Oil & Gas Practice Capabilities and Case Studies
The Frost & Sullivan Story

**Emerging Research** 1961–1990

- Global Footprint Begins
- Country Economic Research
- Market & Technical Research
- Best Practice Career Training
- MindXChange Events

**Growth Partnership** 1990–Today

- Growth Partnership Services
- GIL Global Events
- GIL University
- Growth Team Membership
- Growth Consulting

**Visionary Innovation** Today–Future

- Mega Trends Research
- CEO 360 Visionary Perspective
- GIL Think Tanks
- GIL Global Community
- Communities of Practice
What Makes Us Unique

**Focused on Growth**
All services aligned on growth to help clients *develop and implement innovative growth strategies*

**Industry Coverage**
Continuous monitoring of industries and their convergence, giving clients *first mover advantage in emerging opportunities*

**Global Footprint**
More than 40 global offices ensure that clients *gain global perspective to mitigate risk and sustain long term growth*

**360 Degree Perspective**
Proprietary T.E.A.M.™ Methodology integrates 7 critical research perspectives to *optimize growth investments*

**Career Best Practices**
Career research and case studies for the CEOs’ Growth Team to *ensure growth strategy implementation at best practice levels*

**Visionary Innovation Partner**
Close collaboration with clients in developing their *research based visionary perspective to drive GIL*
Our Industry Coverage

- Aerospace & Defense
- Measurement & Instrumentation
- Consumer Technologies
- Information & Communication Technologies
- Automotive Transportation & Logistics
- Energy & Power Systems
- Environment & Building Technologies
- Healthcare
- Minerals & Mining
- Chemicals, Materials & Food
- Electronics & Security
- Industrial Automation & Process Control
Our Global Footprint 40+ Offices
Scanning the Globe for Opportunities and Innovation
Oil & Gas Practice

Capabilities
Energy & Power Systems Coverage

Power
- Power Generation
- Renewable Energy
- Transmission & Distribution
- Plant Services

Power Systems
- Power Quality
- Power Supplies
- Energy Storage
- Batteries
- Services

Oil & Gas
- Upstream
- Midstream
- Downstream

F R O S T & S U L L I V A N
Frost & Sullivan Covers the Entire Value Chain for Oil & Gas Industry

- Midstream Transport & Logistics
- Upstream Exploration & Production
- Downstream
- Oilfield Equipment & Services
- Industry Groups & Policy Makers
- Investment Community
- Fuels & Biofuels
- Environment & Sustainability
- Industry Groups & Policy Makers
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**Frost & Sullivan Covers the Entire Value Chain for Oil & Gas Industry**

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<td>Pumping &amp; Storage</td>
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- **Green Field Services**
  - Drilling Services
  - Drilling Fluids
- **Brown Field Services**
  - Equipment Services
- **Marginal Fields**
- **Offshore Support Vessels**
  - FPSO
  - PSV, AHTS

- **Prime Movers**
- **Turbo-machinery Services**
- **Hydrocarbon Transportation & Storage**

- **Refinery MRO Services**
- **Energy Efficiency Services**
- **Heavy Oil Refining**
- **Supply Chain Management**
- **Biomass to Crude Technologies**
Value Proposition for the Primary Industry

- **New Business Initiatives:** Opportunity analysis, feasibility and market analysis, concept creation and ideation
- **Asset Strategy:** Asset value maximization, Equipment technology evaluation and equipment maintenance strategies
- **Strategic Sourcing:** Vendor Identification and Evaluation
- **Global Peer Benchmarking:** New Capex deployment and maintenance outlay
- **Equipment Technology Monitoring:** Technology developments in production technology and equipment
- **Regulatory and Policy Support:** Monitoring changing regulatory regime, compliance and mitigation strategies
Coverage of Oil & Gas Equipment Manufactures

**Oilfield Tools**
- Drilling Rigs
- Drill Bit Systems
- Mud Pumps

**Static Equipment**
- Tankages
- Furnaces
- Piping
- Heat Exchanger
- Distilling Columns
- Reactors

**Rotating Equipment**
- Turbines
- Compressors
- Pumps
- Fans
- Engines
- Motors

**Flow Control & Instrumentation**
- Valves & Fittings
- Actuators
- Measurement

**Subsea Equipment**
- Subsea Power
- Subsea Tree
- Subsea Processing

**Offshore Fabrication**
- Platforms
- Derricks/Topside
- FPSO/FPU

**Control**
- Automation
- Flow Measurement
- Christmas Tree
- Vessels & Ships
- Drill Rigs
- Modules
Value Proposition for Equipment Manufacturers & Services

- **Portfolio Strategy Development**: New growth market and opportunity, new product introduction and concept creation/ideation.
- **Market Strategy**: New Market Strategy, Market Sizing, Forecasting, Entry Feasibility, Gaining market/profit share
- **Competitive Assessment**: Market Analysis, Corporate Intelligence, Competitive Benchmarking
- **Manufacturing and Strategic Sourcing**: Manufacturing location identification, Vendor Identification, Supply Chain Enhancement
- **Customer Research**: Customer Preference, End-User Satisfaction Surveys, End-User Focus Group Discussions
- **Industry Events**: Industry focussed events and summits, Flagship ‘Growth Innovation and Leadership’ event with a global foot-print.
Coverage of Oil & Gas Services Industry

- **MRO Services:** Plant Service providers for shutdown, general maintenance and repair, contracting
- **Equipment Services:** Services for rotating equipment overhaul and maintenance, Oilfield tools services
- **Pipeline Services:** Integrity Management, Corrosion Protection
- **Offshore Support and Fabrication:** Diving support, supply and vessels, Marine operations management, tug vessels, rig and ship repair services
- **Oilfield Services:** Drilling Services, Well construction and completion, Artificial lift, Seismic and other data services, Equipment Rentals, Production Monitoring and Optimization
- **EPC Contracting:** Engineering and design services, Turkey Projects, Project Management, Construction projects, Strategic Sourcing and Vendor Development, Project Tracking and Monitoring of Marco Scenario
Value Proposition for Associated Industries

**Investors**

Financial Services
- Commercial due diligence
- Valuations
- Bankable Reports
- Red Herring Prospectus

**Industry Groups & Policymakers**

- Market Analysis
- Industry Surveys
- Expert Panels and focus group discussions
- Benchmarking

**Lubricants, Fuels & Biofuels**

- Market Analysis
- Regulatory and Policy Support
- Production Technology
- Channel Distribution
## Consulting Engagements in Oil & Gas

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Oil & Gas Practice

Case Studies
Case Study 1: Market outlook for critical equipment in Oil and Gas

Client Issue and Project Objectives:
- Our client discovered that a worldwide boom in oil & gas exploration and production in 2006 had made it very difficult to secure delivery and prices for equipment in line with project expectations. As a result, it decided to put into place a Commodity Outlook Program in order to support its procurement professionals in selecting, implementing and maintaining optimal supply chain models.

Frost & Sullivan Approach and Methodology:
- Frost & Sullivan initially delivered a ‘Proof of Concept’ report
- A four-year agreement (2007-2010) was subsequently finalised to roll-out and continuously update the study for six strategic commodities – Heat Transfer Equipment, Instrumentation, Pipe Fittings, Pressure Vessels, Structural Steel and Valves.
- Each report covers the following key deliverables:
  - Strategic Recommendations and Implications
  - Demand versus Capacity Analysis
  - Lead Times and Key Bottlenecks
  - Cost Structure and Price Analysis
  - Supplier Profiles including risk assessment, portfolio, strategy, capacity utilisation, expansion plans, etc.

Results and Benefits to the Client:
- Enter into long term framework and capacity reservation agreements with key suppliers
- Identify and add new suppliers to its approved vendor list
- Enter into agreements covering multiple commodities with key suppliers
- Set up an online system to survey their critical supply markets
- Understand and implement industry best practices
Case Study 2: Feasibility Study for Offshore Fabrication Facility in India (1/3)

Client Profile- A European Offshore fabrication company specializing in FPSO/FPU topsides, sub-sea fabrication, decks, platform modules and jack-up rigs refurbishment

Background- The advent of New Exploration and Licensing Policy (NELP) has lead to a huge spurt in offshore E&P activity in India opening new opportunities for offshore fabricators. The client was keen to evaluate the business opportunity in India followed by a detailed business and location feasibility analysis

Key focus areas for the assignment included market potential for the following

- Platform refurbishments like structural fabrication of utility and process modules, platform decks and small jackets
- Jack up rig refurbishments such as repowering of drilling modules, Jacket repairs and drilling derricks
- Subsea structures like flare bottoms, sub-sea fabrication jobs like installation of Christmas trees, manifolds line-pipes and spools
- Potential for FPSO-FPU topside fabrication in India
Case Study 2: Feasibility Study for Offshore Fabrication Facility in India (1/3)

Phase 1 - Market Overview & Skimming
- Detailed report on the NELP
- Comprehensive analysis of the Offshore acreage by deep and shallow water
- Profiling of all offshore E&P operators, PMC/EPIC and Fabricators in India
- Success ratio of each block: discoveries made, number of wells drilled and approved
- Estimation of current status of development of all major offshore blocks
- Evaluation criteria and contracting strategy adopted by E&P companies and PMC/EPICs for appointment of Fabricator

Phase 2 - Opportunity Assessment
- Indication on current and future requirements for FPSO/FPU, Fixed Platforms and Jack-Up rigs for the next 5 to 6 years
- Drivers and restraints in the market
- Market forecast and trend analysis for sub-sea fabrication, Jack-up and platforms refurbishment
- Competitive landscape: Foreign and Indigenous fabricators catering to the Indian Offshore Market
- Profiling of fabricators: Strength-Weakness, Facilities and Strategies
- New facilities and players entering into the market

Phase 3 - Feasibility Study & Recommendations
- Identification of key E&P operators, PMC/EPICs and drilling contractors as potential customers
- Categorizing of business opportunities based on future project development and investments
- Short-listing of 3 to 4 PMC/EPIC and Fabricators for tie-up or JV.
- Overall analysis of the capital outlay for setup of offshore fabrication facility
- Location feasibility study: A cost comparison between India and Middle East
- Short listing of locations and recommendations
Case Study 2: Feasibility Study for Offshore Fabrication Facility in India (3/3)

E&P Operators
- Evaluation criteria and contracting strategy adopted by E&P companies especially for sub-sea structures (x’mas trees, manifolds et al), decks, process, accommodation & utility modules and minor refurbishments
- Association with PMC/EPC, drilling contractors and fabricators
- Potential tie-up and future business opportunity

Drilling Contractors
- Contracting strategy adopted by drilling rig owners for refurbishment/re-powering of drilling modules, jackets decks, derricks among others
- List of preferred indigenous and foreign fabricators

PMC/EPC
- Contracting strategy adopted by PMC: subcontracting engineering and fabrication, in house engineering and outsourced fabrication or end to end solution provider
- Evaluation parameters used by PMC for selection of contractor like quay-side space, references et al
- Survey of major fabricators preferred by PMC and rates charged by the fabricators for construction of offshore steel structures like topsides, decks, jackets etc.

Offshore Fabricators
- Identification of key competencies and future aspirations
- Capital outlay, facilities and manpower assessment
- Estimation of pricing mechanisms, contracting strategies and competencies
- Indication of broad financial figures – Top line & Bottom-line, profitability levels etc.
- Outlook on the future business potential and upcoming opportunities
- Possibilities of JV or tie-up

Others
- EoI for availability of quay side facilities for offshore fabrication
- Demand and supply situation of API grade steel in India
- Manpower day rates for welders, fitters, roustabouts, electricians in Indian and ME
- Potential tie-up and future business opportunity

Directorate General of Hydrocarbons and O&G Experts
- Outlook for E&P business in India and future of NELP
- Participation by foreign E&P operators
- Policies to overcome restraints in E&P development owing rig shortages and low availability of skilled manpower
- Indication on policy decisions to aid development of offshore fabrication facilities in India
- Market drivers and restraints and specific skill shortages in offshore fabrication market

Others
- Market dynamics analysis and potential business opportunities
- Feasibility study for offshore fabrication facility in India
Case Study 3: Assessment of Brown Field Services Markets for an Upstream Oil and Gas Services Provider

Client

An Emerging Oilfield Services Provider in Malaysia

Client Situation

- Need for an independent market report regarding top Side Brown Field Services market with a view listing in the local stock exchange

Engagement Objectives

- Estimate the Brown Field Services Market size
- Identify competitors and determine market share
- Understand government regulations and policies in the region
- Identify major customers

Outcome

- Brown Field Services market sizing and market share analysis
- Insights on competitor strategies
- Obtained views of the major buyers and insights on major upcoming projects
- Market entry plans for Indonesia

Geographic Coverage

Malaysia and Indonesia

Growth Processes

- Customer Strategies
- Strategic Partnering
- Geographic Expansion
Case Study 4: Offshore Oil & Gas and Sub-sea Equipment and Services Markets

Client

Large Singaporean Defense & Engineering Company

Client Situation

To understand the global offshore and sub-sea equipment market with an objective to invest or acquire

Engagement Objectives

- Assess market opportunities in the global offshore and sub-sea equipment and services market, consisting of the following:
  - Well drilling & completion
  - Christmas Tree
  - Umbilicals
  - ROV operations
  - Pipelines
  - Controls
  - Templates & Manifolds

- Identify the major players in each segment of the offshore oil & gas and sub-sea industry

- Evaluate the market attractiveness, entry barriers and suitability of the segment for the client to diversify into

- Identify suitable privately owned companies in the above market either for acquisition or for Joint Venture

Outcome

The market analysis helped the client to:

- Identify opportunities in offshore and sub-sea equipment and services market

- Identify potential targets for acquisition

Growth Processes

- Mergers and Acquisition
- Strategic Partnering

Geographic Coverage

Global with focus on the North Sea and Gulf of Mexico
Case Study 5: Turbo Machinery Equipment and Services Demand in the Oil and Gas Industry

Client

Global Turbo Machinery Equipment Supplier

Client Situation

- Need to have an in-depth understanding of the Turbo Machinery equipment (gas turbines, steam turbines & compressors) and services market demand in the oil and gas Industry

Engagement Objectives

- Estimate the existing installed base of the turbo machinery equipment in the oil and gas industry and identify product, end-user trends
- Market size and forecast for equipment and services in upstream, midstream and downstream segments
- Service contracts analysis
- Competitor Analysis

Geographic Coverage

Malaysia and Australia

Outcome

The strategic assessment helped the client to:

- Allocate resources based on the upcoming opportunities in products and services market
- Identify product requirements or specifications across different end-user segments
- Strategize their existing distribution channel to address end-user requirements across the oil and gas industry

Growth Processes

- Channel Optimization
- Competitive Strategies
- Customer Strategies
Case Study 6: Mapping and Analysis of Research & Development Activities in the Solar PV Industry

Client Issue and Project Objectives:
- A leading oil and gas producer with operations in more than 130 countries had created a new business unit in order to target opportunities within the renewable energy sector.
- It wanted to have a thorough insight into global R&D activities in the solar PV sector in order to enter and win business in this market.

Frost & Sullivan Approach and Methodology:
- Frost & Sullivan broke down the project into three steps:
  - In Phase 1, we developed an R&D mapping template (as shown in the chart) and filled it in solely using secondary research and existing Frost & Sullivan data.
  - We then organised a face to face workshop with our client to present the findings to date and identify the gaps in the research which could not be filled by secondary research. We also worked with our client to identify, select and short-list the most relevant research institutes to focus on in the 2nd phase of the project.
  - In Phase 2, Frost & Sullivan conducted 30 interviews with the short-listed research institutes and profiled the R&D activities of each institute.
- Frost & Sullivan leveraged its global presence and used its market experts in Europe, North America and Asia to fulfil the project.

Results and Benefits to the Client:
- Based on Frost & Sullivan’s market research and analysis, our client was able to:
  - Identify and focus on the most lucrative research activities that were close to commercialisation
  - Identify longer term technologies with commercialisation potential
  - Identify and select possible research institutes to partner with
Client Issue and Project Objectives:
- Our client, a multinational oil & gas company, was a leading supplier of liquid fuels to heavy user industries. Based on significant experience and results of reducing energy consumption and CO2 emissions in its own plants and facilities, the company wanted to explore opportunities to differentiate its fuel offer by providing energy and carbon management consultancy to its existing fuel customer base.
- The objectives of the study were:
  - Target Industries: To identify a long list of industries that were significant energy users as well as their expected future energy and carbon footprint. To then prioritise and shortlist the industries expected to be most receptive to our client’s value proposition and to evaluate the market potential of these selected industries.
  - Competitive Analysis: To provide an overview of the competitive landscape & positioning and to profile the most important competitors.

Frost & Sullivan Approach and Methodology:
- Frost & Sullivan started with a pilot study in one country in order to gauge the viable opportunities for our client before making a decision on whether or not to rollout the research to other countries.
- To prioritise industries, we used a mix of screening interviews with industry associations and secondary research. We then developed a scoring scheme in order to rank the attractiveness of each industry.
- For the competitive analysis, Frost & Sullivan conducted interviews with associations, consultants, energy management service providers, OEMs and a sample of customer organisations.

Results and Benefits to the Client:
- Based on Frost & Sullivan’s market research and analysis, our client was able to:
  - Evaluate the market potential in the most attractive industries
  - Understand the positioning of its key competitors and evaluate their strategies
  - Make a decision on whether or not to enter the energy management services market
For Additional Information

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