
INDIAN OIL CORPORATION: VERTICAL SPECIALIZATION TO VERTICAL INTEGRATION

Sushil Kumar and Satyasiba Das wrote this case solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

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Indian Oil Corporation Limited (IOCL) was a large public sector company operating in the downstream segment of the highly regulated Indian oil and natural gas (O&NG) industry. It made large investments in the segment-specific assets in refining and distributing petroleum products. In fiscal year (FY) 2014/15, the annual turnover of IOCL was ₹4,507 billion (US\$73.7 billion),¹ and its net profit was ₹52 billion.² The strategic positioning of the company was heavily influenced by its social agenda, and supported by the government. After the liberalization of the Indian economy, the company was faced with serious competition from the private sector, and had limited access to the upstream segment. In 2015, IOCL attempted to integrate vertically, in order to become an integrated energy company. The senior management team evaluated the challenges and strategic choices available to IOCL in terms of integration to exploration, brownfield investment in the petrochemicals sector, and modernization of refineries. The key question before the team was how to distribute the resources among these strategic choices.

BACKGROUND

IOCL was the highest ranked Indian corporation in the Fortune Global 500 listing (96th position) in 2014. Its business interests straddled the entire hydrocarbon value chain (see Exhibit 1). However, IOCL's core business areas included refineries, pipelines, marketing and distribution, and research and development (R&D) of petroleum products. In 1964, IOCL was incorporated as Indian Oil Company, with an ambitious vision to lead globally through technological innovation, and to foster lifelong relationships with customers. The company's social agenda was to reach every corner and citizen of the country, and to provide them access to petroleum products and cooking gas, irrespective of commercial viabilities. Its retail outlets operated across India from Leh—the highest point of India—to the Andaman and Nicobar Islands in the Indian Ocean. The Ministry of Petroleum and Natural Gas of India, alongside other associate regulatory bodies, managed the strategic growth of IOCL through various policies and directives, and ensured that its social objectives were realized in management actions.

¹ ₹ = INR = Indian rupee; All currency amounts are in ₹ unless otherwise specified; US\$1 = ₹61 on October 31, 2014.

² Indian Oil Corporation Ltd., *IOCL Annual Report 2014–15, Performance at a Glance* (Official Report), 18–20.

Despite fluctuations in the price of crude oil, as well as frequent and sudden changes in global and national macroeconomic conditions, IOCL continued its growth and showed strong financial performance throughout its business operation. Continued strategic efforts positioned the company as a vertically specialized major player in the downstream segment of the O&NG industry in India. By 2014, IOCL was the market leader in the refining sector, with 31 per cent market share in India, and a refining capacity of 65.7 million metric tons per annum (MMTPA) of a total 215.00 MMTPA³ industry capacity.

As a downstream major player, IOCL strategically built up mixed capacity and modern refineries. By March 2015, the IOCL pipeline network also reached a total of 11,221 kilometres (km), placing it as the leader in this segment. In marketing and distribution, it had nearly 51 per cent of total infrastructure of the industry. It managed about 24,551 retail outlets, and supplied cooking gas to approximately 90 million households under the brand name “Indane.” In FY2014/15, the current and non-current assets of IOCL were estimated at ₹2,198 billion.

The global O&NG industry was extremely turbulent and volatile, with frequent price fluctuations (see Exhibit 2) used as a common correction measure. However, the industry had shown growing demand across the globe, mainly in developing countries. Being the seventh-largest importer of crude oil in the world, the Indian O&NG industry had faced massive challenges regarding its dependence on import. In 2015, 70–80 per cent of oil consumption was imported from the Organization of the Petroleum Exporting Countries (commonly known as OPEC) and other oil-producing countries, many of which were going through periods of political instability and social turmoil. Historically, the global crude oil price rise had impacted several Indian downstream companies. Oil was an intermediate product that had a direct and indirect impact on many critical sectors, such as agriculture and transportation, and on the overall economic growth of the country.

Oil was also a major reason for the trade deficit in the Indian economy. Over the years, the demand for petroleum products—such as fuels, chemicals, lubricants, liquefied petroleum gas (LPG), and others—had grown with the robust growth of the Indian economy, and was expected to continue growing at a rate of 15–18 per cent annually for the next few years. India’s per capita consumption of petrochemicals was five kilograms (kg), in contrast to the world average of 25 kg. Energy security was one of the key strategic challenges for the country. In 2015, Indian upstream oil companies, including the Oil and Natural Gas Company (ONGC) and Oil India Limited, were contributing nearly 15 per cent of the country’s oil requirement produced domestically. Out of the total requirement of 220 MMTPA, domestic upstream companies produced only 35 MMTPA; the remaining 185 MMTPA⁴ was imported from abroad. In 1997, considering the importance of energy security, the Government of India introduced the New Exploration Licensing Policy (NELP),⁵ which allowed market participants of this industry to integrate backward to create a more stable and ample supply of crude oil for future energy needs.

The supply of crude oil was a multifaceted strategic challenge for IOCL. Since the inception of IOCL, there were heavy investments in specialized assets⁶ for refining, marketing, and distribution of petroleum products. However, poor access to upstream inputs was the main strategic challenge for the company. The geopolitical instability of the supplier countries was also a major hurdle⁷ for the industry. On the other hand,

³ Ministry of Petroleum and Natural Gas, “Indian Petroleum and Natural Gas Statistics 2013–14,” 30–31, accessed July 14, 2016, www.indiaenvironmentportal.org.in/files/file/pngstat%202013-14.pdf.

⁴ Indian Oil Corporation Limited, “Annual Report 2012–13,” 54–55, accessed July 14, 2016, www.iocl.com/aboutus/AnnualReports/Annual%20Report%202012-13.pdf.

⁵ NELP was formulated in 1997–98 to provide a level playing field for both public and private sector companies in exploration and production of hydrocarbons.

⁶ A specialized asset was meant to perform a specific task, and its value was significantly reduced in its next-best use. Companies invested in specialized assets because these assets permitted them to reduce their cost structure or to better differentiate their products.

⁷ David Collis, *The Scope of the Corporation* (Cambridge, MA: Harvard Business School Publishing, 1995), 1–15.

obtaining an appropriate return from the current investment in both downstream and upstream sectors was challenging, with inherent uncertainties associated with both of the sectors.

In 2000, IOCL joined the consortium of domestic and international oil companies for the exploration and production (E&P) of crude oil and coal bed methane under NELP. The Government of India delegated investment decisions, thereby giving the power to Oil India and IOCL to acquire E&P assets abroad by forming project-specific special purpose vehicles. Apart from access to E&P assets, IOCL also had challenges with respect to establishing upstream capabilities, and increasing its upstream integration ratio in line with global trends.

During the 2000s, IOCL invested heavily in the acquisition of hydrocarbon-producing assets overseas, created a pool of experts and talent, and established a separate department assigned to E&P activities. The company's E&P business portfolio increased steadily over the years. However, no major breakthrough was made that would offset the return on investment in the E&P segment. By 2015, 13 years after its entry and multibillion dollar investment to integrate upstream, the company finally managed to acquire 23 E&P blocks (13 domestic and 10 international blocks) to produce crude oil and coal bed methane, out of which, only three blocks were (barely) producing crude oil (see Exhibit 3). With massive investments in E&P and with little clarity in terms of policy regarding product sharing and price fixations, the corporation feared that high investment velocity and inherent risk in upstream business could adversely impact the E&P business in the future.⁸

During this period, IOCL's R&D centre developed many product and process innovations. Over the years, IOCL also contributed significantly through the petrochemical business. The export of petroleum products and petrochemicals saw a rise of 55 per cent in the 2000s, and became the largest contributor to India's export earnings. Industry experts and the management team of IOCL believed that ample opportunities existed to export petrochemical products to Southeast Asian countries. By modernizing the process technology, IOCL would generate good revenue. Instead, the company would focus on the petrochemicals sector in India, which was the fastest growing market in the world.

In the meantime, changes in regulatory policies allowed private players to enter the downstream sector with scale and improved technology. For example, Reliance Industries Limited, one of the largest conglomerates in India, entered into various segments of the value chain with a refining capacity of 60 MMTPA at its very advanced refineries at Jamnagar. Most of the IOCL refineries (10 in number, with a total refining capacity of 65.7 MMTPA) required heavy investment to match their competitors, and would process crude oil varieties at a low cost. IOCL was now at a crossroads. The company needed to decide whether to integrate upstream and position itself as a fully integrated energy company, or focus on the specialized segments to compete with advantage—or was there a way to manage both?

OVERVIEW OF THE INDIAN OIL AND NATURAL GAS INDUSTRY

India was the fourth-largest energy market after China, the United States, and Russia. India's O&NG industry played an important role in the nation's economic growth, and was well regulated. In India, the O&NG industry was dominated by public sector companies⁹ for historic and policy-related reasons. ONGC and Oil India were the major upstream players, and ONGC had the largest share of crude oil and natural gas production in India. In the downstream segment, IOCL, Bharat Petroleum Corporation Limited (BPCL),

⁸ Indian Oil Corporation Limited, "IOCL Annual Report 2012–13," 57–58, accessed July 14, 2016, www.iocl.com/aboutus/AnnualReports/Annual%20Report%202012-13.pdf.

⁹ The popular classification of the type of company in this sector was as follows: NOC—national oil companies; NOC Hybrid—government had less than a 50 per cent stake; IOC—international oil companies and independent companies (E&P companies with less than US\$100 billion of assets).

Hindustan Petroleum Corporation Limited (HPCL), and Gas Authority of India Limited (GAIL) were the major public sector companies (see Exhibit 4). In 1998, the introduction of NELP liberalized the sector, and many private companies entered in both upstream and downstream segments.

After Indian independence, the Government of India realized the importance of oil and gas for rapid industrial development, and the significant role these commodities could play in agriculture and defence. In 1959, Indian Oil Company was founded as a statutory body, with the objective to supply oil products to state-owned enterprises operating in India. Its primary task was to distribute petroleum products to consumers, irrespective of logistical constraints, and geographical and socioeconomic bottlenecks.

After the global oil crisis in the 1970s, the government mobilized efforts to establish greater self-reliance in this sector. Subsequently, the government framed many policies for the regulation of production, supply, distribution, marketing, and pricing of petroleum products and natural gas. Parallel regulatory bodies were also formed to evaluate and approve projects, develop safety regulations, improve technology, and develop capabilities in marketing and distribution (see Exhibit 5).

The dynamics of the industry were very much linked to geopolitical uncertainties and government regulations. The industry was characterized by unprecedented opportunity, but also by a high degree of volatility and risk. Large-scale mergers and acquisitions, region-specific alliances, cartels, integration, and price fluctuation were common factors. The industry was very competitive in terms of cost efficiency, convenient supply, application of advanced technology, and service quality. Various studies indicated that the top performer in the industry outperformed its peers by a wide margin. Frequent fluctuations in global crude oil prices resulted in inventory loss for many oil companies. For example, in 2015, three public sector refining companies in India reported a huge inventory loss—more than ₹162.42 billion—due to price fluctuation.

STRATEGIC HISTORY OF IOCL

On September 1, 1964, the merger of Indian Refineries Limited and Indian Oil Company resulted in the new Indian Oil Corporation Limited. In 1964, IOCL commissioned Barauni Refinery, its first refinery, with a capacity of 1 MMTPA. Later, as part of its pan-India expansion plan, the Soviet Union rendered technical assistance to set up other refineries. By the mid-1960s, the government policy related to the O&NG industry was amended to allow the expansion of foreign-owned refining capacity.

The Growth Phase

In the late 1960s, IOCL grew aggressively with newly founded greenfield projects setting up refineries, laying pipelines, and building storage terminals and aviation fuel stations. The rapid demand for fuel in various sectors opened up new opportunities to diversify in the product markets. IOCL strategically entered into new sectors, including the production of bitumen and products for marine bunkering, and created a robust network of dealers and distributors across the country.

During the 1970s, ONGC explored several new oil resource areas in the upstream sector off the west coast of India. The supply from upstream was unable to keep pace with the rising demand. After the 1973 oil crisis, the company decided to diversify its supplier network to reduce risk. Apart from the Soviet Union, major suppliers of IOCL included Saudi Arabia, Iraq, Kuwait, and the United Arab Emirates. At one point, IOCL was the largest purchaser of crude oil in the Dubai spot market.

IOCL's strategic focus was subsequently directed at R&D and innovation to gain competitive advantage in the downstream segment. Driven by its vision to foster innovation and technology, in 1972, IOCL established a world class R&D centre¹⁰ that eventually became a world-leading institute and source of knowledge for refinery processes, pipeline transportation, alternative fuels, fuel additives, engine testing, material sciences, and environmental sciences. The R&D centre had been instrumental in research on hydrogen fuel in the country.

In 1981, the Digboi Refinery and Assam Oil Company were nationalized, and IOCL took over their refining and marketing activities. By this time, IOCL was operating half of the 12 Indian refineries, and its strategic move accelerated the laying of pipelines to transport crude oil and petroleum products. It commissioned Salaya-Mathura (from Northern India) crude oil pipelines and Mathura-Jalandhar product pipelines in different phases. Later, it started massive LPG storage and distribution facilities across India in various stages. Further, it commissioned village block kerosene depots for easy access in rural, hilly, and hard-to-reach, remote areas of the country. By the end of the 1980s, oil consumption in India rapidly increased at an annual rate of 18 per cent, and the company expanded its refining capacity to 150 million barrels of crude per year.

By the early 1990s, IOCL had established itself as a vertically specialized leader in the hydrocarbon value chain in India. The modernization of refineries focused on replacing pneumatic instrumentation with microprocessor-based distributed digital control systems¹¹ to increase its refining capacity and efficiency. The formation of Avi-Oil India Limited (a joint venture of IOCL Balmer Lawrie, India, and NYCO France) enabled IOCL to enter into the production and supply of aviation lubricants for defence and civil aviation sectors. In addition, as a part of Vision 2000, the company launched the retail visual identity program to upgrade its retail outlets across India.

Renewal Phase (1990s Onwards)

In 1995, IOCL was listed on the Bombay Stock Exchange, India's main stock exchange, as a strategic move to accelerate expansion and business growth. It also established the Indian Oil Institute of Petroleum Management at Gurgaon to impart training and development to its employees. To expand its terminal operations, IOCL signed a joint venture with OilTanking, Germany to build and operate terminal services for petroleum products. In 1997, IOCL formed Petronet LNG Limited as a joint venture with BPCL, ONGC, and GAIL for the production and transportation of LNG in India. In the same year, IOCL was awarded *Navratna*¹² (Nine Gems) status by the Government of India for its exemplary performance and contribution to economic development.

In the early 2000s, following the Gulf War and global financial crisis, global crude oil prices increased sharply. As a major crude oil importing country, India felt wide repercussions that adversely impacted operations for Indian downstream companies, especially IOCL. Facing challenges both within and outside the industry, IOCL made great strides in E&P ventures, while attempting to consolidate its core business activities with a renewed focus on petrochemicals. As an internal source indicated, IOCL's new strategy was to become an integrated global energy corporation with a diversified product portfolio, while also

¹⁰ Indian Oil Corporation Ltd., R&D Centre, IOCL, accessed October 11, 2015, www.iocl.com/Aboutus/Research_Development.aspx.

¹¹ A distributed digital control system was a computerized control system used to control the production line. It was connected by networks for communication and monitoring, and ensured real-time monitoring and precise control of plants.

¹² Navratna and Maharatna status were awarded to public sector companies by the Government of India. These statuses enhanced the powers of the companies in areas of capital expenditure, equity investment in joint ventures or subsidiaries in India, and organizational restructuring; Press Information Bureau, "Eligibility Criteria for Grant of Maharatna, Navratna and Miniratna Status to CPSEs Government of India," July 21, 2014, accessed October 9, 2015, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=107091>.

maintaining its leadership in oil refining, marketing, pipelines, and transportation. Accordingly, the company aimed for higher growth through integration and diversification.

Under this integration effort, IOCL entered crude oil E&P as a consortium partner after it had won the bid for two blocks under NELP. To further strengthen its business, in 2001, IOCL established Chennai Petroleum Corporation Limited and Bongaigaon Refinery and Petrochemicals Limited as subsidiary companies to produce diverse petroleum products. It also formed IOCL Mauritius Limited as its first overseas subsidiary to enter into the foreign market, and later entered into African countries as well. In 2002, IOCL acquired IBP (formerly, Indo-Burma Petroleum), a state-owned petroleum marketing company, to strengthen its marketing operations in India.

IOCL'S VALUE SEGMENTS

Refineries

In order to align its activities with its strategic vision of a pan-India presence, IOCL commissioned both inland and near-shore refineries, strengthening the capacities of these facilities with a pool from the demand of petroleum products. The Indmax Unit, based on a novel technology developed by IOCL's R&D centre, was installed in Guwahati Refinery (Assam) as a technology transfer effort. As a result, the refinery became capable of producing LPG, motor spirit, and diesel oil, thereby increasing its refining capacity and scale. Over the years, IOCL managed and refurbished other refineries with a total refining capacity of 65 MMTPA (as of FY2014/15) (see Exhibit 6).

IOCL's R&D centre consistently contributed to enhancing the refining capacity of all refineries by introducing innovative modern technologies. A systematic R&D effort to improve products, processes, and the commercialization of technology—including setting up laboratory facilities, pilot plants, modelling, and simulations—resulted in the development of globally competitive refining technologies. Within a very short time, the company commercialized Indmax, DHDT Food/Polymer Grade Hexane, Needle Coke, INDAdapt ATF HDT, Sweetening Green NMP Extraction, Delayed Coking Distillation Technology, and Zeosom Indalin Octomax Indalin Plus Technology. In addition to these technologies, refineries also benefited from distillation, extraction, and de-asphalting, as well as other superior technology services.

However, IOCL's competitors had received better economies of scale, which posed many challenges to the company. As in other heavy industries, economies of scale created a significant cost-side competitive advantage that provided better management control, compared to the multi-location facilities of IOCL. The capacity of three highly modernized refineries of private oil companies was more than the total refining capacity of IOCL. As a competitive move, the corporation focused on optimization of refinery operations as a major strategy for margin protection and enhancement. Considering the fact that the cost of crude oil constituted as much as 95 per cent of the input cost, IOCL gradually enhanced the capabilities of its refineries to process cheaper crude varieties, and provide optimum crude mix to refineries. In this way, IOCL consistently maintained leadership in the refining sector for many years (see Exhibit 7).

Pipelines

The pipelines network was the backbone of IOCL; it transported the crude oil and refined products throughout the country, and connected the import terminals to refineries and oil depots. Transporting oil through pipelines was cost effective, efficient, safe, and environmentally friendly. In 1964, IOCL commissioned its first petroleum pipelines from Guwahati to Siliguri in North India. This development was followed by the Barauni-Kanpur Pipeline and Koyali-Ahmedabad product pipelines, to transport the crude oil to respective terminals

and refineries. In order to create a robust pipelines network, the corporation signed a joint venture with the Indian Oil Tanking infrastructure to build terminals and lay down pipelines. In addition, the project management department offered services under “build, own, operate, and transfer” contracts for cross-country pipelines and terminals. By the end of 2014, the cross-country pipeline network had expanded to 11,221 km. The carrying capacity of pipelines for crude oil, petroleum products, and natural gas showed a record of 77.258 MMTPA for oil, and 10 million metric standard cubic metres per day of gas.

In 2009, the corporation made history by commissioning a record number of pipeline projects—notably, the Paradip-Haldia crude oil pipeline and the Panipat-Jalandhar pipeline. However, in spite of the robust, long network of pipelines, pipeline pilferage remained a major risk in the smooth and safe management of the supply chain. Furthermore, although oil terminals were connected through the pipelines, IOCL retail outlets were not connected, so petroleum products were transported through trucks or railway wagons, which negatively impacted profit margins.

R&D Centre

IOCL’s R&D centre was an integral part of the company’s development strategy. It helped the corporation gain an edge over its competitors, and also strengthened its base to stay abreast of scientific breakthroughs and global leadership in process technologies and the development of economies of scope through product innovation, especially in petrochemicals. The R&D centre collaborated with top-performing global institutions and companies to complement the technology and knowledge. Over the years, the adoption of the latest technologies empowered the R&D centre to develop the most advanced lubricants in the industry. The company also developed a multi-grade railroad lubricant for Indian railways, a transformer oil for the power generation industry, a high-performance engine oil for passenger cars, a heavy-duty lubricant for diesel engines and drivelines for the automotive sector, and a wide range of food-grade lubricants and greases.

Under the provisions of the National Biofuel Policy (2003), IOCL entered into the production of renewable energy. As a result, the R&D centre, in association with the U.S. National Renewable Energy Laboratory, developed second-generation biofuel from cellulosic biomass, such as degradable agricultural waste and wood. In subsequent years, it established the Indian Oil Centre for Renewable Energy at Manesar (known as i-CARE) to boost research activities in futuristic energy sources. The R&D centre also initiated research on biohydrogen, algal fuels, and lingo-cellulosic ethanol. The facility also researched solar hydrogen, solar thermal, and solar photovoltaic technologies. In 2011, IOCL, Bharat Heavy Electricals Limited, and the Indian Institute of Technology Jodhpur signed a tripartite agreement to undertake solar energy research in solar thermal and solar hydrogen areas.

Integrating into the Upstream Segment

Following its renewed strategic vision to become an integrated energy company, IOCL strengthened its upstream integration process during the 1990s. The corporation focused on pursuing E&P activities both within and outside the country in collaboration with the consortium partners. The strategic entry of IOCL in the E&P sector was guided by NELP. The activities in the E&P sector were greatly boosted by the introduction of NELP, and further opened up the E&P sector to private investment and up to 100 per cent foreign direct investment.

In 2000, IOCL entered into E&P with the award of two exploration blocks to Oil India and ONGC. As a part of overseas E&P activities, IOCL, along with Oil India, signed the E&P Sharing Agreement with the National Oil Corporation of Libya. This initiative opened doors for IOCL to search for further E&P

possibilities. Over the years, IOCL, in alliance with Oil India, Kuwait Energy, and Medco Energy of Indonesia, acquired a participating interest in two other exploration blocks in Yemen. In subsequent years, it acquired other crude oil blocks in India and overseas.

By 2015, IOCL had 23 E&P blocks, but the production from these blocks was very meagre, as compared to the company's requirements. The upstream segment was inherently risky and required significant investments in E&P assets. Political instability and power struggles with respect to production-sharing agreements and price fixation were seen as emerging concerns for the company.

CHANGE IN PRODUCT MARKET STRATEGY

In 2012, IOCL had one of the largest petroleum marketing and distribution networks in Asia. As its marketing campaigns announced, IOCL was "in every heart, in every part." Initially, the company started transporting oil in barrels to remote parts of the country, and later built several levels of infrastructure for marketing and distribution. Its vast marketing infrastructure of retail outlets, LPG distributorships, and large-volume consumer pumps were also backed by bulk storage terminals and installations, inland depots, LPG bottling plants (with a capacity of 7,170 trillion metric tonnes per annum, with 7,035 LPG distributors), and lube-blending plants.

In order to cater to the needs of rural farmers, IOCL also established multi-purpose distribution centres that served as one-stop convenience shops and were later converted into modern farmer service centres. Through these centres, IOCL offered a variety of products and services to farmers in rural areas as a part of its penetration strategy. In 2008, IOCL was awarded the title of "Most Admired Retailer of the Year" for rural retailing at the Indian Retail Forum. However, senior management later explained that poor decision making and a lack of real-time monitoring at field level adversely impacted its marketing and sales performance in later years. Consequently, IOCL implemented technological intervention in the form of software applications to improve the productivity of field officers and dealers, and to provide relevant, "on-the-go" information for retail customers.

After liberalization of the Indian economy in the 1990s, the demand for petroleum products increased and the oil market witnessed high levels of competition. To tackle the hypercompetitive situation, IOCL improved customer experience as its major strategic initiative. With switching costs near zero for customers at retail outlets, the company focused on improving customer experience by automation, modernization of the dispensing units, improving visual identities of retail outlets, and imparting training to dealers and pump attendants. By March 2013, IOCL had 7,687 automated retail outlets throughout India, and it aspired to achieve 100-per-cent automation by FY2021/22. To ensure cost optimization, the corporation moved towards modern technology adoption.

Novel initiatives were undertaken to develop and penetrate "bottom of the pyramid" segments. The company tried to reach a large customer base that represented the segment of the Indian population below the poverty line. The strategy helped IOCL satisfy two inherent objectives; first, it reduced subsidized LPG through the capping of subsidized cylinders by using a direct benefit transfer initiative for LPG; second, it reached the untapped market of small-family and single-person households by launching 5kg LPG cylinders, which were available in 115 cities. The company introduced Indane NANOCUT, a high-therm cutting gas for industrial applications in the metal-cutting segment. This product speedily captured the market. It was technically superior, with a high flame temperature advantage, and was a much safer option within this industry segment.

In the lubricant segment, IOCL had always been a market leader, offering a variety of lubricants under different brands. From the beginning, “SERVO,” an indigenous lubricant brand of IOCL, was a dominant player in the Indian lubricant sector, backed by cutting-edge product development, high-quality customization, and an extensive blending and distribution network. For customers, the SERVO range had been a one-stop shop that provided complete lubrication solutions in the automotive, industrial, agriculture, and marine sectors. In retail outlets, it was marketed through exclusive SERVO shops and SERVOPress centres across the country. Despite many established players with superior-quality lubricants, SERVO had a large market share in India. In 2015, SERVO increased its global presence with a total volume of 15 trillion metric tonnes in 26 countries across the world.

MAJOR ISSUES FACING IOCL IN 2015

IOCL was challenged with staying competitive, while maintaining an appropriate integration ratio in the upstream sector. As many upstream industry studies indicated, the key to sustaining growth was very much dependent on productivity. Between 2006 and 2012, the upstream top performers had an operating margin of 54 per cent compared to an industry average of 38 per cent. For these companies, upstream capital productivity was around 0.75, higher than the industry average of 0.51.

A similar industry study found that the capital expenditure in the upstream segment increased by 72 per cent from 2006 to 2012, while productivity merely grew by 6.6 per cent during this period. According to a PricewaterhouseCoopers report, major upstream players were doubling their assets every 3.3 years.¹³ The capital velocity—the ratio of capital expenditure to the capital employed in the business—fell from 0.38 in 2006, to 0.30 in 2012. This drop indicated higher selectivity and careful deliberation in choosing projects in capital expenditure, which was substantiated by an independent project analysis. The study found that 65 per cent of industrial mega projects (greater than US\$1 billion) failed to meet their business objectives.¹⁴

These challenges raised several key issues for IOCL. For backward integration, IOCL had to optimize the investment capital between its upstream and downstream segments while maintaining the capital productivity as per industry requirements. Asset management became increasingly complex during this period—not only in terms of the collection of physical assets, but also for the selection, operation, and condition of physical assets.

Apart from maintaining capital productivity, IOCL faced the inherent challenge of maintaining operational excellence in various segments as well. Refining was IOCL’s core capability, but that industry had remained very competitive for many decades (partly because of monopoly and economies of scale). However, IOCL’s refining was losing ground to competitors as both scale and technology were becoming superior for a few players.

Another pertinent issue related to the automation of retail outlets. Automation and technology-led innovations improved productivity, added ease and convenience to work processes, and enhanced collaboration with stakeholders (e.g., employees, customers, and channel partners). By 2015, IOCL had 7,687 out of total 24,551 retail outlets (including farmer service centres). It was becoming a greater challenge for the company to attract and retain customers, and to increase productivity in the absence of its 70 per cent non-automated retail outlets. In addition, some automated retail outlets—both in urban and suburban areas—did not function properly, causing a sense of laxity and inconvenience in the service. The competing firms engaged in the marketing and distribution segment had well-automated retail outlets that enabled them to attract and serve customers effectively.

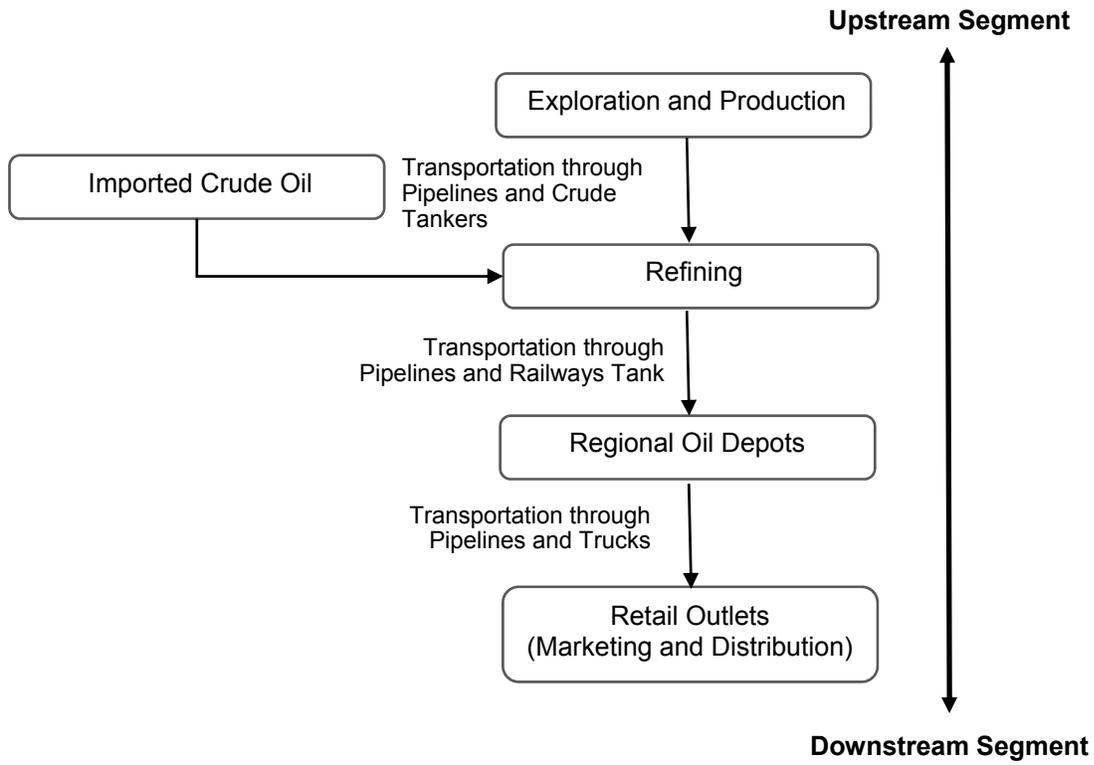
¹³ Brian Cooke and Gui Capper, *Driving Value in Upstream Oil & Gas* (Brisbane: PricewaterhouseCoopers, 2013).

¹⁴ Edward Merrow, “Oil and Gas Industry Megaprojects: Our Recent Track Record,” *Oil and Gas Facilities*, 2012.

A further issue involved developing appropriate human resources in all segments. IOCL realized that amidst the rising competition in the domestic market, acquiring and retaining talented workers was a challenge. Other related challenges were effective communication, change management, and changing the mindset of trade unions, which had extensive repercussions on organizational performance.

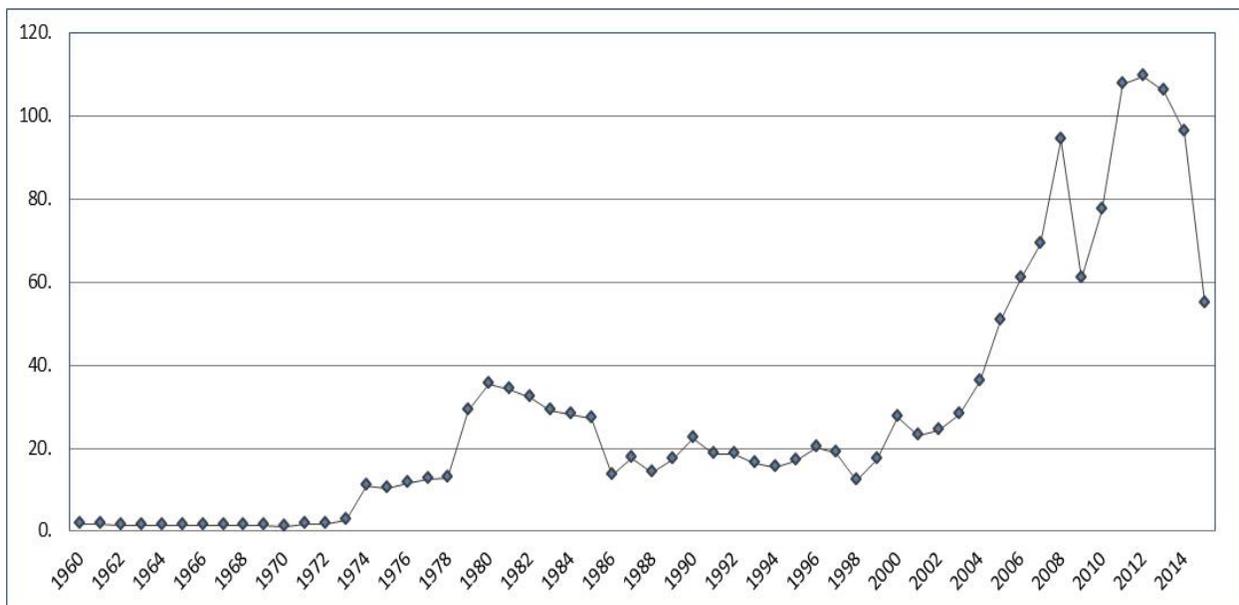
Finally, managing such a large organization, in addition to maintaining coordination with operations in diverse sociocultural settings, was in itself challenging. By 2015, the organization had over 500 work locations and over 24,000 dealers and distributors who represented IOCL to its customers. The communication of policies, decisions, new work values, and other important issues became a major problem. The company found it challenging to communicate the need for change in the organization down the line without distorting the content of the message. A high attrition rate also emerged as a threat to its organizational performance. In this context, how could IOCL prevail and maintain its respectable status in the Indian economy?

EXHIBIT 1: VALUE CHAIN OF THE OIL AND NATURAL GAS INDUSTRY IN INDIA



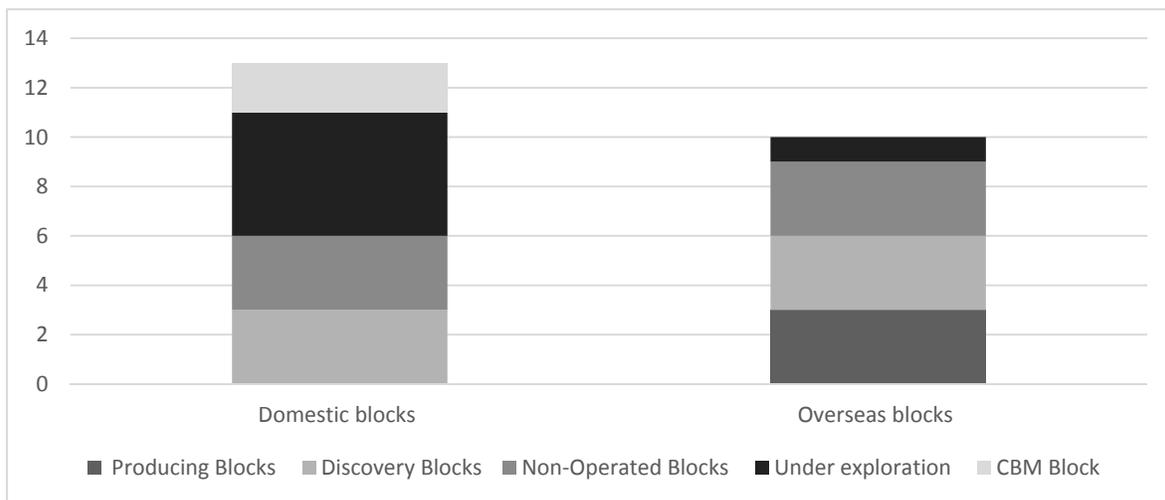
Source: Created by the case authors based on company documents.

EXHIBIT 2: CHANGE IN INTERNATIONAL CRUDE PRICE (US\$ PER BARREL)



Source: "OPEC Basket Price," Organization of the Petroleum Exporting Countries (OPEC), accessed July 14, 2015, www.opec.org/opec_web/en/data_graphs/40.htm.

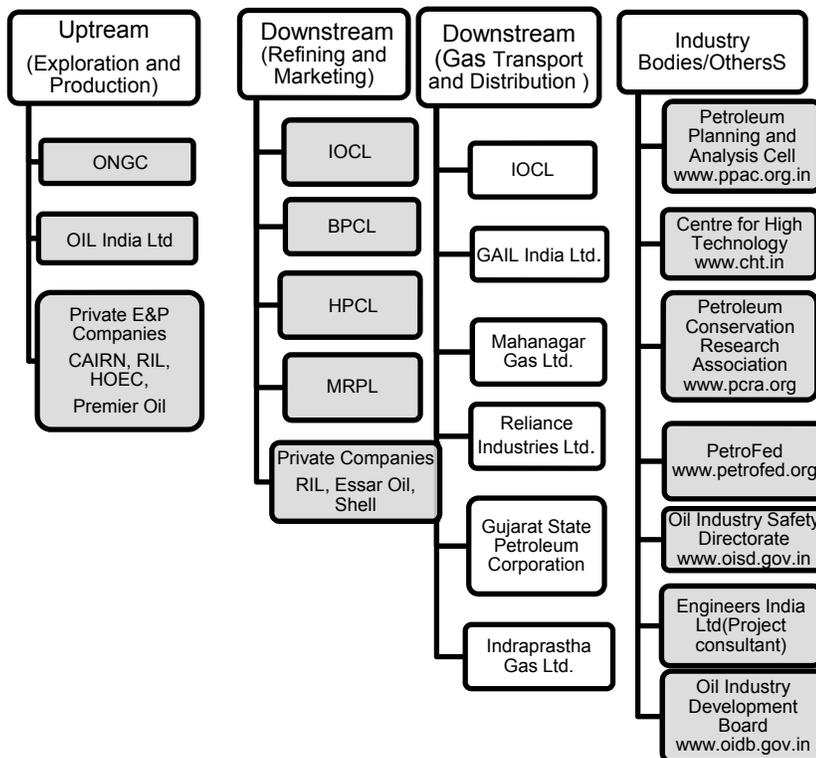
EXHIBIT 3: CAPABILITY AS OF 2015



Note: Domestic blocks (13): with ONGC, Oil India Limited, GAIL, GSPC, Petrogas, HPCL, HOEC, and AWEL (including two coal bed methane blocks with ONGC (20% participating interest); international blocks (10): Libya (3), Yemen (2), Nigeria (1), Gabon (1), Venezuela (1), the United States (1), and Canada (1).

Source: Indian Oil Corporation Limited, "IOCL Annual Report, 2014–15," 56–58, accessed July 14, 2016, www.iocl.com/aboutus/AnnualReports/Annual%20Report%202014-15.pdf.

EXHIBIT 4: MARKET PARTICIPANTS IN THE INDIAN PETROLEUM AND NATURAL GAS INDUSTRY



Source: Compiled by the case authors based on information from Indian Oil Corporation Limited, Investors Presentation, 2013–15, accessed July 15, 2015, www.iocl.com/Investorcenter/roadshow_presentation.aspx.

EXHIBIT 5: REGULATORY OVERVIEW OF THE INDIAN OIL AND GAS INDUSTRY

Title of Government Policy	Objectives and Functions
Integrated Energy Policy, 2006	To regulate competition and guidelines to deal with competitive challenges in India's energy sector
<i>Petroleum and Natural Gas Regulatory Board Act, 2006</i>	To regulate refining, processing, storage, transportation, distribution, marketing, and sale of petroleum, petroleum products, and natural gas
Auto Fuel Policy, 2003	To provide a roadmap to comply with various vehicular emission norms and corresponding fuel quality upgrading requirements over a period of time
National Biofuel Policy, 2002	To promote biofuel use by providing concessions on the excise duty (16% on bioethanol and no duty on biodiesel)
Freight Subsidy (for far-flung areas) Scheme, 2002	To compensate differential expenditure by public oil marketing companies on the freight incurred to distribute subsidized products in various parts of the country
NELP, 1999	To provide contract framework for E&P of hydrocarbons through bidding
FDI Policies	Framework for investment in E&P (currently E&P can go for 100% FDI and refining segment can go for 49%)
Coal Bed Methane Policy, 1997	To encourage E&P of coal bed methane gas as a new eco-friendly source of energy
<i>Petroleum Rules, 1976</i>	To regulate pollution, safety, and other operating standards
<i>Oil Industry (Development) Act, 1974</i>	To establish a board to develop the oil industry and levy excise duty on crude and natural gas
<i>Petroleum and Minerals Pipelines Act, 1962</i>	Acquisition of user's rights by the government of India on land demarcated for laying pipelines to transport petroleum and other minerals from one area to another
<i>Petroleum and Natural Gas Rule, 1959</i>	To regulate the grant of petroleum and natural gas exploration licences and mining leases, which belonged to the government
<i>Oil Field Regulation and Development Act, 1948</i>	To regulate oilfields and develop mineral oil resources

Notes: NELP = New Exploration Licencing Policy; FDI = foreign direct investment; E&P = exploration and production.
Source: Compiled by the authors based on an Investors Presentation, IOCL, 2013–15, accessed August 13, 2015
www.iocl.com/Investorcenter/roadshow_presentation.aspx.

EXHIBIT 6: PETROLEUM REFINING CAPACITY IN THE INDIAN OIL AND NATURAL GAS INDUSTRY

Name of Refinery	Year of Commission	Refining Capacity (April 2014) (in million tonnes per annum)
Public Sector		120.066
IOCL Refineries		54.200
BPCL Refineries		21.500
HPCL Refineries		14.800
CPCL Refineries (IOCL Subsidiaries)		11.500
NRL, Numaligarh	1999	3.000
ONGC Tatipaka	2002	0.666
MRPL Managalore	1996	15.000
Private Sector		80.000
RIL Jamnagar	1999	33.000
RIL(SEZ) Jamnagar	2008	27.000
Essar Oil Limited Vadinar	2006	20.000
Joint Venture		15.000
BPCL-BORL-Bina	2011	6.000
HMEL Bathinda	2012	9.000
Total (A + B + C)		215.066

Source: Petroleum Refining Capacity in India, *Indian Petroleum and Natural Gas Statistics Report 2013-14*, Government of India, 30.

EXHIBIT 7: INDIAN OIL CORPORATION LIMITED VERTICAL SPECIALIZATION: MARKET TURNOVER COMPARED TO ENTIRE INDUSTRY (IN ₹)

Oil Exploration		Refinery		Consumer Products		Gas Distribution	
Company Name	Size	Company Name	Size	Company Name	Size	Company Name	Size
ONGC and ONGC Videsh	91,442.20	IOCL	479,271.66	Castrol India (IOCL)	3,179.62	GAIL (India)	57,507.93
Gujarat State Petro.	11,933.27	Reliance Industry	390,117.00	Tide Water Oil	1,007.49	Petronet LNG	37,747.58
Cairn India	9,927.53	BPCL	260,060.53	Gulf Oil Corpn.	953.13	GSPC Gas Co	4,658.74
Oil India Limited	9,612.70	HPCL	224,675.91	Dow Corning Ind.	471.77	Indraprastha Gas	3,922.16
Gail Gas	988.28	Essar Oil	102,438.64	Sah Petroleums	403.59	Gujarat Gas Company	3,901.12
Aban Offshore	819.94	MRPL	71,814.79	Bharat Shell	345.82	Mahanagar Gas	1,885.15
		CPCL	49,374.52	Caltex Lubricant	73.86	Reliance Gas	1,412.43
		Bharat Oman	28,691.45	Cont. Petroleums	27.45	Guj. St. Petronet	1,050.69
		Numaligarh Ref	9,255.09	Amtek Research	2.74	Sabarmati Gas	937.17
		Indian Oil Pet	1,518.29			Great Eastern En	203.78
		Trinity Tradeli.	117.39			Green Gas	160.26
Total Size	115,109.00	Total Size	1,617,335.27	Total Size	6,465.47	Total Size	113,387.01

Source: Compiled by the authors based on information from Capitaline Database, accessed June 1, 2015, www.capitaline.com/SiteFrame.aspx?id=1.