OFFSHORE OUTSOURCING: A SWOT ANALYSIS OF A STATE IN INDIA

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Global trends indicate that IT spending will increasingly go to offshore solution providers. This article demonstrates the use of a SWOT analysis technique for identifying the strengths, weaknesses, threats, and opportunities associated with a potential IT outsourcing location. The factors assessed include business conditions, physical infrastructure, IT infrastructure, financial institution and government support, and various labor characteristics specific to a region: the state of Kerala in India.

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LOBAL TRENDS INDICATE THAT MORE and more IT spending will go to offshore solutions providers (Nasscom and McKinsey, 2002).The worldwide IT recession is compelling companies across the world to cut down costs and shift their operations to the countries having lower costs. While U.S. companies have been the early adopters of IT outsourcing, an increasing trend toward this model is also being witnessed in parts of Europe. According to a Forrester Research Survey, while the average percent spent on offshore providers was around 12 percent during the year 2002, it was estimated to grow to over 28 percent by 2004.

Fueling this trend has been an increasing focus on business process outsourcing (BPO). For example, in January 2004, Mike O' Brian, the Minister of State for Foreign Affairs and Commonwealth for the United Kingdom stated:

"We will protect our people without protectionism. Global trading services brings tremendous benefits and BPO (Business Process Outsourcing) is a necessary commercial practice." (Source: New Indian Express, 8 January 2004).

Outsourcing is a means to achieve competitive advantage for many Western companies. A recent Nasscom study reported that over one in four global giants currently outsource their software requirements to Indian companies (Nair and Krishna, 2002). Similarly, a recent survey by Merrill Lynch indicates that the proportion of IT projects outsourced to India by U.S. Fortune 500 companies could potentially increase from below 5 percent to over 15 percent in the next two years (Solitar Systems, 2002).

SWOT ANALYSIS METHODOLOGY
A large number of developed and developing countries have been intensively promoting their IT sectors as a strategic industry. The promotion of a specific offshore location cannot be viewed in isolation, as its viability is linked to many IT and business environment factors that are specific to a region or country. To examine the long-term sustainability of an IT outsourcing location, it is first necessary to identify the factors that would provide a differential

TABLE 1 SWOT Matrix for Kerala

Strengths	Weaknesses
Low start-up cost	Poor image as a desirable business location
Low connectivity cost	Poor growth of domestic market
Low wages	Lack of a few large-scale manufacturers
Adequacy of IT infrastructure	Low level of PC penetration, Internet usage, and
Low labor turnover	computer literacy
High quality of human resources	Inadequate physical infrastructure
Success of Technopark	Lack of proper service and maintenance by
Presence of second-best IT-enabled services	government departments and agencies
(ITES) destination in India	Poor participation of financial institutions
Positive attitude of the government	Drawbacks in IT policy
	Poor policy implementation
Opportunities	
Global opportunities:	**Threats**
Vast global market	New competition
Increasing trend in offshoring	Frequent work interruptions ("bandh and harthals")
Business initiatives by non-resident Keralites	Higher level of software piracy

advantage vis-à-vis potential competitors in the years to come.

One approach to identifying a potential offshore location is to conduct a comprehensive SWOT analysis. This article reports on a SWOT analysis to identify the strengths, weaknesses, opportunities, and threats in the state of Kerala, which is a potential offshore location in India. An expert opinion survey, industry survey, and literature survey were used to identify the factors for a SWOT analysis of this Indian state. The factors include business conditions, physical infrastructure, IT infrastructure, financial institution and government support, and various labor characteristics specific to the region under study. The data for the analysis was collected during the second half of 2002 from 51 IT companies across the state of Kerala and 25 selected IT experts from industry, research, and academia.

The SWOT matrix that resulted from this study is shown in Table 1. Below we first provide relevant background information on the state of Kerala. Then we describe the most important factors that were categorized for the four quadrants in the matrix.

BACKGROUND INFORMATION ABOUT KERALA

Kerala is one of the states of India, having an area of 38,863 square kilometers and a population of 31.8 million, out of which nearly 75 percent live in rural areas. Apart from the national government, the state has an elected state legislature and three tier elected local bodies for the governance. There are 991 *grama panchayats* (village-level administration) for rural

areas and 53 municipal councils and 5 corporations for urban areas. Kerala, known as "God's own Country" for its natural beauty, is one of the world's top tourist destinations, and has been identified as one among the world's 50 "must-see places" of a lifetime (*National Geographic Traveller,* 1999).

According to a 2001 census report, the state occupied the foremost position in the country in education, healthcare, and population control (Government of Kerala, Census Report, 2001). The achievements in these sectors are even comparable to some of the more developed countries in the world. Literacy in the state is 90.92 percent overall, male literacy being 94.20 percent and female literacy being 87.86 percent.

Within the country of India as a whole, the software industry is widely recognized as a success story and has been one of the few bright spots in the Indian economy, with local companies competing successfully with other global players (see Table 2). The evolution of Indian software industries from "body shopping" to being a hub of IT services is visible in the increasing ratio of offshore work to on-site work: in 2001–2002, the contributions from offshore exports exceeded that of on-site services exports.

According to Soumitra (Soumitra, 2002), Indian software is not just a success in terms of total output. More importantly, it is a success in terms of quality and technical excellence. During 2001, the number of quality certified software companies from India increased to over 250, and 27 Indian companies already had the unique distinction of a Capability Maturity Model (CMM) level 5 certification.

TABLE 2 IT Exports by India to Global Regions

Country/Region	IT Services Spending ($ billion)	India's Exports ($ million)	India's Market Share (percent)	India's Relative Dependence Ratio[a]	Share of Total India Exports (percent)
North America	219.2	3,894	1.78	1.3	62.7
Western Europe	127.5	1,480	1.16	0.8	23.8
Japan	53.2	226	0.42	0.3	3.6
Latin America and rest of world	21.7	191	0.90	0.8	3.1
Asia Pacific (excluding Japan)	18.5	426	2.30	1.7	6.9
Total	440.1	6,217	1.41		100

* Relative dependence ratio measures the region's share in Indian exports vis-à-vis the region's share in world IT services spending. A ratio <1.0 indicates possible under-penetration of the market.

Source: IDC/Nasscom, 2002.

TABLE 3 Cost Comparison of Major IT Parks across India

Software Park	Location	Promoters	Area (sq. ft.)	Rate (Approx.)
Hi-Tech City	Hyderabad	L&T APIIC	5,00,000	Rupees (Rs.) 2750 per sq. ft.*
Infotower	Ahmedabad	GNFC Ltd.	1,55,000	Rs.2500 per sq.ft.; Rs.34/- sq.ft/month
International Techpark	Bangalore	Tata's Singapore Consortium and KIADB	12,00,000	Rs.3800 per sq. ft.
International Infotech Park	Navi, Mumbai	CIDCO & DOE	6,00,000	Rs.2000 per sq. ft.
Millennium Business Park	Mhape, Mumbai	MIDC	20,00,000	Rs.1300 per sq. ft.
Pune Infotech Park	Hinjawadi, Pune	MIDC	4,00,000	Rs.1300 per sq. ft.; built-up Rs.1000 per sq. ft. Mtr.land
Pune Software Park	Pune	Dalamals	45,000	Rs.28.32 per sq. ft. per month
Technopark	**Thiruvanantha-puram, Kerala**	**Govt. of Kerala**	**7,00,000**	**Rs.1050 per sq. ft.; rental Rs.12 sq. ft. per month; land Rs. 22 lakh/acre**
Tidel Park	Chennai	TIDCO & ELCOT	12,80,000	Rs.2350 per sq. ft. rental Rs.35 sq. ft.
Verna Software Park	Verna, Goa	Electronics Corporation of Goa	A, 7000 sq. m B, 4000 sq. m	Rs.10,000 per sq. m

Source: Government of Kerala, Economic Review — 2000.
* In 2000, 1 Rupee was worth approximately $0.45 US.

SWOT ANALYSIS OF KERALA

The various SWOT factors for the state of Kerala alone (see Table 1) are discussed in detail below by quadrant.

Strengths

Low Start-Up Cost. In India, as in many other countries around the world, IT parks with IT infrastructure facilities available at various locations in the Indian states provide the benefits of low start-up costs and low operating costs. The Technopark located in Thiruvananthapuram, which is sponsored by the government of Kerala, provides a world-class environment for IT companies at a competitive rate compared to even other software parks in the country (Government of Kerala, Economic Review, 2000). For example, cost comparisons between this Technopark and other major software parks in India are shown in Table 3.

Low Connectivity Cost. The cost for connectivity in the state of Kerala is less than in any other state in India. This is due to the fact that the city of Kochi in Kerala is the only landing point with three submarine cables. These establish high-speed gateways to support bandwidth-intensive operations. In mid-year 2002, the annual lease charges for a privately leased 2-MBps connection was Rs. (Rupees) 4.5 million in all cities except for Kochi and one other

TABLE 4 Comparative Salaries of Software Professionals

Employee Category	Salary Level in Kerala (Rupees/month)	Salary Level in Bangalore (Rupees/month)
Software engineer	8,000–12,000	12,000–20,000
Sr. software engineer	15,000–20,000	18,000–25,000
Project leader	25,000–35,000	30,000–45,000
Managers	40,000–50,000	50,000–75,000

Indian city, in which the rate was only Rs.2.6 million (VSNL, 2002). Because most call center operations require four 2-MBps connections, this translates into a savings of Rs.7.6 million on connectivity cost. In mid-2002, a rupee was worth about $0.48 US.

Low Wages. The wage rate in the IT sector in the state of Kerala is lower than that of other Indian locations such as Bombay, Bangalore, Hyderabad, and Chennai. For example, a comparison of typical salaries for software professionals in Kerala and Bangalore is presented in Table 4.

IT Infrastructure. Kerala's core strength is the existence of an advanced communications infrastructure. The state has the country's highest telephone density: 68 for every 1000 population. All 982 telephone exchanges in the state are digital. Unlike in other states, infrastructure development in Kerala has also been evenly spread out from one end to the other, offering a choice of several outsourcing locations (e.g., Thiruvananthapuram, Kochi, Kozhikode).

Low Labor Turnover. According to Arora et al. (1999), high labor turnover was considered to be one of the major problems in the Indian IT industry prior to the year 2000; this study showed that despite paying substantially above the Indian standards, virtually all the companies found it difficult to retain talented professionals. A high rate of employee turnover constitutes one of the most important challenges to the ability of outsourcing companies to progress beyond providing low-end software coding, development, and maintenance services. However, our own survey of 51 companies, conducted in 2002, showed that the average personnel turnover rate in the IT industry in Kerala was much lower: only 4 percent.

High Quality of Human Resources. The state of Kerala has the highest level of literacy in the country, and recent policy measures of the state government have helped to grow technical education in the state. By 2003, the state had 76 engineering colleges with an annual enrollment of 20,000 students (Government of Kerala, Prospectus, 2003).

Success of Technopark. The Technopark in Thiruvananthapuram has emerged as a significant hub for the development of IT industry in the state. By the year 2002, the park had 54 IT companies employing 5000 professionals and had physically expanded to a built-up area of 1.2 million square feet; the park was therefore one of the top two in India in terms of physical size in the year 2002. The Technopark obtained ISO 9002 certification for establishing and maintaining a quality system for creation and marketing of infrastructure and support services for IT companies in September 2000.

Infrastructure for IT-Enabled Services (ITES). In an extensive, sponsored study to assess the competitiveness of Indian cities on factors such as manpower availability, real estate, telecom infrastructure, policy initiatives, power infrastructure, city perception, and entrepreneurial history, the Kerala city of Kochi ranked second, due to rapid improvements in infrastructure (power, international bandwidth, and urban transportation) and lower manpower costs (lower cost of living, lack of alternative employment opportunities).

Attitude of the Government. Government attitude is an important factor in determining the growth of an IT industry; the survey revealed that both the chief executives of the IT companies and the IT experts in the state rate the government attitude as *supportive.*

Weaknesses

Poor Image as a Desirable Business Destination. Perception plays an important role when deciding the location of a new business venture. According to the experts surveyed, the state loses out in the perception game: Kerala does not have an image as a desirable business location. The experts highlight reasons such as the labor militancy, the unethical behavior of "head-load workers" (see below), the attitude of political parties in the state, and the inability of the government to project Kerala's strengths as an ideal IT destination.

F inancial institutions play an important role in promoting new enterprises. but the role of banks in promoting IT industries in the state is not at the desired level.

Head-load workers are laborers engaged in the manual loading, unloading, and transportation of goods. The Kerala Head-Load Workers Act of 1978 provided a security net to this group of organized laborers, which led to restrictive practices that were perceived to be a stumbling block for industrial growth in the state; unethical behaviors of the organized head-load workers, which had gone to the extent of physical abuse, had become an irritant to the entrepreneurs in the state. Our survey conducted in 2002 revealed that the majority of the entrepreneurs had experienced problems with head-load workers while setting up their businesses. However, the government has since enacted legislation to eliminate the restrictive practices of the head-load workers.

Lack of Domestic Market. A strong domestic market is necessary to motivate entrepreneurs who wish to set up small and medium-sized enterprises. The Indian domestic IT market has recently had an extremely healthy growth of nearly 40 percent. However, the survey shows that Kerala consumes only 5 percent of the total software produced by the state.

Lack of Large-Scale Manufacturers. Kerala has yet to attract a big multinational or a big national company to invest in the IT industry within the state. None of the companies in Kerala are in the nation's top 20 software exporters.

Low PC Penetration, Low Internet Usage, and Inadequate Computer Literacy. Although the state has a high level of overall literacy, computer literacy in the state remains poor. In 2001, the PC penetration in the state was only 1 percent and Internet usage was less than 1 percent. This indicates a low level of application and awareness of IT by the common person in the state, and is also a reason for the low domestic demand for IT products and services in the state.

Inadequate Physical Infrastructure. Although the IT infrastructure in the Technopark is world-class, the infrastructure elsewhere needs improvements. The availability and quality of electric power, Internet connections, and telephone service all need drastic improvement, as does the general infrastructure (housing, roads, etc.).

Lack of Proper Service and Maintenance. The IT companies have raised serious complaints about the services rendered by the government departments and other service providers (electricity board, telephone companies, Internet providers, water authority, etc.). According to those surveyed, there are profound delays and lapses from these agencies in maintaining essential services.

Poor Participation of Financial Institutions. It is widely recognized that financial institutions play an important role in promoting new enterprises, but the role of banks in promoting IT industries in the state is not at the desired level. Although the government of Kerala has promoted a venture capital fund, the survey showed that most of the entrepreneurs were not aware of this source of financing.

Drawbacks in IT Policy. The IT companies surveyed were diverse in terms of ownership, capital, turnover, labor, products and services, etc. At the time of the survey, the current policy was that the same rate of investment subsidy was in existence for both the domestic entrepreneurs and non-resident Indian (NRI) investors. The entrepreneurs opined that the current IT policy was more favorable to big companies.

Poor Policy Implementation. The chief executives of the IT companies are of the opinion that the implementation of current IT policy is not effective: although investment subsidies are applicable to IT companies, the survey revealed that subsidies were not disbursed to eligible companies due to the lack of sufficient funds and procedural delays.

Opportunities

Global Opportunities. There is still a vast global market to be explored and new markets to be developed. The fastest-growing segment within the IT software and services sector over the next few years is going to be the IT-Enabled Services (ITES) market, including customer interaction centers, business process outsourcing (BPO), GIS/engineering services, among others. This sector provides huge employment opportunities to a large number of unemployed who have a general education background. Kerala is potentially extremely well positioned to exploit this market because of its better ITES infrastructure and human resources.

TABLE 5 Software Piracy Rates in Different Countries

Country	Piracy Rates[a] (percent)	Retail Revenue Loss (in $1000s)
Vietnam	94	32,246
China	92	1,662,404
Indonesia	88	79,463
Ukraine/other CIS	87	58,434
Russia	87	119,817
Pakistan	83	11,429
India	70	365,000

* Piracy rate = amount of software pirated as a percentage of total legal and pirated software.

Source: Seventh Annual BSA Global Software Piracy Study for 2001.

Business Initiatives by Non-Resident Keralites. Non-resident Keralites who are economically successful remit significant amounts to the home state. Data published in 2002 reveals that a large portion of the IT investment in Kerala has come from non-resident Keralites in the United States, Middle East, and Europe. The presence of a large number of non-resident Keralites who are interested in investing in Kerala is an opportunity for promoting IT-based industries, especially at a time when the world trend is for increased levels of outsourcing.

Threats

New Competition. Competition from large emerging nations such as China, the Philippines, Brazil, and Korea, as well as many other states in India, is a potential threat to the IT industry in Kerala. The advantage due to lower wages is only temporary for any particular Indian state or any country because wages for skilled jobs will rise with demand and the advantage might shift to other emerging areas.

Frequent Work Interruptions ("Bandh and Harthals"). Offshore outsourcers in the IT and ITES industry must ensure workers on a 24/7 basis without interruption. Kerala entrepreneurs are concerned about work interruptions in companies due to one-day general strikes and boycotts of commercial activities organized by political parties and communal groups. Such "bandh and harthals" are very common in Kerala, and in recent years have led to annual losses of about 15 working days in the IT industry. In Kerala, there are more than two dozen political parties, social organizations, and religious organizations that are capable of conducting bandh or harthals. The prevailing unstable political situation and unfa-

vorable attitudes of various political parties toward private investment are serious threats to the flow of private investment into the state.

Increased Software Piracy. In India, the intellectual property rights (IPR) of computer software are covered under the Copyright Law. Accordingly, the copyright of computer software is protected under provisions of Indian Copyright Act 1957, which was amended in 1994, incorporating necessary provisions for preventing software piracy. However, the software companies in the state have complained about the high rate of piracy, especially in the domestic market.

According to the annual Business Software Alliance (BSA) Global Piracy Study for 2001, software piracy rates in India rose from 63 percent in 2000 to 70 percent in 2001. As shown in Table 5, the piracy rates in Vietnam and China were much higher (94 percent, and 92 percent respectively), but the piracy rates in Western Europe and North America are relatively low: 37 percent and 26 percent, respectively (Sengupta and Rajawat, 2002). In India, the high rate of pirated software (as a percentage of total software, both legal and pirated) appears to be due to the low awareness level of the relevant provisions of the act on the part of law enforcement agencies, entrepreneurs, and the consumers in the state.

CONCLUSION

A SWOT analysis can play an important role in the assessment of offshore outsourcing locations. The promotion of an IT industry in a particular geographic location cannot be viewed in isolation, as it is linked with many factors that can influence IT supply, labor conditions, and a business environment specific to a region or a country. These factors can also vary from country; to country; and in a country like India, they vary from state to state.

The result of the SWOT analysis applied to the potential IT (including BPO) offshore industry in Kerala shows that this state has all the critical basic factors in place: a communications infrastructure to support bandwidth intensive ITES operation, a large pool of English-speaking personnel, IT operations in a technopark, and low employee attrition. The state nurtures a high-profit environment by offering low start-up cost, low connectivity cost, and low real estate cost. Due to high overall literacy rates, but relatively low IT literacy rates, a cur-

The development of the IT industry is further constrained by inadequate general infrastructure, poor participation of the financial institutions, and a high level of software piracy.

rent focus on business process outsourcing and call centers is highly likely.

However, the analysis also unearthed some important weaknesses. Kerala's poor image as a desirable business location is an important weakness: the state's notoriety for the labor militancy and the unethical behavior of head-load workers are the major reasons. The development of the IT industry is further constrained by inadequate general infrastructure, poor participation of the financial institutions, and a high level of software piracy. These types of weaknesses emphasize the importance of a thorough analysis of an offshore location that includes participation by those familiar with the history and political situation within a given geographic region. ▲

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