

## CHAPTER 21

# INFORMATION TECHNOLOGY

Information and Communication Technology (ICT) today permeates almost every sphere of human endeavor. ICT is one of the World's fastest growing economic activities and investment in Information and Communication Technology has the largest multiplier effect rippling through the economy.

21.2 Indian IT Software and Services Industry accounted for about 2.4 per cent of India's GDP and 20.4 per cent of exports in 2002-03 and is projected to account for seven per cent of India's GDP and 35 per cent of exports by 2008. It is expected to provide employment to 6.5 lakh IT professionals.

21.3 Southern States are ahead in attracting leading multi national companies for the ICT sector into their hi-tech international software parks. Growth of software industry in four Southern States is given in Table 21.1

21.4 For Kerala, ICT is probably the major industry other than tourism that can come up in a big way. With competitive communication cost, well-developed infrastructure and a huge pool of English speaking and computer literate graduate manpower, apart from highly skilled professionals, Kerala rates higher than many other Indian States as a potential hub for ITES industry, call centres and medical transcriptions. The IT policy of the State Government highlights the need to develop the ICT Industry and the need to strengthen

Technopark and Infopark to lead Kerala to the forefront of the ICT revolution and make the State 100 per cent digital.

21.5 Compared to the potential, the growth of the sector in Kerala has been lowest. The State has nevertheless made steady progress in ICT sector in terms of investment, infrastructure development and employment generated through focused initiatives of the IT Department. A significant stride in the sector during the last year has been its conscious march towards taking IT to the common people by implementing Akshaya, in the district of Malappuram. Kerala is the first State in India to have a district with 100 per cent household e- literacy. Now Akshaya is being replicated in seven more districts.

### BOX-21.1

#### Highest Tele-density

The seemingly unsatiable appetite of Keralites for telecommunication facilities is poised to take the tele-density in the State far above the national level to touch a new bench mark of 20 telephones per 100 persons in the State by mid 2005. This would be roughly double the expected national average tele-density in mid 2005. As per the National Telecom Policy of 1999 the target for tele-density in the country is only 15 per 100 population by 2010. Source: Annual Report 2003-04, Ministry of Telecommunication & IT, GOI

**Table 21.1**  
**Growth of Software Industry in Southern States**

(U.S.\$ Million)

State	1998-99		1999-2000		2000-2001		2001-2002		2002-2003	
	Units	Export	Units	Export	Units	Export	Units	Export	Units	Export
Tamilnadu	166	300.37	601	446.41	757	681.45	865	1145.40	936	1384.98
Karnataka	271	678.24	782	1072.89	812	1639.7	1038	2171.71	1154	2708.30
Andhra Pradesh	92	139.04	346	247.00	1206	419.24	1680	595.32	2015	804.38
Kerala	54	11.38	174	15.63	229	25.56	250	32.23	277	36.18

Source: STPI-Thiruvananthapuram

21.6 The investments in ICT sector in the State cover five major categories viz. (1) Infocoms (Telecoms) (2) Infrastructure, (3) Industry (Hardware and Software) (4) Training and (5) E-governance. It is estimated that about one lakh people are directly or indirectly employed in ICT sector in the States. The total investment in the ICT sector are the last four years is estimated to be roughly Rs. 6250 crores. The overall growth percentage has been 25 per cent.

### 1. Infocoms

21.7 One of the most notable achievements in the infocoms sector during the year has been the mass deployment of wireless Internet technology in Malappuram to the rural locations, throughout the Akshaya centres in Malappuram. Now Malappuram has broad band wireless access connecting all Village Panchayats in the district. This is one of the largest deployment of wireless IP network anywhere in the world.

21.8 The year under review also witnessed consolidation of existing telecom infrastructure, backed with the launch of new services and rapid expansion of cellular/mobile phones segment. The number of mobile phones in Kerala has doubled within one year from 8.91 lakhs to 17.85 lakhs as on October 2004. As per estimates during October 2004 about 2450 mobile connections were being taken every day in place of 277 during 2001. Investments of major Infocom companies namely Reliance, Bharti and Asianet availing the Rights of Way Policy and ongoing support extended to build a wired State touched nearly Rs.4500 crores which is just 50 per cent higher

than that of the previous year. Leading Infocoms investors, VSNL and BSNL have also expended their facilities in Kochi and other parts of Kerala. Kochi continues to be bandwidth surplus in the region improving the prospects of setting up bandwidth intensive ITES companies in the State. The annual turnover of this sector is estimated to be approximately Rs.2500 crores, which is about 39 per cent higher than that of 2002-03.

### 2. Infrastructure

21.9 Creation of ICT infrastructure in terms of built up space matching with the demand from IT/ITES companies is of prime focus. Technopark provides world-class infrastructure environment for IT companies in a 143.64 acres campus in Thiruvananthapuram. The infrastructure offered includes land and 12,12,000-sq. ft. built-up space. Kochi Infopark has a built up space of 1,20 000-sq. ft. Construction of the modern state-of-the-art 2,20,000 sq. ft premium space in Kochi will be over shortly. Private sector companies have also come forward to invest in creating ICT space of about 33000 sq. ft in Kochi which is almost ready. To benefit the start up companies 20000 sq. ft space was created in Kochi ITES habitat which is also functioning as an Incubator and five companies have already started functioning in this facility. The total built up space available in the State stands at over 2 million sq. ft spread over in the IT parks at Thiruvananthapuram, Kochi and Kozhikode.

21.10 ICT infrastructure created in various parks is given in table 21.3

**Table 21.2**  
**OFC Connectivity**

OFC Cable laying (length-Km)	Achievement on date
Reliance	2413
Bharti	917
Asianet	310
Bharti + Asianet	325
BSNL	1111 digital exchanges
Cochi - SEA-ME-WE-3 Bandwidth availability by VSNL	Expansion work
Investment upto March 2003	Rs. 3000.00 Crores
Investment during 2003-04	Rs. 750.00 Crores
Investment upto March 2004	Rs. 3750.00 Crores

Source: IT Department

**BOX-21.2****Kochi as Top Destination for ICT**

Kochi has been ranked by NASSCOM as one of top destinations for ITES operations and 70 percent of India's Data Traffic currently flows through Kochi Gateway.

**BOX-21.3****Technical & Support Infrastructure in Technopark**

- Uninterrupted Power Supply
- Water Supply System
- Fire protection system
- Communicative Net Work
- Techno Mall Business Centre
- Technopark Resource Centre
- Convention Centre
- Technopark Club
- Business Value Added Services – Technopark Software Engineering Competency Centre ( TSECC) and Technopark Business Incubation Centre ( T – B IC)
- Technopark Project Facility Centre
- Banking facilities

21.11 In view of the potential for growth of industry in the State and for future requirements, action has been initiated to acquire 92 acres of land in Thiruvananthapuram near Technopark campus and 135 acres of land in Kochi near Infopark campus.

**Table 21.3**  
**ICT Infrastructure**

Infrastructure created	Cumulative upto March 2003	During 2003-04	Cumulative upto March 2004
<b>Thiruvananthapuram</b>			
<i>Technopark</i>			
Land (acres)	182*	20	202
Built-up Space (Sq. ft.)	1500000	..	1500000
Investment (Rs. Crores)	145	10	155
<b>Kochi</b>			
<i>KEPIP/Infopark</i>			
Land (acres)	260	..	260
Built-up Space (Sq. ft.)	300000	..	300000
Investment (Rs. Crores)	35.00	20.00	55.00
Park Infrastructure			
Investment (Rs. Crores)	20.00	5.00	25.00
<i>ITES Habitat</i>			
Built-up Space (Sq. ft.)	20000	..	20000
Investment (Rs. Crores)	2.00	2.00	4.00
<i>Kozhikode</i>			
KITEL Park			
Land (acres)	10	..	10
Investment (Rs. Crores)	13.00	..	13.00
<b>Total</b>			
Land (acres)	452	20	472
Built-up Space (Sq. ft.)	1820000	..	1820000
Investment (Rs. Crores)	215.00	37.00	252.00

\* Includes 26 acres at Akkulam

Source: IT Department

21.12 Currently 64 companies operate from the Technopark campus providing direct employment to around 7000 professionals and training to 1500 software engineers in Tata Consultancy Service and around 500 students in IIITM –K and Technopark Project Facility Centre (TPFC), PARK Centre. These companies include 4 CMM level five companies, 2 CMM level three companies and over ten ISO certified companies. In Kochi Infopark, 24 companies, mostly foreign, give employment to 650 persons. The total turnover of the companies in Technopark is Rs. 230 crores and the details are given in Table 21.4

**Table 21.4**  
**Turnover of Technopark Companies**

Particulars	Rs. lakhs			
	Foreign Turnover	NRI Turnover	Domestic Turnover	Total
Software	9593	8325	3682	21600
Hardware	1200	200	0	1400
Total	10793	8525	3682	23000

Source: IT Department

**BOX-21.4**

**International Standard Park**

Designed to International standard, the Technopark at Thiruvananthapuram is the one and only CMMI level for assessed Technology park in the country and provides a serene environment with high quality support infrastructure at low cost for IT / ITES Companies.

21.13 Since STPI – Thiruvananthapuram came into existence, 290 companies have been registered and 120 companies are exporting software regularly. During 2003-04 twenty three units have been registered under STPI-T showing a decline in registration by 15 per cent. But the exports recorded a steady growth from Rs. 165 crores to Rs. 218 crores during 2003-04 (24%). Though STPI centres were started in Kochi, Kozhikode, Palakkad, Thrissur and Kollam in addition to one at Thiruvananthapuram, they have not attracted any serious software export firm. A Smart Business Centre (SBC) at the SDF – IT building in the Infopark which is described as the country’s first state-of-the-art ‘plug and play’ facility offering an environment for companies to

begin operations promptly has been started.

**3. IT Industry (Software and Hardware)**

21.14 IT hardware sector (assembling and components) also recorded healthy growth in the year 2003-04. Domestic IT Hardware turnover for 2003-04 was Rs. 600 crores. Hardware assemblers and vendors in the State occupy a major space in Kerala’s ICT Industry Scenario and employ around 20,000 people. There are about 2750 units under small-scale enterprises in the State in this category. About 350 small and micro software enterprises in the ICT sector account for a turnover of over Rs. 40 crores. This sector employs about 4000 IT professionals Statewide. During 2003-04 total export turnover in Hardware and Software comes to Rs. 465 crores by showing a growth of about 48 per cent. The hardware export is only from CEPZ units and in software Rs.

265 crores of export is from STPI units and Rs. 20 crores from units in CEPZ. During the year 2003-04 six major companies have invested in Kerala. They are:

- WIPRO Infotech
- Infosys Technologies Ltd
- Tata Consultancy Services
- Allianz Cornhill
- Ernst & Young
- Mickinsey & Co.

21.15 WIPRO Infotech will commence operations from the Infopark Kochi. They have also acquired 15 acres of land inside the Infopark for building their own campus and are in the process of acquiring additional 25 acres of land. New BPO companies from UK like Astron Alamy Images, Shertson Educational Software, RM Plc. etc have also commenced operations in the State.

21.16 The Investment Promotion and Management Cell (IPMC) provides Investment guidelines to new companies and extending financial incentives as per the IT policy of the Government. It coordinates with the Government for grant of necessary clearness to the investors and the completion of technical formalities at different levels. IT department initiated ITES

**BOX-21.5****Smart City, Kochi**

Dubai Internet City (DIC) has proposed to establish Smart City in Kochi, spreading over 400 acres of land. In the first phase, the State Government have offered to provide land on mutually agreed conditions. The project is expected to generate 33000 professional jobs within a period of three to five years.

training programme during 2003-04 to make available a highly skilled, readily employable human resources by the IT/ITES Industry. Pilot programmes were rolled out with the support of British Council for English Language Training.

21.17 Status of ICT Industry by March 2004 is given in table 21.5

21.18 On the basis of an extensive all Kerala study covering over 800 representative enterprises across different sectors, the size of the IT Industry in the State has been assessed as follows:

**Table 21.5**  
**Status of ICT Industry as on 31 March 2004**

IT Companies	No. of Industrial Units	Employment (Nos)	Domestic Turnover (Rs crores)	Export Turnover (Rs. crores)
Technopark STPI Companies	52			
Non-Technopark STPI Companies	268			
Total STPI Companies	320	3500	2.00	5.00
IT Companies-Technopark				
STPI Registered	52			
Non-STPI Registered	13			
Technopark Total	65	6500	30.00	260.00
CSEZ- Kochi Companies				
EOU(S/W)	4			
SEZ Unit (H/W)	14			180.00
SEZ Unit (S/W)	12			20.00
SEZ Total	30	3000		200.00
Hardware Assembly/Vendors	3000	25000	600.00	
Software Developers (Small & Micro)	450	5000	50.00	
<b>Grant Total: IT Industries</b>	<b>3865</b>	<b>43000</b>	<b>682.00</b>	<b>465.00</b>

Source: IT Department

**Table 21.6**  
**Size of the ICT Industries**

Item	No. of Entities	Annual Turnover (Rs. crores)	Direct Employment
Distributors, Vendors & Assemblers	2450	490.00	15000
Small & Micro Software Enterprises	300	30.00	3600
Training Institutes	2000	40.00	8000
Internet Cafes & DTP Centers	2500	35.00	4000
Medium & Large Software Companies	50	170.00	6000
Hardware Manufacturers	20	420.00	3800
Total	7320	1185.00	40400

Source: Sectoral Study Report on Electronics & IT – KSIDC

21.19 There are also a large number of one-man operations (about 4000) involved in the assembling of computers, each one assembling two to three computers in a month.

#### 4. IT Exports

21.20 Software export has acquired prominence not only in India's computer/ electronic sector but also in the export sector. The IT software and services industry has emerged as the biggest contributor towards India's exports and it is expected that by the year 2008 the industry would account for 35 per cent of the country's exports and 7.7 per cent of GDP. Software is now widely held as a major engine of growth and earner of essential foreign exchange.

21.21 The four southern Indian States account for about 45 per cent of the total software exports from India. The details of growth rate of software exports from southern States are given below in

Table 21.7.

21.22 Details of IT export for the period from 1999-2000 to 2003-2004 are furnished in Tables 21.8 and 21.9.

#### Human Resource Development

21.23 The State has 2850 ICT training institutes and 4200 Internet Cafes/DTP centres. About 12500 persons work in these training institutes accounting a turn over of Rs. 60 crores. In Internet Cafes /DTP centres 6000 people work with a turn over of another Rs. 60 crores. Buoyancy in ICT sector in terms of hardware, software, training etc was clearly evident in the year 2003-04 due to increasing number of educational institutions including schools setting up IT laboratories. Details of training institutes, Internet Cafe and growth of Internet service provides are given in Tables 21.10 & 21.11.

**Table 21.7**  
**Growth Rate of Software Export from Southern States**

State	1999-2000	2000-2001	2001-2002	2002-2003
Tamilnadu	48.62	52.60	68.08	20.92
Karnataka	58.18	52.36	32.44	24.71
Andhra Pradesh	77.64	69.73	42.00	26.00
Kerala	37.26	53.94	30.78	12.25

Source: STPI - Thiruvananthapuram

**Table 21.8**  
**Software Exports**

(Rs. Crores)

Year	STPI Units	CEPZ Units	Total
1999-2000	66.64	1.63	68.27
2000-2001	112.37	5.38	117.75
2001-2002	150	12.84	162.84
2002-2003	165	20	185
2003-2004	265	20	285

Source: IT Department

**Table 21.9**  
**Hardware Export (CEPZ Units)**

(Rs. Crores)

Year	Exports
1999-2000	120.81
2000-2001	157.84
2001-2002	113.43
2002-2003	130.00
2003-2004	180.00

Source: IT Department

**Table 21.10**  
**Training Institutes and Employment**

Item	No. of Units	Employment Created (Nos)	Investment (Rs. Crores)
Training Institutes	2850	12500	60.00
Internet Cafe /DTP Centers	4200	6000	60.00
Total	7050	18500	120.00

Source: IT Department

**Table 21.11**  
**Growth of Internet Service Providers**

Year	Active ISPs
2000-2001	4
2001-2002	6
2002-2003	7
2003-2004	10

Source: IT Department

### E-Governance

21.24 FRIENDS is a single window 'no queue' integrated remittance centre where the citizens have the opportunity to pay all taxes and other dues to the Government under one roof at no extra cost. Offering a comfortable ambience, each FRIENDS centre accepts payments of the Kerala University, local bodies, KSEB, KWA, Land Revenue, Civil Supplies, Motor Vehicles, BSNL and Electrical Inspectorate. Railway reservation facilities were arranged in two centres viz.

### BOX-21.6

#### Kerala's Advantages

##### Technology Advantages

- 100% of 988 telephone exchanges are digital
- 98% of telephone exchanges connected by OFC to the National Internet Backbone (NIB)
- Highest telephone density – 7 per 100 - India's 2005 target.
- SEA – ME – WE – 3 and SAFE Submarine landings
- 15 GBPs bandwidth supported
- VSNL's primary international gateway in India is in Kochi

##### Human Resource Advantages

- Highest density of science and technology personnel in India
- Lowest employee attrition rate in the country - < 5%
- 82 Engineering Colleges in the State
- Data base of readily employable graduate enabling internet ITES companies to excess the best of professional talent
- Training centres for ITES manpower pool

##### Cost Advantages

- A fully burdened cost of just US\$ 8 per hour when compared to the global average of \$ 15.
- Salaries - 1/5<sup>th</sup> of the International averages
- Operational cost < 50% when compared to other Indian Cities
- Rentals lower by more than 60% in companies to other Indian cities.
- Power and water tariff among the lowest in the country.

Wayanad and Malappuram and it is to be extended to Pathanamthitta also.

21.25 FRIENDS Janasevana Kendras are currently operational at all the 14 district headquarters. An average of 700 – 1000 people visit each centre every day. The increasing popularity of the facility can be gauged by the fact that the collection during 2003 – 04 has increased by more than 75% vis-a-vis the collection in the previous year. Number of transaction during the last four years is given in table 21.12.

**Table 21.12**  
**Transactions in FRIENDS**

Year	No. of Transactions	% Increase
2000-2001	123709	..
2001-2002	1026919	730.11
2002-2003	2023811	97.08
2003-2004	2632137	30.06

Source: IT Department

**BOX- 21.7**

**Key points for the success of FRIENDS**

- Single window facility for many services
- Properly trained employees
- Proper linking for digital to manual governance activities
- Separate units for linkages (Kudumbashree units)
- Comfortable environment for making payment
- Electronic queue management facilities
- 24 hours security arrangements
- Cash transaction arrangements through banks
- Technical help from qualified agencies
- Educated team for coordinated activities

21.26 Government of Kerala has prioritized the departments for computerisation on the basis of two parameters namely earning capacity and degree of citizen interface. The identified departments and agencies are Secretariat, Collectorate, Local Governments, Treasuries, Revenue, Registration, Employment Exchanges, Motor Vehicles, Civil Supplies, Water Authority

and KSEB. In the area of education the projects that have been accorded top priority include IT @ School, Education Grid connecting all technical institutions, Universities, Libraries, Research Institutions etc in the State.

21.27 Secretariat Wide Area Network Project aimed at networking the Secretariat and other public offices is intended to facilitate speedy disposal of files in the Government Offices. Twenty three District Treasuries and 165 Sub Treasuries in the State have already been computerised. Moreover 54 Sub Registrar Offices have been fully computerised using PEARL (Package for Effective Administrative of Registration Laws) and the remaining are expected to be computerised shortly. Palakkad collectorate has been completely computerised. The Department of IT along with the State Library Council has launched 14 Rural Information Centres in the rural libraries, one in each district.

21.28 Almost all the e-governance projects are under implementation for some years and are at various stages of completion. Determined efforts are necessary to complete them in all respects in a year so that full benefits of the large investments that have been made, could be reaped by the Government and the people.

**Citizen Call Centre**

21.29 Work relating to setting up of a call centre for multi purpose services such as details of Government programmes, help desks to access Government services etc has been completed. The call centre established adjacent to the Friends Centre at Thiruvananthapuram would provide information relating to citizen transactions over phone to the citizen of the State. The Call centre facility is the first of its kind in the country

**Akshaya**

21.30 Akshaya is an integrated attempt to address the most critical aspects of the digital divide in developing countries. The central component of the project is the creation of a public access ICT infrastructure and network of internet kiosks on the lines of STD/PCO model. In Malappuram 630 community ICT centres called Akshaya centres have been set by local entrepreneurs with bank support. The network of Akshaya centres has been utilised to implement a universal household E-literacy programme where by one

adult member of each family is imparted training in basic IT and use of internet. Six lakh people were trained in Malappuram. The project brought in private sector investments of over Rs. 30 crores in the first phase.

**IT @ School**

21.31 IT @ School project is to provide information technology enabled education to all high school children in the State for which an amount of Rs.1477.92 lakhs has been spent in the Tenth Plan till August 2004. Out of 2422 high schools 2050 schools are now covered under the scheme. Kudumbashree set up computer labs in 73 schools and in 1894 schools it is done by the concerned PTA. Details of implementation of the project are given in Table 21.13.

21.33 Two important projects that are being made available by the Edusat to the State are Tele-medicine and Tele-education.

21.34 The Tele-education project taken by the Education Department in association with ISRO envisages launching pilot projects in 42 Government high schools in Wayanad and lead schools from each educational district of the State. Multi media rooms and equipment are being installed in these schools for creating virtual class rooms from where students can participate and interact in sessions of expert teachers from all over the country.

**Table 21.13**  
**Statistics of Implementation of IT @ school**

1	Total No. of Govt. & Aided High Schools	2422
2	Schools having computer labs	2050
3	Of which schools having minimum five computers as per specifications	2050
4	Schools having computer labs but not upto the specifications	147
5	Schools without computer labs/computers	225
6	Schools where empanelled agencies set up computer labs	182
7	Of which schools where Kudumbashree set up computer labs	73
8	Schools where PTA set up computer labs	1894
9	Schools with internet connection	258

Source: IT @ school Progress Report, October 2004

**Edusat**

21.32 The successful launch of Edusat has opened up several possibilities for the State.

**Indian Institute of Information Technology and Management – Kerala (IIITM-K.)**

21.35 With a view to creating a pool of highly skilled IT professionals in the State, Government of Kerala set up Indian Institute of Information Technology and Management – Kerala (IIITM-K). Apart from conducting postgraduate programmes in IT, the Institute is also helping the government creating Education Grid, Kissan Kerala, Police Portal etc. Major Initiatives of IIITM-K are given below.

**IT Grid**

21.36 The project is executed by NIT – Kozhikode, CUSAT, Collage of Engineering, Thiruvananthapuram and IIITM-K.

**BOX-21.8**

**Potential Uses of Edusat**

- Online Education through Internet
- TV Broadcast
- Radio Broadcast
- Video Conferencing
- Asymmetric Internet through TVRO
- Voice Chat on Internet
- Webscan as Return Link
- Telephone as return Link
- Internet as Return Link

**BOX- 21.9****Major Achievements of Education Grid**

- Developed systems and competencies related to a wide variety of information systems needed in setting up the technology enhanced learning and teaching environment in the collages
- Understanding and development of the process of content design and development for the course in higher education that will assist in effective teaching and learning delivery
- Established and equipped the Education Grid Resource centres in NIT-C, CUSAT, CET, and IITM-K. All the resource centres have commenced some E-learning initiative in some of the courses.
- A UGC sponsored E-journals services network has been established across the four major universities of Kerala. The net work passes through the operation centre in IITM-K.
- Considerable training has been imparted to systems and network administrators across the Resource centres for managing the complex systems servers and information systems effectively
- Several courses on awareness building and usage of E-learning in the regular courses have been given to the teachers in the various colleges and Universities
- The plan to net work atleast 30 Institutions over the Education Grid services is being finalised in association with ERNET India and SWAN initiative of the Government of Kerala.
- Effective integration of EDUSAT services with the terrestrial broad band information and learning services

**KISSAN - KERALA**

21.37 Karshaka Information Systems, Services and Networking (Kissan – Kerala) project is executed and co-ordinated by IITM-K as a project of the Department of Agriculture. The project has successfully developed, commissioned and made operational at pilot level the following systems and services of value to the farmers and agricultural institutions.

- Agriculture call centre of Kerala - The toll free agriculture telephone call centre services
- Krishiyidapadam - TV Serial programme
- Virtual University for Agriculture Trade
- Major R & D in Agriculture Information

**Systems**

- Internet access for farmers in 10 Krishi Bhavans

**Police Portal for community Interaction**

21.38 The objective of the project is to bring the citizens and the police closer in solving several issues of traffic management, getting information faster on issues related to citizen's security needs curbing illegal activities etc. The project has completed the networking of all the city police stations and offices and is equipping them for effective service delivery.

21.39 SWOT analysis of IT industry in Kerala is given in Box 21.10

**BOX-21.10****SWOT Analysis****Strength**

- Availability and low cost of professionals at entry level
- Low attrition rate
- Technopark (World class facility at the lowest cost in the country)
- Adequate data communication bandwidth at lowest cost in the country at Kochi
- Relatively low cost of power
- Three International Airports
- Temperature, Climate, pollution free environment, Law and Order
- Adequate quality housing at low cost
- Good Schools and Hospitals
- Reasonably good urban infrastructure amenities
- Pro-active State Government Policies
- Reasonable track record of existing companies
- The Vast Kerala Diaspora.

**Weakness**

- Shortage of middle / senior level professionals
- Scarcity of extensive parcels of land
- Inadequacies and interruptions in Power
- Few direct connections to US and European destinations
- Sub – optimal domestic market size
- Inadequate base of entrepreneurs with international linkages
- Work disruptions like hartals
- Inadequate attention to City infrastructure
- Poor perception as an investment destinations.

**Opportunities**

- International demand
- NASSCOM's aggressive marketing of India
- Pro "IT – business" policies of Government of India
- Increasing outsourcing to India
- E-governance initiatives of Central and State Government
- Growing trend to create geographical redundancy.

**Threats**

Competition from other States