and incentivises them to complete the survey with extreme honesty and lengthy explanations. Giving more qualitative analysis which is highly efficient.

The next few questions ask the employees whether, they are aware about the company's plan to expand in the future, adding this to their mission objectives they want to accomplish. A substantial amount of 90% employees were aware about this plan, denoting the unity and efficiency of communication within the company, thus as a result it also depicts as to how, the company ensures that every employee is aware about the future plans and actions so as to avoid alienation once again. The employees are asked if they are in favour or against the decision being made. If not, a reason is requested to bring in more clarity, and appropriate comments as to why the employee is against the company's decision, would help to articulate the restraining forces much more efficiently.

If the employees are aware about the expansion plan of the company, they are asked whether they play a vital role in nurturing the company to achieve such a milestone and goal.

Finally, the employees are asked to give recommendation or any strategies in order to execute this plan efficiently overcoming any barriers and obstacles in their way. Moreover, these recommendations would play a crucial role in making this investigation more refined, detailed and efficient.

#### Appendix 4: Prabha Engineering Private Limited Profit and Loss Accounts (2018-2020)

<b>PRABHA ENGINEERING PRIVATE LIMITED</b>			
As on (units in INR)	31 March, 2020	31 March, 2019	31 March, 2018
<b>Continuing Operations</b>			
Revenue from operations	1,57,59,58,530	1,18,69,80,428	1,32,78,98,835
Other income	5,64,78,187	3,66,25,358	4,25,67,113
<b>Total revenue</b>	<b>1,63,24,36,717</b>	<b>1,22,36,05,786</b>	<b>1,37,04,65,948</b>
Cost of materials consumed	1,02,45,33,730	72,87,54,879	88,81,01,225
Purchases of stock in trade	0	0	0
Changes in inventory	76,73,708	3,73,07,433	(1,33,22,012)
Employee benefit expenses	31,98,30,578	24,41,39,827	23,46,94,035
Finance costs	79,92,116	89,82,904	43,01,170
Depreciation and amortization	3,57,95,579	3,65,25,006	1,80,65,970
Other expenses	19,19,02,985	14,38,20,805	15,04,97,309
<b>Total expenses</b>	<b>1,58,77,28,696</b>	<b>1,20,02,30,854</b>	<b>1,28,38,77,697</b>
<b>Total revenue less total expenses</b>	<b>4,47,08,021</b>	<b>2,33,74,932</b>	<b>8,65,88,251</b>
Prior period and exceptional items	0	0	0
<b>Profit before extraordinary items</b>	<b>4,47,08,021</b>	<b>2,33,74,932</b>	<b>8,65,88,251</b>
Extraordinary items	0	0	0
<b>Profit before tax</b>	<b>4,47,08,021</b>	<b>2,33,74,932</b>	<b>8,65,88,251</b>
Current tax expense	1,02,19,811	1,10,00,000	2,41,99,171
Deferred tax expense	11,19,628	(32,70,820)	(6,14,089)
<b>Profit from continuing operations</b>	<b>3,33,68,582</b>	<b>1,56,45,752</b>	<b>6,30,03,169</b>
Profit from discontinuing operations (after tax)	0	0	0
<b>Net profit/loss</b>	<b>3,33,68,582</b>	<b>1,56,45,752</b>	<b>6,30,03,169</b>

#### Appendix 4: Prabha Engineering Private Limited Balance Sheet (2018-2020)

<b>PRABHA ENGINEERING PRIVATE LIMITED</b>			
As on (units in INR)	31 March, 2020	31 March, 2019	31 March, 2018
<b>Equity &amp; Liabilities</b>			
<b>Shareholders Funds</b>			
Share Capital	23,96,200	23,96,200	23,96,200
Reserves and Surplus	46,48,66,518	43,14,97,936	41,58,52,183
Money Received Against Share Warrants	0	0	0
Share Application Money Pending Allotment	0	0	0
<b>Non-Current Liabilities</b>			
Long Term Borrowings	44,66,787	22,89,476	0
Deferred Tax Liabilities	0	0	0
Other Long Term Liabilities	0	0	0
Long Term Provisions	33,03,386	34,54,765	0
<b>Current Liabilities</b>			
Short Term Borrowings	11,51,90,890	23,21,75,653	12,58,61,858
Trade Payables	19,64,83,539	16,50,77,312	17,85,31,162
Other Current Liabilities	2,63,67,006	2,55,68,142	2,24,35,082
Short Term Provisions	2,50,38,848	7,73,61,436	6,36,40,486
<b>Total Equity and Liabilities</b>	<b>83,81,13,174</b>	<b>93,98,20,920</b>	<b>80,87,16,971</b>
<b>Assets</b>			
<b>Non-Current Assets</b>			
<b>Fixed Assets</b>			
Tangible Assets	21,58,68,679	20,66,04,012	18,37,24,750
Intangible Assets	0	0	0
Capital Work-in-Progress	0	0	0
Intangible Assets Under Development	0	0	0
<b>Non-Current Investments</b>	<b>0</b>	<b>0</b>	<b>0</b>
Deferred Tax Assets	34,84,322	46,03,950	13,33,130
Long Term Loans and Advances	35,61,016	40,48,096	43,48,096
Other Non-Current Assets	0	0	0
<b>Current Assets</b>			
Current Investments	3,20,00,000	20,44,33,673	18,90,00,000
Inventories	19,94,80,028	14,47,62,097	6,45,61,385
Trade Receivables	15,27,66,735	17,94,10,786	16,29,72,432
Cash and Cash Equivalents	8,22,83,494	59,59,262	1,87,89,765
Short Term Loans and Advances	14,63,25,559	18,94,59,413	18,31,60,066
Other Current Assets	23,43,341	5,39,631	8,27,347
<b>Total Assets</b>	<b>83,81,13,174</b>	<b>93,98,20,920</b>	<b>80,87,16,971</b>