EXECUTIVE BRIEF

1. SCOPE

The study is sponsored by NSTMIS, Division of Department of Science & Technology, Government of India. The study attempts to analyze the profile of IT industry at Bangalore by 2005 with the following objectives:

- Inventory of firms of the IT industry in Bangalore city, classified by type of management and nature of activity.
- Employment generation in the IT industry by type of employment and by gender.
- The socio-economic status of the IT employees, with special emphasis on women employees.
- To estimate the employment turnover and export potential in the IT industry by the year 2005.

2. CONSTITUENTS OF IT INDUSTRY & GEOGRAPHICAL AREA FOR THE STUDY

- All software firms
- Hardware firms, whose products are used in computers and networks
- All software and hardware training institutions
- The study area is Bangalore Urban District, i.e. Bangalore and its environs

3. SURVEYS FOR THE STUDY & SAMPLE SIZE

The surveys were conducted between December 1998 and February 1999 in three stages. Data was collected by canvassing structured questionnaires. Taking time and financial factors into consideration, it was decided to restrict the investigation to 40 per cent of the total. In all 653 firms were covered by the study. For a detailed investigation, 100 out of the 653 firms were selected. Information was also collected from 200 employees of these firms. Besides the field survey, a number of group meetings were held with IT professionals to obtain their opinions, views and perceptions.

Table EB 1: Sampled IT firms by type of activity and management

Activity		Management				Total	% to total
		Govt.	MNC	Ind. & Ltd	P&P		
Software	a) number	1	27	202	114	344	52.7
	b) % to total	0.3	7.8	58.7	33.2	100.0	
Hardware	a) number	-	1	33	56	90	13.8
	b) % to total		1.1	36.7	62.2	100.0	
Maintenance & distribution							
	a) number	1	1	36	53	91	13.9
	b) % to total	1.1	1.1	39.6	58.2	100.0	
Training	a) number	-	1	48	79	128	19.6
	b) % to total		0.8	37.5	61.7	100.0	
Total	a) number	2	30	319	302	653	100
	b) % to total	0.3	4.9	49.3	45.5	100.0	

4. TYPE OF MANAGEMENT & ACTIVITY

The type of management and activity have direct influence on turnover, employment, export and other aspects of the IT industry. MNCs and software companies dominate the IT industry. The contribution of P&P firms and training institutions have shown the lowest figures in the IT industry. The M&D sector has shown a better performance than the hardware sector. The overall performance of the Ind. & Ltd firms is also good but lesser compared to that of the MNCs.

5. TURNOVER BY MANAGEMENT & ACTIVITY

About 35 per cent of the firms reported an annual turnover that is less than Rs.2 million and 7 per cent firms an annual turnover of more than Rs.200 million. Type of management and size of the unit appear to have a bearing on the annual turnover. None of the MNCs have an annual turnover of less than Rs.2 million, while 13 per cent Ind. & Ltd firms and 66 per cent P&P firms have an annual turnover less than Rs.2 million. On the other hand, 60 per cent MNCs, and 9 per cent Ind. & Ltd firms have a turnover of more than Rs.200 million.

Among the firms that have furnished information pertaining to turnover, about 17 per cent software firms, 23 per cent hardware firms, 33 per cent M&D firms and 62 per cent training institutions have a turnover less than Rs.1 million. The age distribution of firms with a turnover of more than Rs.100 million is as follows: 12.4 per cent software firms, 11.4 per cent hardware firms, 5.1 per cent M&D firms and 1.3 per cent TIs.

The number of firms with a higher turnover is the highest in the software sector, followed by hardware & M&D sectors and TIs.

6. TYPE OF OPERATION

Majority of the firms reported independent operations. About 11 per cent of the firms reported joint venture operation while 7 per cent firms reported sub-contract operations.

7. LOCATION OF IT FIRMS

The activities of a few IT firms are being carried out from different locations in the city. This could be due to lack of availability of space in a single location or decentralised operations may be more beneficial for the firm, especially if it belongs to the M&D sector or is a training institution. Some Ind. & Ltd and P&P firms have more than 3 units in the city. MNCs appear to have a tendency to centralize their activities at a single location.

- More than 82 per cent of the IT firms have branches. All MNCs, 77 per cent Ind. & Ltd firms, and 87 per cent P&P firms have units outside Bangalore. These firms might have attempted decentralisation to acquire business from other areas and also to exploit the availability of trained manpower in those places.

- All the MNCs, 22 per cent of Ind. & Ltd firms and 5 per cent P&P firms have units outside the country, indicating the global network of IT offices.

8. TENURE OF ACCOMMODATION

Many IT firms, even those with national and international links do not have buildings of their own for their offices. About 61 per cent MNCs, 82 per cent Ind. & Ltd firms and 81 per cent P&P firms operate from rented buildings.

Most of the IT firms are located in residential areas. Co-existence of these firms in residential areas without any opposition from local residents appears to be an unique feature of the IT industry.

9. GROWTH RATES

Prior to 1980, the city had 11 IT firms, one each belonging to MNCs and P&P firms, while the remaining 9 belonged to Ind. & Ltd companies. During the period 1980-89, 89 firms were added to the industry, at an average of about 10 firms per year. The growth of the industry picked up during the nineties. The big boost to the industry, in terms of the number of firms, came in 1994 and there has been no decline in the trend since then. The significance of this period was the entrance of MNCs in a big way.

Table EB 2: Age structure by management

Year of establishment (Age)	MNC	Ind. & Ltd	P&P	All
Prior to 1980 (>18 years)	3.1	2.8	0.3	1.7
1981 to 1989 (10 to 18 years)	6.3	17.5	10.7	13.9
1990 to 1993 (6 to 9 years)	15.6	25.5	28.0	24.5
1994 to 1998 (1 to 5 years)	75.0	57.3	61.0	59.8
Total	100.0	100.0	100.0	100.0

10. TURNOVER

The total turnover of the IT industry in 1997-98 is estimated to be Rs.61,068 million. Software companies account for 70 per cent of the turnover, followed by M&D firms with 19 per cent, hardware companies with 10 per cent and TIs with 2 per cent.

Table EB 3: Annual percentage growth rates in 1994-98

Activity	% Annual growth rate 1994 to 1998	
	No. of firms	Turnover
Software	20.4	28.0
Hardware	11.2	19.8
M&D	13.9	29.1
TIs	19.1	6.1

11. Exports

The total exports, during 1997-98, are estimated to be Rs.24 billion. Software companies account for 97 per cent of the total exports. Exports constituted about 37 per cent of the total turnover of the IT industry.

12. Investment

On an average the extent of investment in the software sector is the highest compared to the other sectors of the IT industry. It is the least in case of training sector.

Table EB 4: Average investment by activity

Activity	Average investment per firm (Rs. million)
Software	32.8
Hardware	7.1
Maintenance & distribution	17.0
Training	2.6
Average/Total	21.3

13. Employment

The main input in the IT industry is trained and highly skilled manpower. The estimated employment in the IT industry in 1997-98 is about 60,350, out of which 21 per cent are women in general and in case of MNCs, nearly 25 per cent of the total workforce are women.

The employment generation per firm by type of activity also varies. About 78 per cent of the employment is generated by software firms, followed by hardware and M&D firms, each generating about 8 per cent of the total employment. The TIs employ 5 per cent of the total workforce.

14. Quality and Availability of Trained Manpower

The firms reported that the general quality of training imparted in India is in tune with the industry needs. About 5 per cent of the firms reported the quality of training as excellent, 46 per cent of the firms reported it as good and another 45 per cent reported it as adequate. In all, 96 per cent of the firms reported that the quality of training matches the requirement of the industry.

However, quality of training in the area of domain expertise appears to be inadequate. This is substantiated by the fact that, quite a few firms have expressed the need to strengthen IT training by suitably changing the curriculum.

It appears that trained manpower is in short supply to the needs of the industry. About 14 per cent of the firms reported that trained manpower is inadequate in comparison to their needs.

15. PREFERRED QUALIFICATIONS IN EMPLOYEES

The most preferred qualifications, the IT companies expect in their prospective employees, are listed below in descending order of importance.

- Graduate (Engineering)
- Special IT training
- MCA
- Polytechnic
- Post-graduate
- MBA
- Graduate (others)

Irrespective of qualifications, the industry prefers special IT training and orientation by TIs, in its employees. In the sample of employees working in the areas of software and hardware, about 26 per cent have a professional degree, whereas most of the employees working in the training institutions have a general degree and only 14 per cent have a professional degree.

16. SALARIES AND WORKING HOURS

The industry feels that the salary levels in the industry are low compared to the international level. About 52 per cent of the firms are of the opinion that the salary levels are low, while another 20 per cent feel that they are substantially low. About one-third of the firms rated their salaries to be comparable with international level.

The professionally and technically qualified employees draw a higher salary compared to employees with general qualification. An employee in administration with professional qualification draws a salary as high as Rs.92,000 per annum, while an employee in the professional group with technical qualification draws Rs.115,140 per annum.

The salary structure of female employees is low compared to that of their male counterparts. This is due to their late entry and also due to the fact that a higher proportion of women are employed in low paid jobs such as computer operators, secretaries and in teaching institutions. The difference in qualifications between male and female employees may also explain the difference in the salary structure. About 69.2 per cent male employees have a professional or equivalent degree as against 34.5 per cent female employees.

The industry feels that flexible working hours are ideal for some employees only. About 50 per cent of the companies are in favour of flexible working hours for a particular category of employees, while 34 per cent do not have a specific preference for fixed working hours. Only about 11 per cent of the companies expressed that flexible working hours are ideal for all employees.

17. DEMAND OF COURSES IN TRAINING INSTITUTIONS

The major demand in training institutions is for basic courses, followed by application and long-term courses. Though training institutions offer a variety of courses, 42.6 per cent of the students enrol for basic courses, 21 per cent for application courses, 12.4 per cent enrol for long-term courses and only 5.4 per cent have taken up system level programming.

The average fee for a training course in IT varies widely from as low as Rs.2,169 for a basic course to as high as Rs.26,143 for a mainframe course.

18. AGE GROUP AND MARITAL STATUS

The age distribution of employees in the industry is skewed towards youngsters, and in terms of proportion, female employees are younger than the male employees. More than half of the employees are below 25 years.

Most of the employees are not married. This percentage for male and female employees is 83.6 per cent and 75.9 per cent, respectively.

19. WOMEN EMPLOYEES

The industry feels that female employees are as suitable as male employees for the job. About 61 per cent of the firms expressed that there is no difference in performance of work between male and female employees. Another 34 per cent felt that females are more suitable for certain types of jobs compared to males. The overall performance rating of female employees is higher than the male employees. Further, 96 per cent of the companies reported that they do not face any problems with the female employees.

Among married female employees, 63.3 per cent got married after taking up employment and half of them reported that their employment helped them to get married. About 53 per cent married women have children, out of which 69 per cent have elderly people in their houses to take care of the children.

Most of the women employees reported that they have adequate/moderate time to spend with family members and children.

There appears to be an attitudinal change in the household environment of married women employees. The understanding and amicability between the women and their spouse is very high in 74 per cent of the cases and satisfactory in 20 per cent of the cases. Two out of three women reported that their spouses regularly help in the household work and are being consulted regularly in the affairs of the family. Nearly 84 per cent of the women participate in decision making in the affairs of the family.

20. PERCEPTIONS ON ADVANTAGES AND DRAWBACKS OF BANGALORE CITY

The main advantages the IT industry enjoys at Bangalore are listed below, in descending order of importance.

a) abundant trained manpower

b) climatic conditions

c) location of the city

d) availability of infrastructure

e) the cosmopolitan nature of the city

A list of the main drawbacks as perceived by the companies in the IT industry is provided as follows:

a) infrastructure

b) unreliable power supply

c) supply lack of Government supportive policies

d) high real estate values

e) financial support

Though infrastructure has figured both in advantages as well as drawbacks, it has a higher rank in drawbacks compared to advantages, indicating inadequate infrastructure.

In the type of support required from the Government, by the IT industry at Bangalore, financial assistance figured first, followed by minimal procedure for sanctions, provision of basic infrastructure and non-interference from the Government.

21. IT INDUSTRY BY 2005

The total number of IT firms in Bangalore were estimated to be around 1398 in 1997-98, comprising 711 software firms (50.9%), 221 hardware firms (15.8%), 212 maintenance & distribution firms (15.2%) and 254 training institutions (18.2%). By the year 2005, Bangalore may have about 4460 IT companies comprising 2606 software firms, 463 hardware firms, 526 M&D firms and 863 training institutions.

The survey covered 47 per cent of the estimated number of firms in Bangalore.

The turnover and employment situation in the IT industry by 2005 has been estimated under three scenarios ranging from highly optimistic to conservative assumptions in the first decade of the new millennium.

Table EB 5: Summary of projections under three scenarios

Projected items	Scenarios		
	I	II	III
a) Number of firms	4,458	4,458	4,458
b) Turnover (Rs. in billion)	1,093.8	824.3	469.1
c) Exports (Rs. in billion)	484.3	364.9	195.8
d) Employment Total	526,237	396,324	219,397
Males	395,091	298,205	164,684
Females	131,146	98,119	54,713

The other major observations and policy issues are:

- The type of management and size of the firm hold the key in future.
- The industry may notice either "acquisition or amalgamations" of smaller units.
- Higher share of women workforce, i.e. more than 25 per cent.
- An overall improvement in quality of training & frequent curriculum changes by TIs.
- The IT industry may seek more concessions on tax structure and financial investments.
- Availability of reliable infrastructure and trained manpower determines the location.
- Liberal financial assistance to smaller units of the IT industry.
- Tapping the domestic market to improve the turnover.
- Hardware and M&D sectors need a boost from Government policies, in terms of excise duty, service tax, etc.
- Need assessment on the role of small and medium size firms.
- Implementation of recommendations of the task force on excise, export and import.