

APPENDICES

APPENDIX-A

SEMI-STRUCTURED INTERVIEW SCHEDULE TO GAIN AN UNDERSTANDING OF THE O&G ESO BUSINESS IN BRIC NATIONS (PHASE-I STUDY)

Name of Respondent: _____

Date: _____

Purpose

- I. To gain an understanding of the O&G ESO activities in BRIC nations
- II. Collection of data required for preparing survey questionnaire for identifying variables for comparative case study of individual BRIC countries to determine location attractiveness for O&G ESO industry
- III. Understanding the Cost structure of resources in BRIC nations for O&G ESO resources

Target source: Senior management officials in companies responsible for strategic planning and/or for making technology and engineering offshoring decisions in O&G ESO service providers in BRIC nations or 'Outsourcers' (O&G ES MNC principals and clients)

Estimated time for interviewing: Flexible schedule ranging from 1 to 2 hours (telephonic or in person)

1. Could we start our discussions by talking about the O&G ESO industry in general and how/why it is different from other IT/ITES/BPO/KPO verticals?
2. Could you explain in brief the decision making framework that your clients/principals adopt for evaluating the offshoring potential for the range of work that you perform and the strategic sourcing options (Note: Question targeted at O&G ESO service providers only)

OR

- Could you explain in brief the decision making framework that you adopt for evaluating the offshoring potential for the range of work that you do and the strategic sourcing options (Note: Question targeted at 'Outsourcers' only)
3. Which are the other countries that you see as the major emerging competitors for Brazil, Russia, India and China as O&G ESO service providers? Please elaborate.
 4. What do you think would be the major factors that any overseas partner would consider when setting up an O&G ESO service partner setup in an offshore destination? Kindly list them.
 5. What is the range of Engineering services that you provide to your principal/client/end-user? (Note: Question targeted at O&G ESO service providers only).

OR

- What is the range of Engineering services that you outsource from remote offshoring locations? (Note: Question targeted at 'Outsourcers' only).
6. In which country are you based?
 7. How much of the total engineering and design manhours related to the O&G industry does your company outsource from offshoring centres in other countries?
 8. What is the typical hourly rate that you charge your clients for your services? What would be the typical rates of competing nations from BRIC countries? Could you split up the labour rates into Salary, Training Costs, Facility costs, Communication expenses and Taxes and share the break-up? What has been the average annual increase in labour rates for last 3-5 years for each of the BRIC nations? How much of this increase in costs do you pass on to your clients? How much does a fresh graduate engineer cost you annually? What would be the salary of an engineer with 10 years experience? What would be the salaries for engineers with comparable experience in the BRIC nations? (Note: Above set of questions targeted at O&G ESO service providers only).

OR

What is the typical hourly rate that your remote offshoring centres in BRIC countries charge you? Could you split up their man hourly rates into Salary,

Training Costs, Facility costs, Communication expenses and Taxes and share the break-up? Has there been any cost escalation from your offshore centres in the last 3-5 years because of wage increase or increased infrastructure expenditure? Does your outsourcing service provider charge you differential rates for resources based on their experience? How much do they charge you per hour for a fresh graduate engineer? How much do they charge you per hour for a ten year experienced graduate engineer? (Note: Above set of questions targeted at 'Outsourcers' only).

9. Could you share some details on India specific information? What are the strategies currently being adopted by the Indian O&G ESO industry to garner more market share? Is there enough support for the Indian O&G ESO industry from the government? From your perspective, what are the key action points for the Indian O&G ESO industry to increase market share? What governmental support would you expect? (Note: Above set of questions targeted at O&G ESO service providers).

OR

Do you use India as an offshoring location for O&G engineering services? Could you elaborate your experience on this? What are the strategies currently being adopted by the Indian O&G ESO industry to garner more market share? Is there enough support for the Indian O&G ESO industry from the government? From your perspective, what are the key action points for the Indian O&G ESO industry to increase market share? What governmental support would you expect? (Note: Above set of questions targeted at 'Outsourcers' only).

10. Who are the major players in the Indian industry operating in the O&G ESO domain? Please suggest companies of all the three types - Captives, Joint venture/strategic alliances and third party vendors.
11. Which of the following best describes your title - CEO/President/Managing Director, Senior VP/VP/Director, Head of Business Unit/General Manager/Engineering Manager?
12. What best describes your functional role - General Management, Engineering/Technology/R&D, Strategy & Business development, Sales & Marketing, Finance?

APPENDIX-B

STRUCTURED SURVEY QUESTIONNAIRE FOR FINALISING LIST OF VARIABLES FOR COMPARING LOCATION ATTRACTIVENESS OF BRIC NATIONS AS SERVICE PROVIDER FOR O&G ESO (PHASE-I STUDY)

Purpose: Finalisation of list of variables required for comparative case study of individual countries to determine location attractiveness for O&G ESO industry and also understand details of cost components of Outsourcing.

Target source: Senior management officials in companies responsible for strategic planning and/or for making technology and engineering offshoring decisions in O&G ESO service providers in BRIC nations or Outsourcers (O&G ES MNC principals and clients)

Estimated time for interviewing: Flexible schedule ranging from 30 minutes to 1 hour (telephonic or in person)

1. From the list below please select any/all independent variables that you would consider for evaluating the country to which your company wishes to outsource O&G related engineering work (if outsourcer).

OR

From the list below please select any/all independent variables which you perceive your principal (end-user or overseas partner or customer) would consider for evaluating the country to which they wish to outsource O&G related engineering work (if O&G ESO service provider).

Preliminary list of independent variables for country comparison (select as many as you think are relevant):

1. Cost competitiveness of services provided (Variable and fixed)
2. Talent availability

3. Operations technology & Infrastructure – roads, airports, telephone, internet
4. Cultural and language compatibility with employees from the Outsourcer company/country
5. Innovation capability
6. R&D and testing facilities available in the country – especially related to O&G engineering
7. IP/Data security
8. Advanced educational institutes for O&G engineering
9. Presence of established O&G ESO companies and experience with established client base for O&G ESO services
10. Geo-political risks – Fundamentalism, Macro-economic factors and stability
11. Process efficiency and quality of services provided by existing O&G ESO service providers in each country
12. Policy incentives for service industry

APPENDIX-C

STRUCTURED SURVEY QUESTIONNAIRE TO ARRIVE AT LOCATION ATTRACTIVENESS RANKINGS OF BRIC NATIONS FOR O&G ESO USING STATISTICAL ANALYSIS AND EVALUATE THE CURRENT SCENARIO OF O&G ESO INDUSTRY IN INDIA & FINALISE MANIFESTO FOR GROWTH (PHASE-II STUDY)

Purpose

- I. To obtain data points to arrive at Location Attractiveness rankings of BRIC Nations for O&G ESO industry using Statistical tools
- II. Gain understanding of the steps that the Indian O&G ESO service provider industry is currently adopting to sustain and grow market share
- III. Gain understanding of the support/incentives that the O&G ESO industry derives from the Government of India and its various departments / ministries / state governments / local bodies to sustain and grow market share
- IV. Finalise priorities for sustained growth of the O&G ESO industry

Target source: Senior management officials in companies responsible for strategic planning and/or for making technology and engineering offshoring decisions in O&G ESO service providers in BRIC nations or Outsourcers (O&G ES MNC principals and clients).

Estimated time for interviewing: Flexible schedule ranging from 1 to 2 hours (telephonic or in person).

1. Kindly mention below your scores on a scale of 0 (Least attractiveness) to 10 (Highest attractiveness) for each of the BRIC nations against the elements of Location Attractiveness listed below:

Elements of Location Attractiveness	Countries			
	Brazil	Russia	India	China
Cost competitiveness of services				
Talent pool availability				
Operations technology & Infrastructure				
Innovation Capability				
R&D & testing facilities for O&G engineering				
IP/Data security				
Advanced educational institutes for O&G engineering				
Presence of established O&G ESO companies				
Process efficiency & quality of services provided				
Policy incentives for service industry				

2. In your opinion what is the O&G ESO service provider industry in India currently doing to maintain its market share against competing nations? Please prioritise your response by assigning a score between 1 to 5 for the five strategies below. A score of 1 implies the strategy could be implemented more effectively. A score of 5 implies the strategy is implemented highly effectively. Please also elaborate your response/choice with examples. (Note: It is not necessary to assign scores in whole numbers, decimal scores within the range of 1 to 5 are acceptable - but the sum of the total scores should be equal to 15).

- Maintaining established and loyal client base:
- Providing 'low cost' resources for O&G Engineering Services:
- Delivering 'low' and 'medium' complexity Engineering Services:
- Increasing range/bandwidth of services:
- Expanding global footprint:

3. In your opinion what is it that the O&G ESO service provider industry in India must do in order to maintain and further expand its market share against competing nations? Please prioritise your response by assigning a score between 1 (lowest importance) to 5 (Most important) for the 5 strategies below. Please

also elaborate your response/choice with examples. (Note: It is not necessary to assign scores in whole numbers, decimal scores within the range of 1 to 5 are acceptable - but the sum of the total scores should be equal to 15).

- Accelerate pace of global expansion:
 - Migrate from 'low cost' to high value' engineering services:
 - Partner with R&D and educational institutions:
 - Partner with Indian domestic O&G and Petrochemical industry:
 - Leverage from alliances and partnerships within the O&G ESO industry:
4. Could you please elaborate on the point on 'Expand range/bandwidth of services'? Could you list out the list of services that you are currently sourcing from your outsourcing partner/vendor in India (or any other country)? Could you list out the list of services that could be sourced from service providers in other countries?
5. Do you think the Government of India and its various ministries/departments recognise the potential of the O&G ESO industry and are supporting the industry adequately? Kindly elaborate with examples.
6. In your opinion what steps must the Government of India and its various ministries/departments/state governments/local bodies adopt in order to support the O&G ESO industry maintain and further expand its market share among competing nations? Please prioritise your response by assigning a score between 1 (lowest importance) to 5 (Most important) for the 5 strategies below. Please also elaborate your response/choice with examples. (Note: It is not necessary to assign scores in whole numbers, decimal scores within the range of 1 to 5 are acceptable - but the sum of the total scores should be equal to 15).
- Promote Innovation and R&D
 - Promote India as a trusted sourcing hub for O&G ESO
 - Rationalise tax incentives
 - Open the doors of Public sector & R&D institutions for collaborative research
 - Invest in higher education and advanced degrees related to O&G engineering

7. How much of the total engineering and design manhours related to the O&G industry does your company outsource from offshoring centres in other countries?
8. In which country are you based?
9. Which of the following best describes your title - CEO/President/Managing Director, Senior VP/VP/Director, Head of Business Unit/General Manager/Engineering Manager?
10. What best describes your functional role - General Management, Engineering/Technology/R&D, Strategy & Business development, Sales & Marketing, Finance?

Appendix-D1: Phase-II Survey Raw Data for Question 1 in Appendix-C

	Respondent10			Respondent11			Respondent12			Respondent13			Respondent14			Respondent15			Respondent16			Respondent17			Respondent18											
	Brazil	India	China	Brazil	India	China	Brazil	India	China	Brazil	India	China	Brazil	India	China	Brazil	India	China	Brazil	India	China	Brazil	India	China	Brazil	India	China									
Elements of Location Attractiveness																																				
Cost competitiveness of services	5	5	7.5	3	7	7.5	8	2.5	6	6.5	6.5	4	6	6	5	5.5	5	4.5	4	6	6	5	6.5	7	6.5	6	4.5	5	5.5	6	6	4.5	5	7.5	6.5	
Talent pool availability	7	4	7.5	5	5.5	6	8.5	7.5	3.5	6	5.5	6	6	5	4.5	5.5	6	4	4.5	5	5	5	4.5	6.5	6	5	5.5	6	5	4.5	5	6	5			
Operational technology & Infrastructure	6	6	6	8	6	6.5	7	7	5	6	6.5	6.5	6	7	5	6	5	6	5.5	6	6.5	6	5.5	5	6	6.5	4	4.5	5.5	6	5	6	7.5	6		
Innovative Capability	5	4	6	6	6	7	7	7	5	6.5	7	7	5	6	7	6	4.5	8	7.5	5	5	7	6	7	5.5	7.5	7.5	5	6.5	6	6	6	7.5	7	6.5	
R&D & testing facilities for O&G engineering	6.75	5	8	4.25	4	5	8.5	7	5	6	7	7	6	5	6	7	5	7.5	6.6	5	5.5	6	6	5	4.5	5.5	5	5.5	5	6.5	6	5	6.5	6	6.5	
IP/Risk security	5	6	8	6	7	6	6	4	6	5	5.5	5	4	5.5	6	5	6	6.5	7	6.5	4.5	5	6	5.5	7	7.5	7	6.5	4.5	5	6.5	6	5.5	6	7.5	7
Advanced educational facilities for O&G engineering	7	5	7	5	5.5	6	7	6	6	7	6	6	5	5.5	6.6	6	5	6.5	7	6	5	5.5	6	5.5	6	7	6	5	4.5	6.5	6	6	6.5	7	6	
Presence of established O&G ESO companies	5.5	5	8	8	8	8	7	8	8	7	6.5	6.5	6	7	7	7	6	7.5	7	6.5	6	5.5	5	7	6	7.5	6	6	6.5	5	5.5	6	6.5	6	7.5	7
Process efficiency & quality services provided	4.25	6	8.25	7.75	5	5	5	8	6	5	4.5	7.5	6	6	7.5	7	5	7.5	7	5	5	7	6.5	5	6.5	7.5	5	4.4	6	7	7	5.5	6	7	6.5	
Policy incentives for Outsourcing Industry	8	7	6	7.25	5	5	5	7	8	6	5	6.5	7	6.5	5	5.5	6	5	6.5	6	5	6	7	5.5	6.5	7	8	5	5.5	6	8	5	5.5	7	9	

Appendix-D2: Phase-II Survey Raw Data for Questions 2,3 and 6 in Appendix-C

Raw surveyed data for Q2 in Appendix-C

	Maintaining established and loyal client base	Providing 'low cost' resources for O&G ES	Delivering 'low' and 'medium' complexity ES	Increasing range / bandwidth of services	Expanding global footprint
Respondent1	3	4.75	1.25	2	4
Respondent2	3	5	4	1	2
Respondent3	5	1	4	3	2
Respondent4	4	1	3	5	2
Respondent5	1	5	4.25	2.25	2.5
Respondent6	4	2	5	3	1
Respondent7	4	2	3	5	1
Respondent8	3	4	1	2	5
Respondent9	2.5	2.5	5	4	1
Respondent10	3	5	4	1	2
Respondent11	4	1	5	2	3
Respondent12	5	1	4	3	2
Respondent13	5	1.5	3	4.5	1
Respondent14	3	2	4	1	5
Respondent15	4	2	5	3	1
Respondent16	4	1	5	3	2
Respondent17	1	5	2	3	4
Respondent18	3.5	4.5	1	4.5	1.5
Respondent19	2	5	1	4	3
Respondent20	4	3	5	1	2
Respondent21	2	5	1	3	4
Respondent22	2	5	1	3	4
Respondent23	5	3	4	1	2
Respondent24	4	2	5	1	3
Respondent25	1	5	2	4	3
Respondent26	1.5	5	1.5	4	3
Respondent27	2	5	3	1	4
Respondent28	2	5	2	4	3
Respondent29	1	5	2	4	3

Raw surveyed data for Q3 in Appendix-C

	Accelerate pace of global expansion	Migrate from 'Low cost' to 'High value' service offerings	Partner with R&D and educational institutions	Partner with Indian domestic O&G and Petrochemical industry	Leverage from alliances & partnerships within the O&G ESO industry
Respondent1	4	3	2	1	5
Respondent2	4	5	2	3	1
Respondent3	2	4	1	5	3
Respondent4	1	5	4	2	3
Respondent5	5	1	2	3	4
Respondent6	2	1	4	5	3
Respondent7	4.5	2.5	5	2	1
Respondent8	4	2	5	1	3
Respondent9	4	2	5	1	3
Respondent10	3	4	1	2	5
Respondent11	3	4	1	2	5
Respondent12	1	4	5	3	2
Respondent13	5	1	3	4	1
Respondent14	5	2	4	3	2
Respondent15	5	4.75	3	1.25	2
Respondent16	4	5	3	2	1
Respondent17	4	5	3	3	4
Respondent18	4	5	5	3	4
Respondent19	2	1	1	3	5
Respondent20	2	5	2	1	1
Respondent21	3	4	2	2	3
Respondent22	3	4	3	4	1
Respondent23	5	4	1	4	5
Respondent24	2	5	1	4.25	5
Respondent25	1	2.75	2	2	4
Respondent26	3	1	5	5	1
Respondent27	3	3	2	5	5
Respondent28	4	3	2	1	5
Respondent29	4	2	4	1	3
Respondent30	3	2	2	4	3
Respondent31	1	5	5	3	4
Respondent32	2	1	5	3	4
Respondent33	2	5	1	3	4
Respondent34	2	5	3.5	1.5	3
Respondent35	5	2			

Raw surveyed data for Q6 in Appendix-C

	Promote Innovation & R&D	Promote India as a trusted sourcing hub for O&G ESO	Rationalise tax incentives	Open the doors of PSU & R&D institutions for collaborative research	Invest in higher education & advanced degrees related to O&G engineering
		3	4.5	2.5	4
Respondent 1	1	3	5	4	1
Respondent 2	2	3	1.5	5	3
Respondent 3	1.5	4	3	2	1
Respondent 4	4	5	5	1	4
Respondent 5	2	3	5	3	1
Respondent 6	2	4	3	2.25	4
Respondent 7	1	4.75	5	4	1
Respondent 8	2	3	2	3	1
Respondent 9	5	4	5	2	4
Respondent 10	1	3	3	5	1
Respondent 11	2	4	3	2	4
Respondent 12	3	1	5	2	5
Respondent 13	1	4	3	5	2.25
Respondent 14	2	4	1.75	2	4
Respondent 15	2	1	5	1	2
Respondent 16	3	5	3	1	4
Respondent 17	4	5	3	2	1
Respondent 18	2	4	5	5	3
Respondent 19	3	1	2	2	5
Respondent 20	4	1	3	1	4
Respondent 21	4	1	5	4	3
Respondent 22	2	3	5	2	1.5
Respondent 23	2	1	4	3	3.75
Respondent 24	3	4.5	2.5	2	3
Respondent 25	4.75	1	5	2	5
Respondent 26	1	4	3	2	4
Respondent 27	4	1	5	2	4
	1	3			

ABOUT THE AUTHOR

A.S. Prasad completed his Bachelor of Technology in 1993 from the College of Engineering, Thiruvananthapuram, Kerala, India and has extensive industrial experience related to the process industry.

He joined Southern Petrochemical Industries Corporation Ltd., Chennai immediately after graduation and then later moved to Chennai Petroleum Corporation Limited (erstwhile Madras Refineries Ltd.) at their Manali Refinery in Chennai. In end-1995 he joined Swiss-Swedish Engineering major ABB Ltd. at their Bangalore works and served there for over nine years.

During his stint in ABB he has worked in several functions - Engineering, Project Management, Sales & Marketing - related to Process Control and Automation for the O&G industry. He is also credited with conceptualizing and starting the O&G Export Engineering department at ABB Bangalore that later merged with ABB's Global Operation Centre. He headed this department till he left ABB in mid-2005.

Currently he is the National Business Leader for Asset Optimization division of Emerson Process Management (India) Pvt. Ltd. where he joined as a Project Manager in 2005. He is responsible for the Sales and Operations of this Strategic Business Unit and works closely with customers in the Energy, Life Sciences, Chemicals & Metals verticals to optimize plant performance by closely monitoring mechanical and instrumentation assets. He also works very closely with Global EPC Contractors and Engineering Consultancy companies in the O&G domain to provide turnkey automation solutions for upcoming projects.

A.S. Prasad is an active member of the 'Automation Industry Association', an industry body whose charter is to increase knowledge and awareness levels when it comes to applying cutting-edge automation technologies to help Indian industry leverage these for greater productivity, efficiency, quality, and consistency - the key to global competitiveness.

