



Engineering Services Outsourcing

Indian Engineering Services Outsourcing Industry

July 2007

RR Investors
www.rrfinance.com



Engineering Services Outsourcing

Indian Engineering Services Outsourcing

INDUSTRY SNAPSHOT	3
OVERVIEW	4
INDUSTRY ANALYSIS	5
NATURE.....	5
<i>Engineering Services v/s IT Services outsourcing</i>	5
LIFE CYCLE ANALYSIS	5
INDUSTRY STRUCTURE AND NATURE OF COMPETITION.....	5
<i>Types of ESO Firms</i>	6
DEMAND - SUPPLY ANALYSIS	7
SOURCES OF DEMAND	7
DEMAND ESTIMATES	7
KEY DEMAND DETERMINANTS.....	7
MAJOR CUSTOMERS.....	8
SUPPLY.....	8
GROWTH POTENTIAL	9
GROWTH FACTORS	9
EXPECTED RATE OF GROWTH IN FORESEEABLE FUTURE.....	9
STRATEGIC ANALYSIS	10
SWOT.....	10
INDUSTRY ATTRACTIVENESS.....	10
INDUSTRY COMPETITIVENESS	11



INDUSTRY SNAPSHOT

July 2007

OUTLOOK

India - Moving from low-end BPO work to high-end ESO

Increasing competition, scarcity of skilled manpower, and high costs are forcing companies in developed countries to outsource their ES to 3rd world countries.

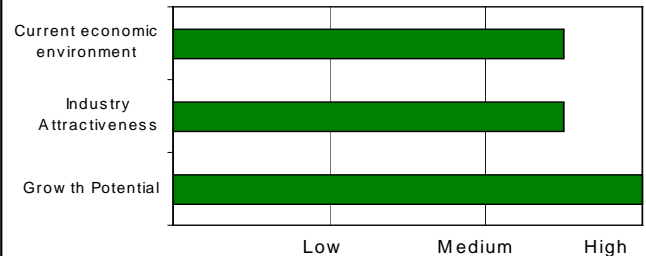
With availability of skilled manpower at low cost, Engineering Services Outsourcing (ESO) is the next big outsourcing opportunity for India.

In 2005, \$2.2billion worth of ES was outsourced to India. We expect it to grow by more than 21% CAGR for the next 15 years and in 2020 it is expected to be \$40 billion market for India

KEY INDICATORS

P/E	34.5	NPM %	17.3
CAGR %	21.33	Key Inputs	Skilled Manpower
No. of cos.	More than 14	Critical Factors	Outsourcing

INDUSTRY SCORE CARD



Strengths <ul style="list-style-type: none"> • Cost Competitiveness • Large Skilled Labour pool • Government support • Good track record in IT 	Weaknesses <ul style="list-style-type: none"> • Infrastructure
Opportunities <ul style="list-style-type: none"> • High cost in developed countries – increasing thrust on cost cutting • Scarcity of skilled manpower in developed nations 	Threats <ul style="list-style-type: none"> • Manpower Shortage • Emerging low cost nations • Rising wage cost and attrition rate

Industry Attractiveness



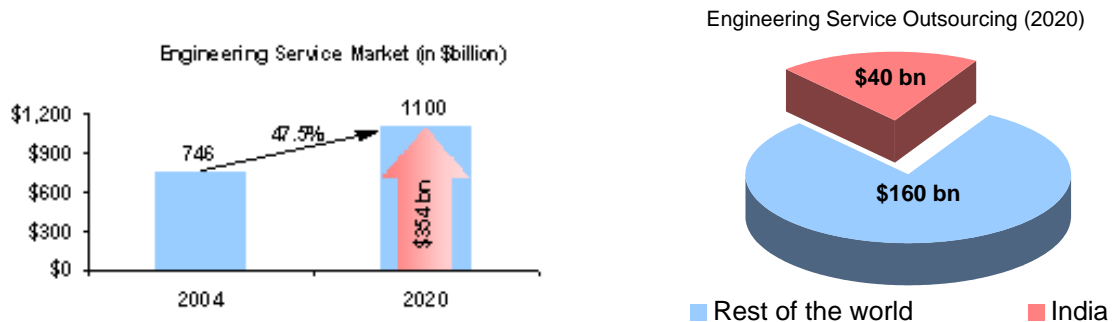
Company (2006-07)	Sales (Cr)	CAGR-%	OPM-%	NPM-%	RONW-%	PE*
TATA Elxsi	235.6	18.9	17.1	14.5	56.9	19.76
Rolta India	456.7	6.53	37.3	30.5	8.7	21.4
Onward Technology	30.8	-15.7	16.4	10.9	26.7	68.7
Infotech Enterprise	213.7	20.4	23.1	13.28	14.7	28.19

*Latest

Overview

ESO stands for “Engineering Services Outsourcing” that includes product design, research and development and other technical Services across sectors like automotive, aerospace, hi-tech/telecom, utilities and construction/industrial machinery.

The engineering Services space is currently exploding, thanks to robust growth across Europe, Asia and the US. The total engineering Services market was worth \$746 billion in 2004 and will touch \$1,100 billion by 2020. Of this the outsourced component could be worth around \$200 billion by 2020 and India with its talent pool and existing experience in engineering Services, is well suited to realize 25% of this opportunity. Currently, the ESO market is worth around \$15 billion with India garnering a healthy 12 per cent share.



India provides outsourced Services in the areas of automotive design, aerospace design, construction, industrial machinery and products, pharmaceuticals, semi-conductor work and much more.

Engineering Services offshoring could help create 150,000 to 200,000 additional jobs, up to 1,000,000 with multiplier effect. India needs to invest now to yield the required number of engineers by 2020.

Industry Analysis

NATURE

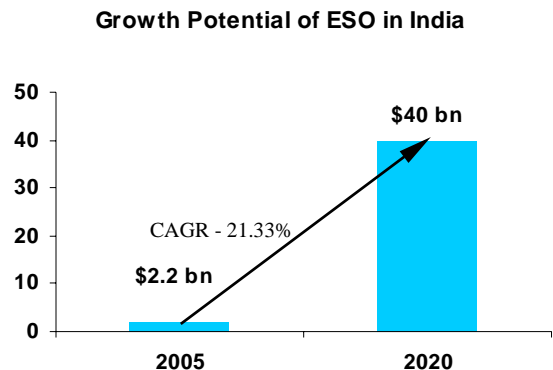
Outsourcing became part of the business lexicon during the 1980s in the form of non-core operations when companies instead of performing by themselves, started to outsource their non-core business. But pressures to improve competitiveness are forcing the companies to outsource even a part of their core business if that can be done better by external specialists. The ever-increasing globalization is forcing companies to constantly improve upon their competitive edge and provide superior products at low prices. Thus, moving a step forward in this direction, companies are now adopting ESO as the next opportunity to gain competitive edge over their competitors.

Engineering Services v/s IT Services outsourcing

- *Purpose:* - While in offshoring ITES-BPO, customers aim to derive cost benefits from outsourcing their functions engineering offshoring is usually driven by the need to increase capacity of critical resources cost effectively.
- *Expertise:* - The other difference between IT-ITES outsourcing and ESO, is that while in the former instance, employees need to be equipped with foreign language skills, high-quality education with relevant hands-on experience and cultural fit, engineering Services require specific and specialized skill-sets in addition to the above. Besides a strong conceptual background in basic engineering, professionals also need to have domain strengths and knowledge of relevant software and hardware. Domain skills across different processes, in turn need employees to have higher education degrees, typically at a master's or doctorate level.

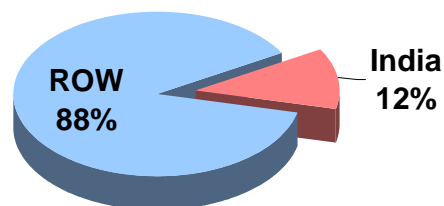
LIFE CYCLE ANALYSIS

The fortune of ESO is directly linked with spending on engineering Services that is currently exploding, due to robust growth across Europe, Asia and the US. The total engineering Services market was worth \$746 billion in 2004 and will touch \$1,100 billion by 2020. Of this the outsourced component could be worth around \$200 billion and India with its talent pool and existing experience in engineering Services, is well suited to realize 25% of this opportunity. In 2005, an estimated \$2.2bn worth of engineering Services were outsourced to India. With more than 21% potential CAGR, over a period of 15 years, we believe industry is in growth phase.



INDUSTRY STRUCTURE AND NATURE OF COMPETITION

Market Share of ESO (2005)



India currently brings home about 12% of today's global ESO market, which it currently shares with Canada, China, Mexico, Eastern Europe & Russia.

Almost all the leading IT Services players in India offer engineering design Services. Most of the bigger players are serving the fortune 500 companies. Apart from this there are few small players also who specializes in design Services.

Types of ESO Firms

1. *Captive Units*: - The first category consists of captive units in India of international engineering majors such as Kvaerner, Ford, Daimler Chrysler and Caterpillar, which outsource work for their own consumption globally. They might also do this through joint ventures that do captive work.
2. *Software companies*: - The second category consists of the large IT majors in the country such as TCS, Wipro and Satyam. These companies having perfected the global delivery model follow that for engineering Services too. Project handling and scaling up these Services are their areas of expertise.
3. *Focused Players*: - The third lot consists of companies like Nielsoft that are pure engineering outsourcing units. Companies such as Geometric Software Solutions or Rolta India and Tata Elxsi also have one of the divisions handling this activity. For instance, in April 2003, Geometric set up an Engineering Services centre at Bangalore to broaden its range of Services and offering an end-to-end Product Life Cycle Management (its core activity) solution.

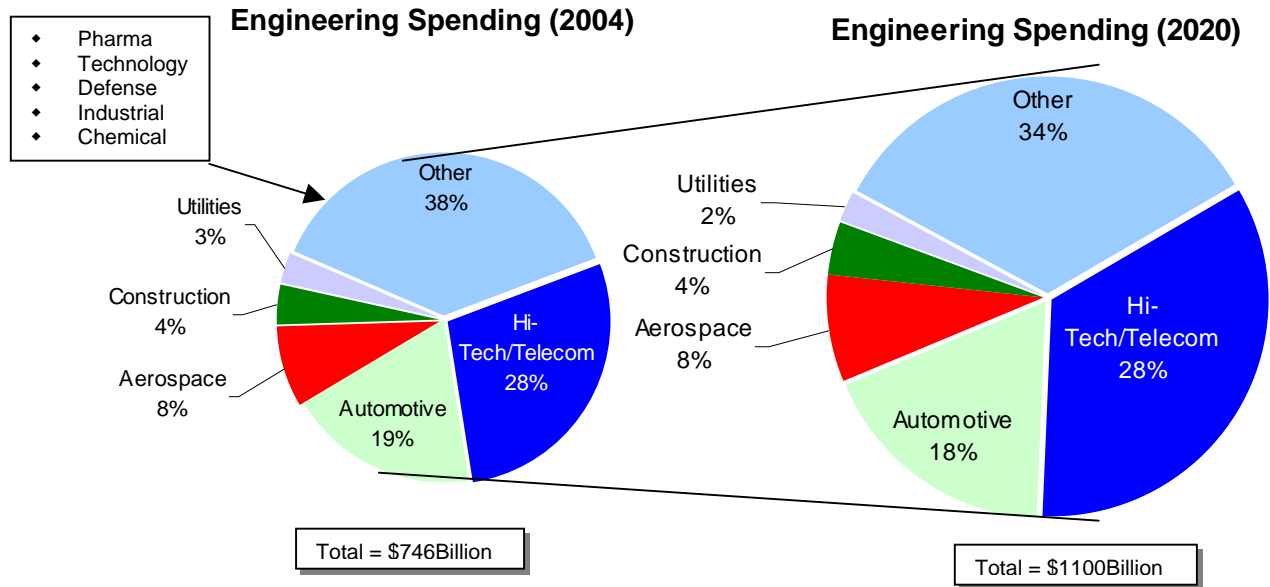
Indian companies with substantial presence in engineering design Services include: -

IT Services Players with Engineering Design Department	Focused Engineering Design Players
<ul style="list-style-type: none"> • TCS • Infosys • Satyam Computers • NIIT • HCL Technologies • TATA Elxsi 	<ul style="list-style-type: none"> • Rolta • Onward Technologies • Infotech Enterprise • Axis • Geometric Software • Quest • Plexion Technologies • Easitech

Demand - Supply Analysis

SOURCES OF DEMAND

Hi-Tech/ Telecom is the major segment creating demand for Engineering Services Outsourcing. The other key sectors that dominate global engineering spends include automotive and aerospace. Rest of the sectors includes industrial, defense, utilities and construction.



DEMAND ESTIMATES

Engineering Services is a huge market: global spending for engineering Services is currently estimated at \$750 billion per year, an amount nearly equal to India's entire gross domestic product in 2005. Engineering Services Outsourcing has direct correlation with spending on engineering design Services. By 2020, the worldwide spend on engineering Services is expected to increase to more than \$1 trillion. Of this the outsourced component could be worth around \$200 billion and India with its talent pool and existing experience in engineering Services, is well suited to realize 25% of this opportunity. In 2005, an estimated \$2.2bn worth of engineering Services were outsourced to India.

KEY DEMAND DETERMINANTS

Some of the demand determinants are the same ones that drive the demand for Indian Outsourcing, additionally there are some ESO specific drivers also as it is a high value addition activity. The determinants are -

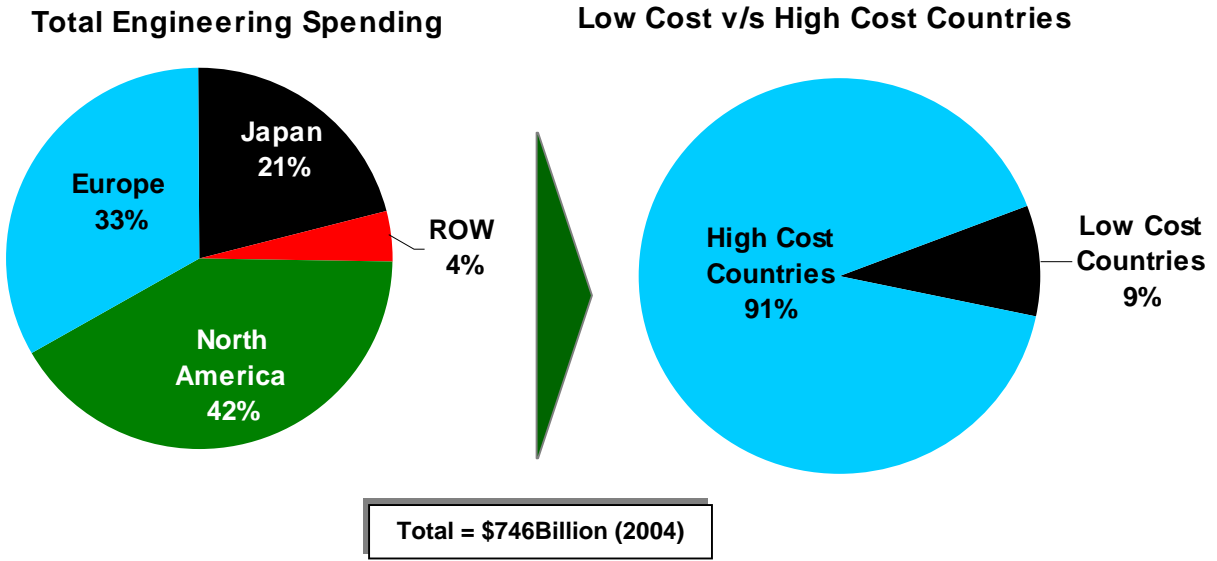
- *Cost Reduction* – Many companies outsource design work to get them executed out of 3rd world countries at lower costs.
- *Faster Production* – In industries such as automobiles, electronics and aerospace, time to market is critical. If a company fails to come out with its design on time, this will delay the final product launch in the market there by adversely affecting revenues and profitability. Thus, many companies outsource parts of the engineering design work in order to accelerate time to market.
- *Lack of skilled manpower* – companies in developed markets may not have the necessary skilled manpower to do the entire design work on their own. Thus they have to get part of the work outsourced.



- *Consumer Demand for better Products:* - With increasing awareness and demanding nature of consumers, companies are forced to produce quality products with unique features.

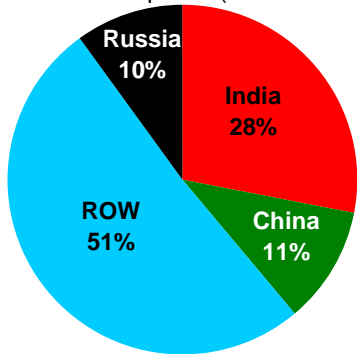
MAJOR CUSTOMERS

96% of the engineering spending is done by North America, Europe, and Japan. To date, off-shoring of engineering Services has largely been done in advanced countries — only 9 per cent of the world’s budget for engineering found its way to low-cost countries.



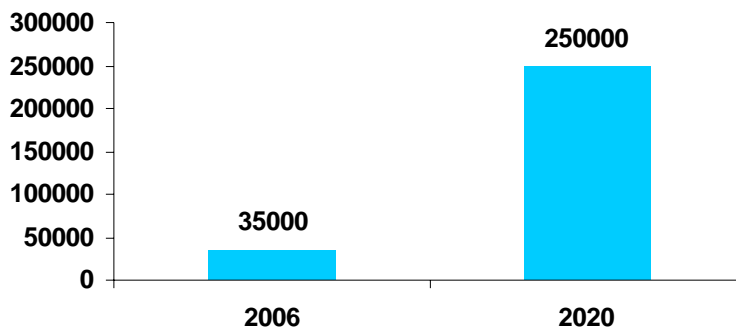
SUPPLY

Source of Low Cost Manpower (ESO & BPO Talent)



Skilled manpower is the key input for the industry and with large number of skill manpower, 3rd world nations are the major suppliers for the industry. India possesses some formidable strength as potential powerhouse of engineering Services. India has widespread availability of highly skilled, English speaking engineers. At present, India accounts for 28% of all the available ESO and BPO talent in the world market. Right now, approximately 35000 engineers work in engineering Services. By 2020, India could need as many as 250000 engineers to truly reach its potential market share in engineering Services.

Manpower in Engineering Services

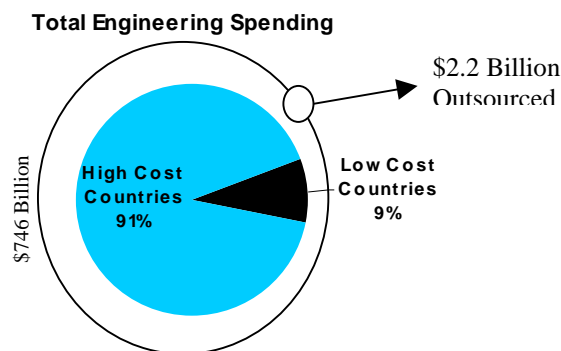


Growth Potential

GROWTH FACTORS

We foresee sustainable growth in ESO. The following factors will drive long-term growth in the sector: -

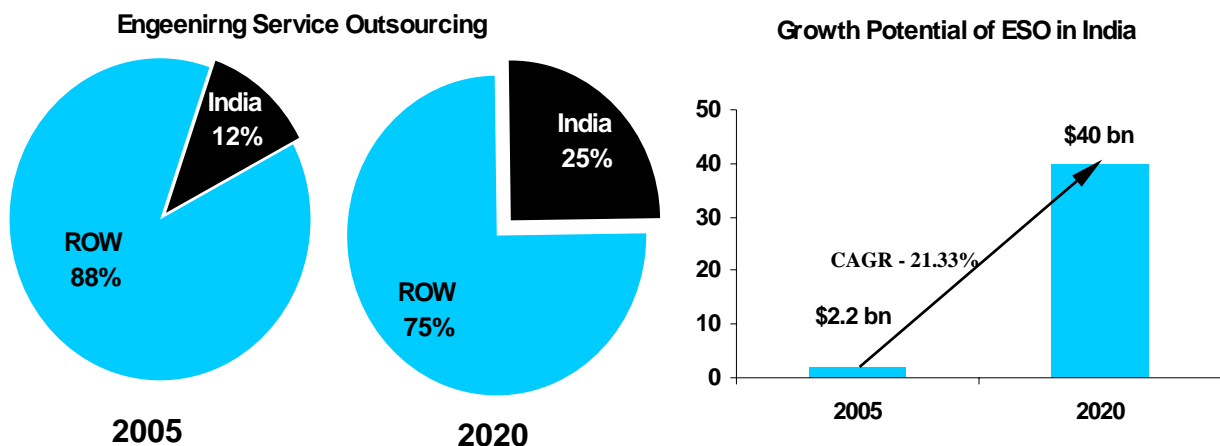
- *Ever-increasing customer expectations* - Today's customer has become more tech savvy and demands superior products with better features. Therefore, companies are forced to spend heavily on R&D. This will drive long-term growth in ESO.
- *Small part of ES is outsourced* – At present only 9% of engineering Services is done in low cost countries and out of total \$746 billion engineering Services a meager 2%(approx) is outsourced. With greater thrust in cost cutting and strive for superior products, we will see a larger chunk ES being outsourced and executed in low cost countries.



- *Scarcity of skilled manpower in developed countries* - Developed nations will not be able to meet its growing demand for skilled manpower therefore a large chunk of ES will be outsourced to 3rd world countries.

EXPECTED RATE OF GROWTH IN FORESEEABLE FUTURE

At present, companies in developed countries themselves largely do the EDS work but with increasing competition and greater thrust of companies in providing low cost superior products, the developed countries will be further inclined to outsource their engineering design Services to get them done in 3rd world low cost countries. India, with large number of low cost skilled manpower is rightly placed to capture a larger pie of enormous opportunity emerging out of this business. India's total market share of ESO is expected to increase to 25% from current 12%, which signifies a \$40 billion opportunity to Indian companies.

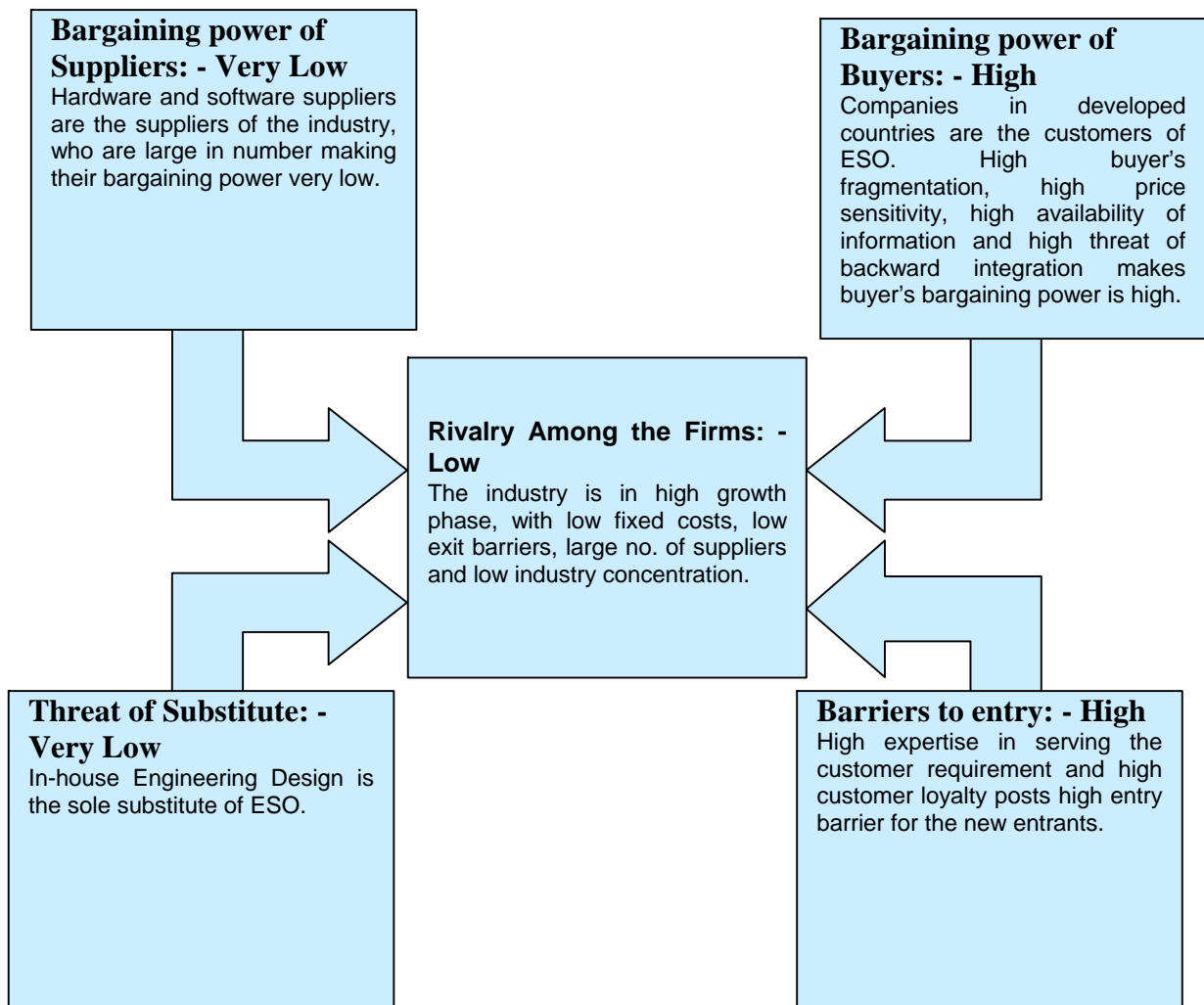


Strategic Analysis

SWOT

Strengths	Weakness
<ul style="list-style-type: none"> • Cost Competitiveness • Large Skilled Labour pool • Superior Services maturity • Government support • Good track record in IT 	<ul style="list-style-type: none"> • Infrastructure
Opportunities	Threats
<ul style="list-style-type: none"> • High cost in developed countries – increasing thrust on cost cutting • Scarcity of skilled manpower in developed nations 	<ul style="list-style-type: none"> • Manpower Shortage • Emerging low cost nations • Rising wage cost and attrition rate

INDUSTRY ATTRACTIVENESS





INDUSTRY COMPETITIVENESS

India offers a unique cocktail of attributes that underlies its core proposition as the preferred destination for ESO.

- *India's human resources* - Being the world's second highly populated country, human resources are a boon by itself. Just as the Gulf is renowned for its natural resource of crude oil, and South Africa for its diamonds, India is proud of the abundance and easy availability of its highly qualified and technically skilled English speaking computer professionals; who are key to success in the field of IT as well as engineering Services outsourcing to India.
- *Cost efficiency of outsourcing to India* - Significant cost saving can be achieved by outsourcing to India, owing to the wide gap between the personal costs in India and that of the developed countries. Offshore outsourcing to India offers considerable economical benefits for those who are prepared to exploit the advantages of outsourcing.
- *Robust, fast growing and reform-oriented economic environment* - India offers an economic environment that is robust, fast growing and reform-oriented. The opportunity to participate in this growth is an additional spur for companies to view India as a viable destination for offshored engineering Services. It gives access to providers that have put in place relevant corporation-level standards. A number of ESO suppliers have implemented company-specific quality standards such as ISO 9000:2001, CMMi Level 5, PCMMi Level 5, Six Sigma, CMMp, S 7799 (data security) and are in the process of acquiring sector-specific certifications in the automotive, aerospace, and hi-tech/telecom segments. The most important thing India offers is availability and quality of IT infrastructure, including testing labs and proving grounds.
- *The reliable communication facilities* - Excellent telecom, ISP, and cellular networks are available in all cities & towns in the country. India prides in the reliable satellite and submarine communication links that facilitate good band connectivity with the rest of the world. Thus companies engaged in IT outsourcing to India, can be in touch with the vendors without any connection hurdles. This plays a significant role in determining the success of offshore outsourcing to India.
- *Stable government facilitating growth* - India has a stable pro - IT government whose policies, economy, GDP growth, taxation, power, telecom, industrial parks & special zones have been helpful in improving the infrastructure as well as communication. The government proves to be a great support for software firms by further providing all the basic facilities required for an outsourcing company to flourish thus playing a major role in contributing to the success and well-being of IT outsourcing to India.



Disclaimer

This report is for informational purposes only and contains information, opinion, material obtained from reliable sources. Efforts have been made to avoid errors and omissions and are not to be construed as an advice or an offer to act on views expressed therein or related financial instruments. The authors shall not be responsible and/or liable to anyone for any direct or consequential use of the contents thereof. Reproduction of the contents of this report in any form or by any means without prior written permission of the publisher is prohibited.

The investments discussed or recommended in this report may not be suitable for all investors. Investors must make their own investment decisions based on their specific investment objectives and financial position and using such independent advice, as they believe necessary. While acting upon any information or analysis mentioned in this report, investors may please note that neither RR nor any person connected with any associated companies of RR accepts any liability arising from the use of this information and views mentioned in this document. The author, directors and other employees of RR and its affiliates may hold long or short positions in the above-mentioned companies from time to time.

All disputes shall be subject to the exclusive jurisdiction of Delhi courts only.

Website: <http://www.rrfinance.com/research.aspx>