

A PROJECT REPORT

ON

“Study on Operations Management”

Indian Oil

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IndianOil

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CHAPTER NO.1

INTRODUCTION OF INDIAN OIL CORPORATION

Indian Oil Corporation (IndianOil) is India's largest commercial enterprise, with a sales turnover of Rs. 4,50,756 crore (US\$ 73.7 billion) and profits of Rs. 5,273 crore for the year 2014-15. It is also the leading Indian corporate in Fortune's prestigious 'Global 500' listing of the world's largest corporates, ranked at the 96th position for the year 2014.

As India's flagship national oil company, with a 33,000-strong work-force currently, IndianOil has been meeting India's energy demands for over half a century. With a corporate vision to be 'The Energy of India' and to become 'A globally admired company,' IndianOil's business interests straddle the entire hydrocarbon value-chain – from refining, pipeline transportation and marketing of petroleum products to exploration & production of crude oil & gas, marketing of natural gas and petrochemicals, besides forays into alternative energy and globalisation of downstream operations.

Having set up subsidiaries in Sri Lanka, Mauritius and the UAE, the Corporation is simultaneously scouting for new business opportunities in the energy markets of Asia and Africa. It has also formed about 20 joint ventures with reputed business partners from India and abroad to pursue diverse business interests.

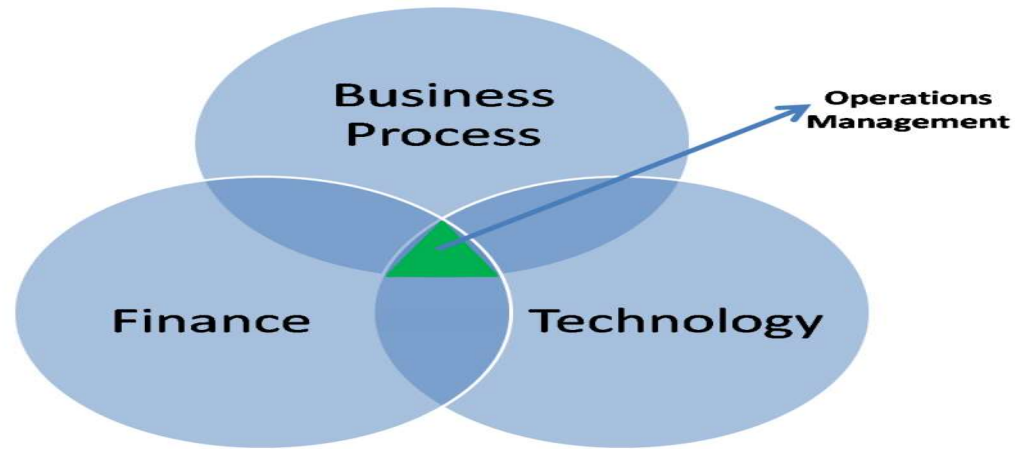
IndianOil began operations in 1958 as Indian Oil Company Ltd. The Indian Oil Corporation was formed in 1964, with the merger of Indian Refineries Ltd.

Recently IndianOil Corp (IOC) has raised \$500 million by selling 10-year dollar-denominated bonds, its fourth such issue overseas in the last three and a half years.

In 2003, its Gujarat Refinery was awarded the "Best of all" Rajiv Gandhi National Quality Award.

CHAPTER NO. 2

INTRODUCTION OF OPERATION MANAGEMENT



Operations management is an area of management concerned with overseeing, designing, and controlling the process of production and redesigning business operations in the production of goods or services. It involves the responsibility of ensuring that business operations are efficient in terms of using as few resources as needed, and effective in terms of meeting customer requirements. It is concerned with managing the process that converts inputs (in the forms of raw materials, labor, and energy) into outputs (in the form of goods and/or services). The relationship of operations management to senior management in commercial contexts can be compared to the relationship of line officers to highest-level senior officers in military science. The highest-level officers shape the strategy and revise it over time, while the line officers make tactical decisions in support of carrying out the strategy. In business as in military affairs, the boundaries between levels are not always distinct; tactical information dynamically informs strategy, and individual people often move between roles over time.

Ford Motor car assembly line: the classical example of a manufacturing production system.

Post office queue. Operations management studies both manufacturing and services.

According to the United States Department of Education, operations management is the field concerned with managing and directing the physical and/or technical functions of a firm or organization, particularly those relating to development, production, and manufacturing.

Operations management programs typically include instruction in principles of general management, manufacturing and production systems, factory management, equipment maintenance management, production control, industrial labor relations and skilled trades supervision, strategic manufacturing policy, systems analysis, productivity analysis and cost control, and materials planning. Management, including operations management, is like engineering in that it blends art with applied science. People skills, creativity, rational analysis, and knowledge of technology are all required for success.

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CHAPTER NO. 3

OBJECTIVES OF THE STUDY

- The main objective of this study is to understand the project of operation management in Indian Oil Corporation.
- To know about the financials as well as other operational process.
- To understand the setup of petrol pump and other channels in the multiple locations.
- To understand the manufacturing and distribution project of Indian oil corporation.
- To understand the pricing method of Indian Oil corporation.
- To understand the marketing process of Indian oil corporation.

SCOPE OF THE STUDY

Due to the dynamic change in the business environment, the scope of operation management has increased. Following are the activities which are included under operations management functions:

- **Facility Location** - Selecting appropriate location for the production
- **Plant layouts and material handling** - Deciding upon the machines, equipment and necessary devices which could lead to effectual and desired production in the most economic way. Preparation of plan layout for the establishment of machines in the required sequence. Storage of material and handling it in most effective way to avoid the wastage and delivery at the work centers as and when required.
- **Product design** - Designing the product and conceive the idea about its production.
- **Process design** - Determination of the production process which is most relevant and efficient in the given state of affairs.
- **Production and planning control** - Planning the production and its various aspects how, when and where producing a particular product or its assembly will be done.
- **Quality control** - Controlling the production and ensuring the quality by setting the check points and taking the periodic measurements of the current performance.

- **Materials management** - Managing the inventories of raw material, semi-finished and finished goods in a way that neither excessive money may block in this non-productive operation nor the required material.
- **Maintenance management** - Analysis the deviations and formulating the corrective measures to stay in track with planned quality, time-schedule and predetermined cost schedules.

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CHAPTER NO. 4

THEORETICAL PERSPECTIVE

In this chapter of the project we can study the process of operation management and about the Indian Oil Corporation:-

Operation Management:



Operation management is a transformation process. In operation management we are able to understand the below mention points.

- Define 'operations' and 'operations management'
- Identify the roles and responsibilities of operations managers in different organisational contexts
- Identify the operations management aspects of your own work
- Apply the 'transformation model' to identify the inputs, transformation processes and outputs of an organisation
- Identify the operational and administrative processes in your own organisation
- Describe the boundaries of an operations system, and recognise its interfaces with other functional areas within the organisation and with its external environment.

1. Define 'operations' and 'operations management'

Consider the ingredients of your breakfast this morning. Unless you live on a farm and produced them yourself, they passed through a number of different processing steps between the farmer and your table and were handled by several different organisations. Similarly, your morning newspaper was created and delivered to you through the interactions of a number of different organisations.

Every day, you use a multitude of physical objects and a variety of services. Most of the physical objects have been manufactured and most of the services have been provided by people in organisations. Just as fish are said to be unaware of the water that surrounds them, most of us give little thought to the organisational processes that produce these goods and services for our use. The study of operations deals with how the goods and services that you buy and consume every day are produced.

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2. Operations, operations management and operations managers

Every organisation has an operations function, whether or not it is called 'operations'. The goal or purpose of most organisations involves the production of goods and/or services. To do this, they have to procure resources, convert them into outputs and distribute them to their intended

users. The term operations embraces all the activities required to create and deliver an organisation's goods or services to its customers or clients.

Within large and complex organisations operations is usually a major functional area, with people specifically designated to take responsibility for managing all or part of the organisation's operations processes. It is an important functional area because it plays a crucial role in determining how well an organisation satisfies its customers. In the case of private-sector companies, the mission of the operations function is usually expressed in terms of profits, growth and competitiveness; in public and voluntary organisations, it is often expressed in terms of providing value for money.

Operations management is concerned with the design, management, and improvement of the systems that create the organisation's goods or services. The majority of most organisations' financial and human resources are invested in the activities involved in making products or delivering services. Operations management is therefore critical to organisational success.

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An understanding of the principles of operations management is important for all managers, because they provide a systematic way of looking at an organisation's processes. The need to manage manufacturing and service operations efficiently and effectively has led to a considerable increase in interest in operations management in recent years. However, the concept of operations is not new. An understanding of the principles of operations management is important for all managers, because they provide a systematic way of looking at an organisation's processes. The need to manage manufacturing and service operations efficiently and effectively has led to a considerable increase in interest in operations management in recent years. However, the concept of operations is not new.

The historical development of operations management

Operations in some form has been around as long as human endeavour itself but, in manufacturing at least, it has changed dramatically over time, and there are three major phases - craft manufacturing, mass production and the modern period. Let's look at each of these briefly in turn. Operations in some form has been around as long as human endeavour itself but, in manufacturing at least, it has changed dramatically over time, and there are three major phases - craft manufacturing, mass production and the modern period. Let's look at each of these briefly in turn.

Mass production

In many industries, craft manufacturing began to be replaced by mass production in the 19th century. Mass production involves producing goods in high volume with low variety – the opposite of craft manufacturing. Customers are expected to buy what is supplied, rather than goods made to their own specifications. Producers concentrated on keeping costs, and hence prices, down by minimising the variety of both components and products and setting up large production runs. They developed aggressive advertising and employed sales forces to market their products.

An important innovation in operations that made mass production possible was the system of standardised and interchangeable parts known as the 'American system of manufacture' (Hounshell, 1984), which developed in the United States and spread to the United Kingdom and other countries. Instead of being produced for a specific machine or piece of equipment, parts were made to a standard design that could be used in different models. This greatly reduced the

amount of work required in cutting, filing and fitting individual parts, and meant that people or companies could specialise in particular parts of the production process.

A second innovation was the development by Frederick Taylor (1911) of the system of 'scientific management', which sought to redesign jobs using similar principles to those used in designing machines. Taylor argued that the role of management was to analyse jobs in order to find the 'one best way' of performing any task or sequence of tasks, rather than allowing workers to determine how to perform their jobs. By breaking down activities into tasks that were sequential, logical and easy to understand, each worker would have narrowly defined and repetitive tasks to perform, at high speed and therefore with low costs (Kanigel, 1999).

A third innovation was the development of the moving assembly line by Henry Ford. Instead of workers bringing all the parts and tools to a fixed location where one car was put together at a time, the assembly line brought the cars to the workers. Ford thus extended the ideas of scientific management, with the assembly line controlling the pace of production. This completed the development of a system through which large volumes of standardised products could be assembled by unskilled workers at constantly decreasing costs – the apogee of mass production.

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The modern period

Mass production worked well as long as high volumes of mass-produced goods could be produced and sold in predictable and slowly changing markets. However, during the 1970s, markets became highly fragmented; product life cycles reduced dramatically and consumers had far greater choice than ever before.

An unforeseen challenge to Western manufacturers emerged from Japan. New Japanese production techniques, such as total quality management (TQM), just-in-time (JIT) and employee involvement were emulated elsewhere in the developed world, with mixed results.

More recently, the mass production paradigm has been replaced, but there is as yet no single approach to managing operations that has become similarly dominant. The different approaches for managing operations that are currently popular include:

- Flexible specialisation (Piore and Sabel, 1984) in which firms (especially small firms) focus on separate parts of the value-adding process and collaborate within networks to produce whole products. Such an approach requires highly developed networks, effective

processes for collaboration and the development of long-term relationships between firms.

- Lean production (Womack et al., 1990) which developed from the highly successful Toyota Production System. It focuses on the elimination of all forms of waste from a production system. A focus on driving inventory levels down also exposes inefficiencies, reduces costs and cuts lead times.
- Mass customisation (Pine et al., 1993) which seeks to combine high volume, as in mass production, with adapting products to meet the requirements of individual customers. Mass customisation is becoming increasingly feasible with the advent of new technology and automated processes.
- Agile manufacturing (Kidd, 1994) which emphasises the need for an organisation to be able to switch frequently from one market-driven objective to another. Again, agile manufacturing has only become feasible on a large scale with the advent of enabling technology.

In various ways, these approaches all seek to combine the high volume and low cost associated with mass production with the product customisation, high levels of innovation and high levels of quality associated with craft production.

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The role of the operations manager

Some people (especially those professionally involved in operations management!) argue that operations management involves everything an organisation does. In this sense, every manager is an operations manager, since all managers are responsible for contributing to the activities required to create and deliver an organisation's goods or services. However, others argue that this definition is too wide, and that the operations function is about producing the right amount of a good or service, at the right time, of the right quality and at the right cost to meet customer requirements.

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So operations managers are responsible for managing activities that are part of the production of goods and services. Their direct responsibilities include managing both the operations process, embracing design, planning, control, performance improvement, and operations strategy. Their indirect responsibilities include interacting with those managers in other functional areas within the organisation whose roles have an impact on operations. Such areas include marketing, finance, accounting, personnel and engineering.

Operations managers' responsibilities include:

- Human resource management – the people employed by an organisation either work directly to create a good or service or provide support to those who do. People and the way they are managed are a key resource of all organisations.
- Asset management – an organisation's buildings, facilities, equipment and stock are directly involved in or support the operations function.
- Cost management – most of the costs of producing goods or services are directly related to the costs of acquiring resources, transforming them or delivering them to customers. For many organisations in the private sector, driving down costs through efficient operations management gives them a critical competitive edge. For organisations in the not-for-profit sector, the ability to manage costs is no less important.

Decision making is a central role of all operations managers. Decisions need to be made in:

- Designing the operations system
- Managing the operations system
- Improving the operations system

The five main kinds of decision in each of these relate to:

1. The processes by which goods and services are produced
2. The quality of goods or services
3. The quantity of goods or services (the capacity of operations)
4. The stock of materials (inventory) needed to produce goods or services
5. The management of human resources.

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3 The transformation model

The discussion above has highlighted the role of operations in creating and delivering the goods and services produced by an organisation for its customers. This section introduces the transformation model for analysing operations. This is shown in [Figure 1](#), which represents the three components of operations: inputs, transformation processes and outputs. Operations management involves the systematic direction and control of the processes that transform resources (inputs) into finished goods or services for customers or clients (outputs). This basic transformation model applies equally in manufacturing and service organisations and in both the private and not-for-profit sectors.



Inputs

Some inputs are used up in the process of creating goods or services; others play a part in the creation process but are not used up. To distinguish between these, input resources are usually classified as:

- Transformed Resources – those that are transformed in some way by the operation to produce the goods or services that are its outputs
- Transforming Resources – those that are used to perform the transformation process.

Inputs include different types of both transformed and transforming resources.

Three types of resource that may be transformed in operations are:

- Materials – the physical inputs to the process
- Information that is being processed or used in the process
- Customers – the people who are transformed in some way.

Many people think of operations as being mainly about the transformation of materials or components into finished products, as when limestone and sand are transformed into glass or an automobile is assembled from its various parts. But all organisations that produce goods or services transform resources; many are concerned mainly with the transformation of information (for example, consultancy firms or accountants) or the transformation of customers (for example, hairdressing or hospitals).

Galloway (1998) defines operations as all the activities concerned with the transformation of materials, information or customers.

The two types of transforming resource are:

- Staff – the people involved directly in the transformation process or supporting it
- Facilities – land, buildings, machines and equipment.

The staff involved in the transformation process may include both people who are directly employed by the organisation and those contracted to supply services to it. They are sometimes described as 'labour'. The facilities of an organisation – including buildings, machinery and equipment – are sometimes referred to as 'capital'. Operations vary greatly in the mix of labour and capital that make up their inputs. Highly automated operations depend largely on capital; others rely mainly on labour.

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Outputs

The principal outputs of a doctor's surgery are cured patients; the outputs of a nuclear reprocessing plant include reprocessed fuel and nuclear waste. Many transformation processes produce both goods and services. For example, a restaurant provides a service, but also produces goods such as food and drinks.

Transformation processes may result in some undesirable outputs (such as nuclear waste in the example above) as well as the goods and services they are designed to deliver. An important

aspect of operations management in some organisations is minimising the environmental impact of waste over the entire life cycle of their products, up to the point of final disposal. Protecting the health and safety of employees and of the local community is thus also the responsibility of operations management. In addition, the operations function may be responsible for ethical behaviour in relation to the social impact of transformation processes, both locally and globally. For example, in the United States, manufacturers of sports footwear have come under fire for employing child labour and paying low wages to workers employed in their overseas factories.

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Transformation processes

A transformation process is any activity or group of activities that takes one or more inputs, transforms and adds value to them, and provides outputs for customers or clients. Where the inputs are raw materials, it is relatively easy to identify the transformation involved, as when milk is transformed into cheese and butter. Where the inputs are information or people, the nature of the transformation may be less obvious. For example, a hospital transforms ill patients (the input) into healthy patients (the output).

Transformation processes include:

- Changes in the physical characteristics of materials or customers
- Changes in the location of materials, information or customers
- Changes in the ownership of materials or information
- Storage or accommodation of materials, information or customers
- Changes in the purpose or form of information
- Changes in the physiological or psychological state of customers.

Often all three types of input – materials, information and customers – are transformed by the same organisation. For example, withdrawing money from a bank account involves information about the customer's account, materials such as cheques and currency, and the customer. Treating a patient in hospital involves not only the 'customer's' state of health, but also any materials used in treatment and information about the patient.

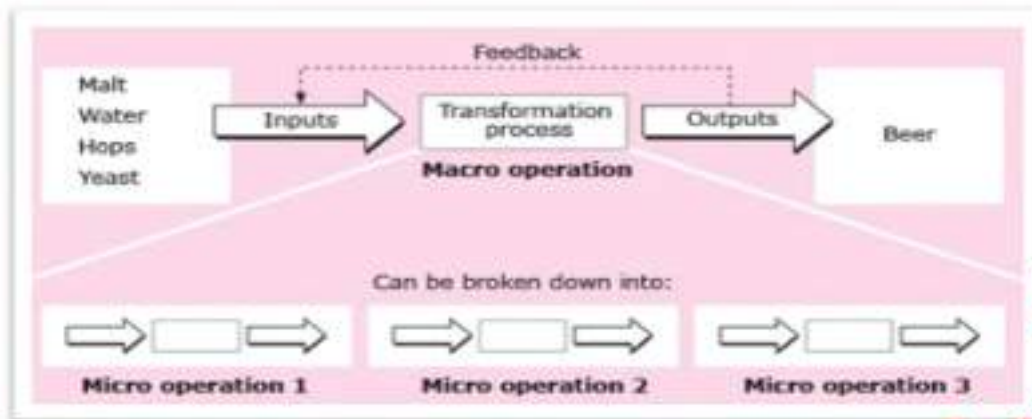
One useful way of categorising different types of transformation is into:

- Manufacture – the physical creation of products (for example cars)
- Transport – the movement of materials or customers (for example a taxi service)
- Supply – change in ownership of goods (for example in retailing)
- Service – the treatment of customers or the storage of materials (for example hospital wards, warehouses)

Several different transformations are usually required to produce a good or service. The overall transformation can be described as the macro operation, and the more detailed transformations within this macro operation as micro operations. For example, the macro operation in a brewery is making beer (Figure 2). The micro operations include:

- Milling the malted barley into grist
- Mixing the grist with hot water to form wort
- Cooling the wort and transferring it to the fermentation vessel
- Adding yeast to the wort and fermenting the liquid into beer
- Filtering the beer to remove the spent yeast

- Decanting the beer into casks or bottles.



Feedback

A further component of the transformation model in Figure 1 is the feedback loop. Feedback information is used to control the operations system, by adjusting the inputs and transformation processes that are used to achieve desired outputs. For example, a chef relies on a flow of information from the customer, through the waiter, about the quality of the food. Adverse feedback might lead the chef to change the inputs (for example by buying better quality potatoes) or the transformation process (for example by changing the recipe or the cooking method).

Feedback is essential for operations managers. It can come from both internal and external sources. Internal sources include testing, evaluation and continuously improving goods and services; external sources include those who supply products or services to end-customers as well as feedback from customers themselves.

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Indian Oil Corporation



Values of Indian Oil

IndianOil nurtures the core values of Care, Innovation, Passion & Trust across the organization in order to deliver value to its stakeholders.

Care Stands for

- Concern
- Empathy
- Understanding
- Co-operation
- Empowerment

Innovation Stands for

- Creativity
- Ability to learn

- Flexibility
- Change

Passion Stands for

- Commitment
- Dedication
- Pride
- Inspiration
- Ownership
- Zeal & Zest

Trust Stands for

- Delivered promises
- Reliability
- Dependability
- Integrity
- Truthfulness
- Transparency

MANAGEMENT



B. Ashok (Chairman, Indian Oil)

Mr. B. Ashok is Chairman of Indian Oil Corporation Ltd. since July 2014. He also heads IndianOil's group companies, Chennai Petroleum Corporation Ltd. and IOT Infrastructure & Energy Services Ltd., and industry organisations such as Petroleum Federation of India (PetroFed).

With over 33 years' expertise in the oil & gas sector, Mr. Ashok has wide experience in various roles of the Corporation's Marketing Division and has also been part of the core team that initiated Business Development activities at its Corporate Office for diversification of business and integration both upstream and downstream. He also has considerable global exposure, having headed IndianOil's overseas business in Southeast Asia from Kuala Lumpur, Malaysia, and recently on the Board of IndianOil's Sri Lanka subsidiary (Lanka IOC), wherein he contributed to its turnaround into a profitable venture, which declared maiden dividend to its shareholders.

A mechanical engineer from the College of Engineering, Madras University, with a Post-Graduate Management diploma from the prestigious National Management Programme of Management Development Institute, Gurgaon, Mr. Ashok has served in many key positions at IndianOil. As head of the Retail Sales function, he managed a 24,000-strong fuel stations network, which contributes about 55% of the sales volumes. As Head of two State Offices, he handled the Corporation's complete business portfolio in two major States, besides acting as the Oil Industry Coordinator. He has been a Divisional Head with long and successful stints at the field level as well as at the Marketing Division Head Office in Lubes & Technical Services functions.

Mr. Ashok initiated several technological innovations in the retail business, including launch of the mobile application *mPower* for field officers, the first for any retail industry in the country; *XSpash*, a mobile app. for dealers and *XSnehash*, a mobile app. for customers. A Retail Dashboard for database management was launched during his tenure as Retail Sales head. With his customer-centric approach, Mr. Ashok has been instrumental in several long-lasting partnerships with key industrial and other bulk customers. He has always insisted on the win-win and ethical approach to business.

Mr. Ashok has been in leadership and policy formulation positions in the organisation for several years and has established many benchmarks for the industry as well. Some of the key


initiatives include innovation of pilfer-proof locks for tank-trucks transporting petroleum products to prevent theft and adulteration en route, which later became an industry norm; setting up of AutoLPG dispensing stations to promote the more economical and less-polluting LPG as auto fuel. He has shaped numerous policy changes in Retail and Business Development areas that eased business practices, improved clarity and promoted transparency.

Mr. Ashok has also headed the Corporate Communications function during his wide-ranging career contour in IndianOil. Having also been a Training & Development person, his passion for human development resulted in the formulation of high-impact training and development initiatives. *Project Chetna*, launched during his stint as Retail Sales head, focussed on upgrading the skills, responsiveness and behaviour of the public-facing 'customer attendants' at IndianOil's fuel stations. This has galvanised the field teams to bring about perceptible changes in service levels across the Corporation's retail network.

At IndianOil, Mr. Ashok is known for his transformational and people-centric leadership. In his various roles, he has been able to energise entire teams to perform and deliver results through positive engagement and a shared vision. He was one of the key resource persons in evolving the Corporate Vision for the organisation both in the year 1999 as well as in 2009. Under his leadership, several HR initiatives were taken and innovative policies implemented in areas relating to promotion policy, recruitment at A0 level, organisational restructuring and modification of ePMS (electronic performance management system).

An avid reader, musician and a keen sportsperson, Mr. Ashok has a wide range of interests and passion for multiple facets of life.

Board of Directors

 <p>B. Ashok Chairman IndianOil</p>	 <p>Sanjiv Singh Director (Refineries)</p>	 <p>Debasis Sen Director (P&BD)</p>
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A. K. Sharma
Director (Finance)



Verghese Cherian
Director (HR)



Anish Aggarwal
Director (Pipelines)



Prof. Devang Khakhar
Director,
Indian Institute of Technology,
Bombay



Dr. Archana S. Mathur
Economic Adviser
Ministry of Petroleum
& Natural Gas

Advisor (Security)

CVO



S.N. Singh



Anand Kumar

Company Secretary



Raju Ranganathan

Business of Indian Oil Corporation

Indian Oil is India's flagship Maharatna national oil company with business interests straddling the entire hydrocarbon value chain – from refining, pipeline transportation and marketing of petroleum products to Research & Development, Exploration & Production, marketing of natural gas and petrochemicals. By venturing into the Renewables and the Nuclear Energy, the company has grown and evolved itself from a pure petroleum refining and marketing company to a full-fledged energy company.

With a corporate vision to be the Energy of India, it is the largest commercial enterprise in the country in terms of sales revenue. With a turnover of Rs. 4,57,553 crore (\$75.666 billion) for the year 2013-14, it is the highest ranked Indian company at the 96th position in the Fortune Global 500: 2014 listings. IndianOil Group is the market leader in refining and marketing with a vast network of cross-country crude and product pipelines, and marketing network to serve customers across the length and breadth of the country. With about 34,000-strong workforce, IndianOil has been playing a significant role in meeting India's energy demands for over five decades.

Having set up subsidiaries in Sri Lanka, Mauritius and the United Arab Emirates, Indian Oil is simultaneously scouting for new business opportunities in the energy markets of Asia and Africa.

Born out of the vision of achieving self-reliance in oil refining and marketing for the nation, IndianOil has the proud possession of the world's oldest running refinery at Digboi with a luminous legacy of more than 110 years and also the upcoming Paradip refinery, which when commissioned would be one of the most modern and complex refineries.

IndianOil Group (including two refineries of its subsidiary company Chennai Petroleum Corporation Ltd. (CPCL)) owns and operates 10 of India's 22 refineries. The group refining capacity of 65.7 million metric tonnes per annum (MMTPA) or 1.31 million barrels per day (mb/d) is the largest among refining companies in India. It accounts for 30.5% share of national refining capacity. On a stand-alone basis, the company owns and operates eight refineries with a capacity of 54.2 MMTPA (1.1 mb/d).

IndianOil reaches millions of people every day through an unmatched countrywide massive and

ever-expanding infrastructure network to deliver Petroleum products. The network, comprising over 42,600 touch points as on 30.11.2014, was strengthened from 41,640 touches. Largest and most extensive network of retail outlets, numbering 24,403 (including 6,194 Kisan Seva Kendras), 136 depots and 6,376 consumer pumps for the convenience of large consumers, are some of the vital components of this network, ensuring availability of products and inventory at the doorstep of customers. The needs of domestic fuel (LPG) are fulfilled through 91 Bottling plants and 7,626 LPG distributors, serving over 86 million customers.

Continuing its thrust on reaching rural masses through Kisan Seva Kendras (KSKs) and LPG distributorships under Rajiv Gandhi Gramin LPG Vitaran Yojana (RGGLVY), IndianOil has continuously extended its reach to the rural India, with 6,194 KSKs and 1,867 RGGLVYs as on 31st November 2014. The KSKs and RGGLVs also represent a success story for IndianOil in its efforts towards inclusive development in the rural hinterlands of India. The facilities at KSKs inter-alia include availability of seeds, pesticides, fertilizers, provisions, farm equipment, medicines, Nutan stoves, banking help including rural ATMs, communication etc, and all under one roof.

IndianOil places significant thrust on knowledge and research based growth and has a dedicated world class R&D centre. The R&D centre has 320 active patents to its credit as on 30th November 2014, of which 173 are active international patents. In the context of vagaries of the international crude oil prices and changing domestic pricing regime, IndianOil R&D is viewed as a key competitive advantage driver. Investment in proprietary research in lubricants, catalyst, refinery and pipelines operations, and product offerings are key thrust areas for IndianOil. Research in new businesses, especially, petrochemicals and alternative energy is emerging a major focus area for IndianOil.

IndianOil has established itself as a key player in petrochemicals with good market acceptability and occupies the second largest player in the domestic petrochemical market. Under the umbrella brand PROPEL, it offers a full products slate covering all the major segments of petrochemicals Viz. Linear Alkyl Benzene (LAB), Purified Terephthalic Acid (PTA), Paraxylene (PX), Mono Ethylene Glycol (MEG) & other glycols (DEG & TEG), Butene-1, Butadiene, Polypropylene

(PP), Linear Low Density Polyethylene (LLDPE), High Density Polyethylene (HDPE) etc. IndianOil has a market share of 22% in LAB, 16% in Polymers and 16% in Glycols. The company has also taken a lead in expanding petrochemicals business globally with exports to 21 new countries during 2013-14 taking the total to 66 countries with IndianOil's footprint.

The gas business of the Corporation is intent upon leveraging the sizeable opportunities being presented by the country's growing demand for gas. The company also plans to exploit the increased international gas sourcing opportunities brought on by the international unconventional gas revolution. The company also operates a unique concept of supplying LNG to small customers located away from the pipelines through 'LNG at the Doorstep', which has been highly successful. IndianOil's 5 MMTPA LNG import terminal at Ennore will be the first such terminal on the east coast and a gateway for the corporation to enter southern Indian gas market. This Terminal will be set up through a Joint Venture Company led by IndianOil. The Corporation is a partner in two joint ventures, namely, GSPL India Gasnet Ltd. And GSPL India Transco Ltd. with 26% equity participation for building of Mehsana-Bhatinda & Bhatinda-Jammu-Srinagar gas pipelines and Mallavaram-Bhopal-Bhilwara-Vijaypur gas pipeline, respectively.

IndianOil has been making continuous efforts to expand its E&P portfolio, both in domestic as well as overseas market. IndianOil presently has Participating Interest (PI) in 10 domestic and 7 overseas blocks. These blocks are in different stages of operations. Out of the 10 domestic blocks, IndianOil is operator with 100% PI in 2 onshore exploration blocks in Cambay basin. In the remaining 8 domestic blocks, it holds non-operating participating interest ranging from 20% to over 43%. Further, IndianOil holds non-operating participating interest ranging from 3.5% to 50% in the 7 overseas blocks located in 7 countries namely Libya, Gabon, Nigeria, Yemen, Venezuela, USA and Canada.

IndianOil's foray into renewable energy is aimed not only towards diversification through inclusion of cleaner forms of energy in its portfolio but also for alleviating energy poverty and improving energy access at the 'base of the pyramid' in India. In its quest towards a greener world by offering sustainable and environment-friendly energy options, IndianOil is geared up to

tap alternate energy sources such as wind, solar, hydrogen and bio-fuels. IndianOil aims to reduce the eco-footprints (carbon, water and waste) of its operations by exploiting these renewable energy resources.

With a view to expanding its cleaner energy portfolio, the company has set up a Joint Venture with NPCIL, namely, M/s NPCIL - IndianOil Nuclear Energy Corporation Limited (NINECL) for 2*700 MW Rajasthan Atomic Power Project 7&8 where IndianOil has 26% equity stake.

Refining

Born from the vision of achieving self-reliance in oil refining and marketing for the nation, IndianOil has gathered a luminous legacy of more than 100 years of accumulated experiences in all areas of petroleum refining by taking into its fold, the Digboi Refinery commissioned in 1901.

IndianOil controls 10 of India's 22 refineries.



The group refining capacity is 65.7 million metric tonnes per annum (MMTPA) or 1.30 million barrels per day - the largest share among refining companies in India. It accounts for 31% share of national refining capacity.

The strength of IndianOil springs from its experience of operating the largest number of refineries in India and adapting to a variety of refining processes along the way. The basket of technologies, which are in operation in IndianOil refineries include: Atmospheric/Vacuum Distillation; Distillate FCC/Resid FCC; Hydrocracking; Catalytic Reforming, Hydrogen

Generation; Delayed Coking; Lube Processing Units; Visbreaking; Merox Treatment; Hydro-Desulphurisation of Kerosene&Gasoil streams; Sulphur recovery; Dewaxing, Wax Hydro finishing; Coke Calcining, etc.



The Corporation has commissioned several grassroots refineries and modern process units. Procedures for commissioning and start-up of individual units and the refinery have been well laid out and enshrined in various customized operating manuals, which are continually updated.

IndianOil refineries have an ambitious growth plan with an outlay of about Rs. 55,000 crore for capacity augmentation, de-bottlenecking, bottom upgradation and quality upgradation. Major projects under implementation include a 15 MMTPA grassroots refinery at Paradip, Orissa, Naphtha Cracker and Polymer Complex at Panipat, Panipat Refinery expansion from 12 MMTPA to 15 MMTPA, among others.



On the environment front, all IndianOil refineries fully comply with the statutory requirements. Several Clean Development Mechanism projects have also been initiated. To address concerns on safety at the work place, a number of steps were taken during the year, resulting in reduction of the frequency of accidents.

Innovative strategies and knowledge-sharing are the tools available for converting challenges into opportunities for sustained organisational growth. With strategies and plans for several value-added projects in place, IndianOil refineries will continue to play a leading role in the downstream hydrocarbon sector for meeting the rising energy needs of our country.

Pipelines

Indian Oil Corporation Ltd. operates a network of 11,214 km long crude oil, petroleum product and gas pipelines with a capacity of 77.258 million metric tonnes per annum of oil and 10 million metric standard cubic meter per day of gas. Cross-country pipelines are globally recognised as the safest, cost-effective, energy-efficient and environment-friendly mode for transportation of crude oil and petroleum products.



The operational throughput of pipelines was recorded at 74.20 million metric tonnes during 2013-14. The offshore terminals of IndianOil at Vadinar, Mundra and Paradip have handled 218 tankers including 128 VLCCs during the year. The multi-product pipelines successfully prepared to transport Euro IV grade fuels from refineries to marketing centres maintaining the high quality standards of products during transportation. Beginning with the first batch of Euro-IV MS grade quality fuel to National Capital Region in January, 2010, Euro IV grade quality fuels have been transported through the pipelines from refinery locations to the major metros for supply of these environment friendly products to the consumers as per the new emission norms.

IndianOil completed and commissioned the 290-km long Chennai-Bangalore Pipeline to position the petroleum products from Chennai Petroleum Corporation's Manali refinery to Bangalore and surrounding areas in a cost-effective manner. Crude oil feed for the expansion of Panipat refinery to 15 million tonnes was arranged through the augmented Mundra-Panipat Pipeline. The

augmentation project was commissioned during the year at a cost of Rs. 165 crore against approved cost of Rs. 205 crore.



Integrated crude oil handling facilities being provided at Paradip involves setting up of a second and third Single Point Mooring (SPM) and concomitant sub-sea pipelines. Crude oil blending application installed at Mundra has been an attractive solution for refineries with the ability to blend different crude types to provide a consistent and optimal feedstock to refinery operations. The online integrated crude oil blender facility is now being implemented at Vadinar crude oil terminal to enable the maximization of yields of higher value products.

Implementation of Paradip-Sambalpur-Raipur-Ranchi Pipeline, branch pipeline from Koyali-Sanganer Pipeline at Viramgam to Kandla will further strengthen the petroleum product delivery in central and western India in the coming years.

Nearly 14 pipeline projects are under implementation at an approved cost of over Rs. 6,700 crore. Upon completion, these projects would result in additional length of over 3,600 km and added capacity of 16 MMTPA. These include the 700 km Paradip-Haldia-Budge Budge-Kalyani-Durgapur LPG Pipeline, 295 km Sanganer-Bijwasan Naphtha Pipeline, Augmentation of PHBPL and five additional tanks at Paradip, 270 km branch pipeline from Patna to Motihari and Baitalpur, 120 km Cauvery Basin Refinery to Trichy Pipeline and 400 km Ennore-Trichy-Pondicherry LPG Pipeline.

Marketing

Reaching out to a Billion Hearts



IndianOil has one of the largest petroleum marketing and distribution networks in Asia, with over 35,000 marketing touch points. Its ubiquitous petrol/diesel stations are located across different terrains and regions of the Indian sub-continent. From the icy heights of the Himalayas to the sun-soaked shores of Kerala, from Kutch on India's western tip to Kohima in the verdant North East, IndianOil is truly 'in every heart, in every part'. IndianOil's vast marketing infrastructure of petrol/diesel stations, Indane (LPG) distributorships, *SERVO* lubricants & greases outlets and large volume consumer pumps are backed by bulk storage terminals and installations, inland depots, aviation fuel stations, LPG bottling plants and lube blending plants amongst others. The countrywide marketing operations are coordinated by 16 State Offices and over 100 decentralised administrative offices.



Several landmark surveys continue to rate IndianOil as the dominant energy brand in the country

and an enduring symbol for high quality petroleum products and services. The heritage and iconic association that the brand invokes has been built over four decades of commitment to uninterrupted supply line of petroleum products to every part of the country, and unique products that cater not only to the functional requirements but also the aspirational needs of millions of customers.

IndianOil has been adjudged India's No. 1 brand by UK-based Brand Finance, an independent consultancy that deals with valuation of brands. It was also listed as India's 'Most Trusted Brand' in the 'Gasoline' category in a Readers' Digest - AC Nielsen survey. In addition, IndianOil topped The Hindu Businessline's "India's Most Valuable Brands" list. However, the value of the IndianOil brand is not just limited to its commercial role as an energy provider but straddles the entire value chain of gamut of exploration & production, refining, transportation & marketing, petrochemicals & natural gas and downstream marketing operations abroad. IndianOil is a national brand owned by over a billion Indians and that is a priceless value.

PRODUCTS

INDANE GAS

Indane is today one of the largest packed-LPG brands in the world and has been conferred the coveted 'Consumer Superbrand' status by the Superbrands Council of India.

Having launched LPG marketing in the mid-60s, IndianOil has been credited with bringing about a 'kitchen revolution,' spreading warmth and cheer in millions of households with the introduction of the clean and efficient cooking fuel. It has led to a substantial improvement in the health of women, especially in rural areas by replacing smoky and unhealthy chulha. **Indane** is today an ideal fuel for modern kitchens, synonymous with safety, reliability and convenience.

With the status of an exclusive business vertical within the Corporation, the Indane network delivers 1.2 million cylinders a day to the doorsteps of over 8.95 crore households, making IndianOil the second largest marketer of LPG globally, after SHV Gas of The Netherlands.

Indane is available in compact 5 kg cylinders for rural, hilly and inaccessible areas, 14.2 kg cylinders for domestic use, and 19 kg and 47.5 kg for commercial and industrial use.

LPG is a blend of Butane and Propane readily liquefied under moderate pressure. LPG vapour is heavier than air; thus it normally settles down in low-lying places. Since LPG has only a faint scent, a mercaptan odorant is added to help in its detection. In the event of an LPG leak, the vapourisation of liquid cools the atmosphere and condenses the water vapour contained in it to form a whitish fog, which is easy to observe. LPG in fairly large concentrations displaces oxygen leading to a nauseous or suffocating feeling.

AUTO GAS

AutoGas (LPG) is a clean, high octane, abundant and eco-friendly fuel. It is obtained from natural gas through fractionation and from crude oil through refining. It is a mixture of petroleum gases like propane and butane. The higher energy content in this fuel results in a 10% reduction of CO₂ emission as compared to MS.

AutoGas is a gas at atmospheric pressure and normal temperatures, but it can be liquefied when moderate pressure is applied or when the temperature is sufficiently reduced. This property makes the fuel an ideal energy source for a wide range of applications, as it can be easily condensed, packaged, stored and utilised. When the pressure is released, the liquid makes up about 250 times its volume as gas, so large amounts of energy can be stored and transported compactly.

The use of LPG as an automotive fuel has become legal in India with effect from April 24, 2000, albeit within the prescribed safety terms and conditions. Hitherto, the thousands of LPG vehicles running in various cities have been doing so illegally by using domestic LPG cylinders, a very unsafe practice. Using domestic LPG cylinders in automobiles is still illegal.

The fuel is marketed by IndianOil under the brand name 'AutoGas'

"IndianOil has setup 350 Auto LPG Dispensing Stations (ALDS) covering 192 cities across India."

AutoGas impacts greenhouse emissions less than any other fossil fuel when measured through the total fuel cycle. Conversion of petrol to AutoGas helps substantially reduce air pollution caused by vehicular emissions.

The saving on account of conversion to AutoGas in comparison to petrol is about 35-40%. Low filling times and the 35-40% saving is a reason enough for a consumer to convert his vehicle to AutoGas.

NATURAL GAS

Drawing on its vast experience and carefully nurtured skill sets, IndianOil has made successful forays in diverse areas such as Natural Gas, Petrochemicals, Exploration & Production, Renewable Energy, etc.

Over the years, Natural Gas has emerged as the 'fuel of choice' across the world. It is steadily replacing traditional fossil fuels due to its environment friendly characteristics which help in meeting the stipulated automobile emission norms. Natural Gas has significant cost advantages over fuels such as Naphtha and commercial LPG. Demand for Natural Gas in India is primarily driven by the fertiliser and power sectors, which account for almost two-third of the country's gas consumption.

IndianOil has co-promoted Petronet LNG Limited (PLL) for setting up LNG (Liquefied Natural Gas) terminals at Dahej & Kochi. IndianOil has marketing rights for 30% quantity of the LNG procured by PLL from RasGas on long term basis at Dahej besides long term contract at Kochi. Demand for Natural gas in India is growing and cannot be met by the current indigenous production. Hence, IndianOil is in the process of sourcing more quantities of LNG to meet the increasing requirements.

Within the gas business, City Gas Distribution (CGD) is a rapidly growing segment. Green Gas Ltd., IndianOil's joint venture with GAIL (India) Ltd., is already operational in Agra and Lucknow in the state of Uttar Pradesh and is further expanding to cater to the increased demand in various sectors. In an initiative to expand the CGD network, IndianOil has formed a consortium with M/s Adani Gas Ltd. to develop CGD networks on pan India basis.

In Gas Transmission business, IndianOil owns and operates Dadri-Panipat Pipeline. IndianOil

has formed a consortium with GSPL and other OMC's to build & operate Gas pipelines across the country.

In a major step to increase IndianOil's presence in Natural Gas industry, Corporation is currently implementing 5 MMTPA LNG import Terminal at Ennore near Chennai which is targeted for completion during 2015-16.

IndianOil is in the process of procuring LNG from world market on long term as well as short term basis for meeting the Internal Consumption at our own Refineries and for Ennore LNG Terminal.

IndianOil has the capabilities to supply re-gasified LNG to customers presently located in the Northern and Western regions of India. With the expansion of the pipeline network in Southern region as well as other parts of the country, IndianOil can supply gas to customers located near those pipelines. As a committed supplier, IndianOil is completely responsible for delivery of gas to the customer's premises. The transportation services of the company engaged in transportation of gas are hired to ensure deliveries. This model is used world over wherein multiple gas suppliers operate through one transportation system.

The "LNG at Doorstep" initiative involves making LNG available to the customers not connected by gas pipeline. Gas is transported through a cryogenic system, stored in a cryogenic holding tank at the target location and re-gasified on-site through vaporizers for use as fuel. The entire operation being concealed eliminates the possibility of adulteration and pilferage. Introduced in 2007, this initiative has been well received and is attracting more customers located away from the pipelines. IndianOil has in-house capabilities in the manufacturing of Cryogenic equipment at the "State of Art facility at Nasik" for the last three decades.

PETROL/GASOLINE

Automotive gasoline and gasoline-oxygenate blends are used in internal combustion spark-ignition engines. These spark ignition engine fuels are primarily used for passenger cars. They are also used in off-highway utility vans, farm machinery and in other spark ignition engines employed in a variety of service applications.

Gasoline is a complex mixture of relatively volatile hydrocarbons that vary widely in chemical & physical properties and are derived from fractional distillation of crude petroleum with a further

treatment mainly in terms of improvement of its octane rating. The hundreds of individual hydrocarbons in gasoline range from C_4 to C_{11} .

An oxygenate is an oxygen-containing, ashless organic compound (such as an alcohol or ether) which can be used as a fuel or fuel supplement. Motor gasoline is sold at retail outlets where it is directly delivered into the automobile tank. The Indian Standard governing the properties of motor gasoline & gasoline-oxygenate blends is IS 2796 : 2000 (3rd Rev).

In view of the auto fuel policy issued by Govt of India, more & more stringent specifications (equivalent to Euro II, Euro III, Euro IV) are being made applicable for the gasolines being marketed in India. This has led to reduction of environmentally polluting factors in gasolines.

XTRAPREMIUM

XTRAPREMIUM petrol is a much sought-after fuel among discerning motorists who are in many ways emotionally attached to their wheels.

The "Clean and Keep Clean" function of the super cleanser additive in XTRAPREMIUM reduces deposits at the port fuel injector, intake valve and controls combustion chamber deposits to maintain "like new" performance of the vehicle. Regular use of XTRAPREMIUM gives the vehicle a superior pickup, smoother drive, better mileage and lower emission. XTRAPREMIUM is designed not only to optimise performance of new generation vehicles but also rejuvenate old vehicles to perform better.

Little wonder, IndianOil's XTRAPREMIUM petrol is the largest selling branded petrol in India

DIESEL/GAS OIL

Petroleum derived diesel (called as petrodiesel) is a mixture of straight run product (150 °C and 350 °C) with varying amount of selected cracked distillates and is composed of saturated hydrocarbons (primarily paraffins including n , iso , and cycloparaffins), and aromatic hydrocarbons (including naphthalenes and alkylbenzenes).

Diesel is used in diesel engines, a type of internal combustion engine. Rudolf Diesel originally

designed the diesel engine to use coal dust as a fuel, but oil proved more effective. Diesel engines are used in cars, motorcycles, boats and locomotives. Automotive diesel fuel serves to power trains, buses, trucks, and automobiles, to run construction, petroleum drilling and other off-road equipment and to be the prime mover in a wide range of power generation & pumping applications. The diesel engine is high compression, self-ignition engine. Fuel is ignited by the heat of high compression and no spark plug is used.

The Indian Standard governing the properties of diesel fuels is IS 1460:2005 (5th Rev). Important characteristics are ignition characteristics, handling at low temperature, flash point.

Diesel fuel often contains higher quantities of sulphur. In India, emission standards (equivalent to Euro II, Euro III, Euro IV) have necessitated oil refineries to dramatically reduce the level of sulphur in diesel in view of the auto fuel policy brought in force by Govt of India.

BIS has brought out specification for "Diesel with 5% Biodiesel" that may be marketed in near future.

ATF/Jet Fuel

IndianOil Aviation Service is a leading aviation fuel solution provider in India and the most-preferred supplier of jet fuel to major international and domestic airlines. Between one sunrise and the next, IndianOil Aviation Service refuels over 1500 flights – from the bustling metros to the remote airports linking the vast Indian landscape, from the icy heights of Leh (the highest airport in the world at 10,682 ft) to the distant islands of Andaman & Nicobar.

Jet fuel is a colorless, combustible, straight-run petroleum distillate liquid. Its principal uses are as jet engine fuel. The most common jet fuel worldwide is a kerosene-based fuel classified as JET A-1. The governing specifications in India are IS 1571: 2001 (7th Rev).

IndianOil is India's first ISO-9002 certified oil company conforming to stringent global quality requirements of aviation fuel storage & handling. IndianOil Aviation also caters to the fuel requirements of the Indian Defence Services, besides refueling VVIP flights at all the airports and remote heli-pads/heli-bases across the Indian subcontinent.

IndianOil Aviation group regularly organises International Aviation conferences that act as a

vital information facilitator with participation from leading international and all domestic airlines, allied industries, statutory aviation authorities and government agencies from over 35 countries.

IndianOil is the only oil company in India to market the widest possible range of fuels used by the aviation industry in India- JP-5, Avgas 100LL, Methanol Water Mixture, Jet A-1 and aviation lubricants, etc.

Aviation Turbine Fuel (ATF) is dispensed from specially designed refuellers, which are driven up to parked airplanes and helicopters. Major airports have hydrant refuelling systems that pump the fuel right up to the filling outlets on the tarmac through underground pipelines for faster refuelling. Essentially, ATF is pumped into an aircraft by two methods: Overwing and Underwing. Overwing fuelling is used on smaller planes, helicopters, and piston-engine aircraft and is similar to automobile fuelling - one or more fuel ports are opened and fuel is pumped in with a conventional pump. Underwing fuelling, also called single-point is used on larger aircraft.

To ensure that you receive the best service, every one of our 101 AFSs follows specific quality audits based on a Quality Control Index System benchmarked to global standards. In addition, 15 Quality Certification Laboratories provide complete specification tests round-the-clock. Ensuring that these standards are always upheld, there is a back up of a highly skilled, qualified and dedicated team of officers and refueling crew. IndianOil has a strategic partnership with Air BP, the world leader in aviation business. IndianOil regularly organizes seminars, symposiums and workshops to constantly interact with its partners, which apart from being a two-way channel of communication, helps us to stay abreast with advances in technology.

SERVO lubricants & greases

SERVO brand, from IndianOil, is the brand leader among lubricants and greases in India and has been conferred the “Consumer Superbrand” status by the Superbrands Council of India. Recognised for its brand leadership by the World Brand Congress and as a Master Brand by CMO, Asia, SERVO has now carved a significant niche in over 20 countries across the globe.

With over 1000 commercial grades and over 1,500 formulations encompassing literally every conceivable application, SERVO serves as a one-stop shop for complete lubrication solutions in the automotive, industrial and marine segments. Recognised for cutting-edge technology and high-quality products, SERVO is backed by IndianOil's world-class R&D and an extensive blending and distribution network.

The recent top-end offerings in the segment are all-new engine oils on a differentiated synthetic platform—SERVO Futura Synth, a 100% synthetic premium lubricant for diesel & petrol cars and SERVO 4T Synth, engine oil with advanced synthetic chemistry for 4-stroke two-wheelers—represent a big leap in bringing technologically advanced motor oils of global standards to the Indian market. Both the products offer outstanding engine protection and performance that far surpasses the benefits offered by conventional mineral-oil based lubricants. (Please refer to the product sub-segment on this website for product specifications and recommendations of the newly-launched products).

In the retailing segment, besides IndianOil petrol stations, SERVO range of lubricants is available through a network of a unique SERVO Stockist Management System (SSMS) across the country. The products are available in every corner of the country through various retailing initiatives like SERVOEXPRESS stations, bazaar outlets and thousands of auto spare parts shops across the country along with a unique concept of Gramin SERVO Stockists to reach the rural hinterland.

SERVOEXPRESS vehicle servicing centres are one-stop shops for quick, easy and convenient auto care, offering a refreshing experience to motorists. Opened in convenient locations like malls, petrol pumps or as stand-alone units, SERVOEXPRESS stations have facilities for engine oil change, tyre & battery check-ups, air-conditioner service, vacuum cleaning, perfuming, upholstery cleaning, polishing, lamination installation, etc., besides replacement of minor parts for two and four-wheeler vehicles.

IndaneBanner attached file is in PDF Document Format Lubrication is the art of reducing friction between rubbing or rolling surfaces. In the recent past two terminologies have gained currency - Tribology, the science of Rubbing; Rheology, the study of stream or flow. The earliest

knowledge of lubrication is evident from grease lubricated chariot wheels excavated from the ruins. The rapid development of this science can be said to have started from the 18th century, with significant technological progress in commercial usage in the 20th century. Most lubricants are liquids. Water is a natural lubricant but has extremely limited application due to its very low viscosity and very low boiling point, besides its contribution to rusting and corrosion. Vegetable oils have excellent lubrication properties but have very poor oxidation stability, high pour point, rapid thickening and may even let out foul odours in time. Most of the liquid lubricants used at present all over the world are petroleum-based mineral oils.

Marine Fuels & Lubricants

IndianOil caters to all types of bunker fuels and lubricants required by various types of vessels operating throughout the world in the shipping industry. Bunker supplies are made at all major ports of India; Mumbai, Kandla, Vasco, Chennai, Tuticorin, Kakinada, Visakhapatnam, Kochi, New Mangalore, Kolkata, Paradip, JNPT, Port Blair and Haldia. Apart from meeting 100% bunker requirement of the Indian Navy, it also supplies bunker fuels to all major shipping and dredging companies of India. Spot requirement of different vessels calling at Indian ports are met through nominations received from local shipping agents and international bunker traders/brokers.

While IndianOil supplies Furnace Oil (FO) and High Flash High Speed Diesel (HFHSD) meeting stringent BIS specifications, it also offers the entire range of SERVO brand marine grade lubricants.

Supplies are made through pipelines, barges and tank-trucks. Bunker supplies are undertaken through pipeline at specified jetties at Haldia, Vasco, Port Blair, Mangalore, Visakhapatnam, Kakinada, JNPT (Mumbai) and Chennai. Tank trucks are used for bunker supplies at Tuticorin, Paradip, Port Blair, Mangalore and Haldia. Barges are used for bunker supplies at jetties and inner anchorages at Haldia, Mumbai, Kandla, Visakhapatnam, Kochi and Chennai.

IndianOil has also started supplying Bonded 380 cst FO bunker fuel from Chennai from May 2009 as per ISO 8217:2005 specifications. The price of this product is internationally competitive and revised on a weekly basis based on MOPS (Mean of Platts-Singapore).

Kerosene

Kerosenes are distillate fractions of crude oil in the boiling range of 150-250°C. They are treated mainly for reducing aromatic content to increase their smoke point (height of a smokeless flame) and hydrofining to reduce sulphur content and to improve odour, colour & burning qualities (char value).

Kerosene is used as a domestic fuel for heating / lighting and also for manufacture of insecticides/herbicides/fungicides to control pest, weeds and fungi. Since kerosene is less volatile than gasoline, increase in its evaporation rate in domestic burners is achieved by increasing surface area of the oil to be burned and by increasing its temperature. The two types of burners which achieve this fall into two categories namely vaporisers & atomisers

Bulk/Industrial Fuels

In the large volume consumer segment, IndianOil provides complete Fuel Management Solutions to customers who require fuels in bulk and have dedicated facilities for storage and handling. These customers benefit from IndianOil's efficient sourcing and supplies matched to their usage patterns and inventory. The optimization on and optimization of supplies is especially relevant in the light of high-energy input costs in the recent past, which is expected to continue in the future too. IndianOil's tankages are strategically located across the country and are custom-designed to maintain low-cost supplies that can be rapidly transported through a sophisticated supply-chain management system.

Whether it is an immediate need, a long-term supply contract or even setting up dedicated storage and handling facilities at your premises, IndianOil's network is at your service.

IndianOil's marketing operations network of storage, distribution and supply hubs is backed by on-time logistics and round-the-clock after-sales service. Many institutional customers like the railways, steel plants, thermal power plants, textile mills, power plants, state transport undertakings, large corporates and fleet & logistics companies tie-up for long-term contracts backed by IndianOil's comprehensive fuel & lubricants consultancy-a formidable expertise that IndianOil has built over nearly five decades of working with a cross-section of customers from a

wide-range of industrial sectors. IndianOil's bulk liquid fuel supply covers the complete gamut of fuels-Auto fuels, Light Diesel Oil, Low Sulphur Heavy Stock, Special Products and much more.

Crude oil

Crude oil - as petroleum directly out of the ground is called - is a remarkably varied substance, both in its use and composition. Crude oil is formed from the preserved remains of prehistoric zooplankton and algae, which have been settled to the sea (or lake) bottom in large quantities under anoxic conditions. It was formed over millions of years from the remains of tiny aquatic plants and animals that lived in ancient seas due to compression and heating of ancient organic materials over geological time. The oldest oil-bearing rocks date back to more than 600 million years, the youngest being as old as about 1 million years.

Although various types of hydrocarbons - molecules made of hydrogen and carbon atoms - form the basis of all crude oils, they differ in their configurations. The chemical structure of petroleum is composed of hydrocarbon chains of different lengths. Because of this, petroleum may be taken to oil refineries and the hydrocarbon chemicals separated by distillation and treated by other chemical processes, to be used for a variety of purposes. It can be a straw-colored liquid or tar-black solid. Red, green and brown hues are not uncommon.

Crude oil is classified by the location of its origin (e.g. West Texas Intermediate, WT, Brent, Dubai or Minas) and often by its relative weight or viscosity (light, intermediate or heavy); refiners may also refer to it as 'sweet', which means it contains relatively little sulphur, or as 'sour', which means it contains substantial amounts of sulphur and requires more refining in order to meet current product specifications. The number of carbon atoms determines the oil's relative 'weight' or density. Gases generally have one to four carbon atoms, while heavy oils and waxes may have 50, and asphalts, hundreds.

Crude oil from an area in which the crude oil's molecular characteristics have been determined and the oil has been classified are used as pricing references throughout the world. These references are known as Crude oil benchmarks

After considering availability of indigenous crude oil, balance crude oil is required to be imported. IndianOil sources its crude oil requirement from Far East, Gulf region, Mediterranean, West Africa and Latin American sources.

Sample Project Report

CHAPTER NO. 5

METHODOLOGY AND PROCEDURE OF WORK

SCHEME OF RESEARCH

The following methodology was adopted in project

- Comprises of understanding the theoretical concepts in general.
- Questionnaire study
- Analysis of the primary data
- Analysis of the secondary data

RESEARCH DESIGN

Research design means a specified framework for controlling the data collection. The research is of descriptive in nature, which could provide an accurate picture of induction procedure conducted in the organization. Descriptive research includes surveys and fact-finding inquiries of different kinds. The research is of Ex post facto nature in which researcher no control over the variables has. Statistical method lay stress on objectivity rather than rely on intuition and judgment and average & percentages can easily be calculated.

The statically method needs the collection of data in two forms

1. Primary data
2. Secondary data

1. PRIMARY DATA

The primary data are those, which are collected afresh and for the first time, and thus happen to be original in character. The data on the required information is collected from actual persons using the product/ services. This data is more suited for the objectives of the project.

2. SECONDARY DATA

The data which have already been collected by someone else or taken from published or unpublished sources and which have been already been passed through the statistical process.

MODE OF DATA COLLECTION

The study is based on Secondary data which includes:-

Secondary Data will be gathered from books and journals on Operation Management Process in Indian Oil Corporation

SAMPLING METHODS

SAMPLE SIZE

Population Size : Employee of Indian Oil Corporation and customers of Indian Oil Corporations

Sample Size : 50 Employees of Indian Oil Corporation and 50 Customers of Indian Oil Corporations.

Sampling Method: Sampling was done on the basis of Random sampling.

Sample Project Report

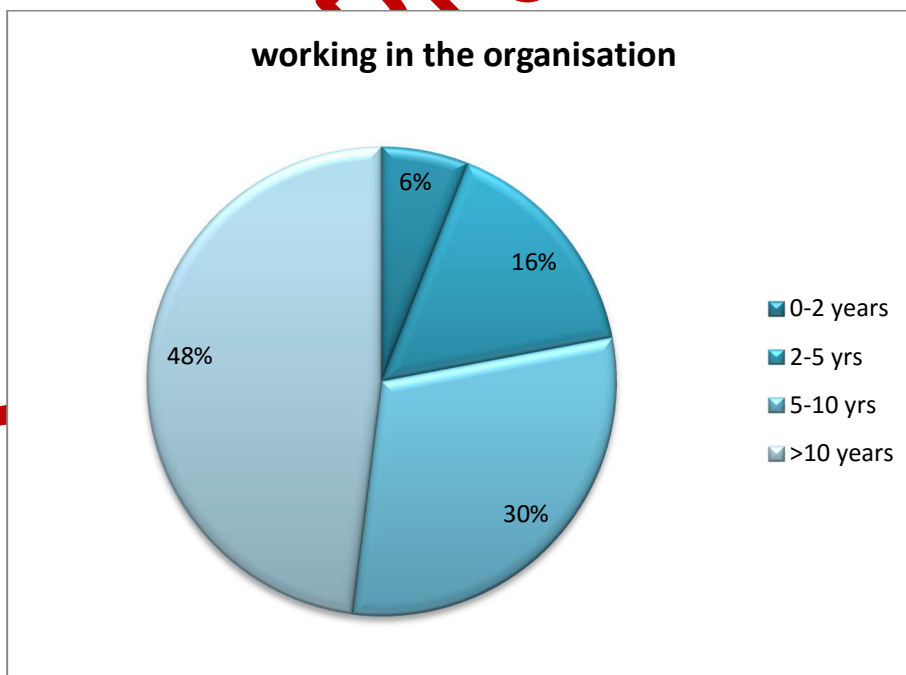
CHAPTER NO. 6

DATA ANALYSIS AND INTERPRETATION

Data Analysis and interpretation of 50 employees of Indian Oil Corporation.

1. How long you are working in the organization?

YEARS	WORKING IN THE ORGANIZATION	PERCENTAGE
0-2 YEARS	3	6%
2-5 YEARS	8	16%
5-10 YEARS	15	30%
MORE THAN 10 YEARS	24	48%
TOTAL	50	100%

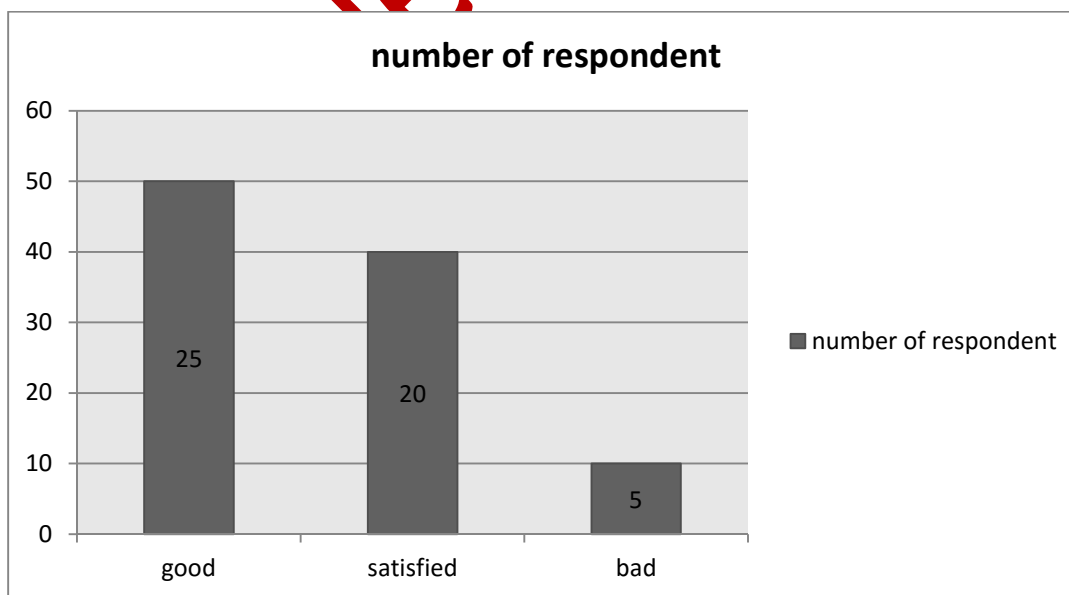


Finding

From the chart that 24 employees are working for more than 10 years. Even no. of employees working between 5-10 years are 15. This shows that the operation management process in Indian Oil Corporation is very smooth and most of the employees are regular follows the organisation rules and regulations. This indicates that employee are satisfied and their respondent were interviewed and it was found that employee to know while they are continuing in their company for more than 10 year and followed that they are overall satisfied.

2. Are you comfortable with the Operation management Process in Indian Oil Corporation?

WORK ENVIRONMENT	NUMBER OF RESPONDENT	PERCENTAGE
GOOD	25	50%
SATISFIED	20	40%
BAD	5	10%
TOTAL	100	100%

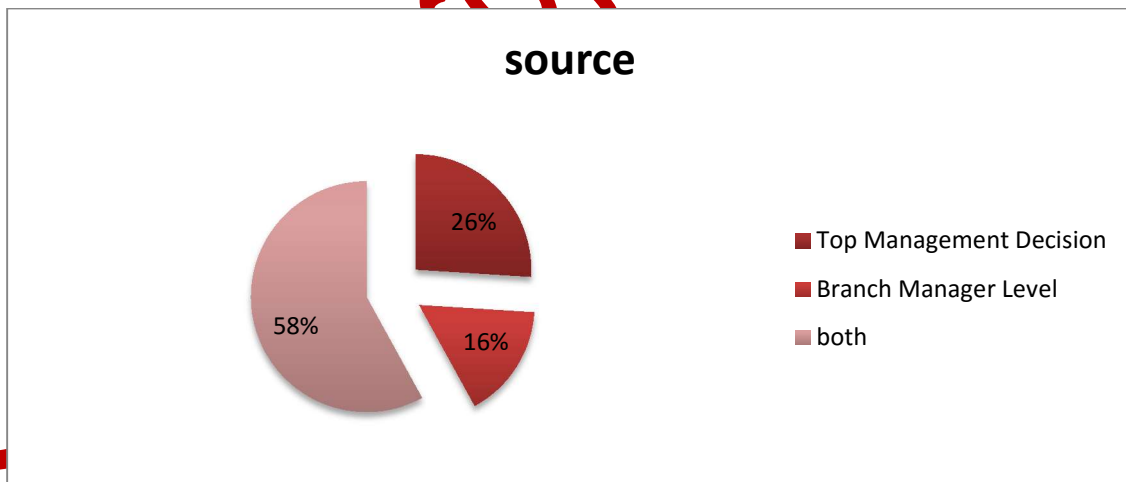


Finding

50% of employee express as a good environment remain and as per employees the process of operation management is very smooth. From the remaining 50% about 40% says a satisfactory job environment only about 10% feels bad working environment is there. There are not satisfied with the way they are given the work. They feel there is the bias is there.

3. What are processes of implementation of new Operation Management Process?

OPTION	SOURCE	PERCENTAGE
TOP MANAGEMENT DECISION	13	26%
BRANCH MANAGER LEVEL	8	16%
BOTH	29	58%
TOTAL	100	100%

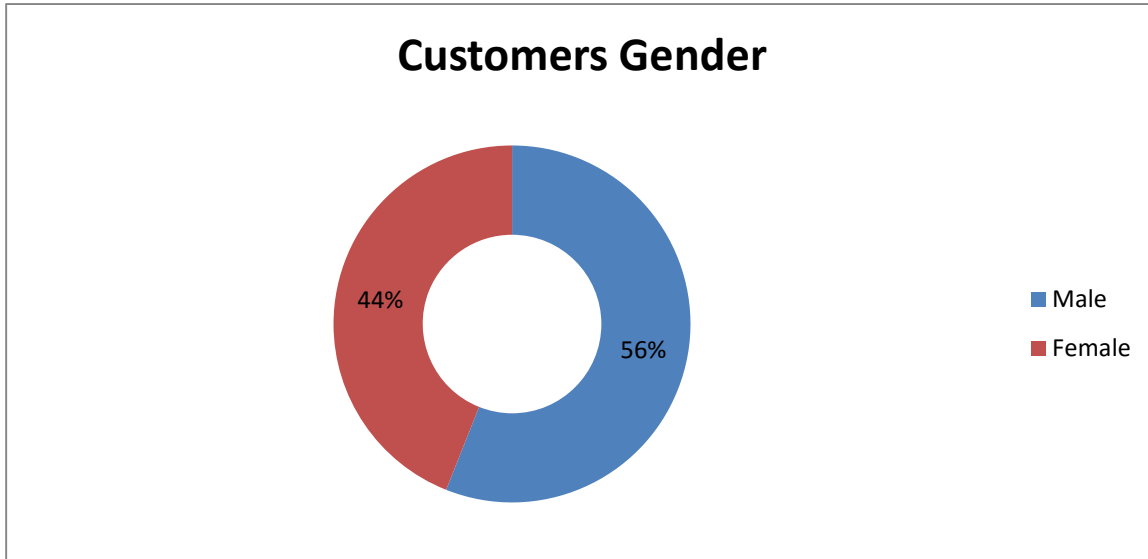


Finding

About 58% of implementations of new operation management process is done with the mutual understanding in between management of the company and branch head. 26% implementation is done on the direction of top management and 16% of implementation is done on the direction of branch manager.

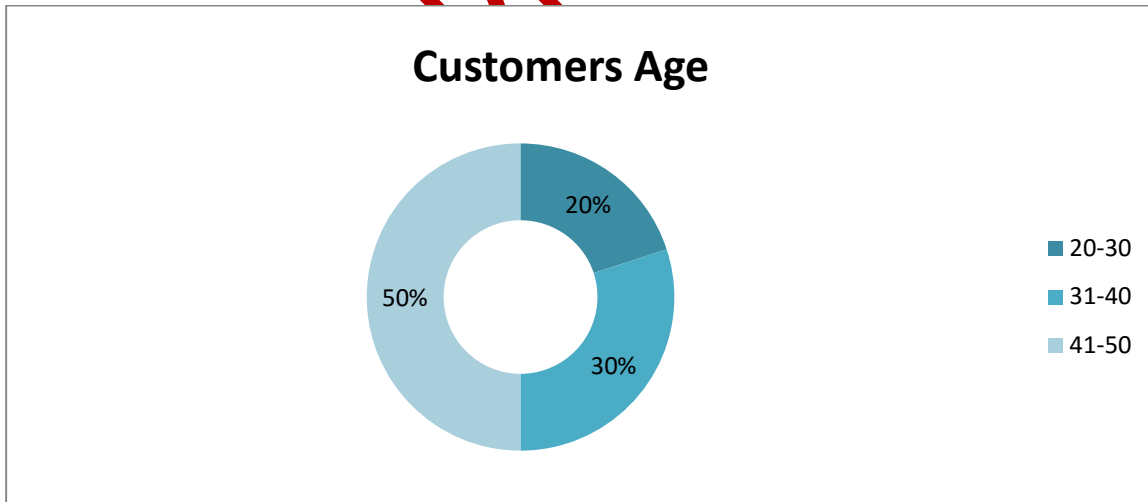
Data Analysis and interpretation of 50 Customers of Indian Oil Corporation.

(1) Gender:



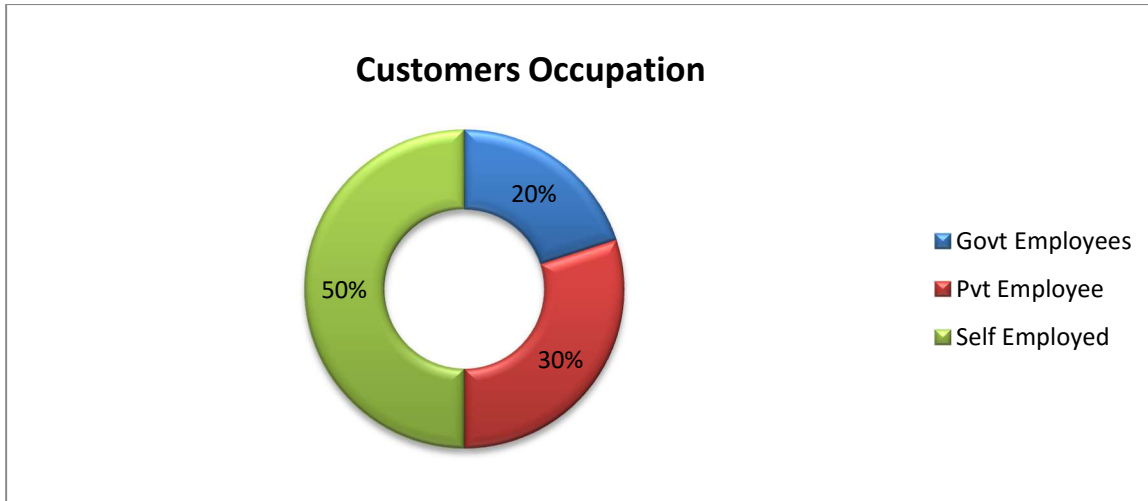
Out of 50 valuable customers of Indian Oil Corporations 28 customers are male and 22 customers are female. They are regularly using the Indian oil Products in his/her regular life and they are very satisfied with the product price and services of Indian Oil Corporations.

(2) Age:



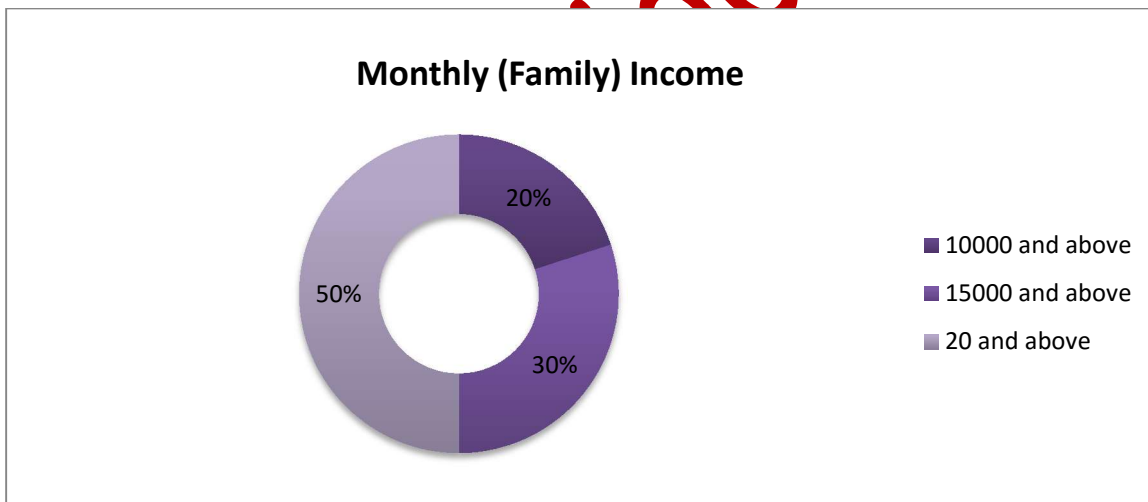
Out of 50 Valuable customers 50% of customer belongs to 41-50 age slab, 30% customers belongs to 31-40 age slab and 20% of customers belongs to 20-30 age slab.

(3) Occupation:



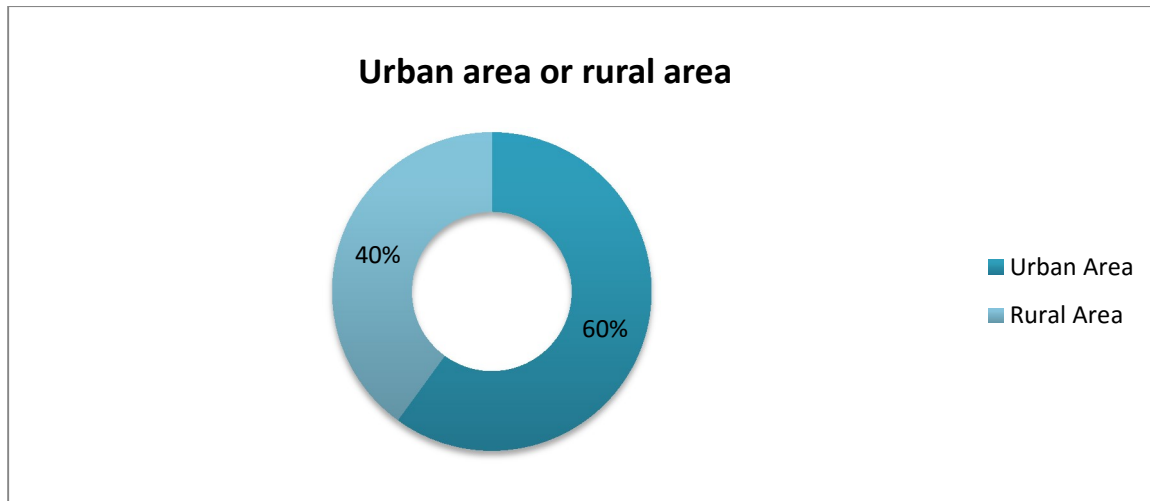
Out of 50 Valuable customers 50% of customer belongs to Self employed category, 30% customers belong to Pvt Employed and 20% of customers belong to Govt Departments.

(4) Monthly (Family) Income:



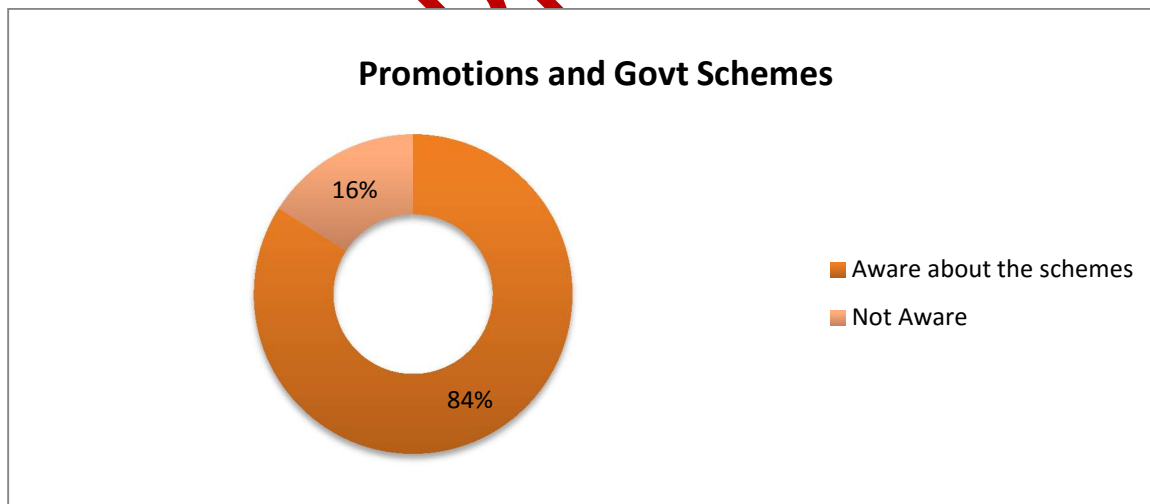
Out of 50 Valuable customers 50% of customer belongs average family monthly income around 20 thousand and above, 30% customers belong to average family monthly income around 15 thousand and above and 20% of customers average family monthly income around 10 thousand and above.

(5) Are you from the urban area or rural area?



Out of 50 Valuable customers 60% of customer belongs urban area and 40% customers belong to rural Area.

(8) Are you aware of the promotions activities launch by the Indian Oil and Indian Govt Subsidies Schemes?



Out of 50 Valuable customers 84% of customer are aware about the promotions schemes of Indian Oil Corporations and Indian Govt Subsidies Schemes. But 16% of customer are not ware about that.

CHAPTER NO. 7

LIMITATIONS

- The sample size selected was on the basis of random sampling which has its own limitations.
- Lack of time is another limiting factor, ie., the schedule period is not sufficient to make the study independently regarding Operation Management in Indian Oil Corporations.
- The busy schedule of the officials in Indian Oil corporations and customers are another limiting factor. Due to the busy schedule officials restricted me to collect the complete information about organization.
- The accuracy of the figures and data are subject to the respondent claim.
- The sample size was limited.
- Some respondents didn't co-operate with researcher.
- The period of project study was limited.
- All the techniques of Operation Management in Indian Oil Corporations are not used; therefore it was possible to explain only few methods only.

Sample Project Report

CHAPTER NO. 7

FINDINGS, INFERENCES AND RECOMMENDATIONS

- In this report the main finding is we can understand the process of operation Management in Indian Oil Corporation.
- We have analysed the data of employees and as well as customers.
- In employee data analysis we can know about the process followed by the employees.
- Role of all the employees in the organisations.
- Role of management committee in decision taking.
- Role of branch heads in implementations of new techniques.
- In customer data analysis we can know about the requirements of customers.
- Customers' satisfactions towards the products of Indian Oil Corporations.

RECOMMENDATIONS:

Indian Oil Corporations has already implemented new ideas on regular basis. We can recommend all the services related to operation management should process through online.

With this facility Indian Oil Corporations can save so much time and operational cost.

All the facilities related to buy new connection and request for refilling should be taken online mode.

Indian Oil corporation should be available 24*7 in all the locations; urban as well as rural.

CHAPTER NO. 8

CONCLUSION AND YOUR SUGGESTIONS FOR IMPROVEMENT IN THE ORGANIZATION

From data analysis of customers we can understand that Out of 50 Valuable customers 84% of customer are aware about the promotions schemes of Indian Oil Corporations and Indian Govt Subsidies Schemes. But 16% of customer are not ware about that.

And out of 50 Valuable customers 60% of customer belongs urban area and 40% customers belong to rural Area.

And out of 50 Valuable customers 50% of customer belongs average family monthly income around 20 thousand and above, 30% customers belong to average family monthly income around 15 thousand and above and 20% of customers average family monthly income around 10 thousand and above.

Indian Oil can progress rapidly by identifying new facility locations and increasing existing target market and facility locations by launching new competitive product at minimum cost. Indian Oil Unity Drive had a simple but essential message and objective. To bring together the people of India by promoting in the words of Indian Oil founder, "Unity, Faith & Discipline". In a time of uncertainty and fear, Indian Oil rose to the occasion and built a platform of solidarity and togetherness for the people of India. The campaign proved to be a successful initiative in not just providing hope for our patrons, but also allowed Indian Oil to take an effective step forward during tough times and entrust other responsive companies to act in a similar manner.

SUMMARY OF THE PROJECT REPORT

In summary of the project report we can brief discussion about the Study on Operation Management in Indian Oil corporations. An Indian Oil corporation is one of the largest organizations in manufacturing Oil and Gas in India. Head quarter in New Delhi (India). Founded in 1964. Indian Oil Corporation is India's largest commercial enterprise, with a sales turnover of Rs. 4,50,756 crore and profits of Rs. 5,273 crore for the year 2014-15.

STUDY ON OPERATION MANAGEMENT

Operations management is an area of management concerned with overseeing, designing, and controlling the process of production and redesigning business operations in the production of goods or services. It involves the responsibility of ensuring that business operations are efficient in terms of using as few resources as needed, and effective in terms of meeting customer requirements. It is concerned with managing the process that converts inputs (in the forms of raw materials, labor, and energy) into outputs (in the form of goods and/or services). The relationship of operations management to senior management in commercial contexts can be compared to the relationship of line officers to highest-level senior officers in military science. The highest-level officers shape the strategy and revise it over time, while the line officers make tactical decisions in support of carrying out the strategy. In business as in military affairs, the boundaries between levels are not always distinct; tactical information dynamically informs strategy, and individual people often move between roles over time.

Ford Motor car assembly line: the classical example of a manufacturing production system.

Post office queue. Operations management studies both manufacturing and services.

According to the United States Department of Education, operations management is the field concerned with managing and directing the physical and/or technical functions of a firm or organization, particularly those relating to development, production, and manufacturing. Operations management programs typically include instruction in principles of general management, manufacturing and production systems, factory management, equipment maintenance management, production control, industrial labor relations and skilled trades supervision, strategic manufacturing policy, systems analysis, productivity analysis and cost

control, and materials planning. Management, including operations management, is like engineering in that it blends art with applied science. People skills, creativity, rational analysis, and knowledge of technology are all required for success.

INDIAN OIL CORPORATION

Mr. B. Ashok is Chairman of Indian Oil Corporation Ltd. since July 2014. He also heads IndianOil's group companies, Chennai Petroleum Corporation Ltd. and IOT Infrastructure & Energy Services Ltd., and industry organisations such as Petroleum Federation of India (PetroFed).

With over 33 years' expertise in the oil & gas sector, Mr. Ashok has wide experience in various roles of the Corporation's Marketing Division and has also been part of the core team that initiated Business Development activities at its Corporate Office for diversification of business and integration both upstream and downstream. He also has considerable global exposure, having headed IndianOil's overseas business in Southeast Asia from Kuala Lumpur, Malaysia, and recently on the Board of IndianOil's Sri Lanka subsidiary (Lanka IOC), wherein he contributed to its turnaround into a profitable venture, which declared maiden dividend to its shareholders.

A mechanical engineer from the College of Engineering, Madras University, with a Post-Graduate Management diploma from the prestigious National Management Programme of Management Development Institute, Gurgaon, Mr. Ashok has served in many key positions at IndianOil. As head of the Retail Sales function, he managed a 24,000-strong fuel stations network, which contributes about 55% of the sales volumes. As Head of two State Offices, he handled the Corporation's complete business portfolio in two major States, besides acting as the Oil Industry Coordinator. He has been a Divisional Head with long and successful stints at the field level as well as at the Marketing Division Head Office in Lubes & Technical Services functions.

Business of Indian Oil Corporation

Indian Oil is India's flagship Maharatna national oil company with business interests straddling the entire hydrocarbon value chain – from refining, pipeline transportation and marketing of petroleum products to Research & Development, Exploration & Production, marketing of natural

gas and petrochemicals. By venturing into the Renewables and the Nuclear Energy, the company has grown and evolved itself from a pure petroleum refining and marketing company to a full-fledged energy company.

With a corporate vision to be the Energy of India, it is the largest commercial enterprise in the country in terms of sales revenue. With a turnover of Rs. 4,57,553 crore (\$75,666 million) for the year 2013-14, it is the highest ranked Indian company at the 96th position in the Fortune Global 500: 2014 listings. IndianOil Group is the market leader in refining and marketing with a vast network of cross-country crude and product pipelines, and marketing network to serve customers across the length and breadth of the country. With about 34,000-strong workforce, IndianOil has been playing a significant role in meeting India's energy demands for over five decades

IndianOil Group (including two refineries of its subsidiary company Chennai Petroleum Corporation Ltd. (CPCL)) owns and operates 10 of India's 22 refineries. The group refining capacity of 65.7 million metric tonnes per annum (MMTPA) or 1.31 million barrels per day (mb/d) is the largest among refining companies in India. It accounts for 30.5% share of national refining capacity. On a stand-alone basis, the company owns and operates eight refineries with a capacity of 54.2 MMTPA (1.1 mb/d).

PRODUCTS

INDANE GAS

Indane is today one of the largest packed-LPG brands in the world and has been conferred the coveted 'Consumer Superbrand' status by the Superbrands Council of India.

Having launched LPG marketing in the mid-60s, IndianOil has been credited with bringing about a 'kitchen revolution,' spreading warmth and cheer in millions of households with the introduction of the clean and efficient cooking fuel. It has led to a substantial improvement in the health of women, especially in rural areas by replacing smoky and unhealthy chulha. **Indane** is today an ideal fuel for modern kitchens, synonymous with safety, reliability and convenience.

AUTO GAS

AutoGas (LPG) is a clean, high octane, abundant and eco-friendly fuel. It is obtained from natural gas through fractionation and from crude oil through refining. It is a mixture of petroleum

gases like propane and butane. The higher energy content in this fuel results in a 10% reduction of CO₂ emission as compared to MS.

AutoGas is a gas at atmospheric pressure and normal temperatures, but it can be liquefied when moderate pressure is applied or when the temperature is sufficiently reduced. This property makes the fuel an ideal energy source for a wide range of applications, as it can be easily condensed, packaged, stored and utilised. When the pressure is released, the liquid makes up about 250 times its volume as gas, so large amounts of energy can be stored and transported compactly.

NATURAL GAS

Drawing on its vast experience and carefully nurtured skill sets, IndianOil has made successful forays in diverse areas such as Natural Gas, Petrochemicals, Exploration & Production, Renewable Energy, etc.

Over the years, Natural Gas has emerged as the 'fuel of choice' across the world. It is steadily replacing traditional fossil fuels due to its environment friendly characteristics which help in meeting the stipulated automobile emission norms. Natural Gas has significant cost advantages over fuels such as Naphtha and commercial LPG. Demand for Natural Gas in India is primarily driven by the fertiliser and power sectors, which account for almost two-third of the country's gas consumption.

PETROL/GASOLINE

Automotive gasoline and gasoline-oxygenate blends are used in internal combustion spark-ignition engines. These spark ignition engine fuels are primarily used for passenger cars. They are also used in off-highway utility vans, farm machinery and in other spark ignition engines employed in a variety of service applications.

Gasoline is a complex mixture of relatively volatile hydrocarbons that vary widely in chemical & physical properties and are derived from fractional distillation of crude petroleum with a further treatment mainly in terms of improvement of its octane rating. The hundreds of individual hydrocarbons in gasoline range from C₄ to C₁₁.

METHODOLOGY AND PROCEDURE OF WORK

SCHEME OF RESEARCH

The following methodology was adopted in project

- Comprises of understanding the theoretical concepts in general.
- Questionnaire study
- Analysis of the primary data
- Analysis of the secondary data

RESEARCH DESIGN

Research design means a specified framework for controlling the data collection. The research is of descriptive in nature, which could provide an accurate picture of induction procedure conducted in the organization. Descriptive research includes surveys and fact-finding inquiries of different kinds. The research is of Ex post facto nature in which researcher no control over the variables has. Statistical method lay stress on objectivity rather than rely on intuition and judgment and average & percentages can easily be calculated.

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MODE OF DATA COLLECTION

The study is based on Secondary data which includes:- Secondary Data will be gathered from books and journals on Operation Management Process in Indian Oil Corporation

SAMPLING METHODS

SAMPLE SIZE

Population Size : Employee of Indian Oil Corporation and customers of Indian Oil Corporations

Sample Size : 50 Employees of Indian Oil Corporation and 50 Customers of Indian Oil Corporations.

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FINDINGS

In this report the main finding is we can understand the process of operation Management in Indian Oil Corporation.

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Sample Project Report

ANNEXURE (Questionnaire)

Objectives:-

The objectives of the Research Projects is to familiarize the concepts, tools and techniques for understanding research project in business and writing research Report.

Here my research objective is “**Study on Operation management on Indian Oil Corporations: -**

We have design our questionnaire in two types, Employee questionnaires and customer questionnaires. First we are explaining Employee questionnaires.

1. How long you are working in the organization?

Years	Working in the organization	Percentage
0-2 years		
2-5 years		
5-10 years		
More than 10 years		
Total		

2. Are you comfortable with the Operation management Process in Indian Oil Corporation?

WORK ENVIRONMENT	NUMBER OF RESPONDENT	PERCENTAGE
GOOD		
SATISFIED		
BAD		
TOTAL		

3. What are processes of implementation of new Operation Management Process?

OPTION	SOURCE	PERCENTAGE
TOP MANAGEMENT DECISION		
BRANCH MANAGER LEVEL		
BOTH		
TOTAL		

CUSTOMERS QUESTIONNAIRES

1. Customer Gender:

Male	
Female	
Total	50 Respondents

2. Age

20-30	
31-40	
41-50	

3. Occupation:

Govt Service	
Private Service	
Self Employed	

4. Monthly (Family) Income:

10,000 and above	
15,000 and above	
20,000 and above	

5. Are you from the urban area or rural area?

Urban	
Rural	

6. Are you aware of the promotions activities launch by the Indian Oil and Indian Govt Subsidies Schemes?

Yes	
No	

Sample Project Report

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SOURCES FROM INTERNET:

- <https://www.iocl.com/>
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-

BOOKS

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- Operations Management (Hardcover) by William J. Stevenson (shelved 1 time as *operations-management*)
- Services Operations Management (Paperback) by Christine Witt (shelved 1 time as *operations-management*)

***** Thank you so much for your valuable support *****

Sample Project Report