Y-1732

Investing Opportunities and Strategies in Startup of

Oxygen and Nitrogen Gas Plant

(Industrial Gases Industries Business Plan)

Introduction

The gaseous products produced for use in manufacturing are known as industrial gases. Nitrogen, oxygen, carbon dioxide, argon, hydrogen, helium, and acetylene are the most common gases found in gas cylinders, although many other gases and mixtures are also available. The industry that produces these gases is referred to as industrial gas, and it includes the provision of equipment and technologies for manufacturing and using the gases.

Their products are made as part of the chemical industry as a whole (where industrial gases are often seen as "specialty chemicals"). Compressed, liquid, and mixed forms of oxygen are produced. It's best known as the primary gas needed for human survival. As a result, oxygen tanks can aid people with a variety of medical conditions that make breathing difficult.

Launching rockets, laser cutting, oxidising chemicals, safer combustion, fermentation, food preservation, and wastewater treatment are only a few of the other applications for industrial oxygen. Oxygen is not flammable in and of itself. However, an excess of oxygen can cause other materials, including those that are flame-retardant in normal air, to catch fire. People who rely on oxygen must avoid heat sources at all costs.

Nitrogen is present in all living organisms and organic matter and is an important component of life on Earth. Nitrogen compounds enter our planet's environment through the nitrogen cycle, one of nature's most essential cycles, and are found in all types of plants as well as animals that eat nitrogen-rich vegetation. The capacity of our bodies to synthesise nitrogen is critical in humans.

Nitrogen is needed for the human body to synthesise proteins, amino acids, and nucleic acids for DNA. However, since our bodies are unable to consume nitrogen by breathing, we must rely on plant-based foods or omnivorous/herbivorous animals to meet our needs.

Uses of Oxygen and Nitrogen Gas Plant

Oxygen is used in the refining and welding of steel and other metals, as well as in chemicals, pharmaceuticals, petroleum processing, glass and ceramic manufacturing, and pulp and paper manufacturing. It is used in urban and industrial effluent treatment plants and facilities to protect the environment. Oxygen is used in a variety of settings in healthcare, including hospitals, outpatient treatment facilities, and at home.

For certain applications, such as effluent treatment and pulp and paper bleaching, oxygen is converted to ozone (O3), a more reactive form, to speed up the reaction and ensure that all unwanted compounds are completely oxidised. Many oxidation processes use oxygen as a raw material, such as the partial oxidation of a broad variety of hydrocarbons, ethylene dichloride, hydrogen peroxide, nitric acid, vinyl chloride, and phthalic acid to produce ethylene oxide, propylene oxide, and synthesis gas.

Coal gasification necessitates the use of a significant amount of oxygen — to produce a synthesis gas that can be used as a chemical feedstock or a precursor for fuels that are more easily transported and used. Oxygen is used in refineries to enrich the air feed to catalytic cracking regenerators, increasing the units' performance. Sulfur recovery units use it to produce similar results. Catalysts are also regenerated with oxygen. Incinerators use oxygen to achieve a more total combustion and destruction of dangerous and waste materials.

Nitrogen gas has been discovered to have a variety of essential applications. Because of its safe, dry, and inert properties, it can be used in a variety of industries. In analytical science, nitrogen can help with mass spectrometry and spectroscopy techniques. To ensure that experiments and results are carried out correctly, laboratories need a very unique setting. Nitrogen gas is used to maintain an adequate environment for highly sensitive procedures and equipment by controlling oxygen levels, humidity, and temperature.

Additionally, nitrogen is needed for purging a variety of laboratory instruments. The use of gas to manipulate molten materials into the desired shapes is a well-known and successful method of forming plastics. In their plastic casting process, many industrial operators use a nitrogen processing process. When nitrogen is used instead of conventional moulding methods, still, well-crafted products with minimal filling errors/defects are made.

Manufacturing of Oxygen and Nitrogen Gas Plant

Compressed oxygen, liquid oxygen, and nitrogen are the four materials. d) All liquid nitrogen is extracted in the same plant from air. The raw material, air, is cryogenically liquefied, and the liquid oxygen and liquid nitrogen components are separated in a fractional distillation column. Compressors / pumps bottle compressed oxygen and nitrogen gases into cylinders.

After vaporisation of the respective liquid fractions, compressed oxygen and nitrogen gases are bottled into cylinders by compressors / pumps. The air is compressed to a pressure of 30kg/cm2 in three steps. Following that, water vapour and carbon dioxide are removed using a battery of molecular sieves. The carbon dioxide and water vapor-free air is compressed still more to a pressure.

External refrigeration is used to compress the outgoing carbon dioxide and water vapour free air to a pressure of 100 kg/cm2 and cool it significantly. The outgoing product gases cool the high-pressure air even further in heat exchangers. The majority of the cold air is allowed to expand via an expansion motor, while the remainder is redirected via an expansion valve. The expansion engine's downstream air reaches a pressure of 5 kg/cm2 and a significantly lower temperature.

Partially liquefaction of air occurs when the other stream of air passing through the expansion valve is extended to a pressure of 5kg/cm2. Both streams of air are combined and added to the bottom column of the double rectification column as a liquid vapour mixture (fractional Distillation Column). Because of mass and heat transfer at each perforated tray in the column, nitrogen-rich liquid vapour collects at the top trays, while an oxygen-rich liquid-vapor mixture collects at the bottom trays.

The liquid nitrogen that has accumulated at the top of the bottom column is drawn out and stored in vacuum-insulated cryogenic tanks as a product. This liquid nitrogen is pumped from the storage tank via vaporizers for gasification and bottling into cylinders to produce nitrogen gas. The oxygen-rich liquid-vapor mixture at the bottom column's sump is redirected to the distillation column's top column, which operates at a lower pressure of 0.5kg/cm2.

Further separation of oxygen and nitrogen vapour occurs in this low-pressure column through a mass and heat transfer process at the various trays inside the column. Due to heat exchange with the cooler liquid nitrogen produced at the top of the bottom column, the separated oxygen vapours settle at the bottom of this column and condense to form liquid oxygen. The liquid oxygen that has accumulated at the bottom of the top column is extracted as a result and stored in vacuum-insulated cryogenic tanks.

This liquid oxygen can be vaporised by heat exchange between incoming process airs and compressed by oxygen compressors for bottling into cylinders to produce compressed oxygen. Alternatively, the stored liquid oxygen may be pumped into vaporizers for gasification and cylinder filling. The plant's processing modes can be changed to produce:

1) Liquid nitrogen and compressed oxygen, with in-built vaporizers filling compressed oxygen, or

2) 2) Liquid oxygen only, with external vaporizers filling compressed oxygen, depending on requirements.

Market Outlook

At a compound annual growth rate (CAGR) of -0.9 percent, the global industrial gas demand is forecast to decrease from $101.8 billion in 2019 to $100.9 billion in 2020. The diversified application of gases in industries, various government measures to move toward renewable energy sources, and the growth of the healthcare system are all contributing to the rise in revenue. Furthermore, the future growth of the sector will be aided by the success of the food processing industry.

The market is expected to be driven by increased demand for portable oxygen fueled by home healthcare. A portable oxygen concentrator is a medical device that assists people who have low blood oxygen levels. The system is used to provide oxygen therapy to people who need higher oxygen concentrations than what is found in the ambient air.

The market is expected to be restrained by increased awareness and use of alternative products such as oxygen concentrators. Technological advances are allowing the production of innovative oxygen supply goods, which will act as a constraint on the oxygen gas market.

Increasing Demand of Oxygen Gas Due to Covid-19

The COVID-19 epidemic resulted in a major rise in global demand for medical oxygen. It's a life or death situation when it comes to oxygen. The world can and must do more to ensure that all people have equal access to medical oxygen. As the number of Covid-19 cases in India continued to rise in September, hospitals across the country started to run out of oxygen.

Steel, glass, and pharmaceutical industries all use industrial oxygen in their manufacturing processes. With the coronavirus outbreak in September, India's supply of oxygen was redirected for medical use, despite the country's capacity to manufacture the gas remaining unchanged. The demand for oxygen in industry is generally constant, accounting for approximately 70% to 80% of total production capacity.

Access to medical oxygen can determine who survives or perishes during the pandemic. Approximately 15% of COVID-19 patients need oxygen assistance. Now is the time to put medical oxygen first. Oxygen, like electricity and water, should be considered as a critical utility.

Key Players

- Air Liquide India Holding Pvt. Ltd.
- Arrow Oxygen Ltd.
- Bellary Oxygen Co. Pvt. Ltd.
- Bhagawati Oxygen Ltd.
- Bhilai Oxygen Ltd.
- Govind Poy Oxygen Ltd.
- Howrah Gases Ltd.
- Linde India Ltd.

- **Madhav Industrial Gases Pvt. Ltd.**
- **Niket Udyog Ltd.**
- **Praxair India Pvt. Ltd.**
- **Pushya Industrial Gases Ltd.**
- **Rukmani Metals & Gaseous Pvt. Ltd.**
- **Saraogi Oxygen Ltd.**
- **Southern Gas Ltd.**
- **Travancore Oxygen Ltd.**

Machinery Photographs

Air Compressor

Cooler

Moisture Seperator

Activated Carbon/ Alumina Filter

Chilling System

Liquid Oxygen Pump

Project at a Glance

COST OF PROJECT				MEANS OF FINANCE			
Particulars	Existing	Proposed	Total	Particulars	Existing	Proposed	Total
Land & Site Development Exp.	0.00	50.00	50.00	Capital	0.00	168.75	168.75
Buildings	0.00	107.25	107.25	Share Premium	0.00	0.00	0.00
Plant & Machineries	0.00	183.65	183.65	Other Type Share Capital	0.00	0.00	0.00
Motor Vehicles	0.00	12.00	12.00	Reserves & Surplus	0.00	0.00	0.00
Office Automation Equipments	0.00	267.50	267.50	Cash Subsidy	0.00	0.00	0.00
Technical Knowhow Fees & Exp.	0.00	15.00	15.00	Internal Cash Accruals	0.00	0.00	0.00
Franchise & Other Deposits	0.00	0.00	0.00	Long/Medium Term Borrowings	0.00	506.26	506.26
Preliminary& Pre-operative Exp	0.00	5.00	5.00	Debentures / Bonds	0.00	0.00	0.00
Provision for Contingencies	0.00	18.00	18.00	Unsecured Loans/Deposits	0.00	0.00	0.00
Margin Money - Working Capital	0.00	16.61	16.61				
TOTAL	0.00	675.01	675.01	TOTAL	0.00	675.01	675.01

Project at a Glance

Year	Annualised		Book Value	Debt	Dividend	Retained Earnings		Payout	Probable Market Price	P/E Ratio	Yield Price/ Book Value
	EPS	CEPS	Per Share		Per Share	Per Share				No.of Times	
	`	`	`	`	`	%	`	%	`		%
1-2	5.61	9.83	15.61	24.00	0.00	100.00	5.61	0.00	5.61	1.00	0.00
2-3	8.37	12.07	23.98	18.00	0.00	100.00	8.37	0.00	8.37	1.00	0.00
3-4	11.07	14.33	35.05	12.00	0.00	100.00	11.07	0.00	11.07	1.00	0.00
4-5	13.70	16.58	48.75	6.00	0.00	100.00	13.70	0.00	13.70	1.00	0.00
5-6	16.25	18.79	65.00	0.00	0.00	100.00	16.25	0.00	16.25	1.00	0.00

Project at a Glance

Year	D. S. C. R.			Debt / - Deposits Debt	Equity as- Equity	Total Net Worth	Return on Net Worth	Profitability Ratio					Assets Turnover Ratio	Current Ratio
	Individual	Cumulative	Overall					GPM	PBT	PAT	Net Contribution	P/V Ratio		
	(Number of times)			(Number of times)		%	%	%	%	%		%		
Initial				3.00	3.00									
1-2	1.44	1.44		1.54	1.54	1.63		39.90 %	26.57%	18.26 %	516.61	99.66 %	0.76	0.84
2-3	1.74	1.58		0.75	0.75	0.82		45.84 %	35.72%	23.34 %	602.67	99.65 %	0.83	1.63
3-4	2.10	1.74	2.10	0.34	0.34	0.40		49.90 %	42.17%	27.03 %	688.77	99.65 %	0.85	2.67
4-5	2.52	1.91		0.12	0.12	0.17		52.70 %	46.81%	29.74 %	774.86	99.65 %	0.82	3.94
5-6	3.01	2.10		0.00	0.00	0.04		54.61 %	50.17%	31.74 %	860.96	99.65 %	0.77	19.69

Project at a Glance

BEP

BEP - Maximum Utilisation Year	5
Cash BEP (% of Installed Capacity)	44.68%
Total BEP (% of Installed Capacity)	49.65%

IRR, PAYBACK and FACR

Internal Rate of Return .. (In %age)	26.27%
Payback Period of the Project is (In Years)	2 Years 3 Months
Fixed Assets Coverage Ratio (No. of times)	2.207

Major Queries/Questions Answered in the Report?

1. What is Oxygen and Nitrogen Gas Plant Manufacturing industry ?

2. How has the Oxygen and Nitrogen Gas Plant Manufacturing industry performed so far and how will it perform in the coming years ?

3. What is the Project Feasibility of Oxygen and Nitrogen Gas Plant Manufacturing Plant ?

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- **IS 15130 : Part 3: Natural Gas - Determination of Composition with Defined Uncertainty by Gas Chromatography - Part 3: Determination of Hydrogen, Helium, Oxygen, Nitrogen, Carbon Dioxide and Hydrocarbons up to C8 using Two Packed Columns.**
- **IS 4379: Identification of Contents of Industrial Gas Cylinders.**

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Reasons for Buying our Report:

- This report helps you to identify a profitable project for investing or diversifying into by throwing light to crucial areas like industry size, market potential of the product and reasons for investing in the product
- This report provides vital information on the product like it's characteristics and segmentation
- This report helps you market and place the product correctly by identifying the target customer group of the product

- This report helps you understand the viability of the project by disclosing details like machinery required, project costs and snapshot of other project financials
- The report provides a glimpse of government regulations applicable on the industry
- The report provides forecasts of key parameters which helps anticipate the industry performance and make sound business decisions

Our Approach:

- Our research reports broadly cover Indian markets, present analysis, outlook and forecast for a period of five years.
- The market forecasts are developed on the basis of secondary research and are cross-validated through interactions with the industry players
- We use reliable sources of information and databases. And information from such sources is processed by us and included in the report

Scope of the Report

The report titled "Market Survey cum Detailed Techno Economic Feasibility Report on Oxygen and Nitrogen Gas Plant." provides an insight into Oxygen and Nitrogen Gas Plant market in India with focus on uses and applications, Manufacturing Process, Process Flow Sheets, Plant Layout and Project Financials of Oxygen and Nitrogen Gas Plant project. The report assesses the market sizing and growth of the Indian Oxygen and Nitrogen Gas Plant Industry. While expanding a current business or while venturing into new business, entrepreneurs are often faced with the dilemma of zeroing in on a suitable product/line. And before diversifying/venturing into any product, they wish to study the following aspects of the identified product:

- **Good Present/Future Demand**
- **Export-Import Market Potential**
- **Raw Material & Manpower Availability**
- **Project Costs and Payback Period**

We at NPCS, through our reliable expertise in the project consultancy and market research field, have demystified the situation by putting forward the emerging business opportunity in the Oxygen and Nitrogen Gas Plant sector in India along with its business prospects. Through this report we have identified Oxygen and Nitrogen Gas Plant project as a lucrative investment avenue.

Tags

#DetailedProjectReport #businessconsultant #BusinessPlan #feasibilityReport #NPCS #entrepreneurindia #startupbusiness #ProjectReport #startup #projectconsultancy #businessopportunity #NewBusinessPlan #BusinessProfessional #BusinessConsulting #NitrogenGasPlant #OxygenGasPlant #IndustrialGases #Gases #GasesPlant #IndustrialPlant #GasesMarket #IndustrialGasesMarket #MedicalGasesMarket #NitrogenGasMarket #IndustrialGasIndustry

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NPCS is manned by engineers, planners, specialists, financial experts, economic analysts and design specialists with extensive experience in the related industries.

Our Market Survey cum Detailed Techno Economic Feasibility Report provides an insight of market in India. The report assesses the market sizing and growth of the Industry. While expanding a current business or while venturing into new business, entrepreneurs are often faced with the dilemma of zeroing in on a suitable product/line.

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The detailed project report covers all aspect of business, from analyzing the market, confirming availability of various necessities such as Manufacturing Plant, Detailed Project Report, Profile, Business Plan, Industry Trends, Market Research, Survey, Manufacturing Process, Machinery, Raw Materials, Feasibility Study, Investment Opportunities, Cost and Revenue, Plant Economics, Production Schedule,

Working Capital Requirement, uses and applications, Plant Layout, Project Financials, Process Flow Sheet, Cost of Project, Projected Balance Sheets, Profitability Ratios, Break Even Analysis. The DPR (Detailed Project Report) is formulated by highly accomplished and experienced consultants and the market research and analysis are supported by a panel of experts and digitalized data bank.

We at NPCS, through our reliable expertise in the project consultancy and market research field, have demystified the situation by putting forward the emerging business opportunity in India along with its business prospects.....Read more

Contact us

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Take a look at NIIR PROJECT CONSULTANCY SERVICES on #StreetView

https://goo.gl/VstWkd

NIIR PROJECT CONSULTANCY SERVICES

AN ISO 9001: 2015 CERTIFIED COMPANY

Who are we?

- One of the leading reliable names in industrial world for providing the most comprehensive technical consulting services

- We adopt a systematic approach to provide the strong fundamental support needed for the effective delivery of services to our Clients' in India & abroad

We at NPCS want to grow with you by providing solutions scale to suit your new operations and help you reduce risk and give a high return on application investments. We have successfully achieved top-notch quality standards with a high level of customer appreciation resulting in long lasting relation and large amount of referral work through technological breakthrough and innovative concepts. A large number of our Indian, Overseas and NRI Clients have appreciated our expertise for excellence which speaks volumes about our commitment and dedication to every client's success.

We bring deep, functional expertise, but are known for our holistic perspective: we capture value across boundaries and between the silos of any organization. We have proven a multiplier effect from optimizing the sum of the parts, not just the individual pieces. We actively encourage a culture of innovation, which facilitates the development of new technologies and ensures a high quality product.

What do we offer?

- Project Identification
- Detailed Project Reports/Pre-feasibility Reports
- Market Research Reports
- Business Plan
- Technology Books and Directory
- Industry Trend
- Databases on CD-ROM
- Laboratory Testing Services
- Turnkey Project Consultancy/Solutions
- Entrepreneur India (An Industrial Monthly Journal)

How are we different ?

- We have two decades long experience in project consultancy and market research field
- We empower our customers with the prerequisite know-how to take sound business decisions
- We help catalyze business growth by providing distinctive and profound market analysis
- We serve a wide array of customers , from individual entrepreneurs to Corporations and Foreign Investors
- We use authentic & reliable sources to ensure business precision

Our Approach

- Requirement collection
- Thorough analysis of the project
- Economic feasibility study of the Project
- Market potential survey/research
- Report Compilation

Who do we Serve?

- Public-sector Companies
- Corporates
- Government Undertakings
- Individual Entrepreneurs
- NRI's
- Foreign Investors
- Non-profit Organizations, NBFC's
- Educational Institutions
- Embassies & Consulates
- Consultancies
- Industry / trade associations

Sectors We Cover

- Ayurvedic And Herbal Medicines, Herbal Cosmetics
- Alcoholic And Non Alcoholic Beverages, Drinks
- Adhesives, Industrial Adhesive, Sealants, Glues, Gum & Resin
- Activated Carbon & Activated Charcoal
- Aluminium And Aluminium Extrusion Profiles & Sections,
- Bio-fertilizers And Biotechnology
- Breakfast Snacks And Cereal Food
- Bicycle Tyres & Tubes, Bicycle Parts, Bicycle Assembling

Sectors We Cover *Cont...*

- Bamboo And Cane Based Projects
- Building Materials And Construction Projects
- Biodegradable & Bioplastic Based Projects
- Chemicals (Organic And Inorganic)
- Confectionery, Bakery/Baking And Other Food
- Cereal Processing
- Coconut And Coconut Based Products
- Cold Storage For Fruits & Vegetables
- Coal & Coal Byproduct

Sectors We Cover *Cont...*

- Copper & Copper Based Projects
- Dairy/Milk Processing
- Disinfectants, Pesticides, Insecticides, Mosquito Repellents,
- Electrical, Electronic And Computer based Projects
- Essential Oils, Oils & Fats And Allied
- Engineering Goods
- Fibre Glass & Float Glass
- Fast Moving Consumer Goods
- Food, Bakery, Agro Processing

Sectors We Cover *Cont...*

- Fruits & Vegetables Processing
- Ferro Alloys Based Projects
- Fertilizers & Biofertilizers
- Ginger & Ginger Based Projects
- Herbs And Medicinal Cultivation And Jatropha (Biofuel)
- Hotel & Hospitability Projects
- Hospital Based Projects
- Herbal Based Projects
- Inks, Stationery And Export Industries

Sectors We Cover *Cont...*

- Infrastructure Projects
- Jute & Jute Based Products
- Leather And Leather Based Projects
- Leisure & Entertainment Based Projects
- Livestock Farming Of Birds & Animals
- Minerals And Minerals
- Maize Processing(Wet Milling) & Maize Based Projects
- Medical Plastics, Disposables Plastic Syringe, Blood Bags
- Organic Farming, Neem Products Etc.

Sectors We Cover *Cont...*

- Paints, Pigments, Varnish & Lacquer
- Paper And Paper Board, Paper Recycling Projects
- Printing Inks
- Packaging Based Projects
- Perfumes, Cosmetics And Flavours
- Power Generation Based Projects & Renewable Energy Based Projects
- Pharmaceuticals And Drugs
- Plantations, Farming And Cultivations
- Plastic Film, Plastic Waste And Plastic Compounds
- Plastic, PVC, PET, HDPE, LDPE Etc.

Sectors We Cover *Cont...*

- Potato And Potato Based Projects
- Printing And Packaging
- Real Estate, Leisure And Hospitality
- Rubber And Rubber Products
- Soaps And Detergents
- Stationary Products
- Spices And Snacks Food
- Steel & Steel Products
- Textile Auxiliary And Chemicals

Sectors We Cover *Cont...*

- Township & Residential Complex
- Textiles And Readymade Garments
- Waste Management & Recycling
- Wood & Wood Products
- Water Industry(Packaged Drinking Water & Mineral Water)
- Wire & Cable

MARKET RESEARCH REPORTS

Objective

- To get a detailed scenario of the industry along with its structure and classification
- To provide a comprehensive analysis of the industry by covering aspects like:
  - ❑ Growth drivers of the industry
  - ❑ Latest market trends
  - ❑ Insights on regulatory framework
  - ❑ SWOT Analysis
  - ❑ Demand-Supply Situation
  - ❑ Foreign Trade
  - ❑ Porters 5 Forces Analysis

Objective

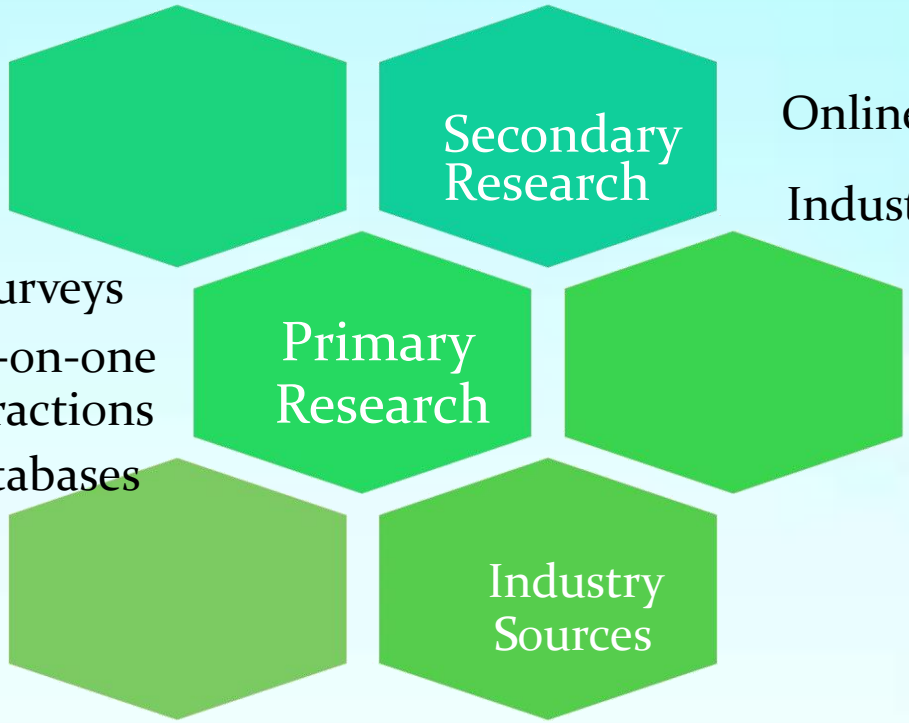
- To provide forecasts of key parameters which helps to anticipate the industry performance
- To help chart growth trajectory of a business by detailing the factors that affect the industry growth
- To help an entrepreneur/manager in keeping abreast with the changes in the industry
- To evaluate the competitive landscape of the industry by detailing:
  - ❑ Key players with their market shares
  - ❑ Financial comparison of present players

Clientele

- Venturist/Capitalists
- Entrepreneur/Companies
- Industry Researchers
- Investment Funds
- Foreign Investors, NRI's
- Project Consultants/Chartered Accountants
- Banks
- Corporates

Click here for list

Data Sources



Online Research

Industry Journals

Surveys

One-on-one Interactions

Databases

Industry Experts

Industry Associations

Companies

Scope & Coverage

Our Team

- Our research team comprises of experts from various financial fields:
- MBA's
- Industry Researchers
- Financial Planners
- Research veterans with decades of experience

Structure of the Report

1. Overview
2. Market Analysis
   - 2.1 Growth Drivers
   - 2.2 Emerging Trends in the Industry
   - 2.3 Regulatory Framework
   - 2.4 SWOT Analysis
   - 2.5 Herfindahl–Hirschman Index (HHI)
3. Market Forecasts
4. Key Players

Structure of the Report

5. Key Financials and Analysis
   - 5.1 Contact Information
   - 5.2 Key Financials
   - 5.3 Financial comparison
6. Industry Size & Outlook

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Contact us

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