CHAPTER – 1

STATEMENT OF THE PROBLEM
1 CHAPTER-1 - STATEMENT OF THE PROBLEM

1.1 Preamble - Our Economy

By early 1990s it was crystal clear to all concerned that our system had to face situation with the forex reserves dwindling to a level hardly adequate to cover the country's import requirements for a fortnight. If anything, the system had achieved 40 years of stagnation. It was easy to conclude that the system had to focus on delivering the kind of economic progress that many South-eastern Asian nations had begun to already savour. According to World Bank estimates, India's economy was still less, despite boasting of a population of almost a billion at the time!

1.1.1 The Paradigm Shift

In 1991, the government embarked on an ambitious economic reform programme. Most of the industrial licensing system was dismantled. Several areas were opened up to the private sector, including power generation, steel making, air transport and some areas of the telecommunications industry. The oil industry was partly opened up to private sector participation. Foreign investment was encouraged. An automatic approval window was installed for foreign equity stakes of up to 51 percent in an Indian company; even 100 percent was allowed in certain cases. Raw materials and many industrial goods were permitted to be freely imported. Cap on import tariff was reduced to 65 percent from 400 percent. Peak income tax rate was reduced and corporate income tax fell to 35 percent by 1997\(^1\).

Government announced plans to start privatising India's state-owned businesses, some 40 percent of which were losing money in the early 1990s. However, the privatisation exercise has had a chequered history in the

\(^1\) Source: "India's Breakthrough Budget?", The Economist, March 3, 2001
country with political opposition often scoring over pure business sense. In 1999, there were still some 240 state-owned enterprises scattered across many sectors of the economy that accounted for 15 percent of India's GDP. All the same, by the early 2000s, the exercise was progressing at a fairly rapid pace with about 30 state-owned enterprises privatised in 2002 alone.

1.1.2 The Outcome

Reckoned by some yardsticks, the response to these economic reforms has been impressive. Throughout the 1990s, the economy grew at an annual rate of 6.1 percent. Even in the post-2000 phase, which witnessed a slowdown in global economic activity, Indian economy grew at 5.5 percent during the period 2000-02. Foreign investment crossed the USD 5 billion mark in 2001, way, way up from a paltry USD 150 million in 1991, testifying to the country's attractiveness as an investment destination. As of May 26, 2006, the total forex reserves stood at USD 162.592 billion compared to a paltry USD 5.834 billion in 1990-91.

The Centre’s direct and indirect tax revenues stood at INR 3,70,025 crores (gross, comprised of direct tax of INR 1,77,077 crores and indirect tax of INR 1,92,948 crores) for 2005-06 (budgetary estimates), a far cry from INR 13,149 crores raised during 1980-81. India's trade deficit was USD 9.438 billion in 1990-91 which eventually swelled to USD 38.130 billion in 2004-05. For the first time, the current account showed a surplus in 2001-02, of USD 3.4 billion. Until 2003-04, the country registered a surplus on the current account after which the trend reversed owing to surging crude prices and surging imports of capital equipment by the country's industry. Since 1990-91 to this

3 http://rbidocs.rbi.org.in/rdocs/Wss/DOCs/70762.xls, the website of the RBI, visited on June 5, 2006
4 http://rbidocs.rbi.org.in/rdocs/Publications/DOCs/66018.xls, the website of the RBI, visited on June 5, 2006
5 http://rbidocs.rbi.org.in/rdocs/Publications/DOCs/65978.xls, the website of the RBI, visited on June 5, 2006
6 http://rbidocs.rbi.org.in/rdocs/Publications/DOCs/66002.xls, visited on June 5, 2006
day, the capital account has been showing surplus. Total foreign investment inflows, which was a meagre USD 103 million in 1990-91 swelled to USD 14.444 billion in 2004-05.

Some sectors of the economy did exceedingly well. One such sector was the information technology sector in which India has since emerged as a vibrant global centre for software development.

1.2 Discussions - The Arrival of the Indian Software Industry and what is in store

India has the advantage of people skills availability, legacy of English language, financial structure and right approach. The Industry, Government and general public synergistically can yield substantial improvements in performance excellence especially in the IT sector

1.2.1 The Cultural Perspective

International business is different since countries are necessarily different. National differences in political, economic and legal systems have a bearing on the profile of the business in different countries. Since differences in culture across countries have a bearing on international business, to succeed internationally a business has to possess cross-cultural literacy. At the same time, culture is not static. A simple definition of culture has evaded many scholars on the topic. It is therefore safer to trace the determinants of culture which are reflected in the following Figure1.1
Thanks to its relative poverty, nobody ever believed that India was capable of building a major presence in a high-technology industry such as computer software. But the Indian software industry rose from obscurity as if to pooh-pooh its worst critics and became a force to reckon within a short period of time.

Between 1991-92 and 2001-02, sales of Indian software companies grew at a compound rate in excess of 50 percent annually. The industry’s sales figure for 1991-92 was USD 388 million. By 2002, the figure had grown unbelievably to USD 8 billion. By the early 2000s, more than 900 software companies in India employed 200,000 software engineers, the third largest concentration of such talent in the world. Much of this growth can be attributed to exports. In 1985, Indian software exports were worth less than USD 10 million. They surged to USD 1.8 billion in 1997 and hit a record USD 6.2 billion in 2002, around two-thirds of those exports going to the US alone. The National Association of Software and Service Companies (NASSCOM) projects that total software revenues generated by Indian companies will hit

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(Domestic) USD 21 billion by 2008. Foreign software companies like Microsoft, IBM, Oracle and Computer Associates have been investing heavily in Indian software development operations. Not surprisingly, two out of every five global companies now source their software services from India.

1.2.2 Projects and Opportunities

Most of the current growth of the Indian software industry has been based on contract or project-based work for foreign clients. Many Indian companies, for example, maintain applications for their clients, convert code or migrate software from one platform to another. Increasingly Indian companies are also involved in important development projects for foreign clients. Indian companies are also moving aggressively into e-commerce projects.

The Indian software industry has emerged despite a poor information technology infrastructure. In 2000, India had just 5 personal computers per 1,000 people compared to 588 per 1,000 in the US, 32 telephone lines per 1,000 people compared to 700 per 1,000 in the US; Internet users numbered around 5 million compared to almost 100 million in the US. But sales of personal computers are starting to take off and the rapid growth of mobile telephones in India's main cities is to some extent compensating for the lack of fixed telephone lines.

1.2.3 The Conducive Factors

A number of factors have obviously spurred this growth. The general level of education in India may not be high but the country's conspicuous middle class is highly educated. The country's top educational institutions are world-class. Engineering has received a good deal of attention in the country, by design or by accident from the point of view of international business. English is the language of business in India, a legacy from the British Raj. The wage differential also plays an important role – a programmer in India earns about USD 5,800 per year, very low by international standards but quite attractive by Indian standards. In contrast, American software engineers are increasingly
scarce and the basic salary has been driven up to one of the highest for any occupational group in the country with programmers earning USD 90,000 per year. Admittedly, salaries for programmers have been rising rapidly in India but so is productivity. In 1992, productivity was around USD 21,000 per software engineer.

By 2000, the figure had risen to USD 65,000. In 2002, for the US software companies, work done in India cost USD 25 to USD 35 an hour compared to USD 75 to USD 100 per hour for software development done in the US\textsuperscript{10}. Additionally, distance is no longer an obstacle to transact business with foreign clients, thanks to satellite communications. Software being nothing more than a series of 0’s and 1’s in various permutations and combinations, it can be transported at the speed of light at negligible cost to any corner of the world. India’s geographical position between Europe and the US has given it a time zone advantage. As a result, Indian companies have been able to exploit the expanding market for remote maintenance too. Indian engineers can fix software bugs; upgrade systems or process data overnight while their users in Western companies are asleep\textsuperscript{11}.

1.2.4 Favourable Factors

The strategy deployed by the Indian IT sector is evolved from the global delivery model, which exploits all the favourable factors discussed in the previous paragraph. A well-informed workforce, which is quite comfortable with the English language, renders IT and IT-enabled services of high quality at affordable costs. Thanks to the growing middle-income group of the population that churns out more and more well-informed engineers. With every passing year the output achieved by the Indian IT sector is also cost-effective. India is a country, which has achieved unity in diversity, and hence the Indian workforce, hailing from such an environment, does not find it too difficult to work in a multi-cultural environment.

\textsuperscript{10} Source: “America’s Pain, India’s Gain”, The Economist, January 11, 2003, p. 57
1.3 Need for the Study

As Dr Ashok H Chachadi and Dr Ishwar V Hegde rightly point out in their seminar Paper entitled Impact of WTO on Indian Software Industry – Some Strategic Options the revolution in the IT sector has accelerated the changes in business strategy. The Paper presents strategic options for the software sector leading to distinctive competencies, unique market positions and sustained growth. Indian IT firms stand to gain by invoking the provisions of TRIPS.

The paper emphasises that Indian I.T firms would have done much better if they had strategically leveraged its strength especially entering branded software business and capturing under penetrated markets.

To maintain their competitive position, Indian software companies are now investing heavily in training and leading-edge programming skills. They have also been enthusiastic adopters of international quality standards, particularly ISO 9000 certification.

To get the total picture and to recognize the potential available in the IT sector a study was made to understand the national and international scenario of requirements of the IT-ITES industry.

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12 The Paper was presented at the 13th AIMS Convention held at Visakhapatnam, (India); Dr Chachadi is Dean, Faculty of Management and Director, Kousali Institute of Management Studies, Karnataka University, Dharwad and Dr Hegde is Faculty, Department of Economics, Karnataka University, Dharwad.
a. Growth Pattern in
   i) IT – ITES Industry – including composition, different services key verticals, outsourcing
   ii) Domestic demand and the potential
   iii) Exports – in services, products and technical support

b. Location attractiveness

c. Position of India IT vis-à-vis Global IT

d. Key trends including manpower needs

Reports studied under various headings are detailed under literature review. This was to appreciate the need of this study, the trends and also about needed strategic perspectives. Further the relevance of the study is highlighted in this chapter.

1.4 Problem Definition – Where are we in Global Scenario

1.4.1 The Indian IT - ITES Industry

The Indian IT-ITES industry is broadly categorised into IT services and software, ITES-BPO and Hardware segments. The industry continues to chart remarkable double-digit growth, with industry aggregate revenue for 2004-05 expected to reach US$ 28 billion. The industry is forecast to grow more than fivefold over FY 1998-05, at a CAGR of 28 percent. The industry's contribution to the national economic output has nearly tripled – from 1.2 percent in FY 1997-98 to 3.5 percent in FY 2003-04. This sector is forecast to grow at nearly 31 percent this fiscal to account for an estimated 4.1 percent of the national GDP in FY 2004-05.\(^\text{13}\)

\(^{13}\) Source: Indian IT-ITES Industry, [www.nasscom.org](http://www.nasscom.org) (Oct 27, 2005)
1.4.2 Composition of Indian IT-ITES Industry

The Indian IT-ITES industry is broadly categorised into IT services and software, ITES-BPO and Hardware segments, as already said. Figure-1.2 reflects the composition of Indian IT-ITES industry in terms of aggregate revenue.

Figure 1.2 - Composition of Indian IT-ITES Industry (in USD billions)\(^{14}\)

It is clear from the Figure-1.2 that compared to USD 10.4 billion in FY 2004; the IT services generated USD 17.5 billion (estimated) in FY 2006. The ITES-BPO segment generated USD 3.4 billion in FY 2004 but the figure leapfrogged to USD 7.2 billion (estimated) in FY 2006. The engineering services, R&D and software products segment accounted for a modest USD 2.9 in FY 2004 but increased to USD 4.8 billion (estimated) in FY 2006. The hardware segment has been comparatively mulish, starting with USD 5 billion in FY 2004 and registering USD 6.9 billion (estimated) in FY 2006.

\(^{14}\) Source: http://www.nasscom.org/upload/34606/Indian_IT_Industry_Factsheet_2006.doc (June 7, 2006)
1.4.3 Future Focus and Strategic Move

a) IT-ITES FORECAST

Table 1.1 - Global IT–ITES Services Spend Forecast by Segment: 2004–08

<table>
<thead>
<tr>
<th>USD BILLION</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>HARDWARE</td>
<td>365.4</td>
<td>386.6</td>
<td>409.9</td>
<td>434.8</td>
<td>460.9</td>
<td>6.00%</td>
</tr>
<tr>
<td>SOFTWARE PRODUCTS</td>
<td>197.3</td>
<td>211.1</td>
<td>226.4</td>
<td>242.6</td>
<td>259</td>
<td>7.00%</td>
</tr>
<tr>
<td>IT SERVICES</td>
<td>399.8</td>
<td>422.6</td>
<td>449.7</td>
<td>467.6</td>
<td>510.4</td>
<td>6.30%</td>
</tr>
<tr>
<td>ITES- BPO</td>
<td>447.7</td>
<td>497.8</td>
<td>554.8</td>
<td>614.9</td>
<td>682.5</td>
<td>11.10%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,410.20</td>
<td>1,518.10</td>
<td>1,640.80</td>
<td>1,759.80</td>
<td>1,912.80</td>
<td>7.90%</td>
</tr>
</tbody>
</table>

(Source: NASSCOM, IDC)

Table 1.1 indicates that the global spending is expected to grow at a CAGR of 7.9% during 2004-08. There will be opportunity to get the major share if strategically poised.

b) When composition of Indian IT – ITES industry (US$ billions) is compared with the global IT – ITES services spend as indicated in Table 1.2 (Values) and Table1.3 (Percentages). The outcome indicates that Indian IT Industry has captured only 2% of the Global spend.
1.4.3.1 Spend

Table 1.2 - Comparison of the IT-ITES Earnings As Compared to Global Spend

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>IT Services</td>
<td>17.5</td>
<td>449.7</td>
<td>13.5</td>
<td>422.6</td>
<td>10.4</td>
<td>399.8</td>
</tr>
<tr>
<td>2</td>
<td>ITES-BPO</td>
<td>7.2</td>
<td>554.8</td>
<td>5.2</td>
<td>497.8</td>
<td>3.4</td>
<td>447.7</td>
</tr>
<tr>
<td>3</td>
<td>ES, R&amp;D &amp; S.W. Products</td>
<td>4.8</td>
<td>226.4</td>
<td>3.9</td>
<td>211.1</td>
<td>2.9</td>
<td>197.3</td>
</tr>
<tr>
<td>4</td>
<td>Hardware</td>
<td>6.9</td>
<td>409.9</td>
<td>5.9</td>
<td>386.6</td>
<td>5</td>
<td>365.4</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>36.4</td>
<td>1640.8</td>
<td>28.5</td>
<td>1518.1</td>
<td>21.7</td>
<td>1410.2</td>
</tr>
</tbody>
</table>

Source: Nasscom IDC

Table 1.3 - Earnings as Percentage of Total Global Spend (in percentage)

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2005</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Services</td>
<td>3.89</td>
<td>3.19</td>
<td>2.6</td>
</tr>
<tr>
<td>ITES BPO</td>
<td>1.29</td>
<td>1.04</td>
<td>0.75</td>
</tr>
<tr>
<td>S/W products</td>
<td>2.12</td>
<td>1.84</td>
<td>1.46</td>
</tr>
<tr>
<td>Hardware</td>
<td>1.68</td>
<td>1.526</td>
<td>1.36</td>
</tr>
<tr>
<td>Total</td>
<td>2.2</td>
<td>1.87</td>
<td>1.53</td>
</tr>
</tbody>
</table>

This emphasizes that there is enough demand and scope looking at our strength in availability of required skills and manpower to achieve higher
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share. It becomes necessary to arrive at strategies to leverage our strengths and opportunities to have better share of global market. Fig 1.2 & 1.3 indicates this fact. The total earnings are around 2%, which means there is plenty of scope to strategize our IT-ITES business.

Figure 1.3 - Indian IT – Earnings as compared to Global Spend - 2006

IT Services (US $ Billions)

<table>
<thead>
<tr>
<th></th>
<th>India</th>
<th>Global</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>17.5</td>
<td>449.7</td>
</tr>
</tbody>
</table>

ITES-BPO (US $ Billions)

<table>
<thead>
<tr>
<th></th>
<th>India</th>
<th>Global</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7.2</td>
<td>554.8</td>
</tr>
</tbody>
</table>

ES, R&D & S.W. Products (US $ Billions)

<table>
<thead>
<tr>
<th></th>
<th>India</th>
<th>Global</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>226.4</td>
</tr>
</tbody>
</table>
When composition of Indian IT-ITES industry (USD billions) is compared with the Global IT, ITES services spend as indicated in Table 1.2 and 1.3 (values and percentages), the outcome indicates that Indian IT industry has captured only 2% of the Global spend. This emphasizes that there is enough demand and scope looking at our strength in availability of required skills and manpower to achieve higher share. It becomes necessary to arrive at strategies to leverage our strengths and opportunities to have better share of global market.

1.5 Related success stories

There are several examples of success stories in Indian context wherein strategic initiatives have resulted in leveraging the potentials that exist in our country. This reinforces the point of taking up this study. We belong to a tradition in which India as a country holding 100% of international trade in whatsoever commodities that are tradable as against which total exports of India in IT sector hovers around 1 to 4%. This shows that we have not strategically enquired to explicit the potential we have. This is borne by the fact that the largest IT power house Microsoft has in its employees nearly 15 to 20% Indians. Even if we see an overall scale be it USA or other countries we see that Indians are contributing a major share in the overall global scenario. Though we have 20 CMM level - 5 companies in India our share on an overall scale appears to be very less.
This calls for a serious study of internal environment of Indian companies as well as external environment clearly identifying strengths, weaknesses, opportunities and threats which can give us a clear picture of what we should do to leverage our capabilities and achieve our chosen objective of ensuring at least 25% of world share which it should deservingly have.

To illustrate how strategic management initiative can result in substantial improvement of capabilities the following examples are being provided. Green revolution, white revolution and telecom efforts have proved successful by virtue of deployment of right intended strategies. This reinforces the proposition that strategic initiatives are imperative to sustenance and growth of any enterprise; especially it has become more than relevant in the IT sector.

Application of the right strategy at the right time seldom fails to redeem a grim situation. A look at our country's performance on the food front and the milk front is all one needs to do to appreciate this statement. In the recent past we have witnessed our country achieving self-sufficiency in food grain production and milk production. The former is popularly referred to as the green revolution while the latter is popularly referred to as the white revolution.

The two revolutions resulted from the application of the right strategy at the right time as the following paragraphs explain.

1.5.1 India's Green Revolution

The world's worst recorded food disaster occurred in 1943 in British-ruled India, known as the Bengal Famine. An estimated four million people died of hunger that year alone in eastern India\textsuperscript{15} (that included today's Bangladesh).

\textsuperscript{15} http://www.indiaonestop.com/Greenrevolution.htm
The initial theory put forward to 'explain' that catastrophe was that there is an acute shortfall in food production in the area.

However, Indian economist Amartya Sen (recipient of the Nobel Prize for Economics, 1998) has established that while food shortage was a contributor to the problem, a more potent factor was the result of hysteria related to World War II that made food supplies a low priority for the British rulers. Indian traders who hoarded food further exploited the hysteria in order to sell at higher prices.

It was therefore natural that food security was a paramount item on free India's agenda. This awareness led, on the one hand, to the Green Revolution in India and, on the other, legislative measures to ensure that businessmen would never again be able to hoard food for reasons of profit.

However, the term "Green Revolution" is applied to the period from 1967 to 1978. Between 1947 and 1967, efforts initiated by the government at achieving food self-sufficiency were not entirely successful. Efforts until 1967 largely concentrated on expanding the farming acreage.

1.5.1.1 Three basic strategies involved in the Green Revolution:

- Continued expansion of farming acreage;
- Double-cropping existing acreage;
- Usage of seeds with improved genetics.

Continued expansion of farming areas

The area under cultivation was increased right from 1947. But this was not adequate to meet the rising demand. Other strategies were required. Yet, the expansion of cultivable land also had to continue. So, the Green Revolution
continued with this quantitative expansion of acreage. However, this was not the most striking feature of the Revolution.

**Double-cropping existing farmland**

Double-cropping was a primary feature of the Green Revolution. Instead of one crop season per year, a decision was taken to have two crop seasons per year. The one-season-per-year practice was based on the fact that there was only one natural monsoon per year. This was correct.

So, there had to be two "monsoons" per year. One would be the natural monsoon and the other an artificial 'monsoon.' The artificial monsoon was to be provided in the form of huge irrigation facilities.

Dams were built to arrest large volumes of natural monsoon water, which was earlier frittered away. Simple irrigation techniques were also adopted.

**Using seeds with superior genetics**

This was the scientific aspect of the Green Revolution. The Indian Council for Agricultural Research (which was established by the British in 1929 but was not known to have done any significant research) was re-organized in 1965 and then again in 1973. It developed new strains of high yield value (HYV) seeds, mainly wheat and rice and to some extent, millet and corn. The most noteworthy HYV seed was the K68 variety of wheat. The credit for developing this strain goes to Dr. M.P. Singh who is also regarded as the hero of India's Green revolution\(^\text{16}\).

\(^\text{16}\) http://www.indiaonestop.com/Greenrevolution.htm
**Statistical Results of the Green Revolution**

1) The Green Revolution resulted in a record grain output of 131 million tons in 1978-79\(^\text{17}\). This established India as one of the world's largest agricultural producers. No other country in the world, which attempted the Green Revolution, had recorded such level of success. India also became an exporter of food grains around that time.

2) Yield per unit of farmland improved by more than 30 per cent between 1947 (when India gained political independence) and 1979 when the Green Revolution was considered to have delivered its goods.

3) The crop area under HYV varieties grew from 7 per cent to 22 per cent of the total cultivated area during the 10 years of the Green Revolution. More than 70 per cent of the wheat crop area, 35 per cent of the rice crop area and 20 per cent of the millet and corn crop area used the HYV seeds\(^\text{18}\).

**Positive Fallout of the Green Revolution**

1) Crop areas under high-yield varieties needed more water, more fertilizer, more pesticides, fungicides and certain other chemicals. This spurred the growth of the local manufacturing sector. Such industrial growth created new jobs and contributed to the country's GDP.

2) The increase in irrigation created need for new dams to harness monsoon water. The water stored was used to create hydroelectric power. This in turn boosted industrial growth, created jobs and improved the quality of life of the people in villages.

\(^{17}\) http://www.indiaonestop.com/Greenrevolution.htm

\(^{18}\) http://www.indiaonestop.com/Greenrevolution.htm
3) India paid back all loans it had taken from the World Bank and its affiliates for the purpose of the Green Revolution. This improved India's creditworthiness in the eyes of the lenders.

4) Some developed countries, like Canada, which were facing a shortage of agricultural labour, were so impressed with the results of India's Green Revolution that they requested the Indian government to supply them with farmers exposed to the techniques of Green Revolution. Many farmers from Punjab and Haryana were thus deputed to Canada where they eventually settled.

1.5.2 The White Revolution

Padma Bhushan, Ramon Magasaysay Award winner and the "Milkman of India", (as he is affectionately called), Dr Verghese Kurien was the man behind India achieving the white revolution. As a result, India is today the largest producer of milk in the world, if not the largest.

As Mr Rao says many heckled the strategy he developed when it was implemented. Nevertheless, Kurien went ahead with the task with missionary zeal. He designed the Kaira cooperative model with products under the Amul name nurtured it. Private dairy companies, especially multinationals, opposed this model. Amul's innovation included a baby food based on buffalo milk. Multinationals mocked this effort and implied that it would harm infants. Kurien, in turn, made life as difficult as possible for the multinationals in milk.

The following paragraphs explain the strategy deployed by Dr Kurien to achieve the white revolution.

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20 Mr Rao is former director general, National Council for Applied Economic Research, and chairman, Central Electricity Regulatory Commission
The “white” revolution brought millions of small milk producers together to supply milk to the collection centres. From there, the milk was transported to dairies for processing, standardizing the fat content, using the surplus fat to make butter, ghee and other value-added products. The surplus milk in the flush season was converted into milk powder that could be reconstituted or mixed with liquid milk in the lean season. This ensured an uninterrupted flow of milk to consumers.

The cooperative model-based strategy helped the cattle-owners to develop a sense of participation and ownership. They got a guaranteed price in cash every day for their milk supply. They were not cheated and paid no bribes. Comprehensive surveys show that the milk revolution has significantly added to the incomes of landless peasants. It has bettered the diets of most Indians. It has made fresh liquid milk available through the year in urban centres and in milk-deficit areas, like Tamil Nadu, where families in the past substituted skimmed milk powder, baby food and Horlicks for milk.

After the success of the Kaira cooperative milk producers union and their Amul brand, the milk cooperative movement was helped to spread by the National Dairy Development Board headed by Kurien, with support from the European Union. The EU countries had an unusable milk mountain resulting from the large subsidies they extended to their farmers. Some of this milk powder and butter fat was given to India through the NDDB. The proceeds were used to build infrastructure for milk collection and processing and help in setting up milk cooperatives, dairies, veterinary centres, and the like.

Mr. Kurien’s strategy coupled with his leadership, single-minded determination, willingness to battle with anyone, management and communication skills made it possible.

Concurrently Amul was built to become a well-loved brand standing for a range of milk-based products of high quality and low price. Kurien demonstrated to the multinational companies that the cooperative principle, rather than the profit motive that drives companies, was what would benefit consumers and milk producers alike.

The NDDB established cooperatives in many states. They developed their own brands of milk products — Vijaya, Verka, Milma, Sudha, Nandini and the like. They competed in some markets with each other. But the nationally dominant brand was Amul. The marketing expertise behind Amul was given through the NDDB to the other state cooperative brands.

1.5.3 Telecom Revolution

Late Prime Minister Rajiv Gandhi envisioned India's entry into new millennium in early eighties. He saw that telecommunication network in the country was a real bottleneck to future development. He also analysed and understood that technology was a hitch. He invited Sam Pitroda of Samtel, Chicago, USA to head Telecom Commission as its unpaid Chairman. IT was the team that Sam Pitroda built which invented the appropriate technology to suit Indian Country. But for the telecom revolution, which made communications easy, the IT revolution would not have come forth.

All the three revolutions Green, White and telecom point towards one direction i.e., if only India can leverage its strength through a strategic initiative it can be on the top of the world.

The same logic applies to software and hardware industry or IT industry where sound strategic planning is required on the part of all the stakeholders. The industry, government and general public can yield substantial improvements in the performance of the sector.
When we look at all these recent relevant examples it becomes amply clear that we need homegrown solutions in the form of strategic initiatives to ultimately leverage our excellent capabilities.

IT outsourcing, project oriented services and support, and training will also steadily grow where Indian IT has necessary expertise and this market can be explored with right strategies.

India has the advantage of people skills availability, financial structure and location advantage. These advantages need to be leveraged.

1.6 Key trends Forecast for Global IT-ITES over 2005-08

- Moderate growth in IT
- Relatively slower growth in the mature markets of US, Western Europe and Japan.
- Enterprise level innovation focused on mainstream business applications.
- Cost reduction and increased process focus in the IT business services segments to drive increased leverage of the offshore model.
- Increased adoption of offshore outsourcing as organizations adapt to the global sourcing phenomenon.
- Leveraging the offshore delivery model for their requirements beyond custom application development and maintenance.
• Entering new service lines such as package software implementation, systems integration, R&D engineering and network management in India and abroad

• Global players are also stepping up their presence in India, not only to use the local delivery centres to service their offshore business but also to target the fast paced India IT services market.

• IT budget allocations in the government /PSU segment -likely to account for the highest IT spend

• Higher spends on storage and enterprise wide applications – albeit on a case-to-case basis

• Increase in telecom and internet penetration:
  
  o According to Gartner, India will remain one of the highest growth markets for telecom in 2005 with an addition of 35 million new subscribers -a growth of 18 percent over 2004
  
  o PC penetration per thousand persons in the country is growing rapidly, from 7.8 in FY 2002-03 to a forecast of 12.4 for FY 2004-05
  
  o Internet users in the country have grown from approximately 6.6 million in FY 2000-01 to nearly 32 million in FY 2003-04 and are forecast to cross 44 million in the current fiscal.

However, this is only the beginning. The IT services industry is at the threshold of an emerging paradigm of global sourcing. With global vendors yet to perfect their act, Indian vendors have proved their expertise in managing offshore service with right delivery and time.
1.7 The Indian IT Workforce Market: Building World-Class Manpower

Clearly, the way forward for India is quality education that conforms to key global standards and creates professionals that are equipped with international-level certifications and accreditations. ICT manpower development today, is not only crucial for sustaining the growth of the Indian economy, it is also important for maintaining the country's edge in the global markets, where competition is on the rise.

1.8 Efforts by the Indian IT-ITES Industry

Offshore outsourcing has gained widespread acceptance in the developed world and the top Indian software companies are riding this wave. This is evident from the leap of interest among American and European companies to explore the outsourcing route and the sharp increase in overseas client visits to India. Undoubtedly, the building block for this successful endeavour is the widely acclaimed "Global Delivery Model".

This business model has helped Indian software companies execute software projects, from the simple to complex, for Fortune 500 and other blue-chip corporations worldwide from remote and cheaper locations such as India. Players in the Indian IT-ITES industry therefore deal with customers who demand more of global delivery. This also has proved to be a blessing in disguise for the Indian players since it is going to force the global players to build up their own capabilities. The Indian players need not change until they face very strong competitive response from the global players. After all, they are on a winning wicket right now.

Working with this model, the top three companies in the Indian software industry, viz., Tata Consultancy Services, Infosys and Wipro have reached the $1 billion league in revenues. As one of the passionate advocates of the Global Delivery Model, Mr Nandan Nilekani, President, CEO and Managing
Director, Infosys, asserts that the growth of Indian software industry will continue to come from this route. In his view, the customers have understood that this offshore model delivers higher value at a lower price, better quality and less time-to-market\textsuperscript{22}.

Despite the revolutionary nature of the offshore model and the near-term optimism in the industry, the rules of the game are changing. In the next phase of growth, say, over the next three-five years, customers are expected to demand a more sophisticated and complex range of services.

This is expected to force the top Indian companies to transform themselves into truly global corporations, operating from multiple geographies, employing a multicultural workforce, and across lines of business.

\textbf{1.8.1 Threat from Multinational Vendors}

Since 2003, vendors such as IBM Global, Accenture and Computer Sciences Corporation are showing signs of ramping up or expanding their operations in India, for software services and business process outsourcing. But all plans remain under wraps, except for the rumours swirling in the market or the occasional news report on their ramp-up plans or the rising attrition rates among frontline companies. According to Mr Nilekani the MNC vendors have a revenue model, which has a certain cost of sales, gross margin and a certain SG&A (sales, general and administrative expenses). Offshore outsourcing is depressing (those) revenues. Something like what happened in the telecom industry, in the US, when long distance got privatised, it reduced the revenues. This line of argument has considerable merit. Essentially, the multinational (MNC) vendors face two significant challenges. First, the average revenue per employee for a typical MNC vendor firm is about $1,80,000 whereas for an Indian firm it is half that at $75,000-80,000. So, once the MNC vendors decide to move a person from a high-cost location to a

\textsuperscript{22} Krishnan Thyagarajan, “Challenges in Going Beyond the Billion”, \textit{The Business Line}, February 22, 2004.
remote location, say, India, their revenue per person and overall revenues will decline.

Second, the MNC vendors spend on an average 15 per cent of their revenues on sales and marketing, while it is typically half that percentage (about 7-8 per cent) for frontline companies such as Infosys\(^{23}\). In a sense, it is double whammy, as the MNC vendors will face the challenge of spreading their sales and marketing expenses on a smaller revenue base as they migrate their work to India. Endorsing this view, Mr Jayant Sinha, Principal, McKinsey, also points out that the MNC vendors face both a financial and people impact of moving, say, 30,000-40,000 people to India. "That is a very disruptive thing for them to do and that is really what is slowing down their ability to pull this off". But if the Global Delivery Model is the only way to growth, it is only a matter of time before the MNC vendors step up the pace, whatever be the financial or people implications of this transformation. According to Mr Nilekani "there is no incompatibility between revenue growth and quality. The business model (of global delivery) evolved by the industry has got both scalability and quality built into it."

1.8.2 Moving up the Software Value Chain

Since 2003, both Wipro and Infosys have transformed their business models around a chosen set of verticals. But this is just the beginning of the transformation, which will have to pass through several stages to attain maturity.

1.8.3 Operating Across Multiple Service Lines

Application development/maintenance and related outsourcing has remained the mainstay of the export revenues of frontline Indian companies. Nearly 60-70 per cent of revenues came from this source in the last twelve months of

\(^{23}\) Krishnan Thyagarajan, “Challenges in Going Beyond the Billion”, *The Business Line*, February 22, 2004
2003. But this service line was dogged by, and remains susceptible to, price re-negotiations and margin pressures. Companies have attempted to break out of the application outsourcing mould by focussing on package implementation in a big way. But beyond this, the top three companies are building a presence across the three key service offerings — business consulting, systems integration and IT infrastructure outsourcing. If they are serious about moving up the software value chain and competing with global multinationals, they have little choice but to span at least two or all three-service areas.

Laws do not cover aspects related to the offshoring and the Internet, which have emerged recently. The arrival of the Internet resulted in a new set of complex legal issues. This was followed by offshoring, which led to further complications.

The Indian government responded proactively in this sphere and laid the foundations of the required legal framework. The first draft of the Information Technology (IT) Bill was introduced as early as 1999. The IT Act, which finally came into existence in 2000, includes laws and policies concerning data security and cyber crimes. Apart from the IT Act, the Indian Copyright Act of 1972 deals with copyright issues in computer programs. At present, there are no data protection specific laws in India.

However, in the absence of specific laws, the Indian Judicial System offers a few proxy laws and other indirect safeguards. In the following chapter 3 in Review of literature, the provisions of the IT Act and other laws are briefly discussed, which companies can use to safeguard proprietary information?
1.9 Emergence of Newer Locations

- As global delivery matures, newer locations are emerging; however India remains the undisputed leader.
- India maintains its distinctive lead amongst offshore destinations.
- Strong fundamentals will help sustain India's value proposition.
- 28% of the suitable talent available across all offshore locations (outranks the next destination by a factor of 2.5).
- Keen emphasis on security and quality.
- Sustained cost competitiveness, gains from increased productivity, utilization and scale expansion.

1.10 Growth in Domestic Market

- Complementing the continued growth in IT-ITES exports is a growing domestic market.
- Domestic market coming into its own, to grow by nearly 22% in FY 2006.
- Strong demand over the past few years has placed India amongst the fastest growing IT markets in the Asia Pacific region.
- Growth in the domestic market is witnessing the early signs of service line depth that characterizes maturing markets.
- Global product companies are also looking to introduce localized versions of their software products to drive usability and penetration.
- Several large domestic contracts announced last year were won by MNCs.
1.11 Coming of Age of Indian Multinationals

- Traditionally India-centric, indigenous players beginning to build noticeable presence in other locations -- through cross border acquisitions and organic growth in other low-cost locations.
- Global majors continuing to significantly ramp-up their offshore delivery capabilities -- predominantly in India.
- Portfolio of services sourced globally continued to expand into higher-value, more complex activities.

1.12 From Outsourcing to Global Sourcing

- Transition from outsourcing to global sourcing to drive the next phase of evolution in process quality frameworks and practices.
- Having aligned their internal processes and practices to international standards such as ISO, CMM, Six Sigma, etc., companies in India are seeking to further increase the quality and productivity benchmarks by introducing adaptations more suitable for remote service delivery.

1.13 Going Forward

For India to fully capitalise on the opportunity and sustain a disproportionate lead in the global IT-ITES space, we need to focus on five key areas:

- Enhancing the talent pool advantage -- focus on skill development to better leverage the world's largest working population.
Strengthening urban infrastructure in existing (tier I) and emerging (tier II and tier III) cities and continued emphasis on proactive regulatory reform to facilitate greater ease of doing business.

Driving a philosophy of operational excellence amongst industry players (across the board) to ensure that India based delivery sustains world-leading benchmarks in performance.

Catalysing domestic market development.

Actively promoting an uncompromised agenda towards global free trade.

1.14 Relevance of the Study

Given the current business environment and focus areas, it is clear that India needs strong efforts for gaining the trust and confidence of clients and remains competitive in the global economy.

In view of these varied aspects of the emerging IT industry, it is imperative for our IT sector to fine-tune and, if necessary, redefine, redesign and recast its various strategies.

The strategies should lend themselves to further modification as and when needed in view of the business dynamics that characterise the IT sector. Therefore, an examination of the strategic options that our IT sector has been implementing is overdue.

Not without reason, it is often said that change is the only constant thing in life. It seems to be the only constant in respect of the IT sector too.