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**ELECTRONICS &
INFORMATION TECHNOLOGY**



Overview

The year 2004 marked a turning point in the history of global trade in services, with growing acceptance of IT based global delivery model. With ever increasing availability of international bandwidth and powerful workflow management software, it is now possible to disaggregate any business process, execute the sub-processes in multiple centres around the world, and reassemble it, in near-real time, at another location. This is driving fundamental changes in the global IT services landscape, vendors and customers are redefining the levels of value creation in the industry. In the wake of changing global service landscape, Indian Information Technology (IT) and IT enabled services (ITES-BPO) continue to chart remarkable growth.

The Indian software and services export is estimated at Rs. 78,230 crore (US\$ 17.2 billion) in 2004-05, as compared to Rs. 58,240 crore (US \$ 12.8 billion) in 2003-04. an increase of 34 per cent both in rupee terms and dollar terms. This segment will continue to show robust growth in future also.

Indian ITES-BPO sector industry continues to grow from strength to strength, witnessing high levels of activity – both onshore as well as offshore. Last year witnessed vendors moving up the value-chain to offer higher-end research and analytics services to their clients. Attrition levels also remained high, between 25-40 per cent, as demand for trained talent outpaced supply.

As export revenues from ITES-BPO grew from US \$ 2.5 billion in year 2002-03 to US \$ 3.6 billion in years 2003-04, an year-on-year growth of 44 per cent was achieved. In year 2003-04, ITES-BPO exports accounted for over 27 per cent of the total

export revenue earned by the Indian IT-ITES industry. The value of ITES-BPO exports from India is expected to exceed US \$ 5 billion mark in the year 2004-05.

The Indian IT success story has also highlighted India's attractiveness as an investment destination – also beyond the IT sector. Another key impact of the global sourcing model popularised by the growth of IT-ITES has been the reversal of the brain drain – as people of Indian origin (who went to pursue careers abroad), as well as young expatriates, are now attracted to work in India.

Indian IT-ITES growth has had a significant multiplier effect on the Indian economy. Apart from the direct impact on national income and employment, the sector has also contributed to the growth of several ancillary industries, a rise in direct-tax collection and an increase in consumer spend due to the significantly higher disposable incomes.

The rapid growth of ITES-BPO and the IT industry as a whole has made a deep impact on the socio-economic dynamics of the country. The sector has risen to become biggest employment generator with the number of jobs added almost doubling each year, has spawned a number of ancillary businesses such as transportation, real estate and catering, and has contributed to a rising class of young consumers with high disposable incomes.

The industry's contribution to the national economic output has nearly tripled-from 1.2 per cent in the year 1997-98 to 3.5 per cent in 2003-04. With this growth, the sector is estimated to account for 4.1 per cent of the national GDP in the year 2004-05.



The total number of IT and ITES-BPO professionals employed in India has grown from 284,000 in 1999-2000 to over 1 million in 2004-05, growing by over 160,000 in the last year alone.

National Plan on e-Governance

The Government has recognized the potential of Information and Communication Technology (ICT) for rapid and all round development in general and transforming governance in particular. For citizen-centric governance, it is imperative that benefits of ICT should be leveraged to reach the citizens within shortest possible time, in a reliable and cost effective manner. Citizens want a government that meets their needs, that is available when and where they need it, and which delivers services to them in a transparent way. By deploying ICT based solutions it is possible to provide government and other citizen-centric services to a much broader segment of population at optimal quality, time and cost.

The importance of e-Governance has been recognized in the National Common Minimum Programme which inter-alia states that e-Governance will be promoted on a massive scale. The 10-point agenda of the Minister for Communications & Information Technology announced for growth of Information Technology in the country, includes expeditious implementation of a National e-Governance Plan to bring about transparency in administration and to make government functioning more citizen centric.

Three important elements of the National e-Governance Plan, which form the core infrastructure for effective service delivery paradigm are Data Centres, State Wide Area Networks (SWANs) and Common Services Centres (CSCs).

For universal service delivery requirements, data may be required to flow to and fro, seamlessly between a service delivery point (or a local State Government office) located at Block level and a Data Centre located at a Departmental office in the State or Central Government Headquarters. This situation would require a seamless, highly reliable, wide band communication network within the State and also across the States. Such Wide Area Network should have inter-operability with

adequate standardization and security so that governance goals for government-to-government and government-to-citizen needs are met. The Department of Information Technology has given priority to establishment of State Wide Area Network (SWAN) as an element of the core infrastructure for supporting e-Governance initiatives

The State Wide Area Networks (SWANs) would be established linking the State Hqrs right upto the Block Hqrs. These networks would be connected to the NICNET through appropriate interfaces in the form of Gateways to enable inter-state connectivity. The Departments and other Government agencies would be able to carry out Government to Government (G2G) services and later Government to Citizen (G2C) services through SWAN.

Guidelines for technical and financial support for establishment of SWAN, up-to the Block level with a minimum Bandwidth of 2 MBPS to provide reliable backbone connectivity for e-Governance have been announced on October 20, 2004 and issued to all States to follow while preparing project proposals for establishing SWAN in the States.

The creation of dedicated service delivery outlets separately by each department is neither cost-effective for the government nor convenient for the citizen. Common access points combining central and state government services with private services are, therefore, envisaged. The Department, keeping in view the rural thrust in the Common Minimum Programme of the Government, intends to promote enabling environment by establishing Common Services Centres in the rural areas to provide government and private services.

The World Bank Identification Mission completed its deliberations with various stakeholders of National e-Governance Plan and have indicated possibility of US \$ 500 million financing for the National e-Governance Plan over a period of 5 years, of which US \$ 100 million could be on IDA terms and the remaining on IBRD terms.

e-Readiness Index

The Department has commissioned e-Readiness Assessment Study 2004 through the National Council of Applied Economic Research (NCEAR) for



the States and Union Territories. The report is likely to be released in March 2005.

.IN Internet Domain Name

In order to bring about a substantially increased proliferation of .IN Internet domain name, a new .IN Internet domain name policy framework and implementation plan has been formulated and the policy announced by the Government in October 2004. The new policy seeks to remove the restrictions in the existing procedures impeding the growth of .IN Internet domain name registrations, and aims at adopting a liberal and market friendly approach to register large number of .IN domain names. The policy has received wide acceptance countrywide. As a result of implementation of this policy, about 75,000 registrations were made online in the very first week of its opening up to public.

National Internet Exchange of India

The responsibility for implementation of the policy for .IN Domain has been entrusted with the National Internet Exchange of India (NIXI), a Section 25 Company promoted by the Department of Information Technology in association with the Internet Service Providers Association of India (ISPAI).

As part of its another role to facilitate improved Internet services in India, NIXI has already made its four exchange nodes operational at Noida (Delhi), Mumbai, Chennai and Kolkata, and as many as 40 ISPs have been connected with these nodes. Further, in order to address the problem of excessive cost of connectivity for Class B and C ISPs operating in secondary cities, the Department is considering a proposal to set up, in partnership with the State Governments and ISPs as stake holders, a second tier of NIXI hubs in a few selected provincial capitals.

Centre of Excellence in Wireless Technologies

A Centre of Excellence in Wireless Technologies (CEWiT) has been set up in Chennai, with the seed capital provided by the Department of Information Technology through Media Lab Asia, as a public-private partnership initiative to undertake research & development in the fast developing area of fixed/mobile wireless technologies, and work on creating newer technologies and solutions in the

area of next generation wireless communication. The intervention of CEWiT will not only address the problems in last mile connectivity for cost effective broadband communication services, but will also generate world class intellectual property to propel India to a global leadership position in this area.

Media Lab Asia

The Media Lab Asia (MLAsia) aims to research and innovate developments in the areas of information and communications technologies for the benefit of the poor and needy population. The MLAsia works with the academic/research institutions, industry, NGOs, and government to bring these innovations for the benefit of the masses.

MLAsia organized four sector specific National Workshops in Mumbai, Chennai, New Delhi and Kolkata in the areas of; - i) Cost effective rural connectivity ii) Information and Communication Technology (ICT) for improving health care services in the remote areas by using telemedicine and internet services, iii) ICT to improve education delivery and literacy, and iv) ICT for disabled. Based on the outcome of the workshops, teams have been constituted to work out specific projects in these areas.





Community Information Centres and Vidya Vahini Programme

The Department of Information Technology had taken up an initiative to set up Community Information Centres (CICs) in the hilly, far-flung and rural areas of the country to bring the benefits of ICT for socio-economic development of these areas by providing broadband connectivity. Based on the experience of the Community Information Centres (CICs) in North-Eastern States, it was decided to set up 135 CICs in all the Block Headquarters of Jammu and Kashmir. In the first phase of the scheme, 60 CICs have been made operational by October 2004 and remaining 75 CICs will be operationalised in the second phase by October 2005.

A project to set-up 41 Vidya Vahini CICs in the Government schools of Andaman & Nicobar and 30 schools in Lakshadweep has been taken up by the Department. The CICs would be utilized for education purpose by the schools and during the off school hours the set-up would be used by the general public to access citizen centric services.

The Department intends to set-up 328 CICs (95 CICs at the block level and 233 CICs at village level)

in an entrepreneurship mode in Uttaranchal. State Government would implement the project and meet 10% of the cost of the project, and also would ensure interfacing of CICs with their SWAN (State Wide Area Network) and NICNET.

Indian Language Technologies

India is a multilingual and multiscript country. There is, therefore, a need to provide user friendly and cost effective tools, applications and contents that enable access to ICT infrastructure in Indian languages. The Department is addressing the issues relating to linguistic data resource, content creation, language processing tools, and such technologies as optical character recognition, text-to-speech, speech recognition, cross-lingual information retrieval, and machine translation in multi-lingual environment. Standardization of internal storage codes, font codes, and lexical resources formats has also been undertaken. Knowledge networking between resource centres and industry, and entrepreneurship in Language Technologies are being promoted to achieve best results.

National Electronics/IT Hardware Manufacturing Policy

The Department has prepared a paper on 'National Electronics/IT Hardware Manufacturing Policy'. The strategy paper addresses issues on – Tariff policy, EXIM policy, Hardware Manufacturing Cluster Parks, supporting R&D, marketing Made in India, inviting large Electronics Manufacturing Service Companies to set-up Indian operations, development of semiconductor industry, labour laws, patenting, etc. The Tariff and EXIM policy matters have been taken up with the concerned departments. The draft paper has been referred to the National Manufacturing Competitive Council (NMCC) set-up to promote the manufacturing in India.

Software Technology Parks of India (STPI)

STPI acts as 'single-window' in providing services to the software exporters and incubation infrastructure to Small and Medium Enterprises (SMEs). During the year, the STPI has commissioned its new centres at Durgapur and Kharagpur in West Bengal, Imphal in Manipur and Gangtok in Sikkim. With the addition of these four new centres, STPI now has 44 centres across the



country. More than 5500 units were registered under STPI umbrella, out of which 4809 units are operational and 4088 units are exporting. Member units of STPI have exported software of over Rs.51,458 crore during the year 2003-04. The software exports from STPIs are likely to be around Rs 66,000 crore during the year 2004-05.

Information Security

Information Security is assuming vital importance with the wide spread of IT applications in commercial, strategic and other sectors in the country. The Standardization, Testing & Quality Certification (STQC) Directorate of the Department has established Information Security Management System certification framework under which a number of major IT industries and organizations have been certified as per BS 7799 Standard. STQC has also certified overseas clients like Doha bank, Qatar, Vertex and Polaris, USA. In association with the Institute for Development and Research in Banking technology, STQC has also developed guidelines for Banking & Financial sector for implementation of Information Security Management System and has also taken the lead in certifying Banks for Information Security Management System. Apart from certification, STQC has also been providing certified training courses in the area of Information Security and Penetration and Vulnerability Analysis services.

Broadband Economy

A Report on India's Broadband Economy: Vision 2010 was brought out jointly by the Department in

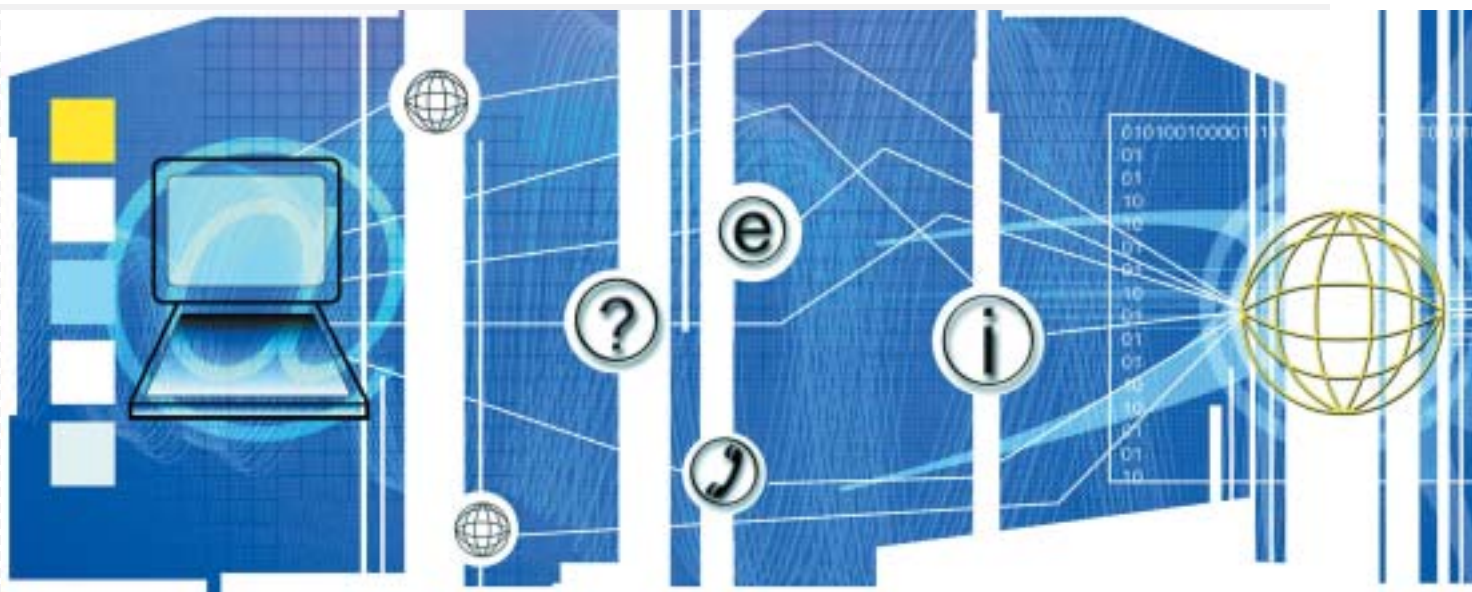
coordination with the CII. The Report has dealt with the fiscal, administrative and technical issues involved in the promotion of Broadband Connectivity and made specific recommendations for achieving the target of 10 million subscribers by the year 2010. The Internet subscriber base currently is 4.2 million. This study provided important inputs to the TRAI report on 'Broadband India : Recommendations on accelerating growth of Internet and Broadband penetration', which has recommended a target of 1.7% broadband access (about 20 million subscribers) and 3.4% Internet access (40 million subscribers) to be achieved by the year 2010. Broadband Policy - 2004 was announced by the Government on the basis of these reports.

Review of Information Technology Act

An Expert Committee on Information Technology Act has been set up under the chairmanship of Secretary, Department of Information Technology to review the IT Act and propose appropriate amendments in the light of the national and international developments post IT Act 2000. The Committee comprises government officials, private experts in legislative matters and industry professionals. The Committee is expected to submit its report by March 2005.

PC Penetration

The Department of Information Technology has identified increase of PC penetration and internet utilization/coverage in the country; and growth of domestic software market as the thrust areas for



action during next 2-3 years. A Working Group has been constituted with members from the industry and Government to examine issues related to these areas and make suitable recommendations for action to the Government as well as Industry.

Online Election Results, Budget and Examination Results

Online transmission of the Union Railway Budget and the General Budget was facilitated through NICNET for all over the country and was widely used by the Media, industry and other agencies. The Doordarshan, other Media and Government agencies used the NIC election feed back for providing live transmission of election results to the viewers.

NIC also published results of various examinations conducted by the CBSE, State Education Boards, Universities, Professional Entrance Examinations, Staff Selection Commission, Institute of Chartered

Accountants, etc., on its web server (<http://results.nic.in>). Facility to download admit cards for certain examinations directly from the net were incorporated.

ELITEX'2004

Electronics & Information Technology Exposition-2004 (ELITEX'2004), an exhibition and seminar to showcase technologies, products and services developed under the aegis of the Department of Information Technology, was held during 26-27 April, 2004 at India Habitat Centre, New Delhi. The theme of the ELITEX'2004 was - 'Technology Vision : India in 2010'. This event provided an opportunity for close interaction between academia, R&D institutions and industries. Three technologies developed by the Department institutions were transferred to industries for commercialization and 16 new products/ technologies were released during the Exposition.





Industry Profile

Policy Measures

Information Technology has come to be recognized as a key-leveraging factor in the National Development. It has a profound effect on other industries in increasing productivity and changing cost structure. Increasing dependence of economic activity on information, coupled with globalization of capital flows, trade, manufacturing, etc., have led Governments all over the world to play a proactive role in setting up and nurturing the development of competitive Electronics/IT industry in their respective countries. The Indian Electronics and IT industry is one of the fastest growing sectors of the Indian industry. India has the potential to develop and manufacture Electronics/IT Hardware for the global markets and gain higher global share besides meeting the country's future requirement in the converging areas of information, communication and entertainment.

The IT and Telecom hardware industry will be operating under a zero duty regime from the year 2005 onwards as a result of implementation of Information Technology Agreement (ITA-1) of WTO. A number of steps have already been taken to meet the challenge of zero duty regime in 2005. Tariffs have been rationalized on raw materials, parts, other inputs and capital goods to make the manufacturing in the country viable and competitive. Supplies of ITA-1 items and notified zero duty telecom/electronic items manufactured by Electronics Hardware Technology Park (EHTP)/Export Oriented Units (EOU)/ Special Economic Zone (SEZ) units in the Domestic Tariff Area (DTA) shall be counted towards fulfillment of export obligation by these units. Upto 100% Foreign Direct Investment is permitted on automatic route in the Hardware manufacturing sector. Foreign Trade Policy for Electronics and Information Technology Sector is liberal.

The Government has set up a National Manufacturing Competitiveness Council (NMCC) to provide a continuing forum for policy dialogue to energise and sustain the growth of manufacturing industry including IT Hardware. The Government has identified 'Conception and implementation of policies to promote growth of electronic and IT hardware manufacturing in India' as one of the thrust areas. In order to attract investments in the IT Hardware sector in India, Department of Information Technology had formulated a Draft Paper on 'National Electronics/IT Hardware Manufacturing Policy' after wide ranging consultations with industry associations and other stakeholders. The paper, which was widely disseminated, elicited enthusiastic support from the industry. The Tariff and Foreign Trade Policy proposals in the Draft Paper have largely been addressed for the Electronics/IT Hardware manufacturing sector whereas promotional and other measures contained in the draft paper are equally applicable for the rest of the manufacturing sector in the country. Therefore, the Draft paper has been referred to the NMCC. The NMCC has constituted a Sub-group on IT Hardware sector. Secretary, Department of Information Technology is a member of the Sub-group.

A number of policy measures were taken for supporting Electronics/IT Hardware manufacturing and export of services during the year. These are enumerated below:

Import of Second Hand Capital goods

Import of second hand capital goods including refurbished/reconditioned spares, has been allowed freely, subject to conditions for the following categories:

- The import of second hand computers including personal computers and laptops are restricted for imports.



- The import of refurbished/reconditioned spares will be allowed on production of a Chartered Engineer certificate that such spares have a residual life not less than 80% of the life of the original spare.

Notwithstanding the above provisions, second hand computers, laptops and computer peripherals including printer, plotter, scanner, monitor, keyboard and storage units can be imported freely as donations by the following category of donees

- School run by Central or State Government or a local body
- Educational Institution run on non-commercial basis by any organization
- Registered Charitable Hospital
- Public Library
- Public funded Research and Development Establishment
- Community Information Centre run by the Central or State Government or local bodies
- Adult Education Centre run by the Central or State Government or a local body
- Organization of the Central or State Government or a Union Territory.

EPCG Scheme

- Second hand capital goods without any restriction on age may also be imported under the EPCG Scheme.
- The export obligation under EPCG Scheme can also be fulfilled by the supply of Information

Technology Agreement (ITA-1) items to the DTA provided the realization is in free foreign exchange.

- EPCG licence holders can opt for Technological Upgradation of the existing capital good imported under the EPCG licence.

Procedural Simplification and Rationalisation Measures

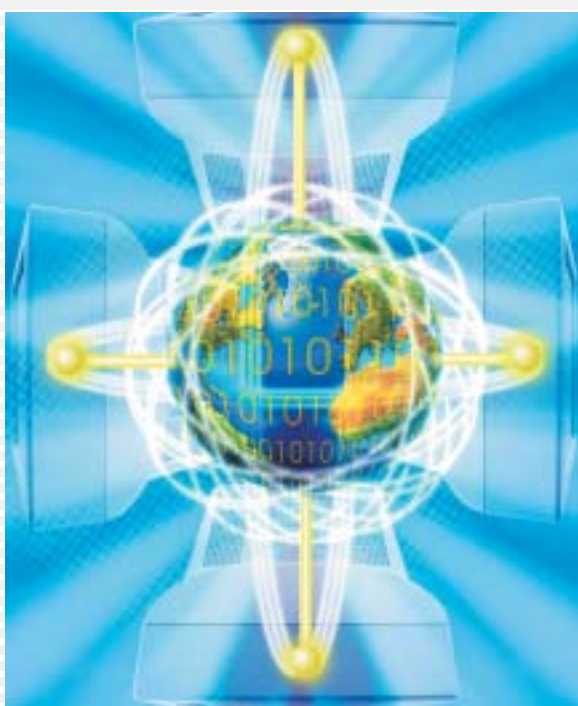
- All exporters with minimum turnover of Rs. 5 crore and good track record shall be exempt from furnishing Bank Guarantee in any of the schemes, so as to reduce their transactional costs.
- All goods and services exported, including those from DTA units, shall be exempt from Service Tax.
- Validity of all licences/entitlements issued under various schemes has been increased to a uniform 24 months.
- Number of returns and forms to be filed have been reduced. This process shall be continued in consultation with Customs and Excise.
- Enhanced delegation of powers to Zonal and Regional offices of DGFT for speedy and less cumbersome disposal of matters.
- Time bound introduction of Electronic Data Interface (EDI) for export transactions.

Served from India Scheme

The objective of the scheme is to accelerate the growth in export of services so as to create a powerful and unique 'Served from India' brand, instantly recognised and respected the world over. All service providers who have a total foreign exchange earning of at least Rs.10 lakhs in the preceding or current financial year shall be eligible to qualify for a duty credit entitlement. All Service providers (other than hotels and restaurants) shall be entitled to duty credit equivalent to 10% of the foreign exchange earned by them in the preceding financial year. Duty credit entitlement may be used for import of any capital goods including spares, office equipment, professional equipment, office furniture and consumables, related to the main line of business of the applicant.

Target Plus Scheme

The objective of the scheme is to accelerate growth in exports by rewarding Star Export Houses who have



achieved a quantum growth in exports. High performing Star Export Houses shall be entitled for a duty credit based on incremental exports substantially higher than the general annual export target fixed.

New Status Holder Categorisation

A new rationalized scheme of categorization of status holders as Star Export Houses has been introduced as under:

Category	Total performance over three years
One Star Export House	15 crore
Two Star Export House	100 crore
Three Star Export House	500 crore
Four Star Export House	1500 crore
Five Star Export House	5000 crore

Star Export Houses shall be eligible for a number of privileges including fast track clearance procedures, exemption from furnishing of Bank Guarantee, eligibility for consideration under Target Plus Scheme, etc.

Duty/Tariff Structure

Customs Duty

Peak rate of customs duty has been reduced from 20% to 15%. Customs duty on project imports with investment of at least Rs. 5 crore in plants and machinery is @ 10%. Customs duty on ITA-1 items (217 items) has been abolished from 1.3.2005. Customs duty on Metals (Ferrous & Non-ferrous), chemicals and plastics has been reduced from 15% to 10%. All goods required in the manufacture of ITA-1 items have been exempted from customs duty subject to Actual user condition. Customs duty on specified electronic components has been exempted except Deflection parts, Air cored and ferrite cored transformers, RF/IF coils and Loudspeakers (cone type). An additional duty of 4% has been imposed on items bound by IT Agreement (except IT Software) and their inputs, raw materials, parts, capital goods covered under various customs notifications. Specified capital goods required in the manufacture of capacitors, electronic fuses, TDM, DC micromotors, PCBs, Relays, Switches have been exempted from customs duty. Customs Duty on specified raw materials / inputs used for manufacture of electronic components or optical fibres / cables is @ 0%. Customs duty on specified capital goods used for manufacture of electronic goods is @ 0%. Specified infrastructure equipment for basic / cellular/

internet, V-SAT, radio paging and public mobile radio trunked services and parts of such equipment are exempted from basic customs duty. Customs duty exemption to mobile switching centres presently available to cellular mobile telephone service providers has been extended to imports by universal access service providers. Customs duty on cellphones, parts of Set Top Box continues at 0%. Laptops brought as part of baggage are exempted from customs duty. Customs duty on passenger baggage has been reduced from 40% to 35%.

Central Excise Duty

Excise duty on computers is @ 0%. Microprocessors, Hard Disc Drives, Floppy Disc Drives and CD ROM Drives continue to be exempt from excise duty. Pre-loaded software on PCs, Audio CDs, Recorded VCDs and DVDs, Cellular Phones, Radio trunking terminals, Portable receivers for calling, alerting or paging; parts, components and accessories of mobile handsets including cellular phones, Set Top Box remain exempted from excise duty.

Production Profile

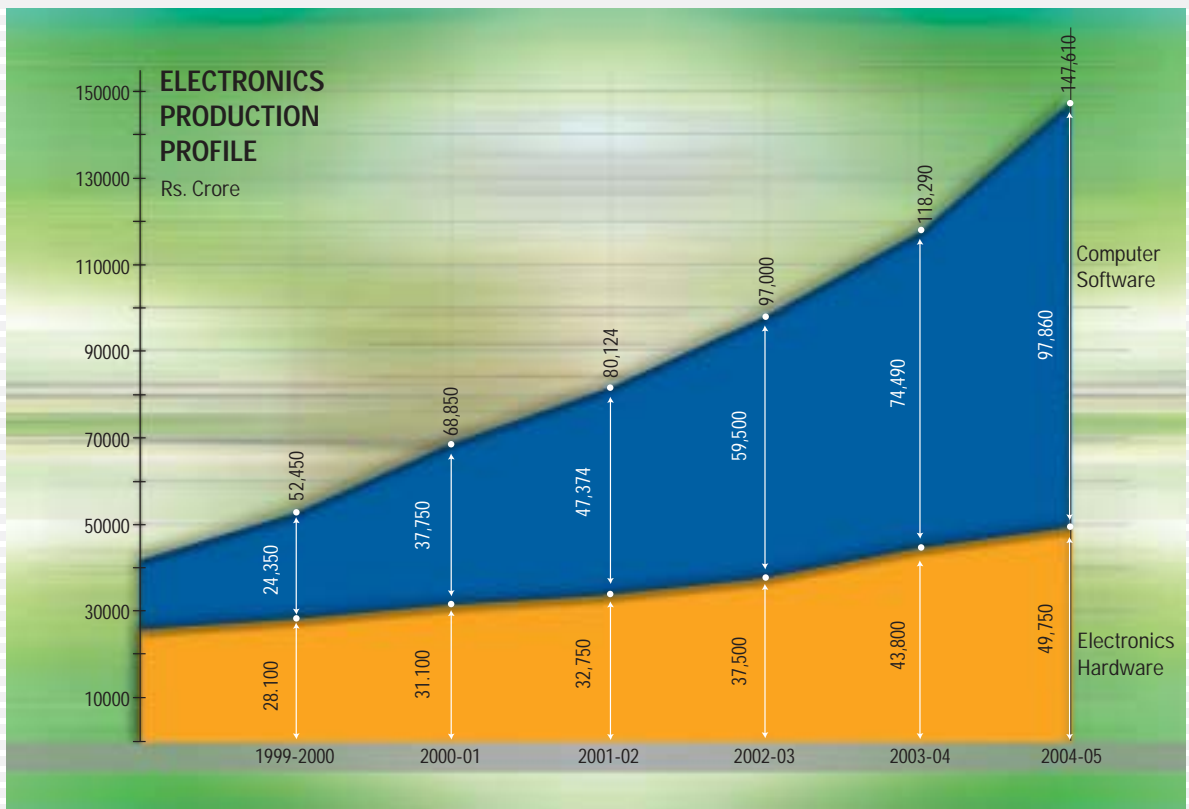
Computer software and ITES exports is estimated at US\$ 17.2 billion (Rs. 78,230 crore) from US \$ 12.8 billion (Rs. 58,240 crore) in 2003-04, an increase of 34 per cent both in rupee terms and dollar terms over the previous year.

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Consumer electronics sector is estimated to achieve a production level of Rs. 16,800 crore during 2004-05, as compared to Rs. 15,200 crore in the year 2003-04, thus achieving a growth of over 10%. The colour TV production is likely to shoot over 10 million units during the year 2004-05, against 8.9 million in the previous year. VCD/MP3 player sales have witnessed impressive growth.

Indian colour TV picture tube manufacturers have made huge investments for manufacture of pure flat picture tubes. The production of CPTs is likely to increase to 11 million numbers during the year.





The sale of personal computers has also increased to about 34 lakhs in numbers during the year 2004-05. The production in computer, instrumentation and communication industry is not matching growth in demand. The strategic electronics sector is showing a growth of about 11 per cent. Prices of colour TV and computers have also come down in consonance with the worldwide trend.

The production and growth trends during the last 5 year have been as follows:

Year	Production (Rs. Crore)	Growth (%)
2000-01	68,850	31.3
2001-02	80,124	16.4
2002-03	97,000	21.1
2003-04	118,290	21.9
2004-05	147,610	24.8

Consumer Electronics

The total production of Consumer Electronics is expected to increase to Rs. 16,800 crore during the year 2004-05, registering a growth of 10.5% over production in the previous year. The Consumer Electronics sector has been a catalyst for the growth of Indian electronics industry, contributing about one third of the total electronics hardware production. Colour TV is the largest contributor to this segment. During 2004-05, the production of colour TV is

expected to cross 10 million unit mark. Higher growth in flat screen TVs and large screen TVs is foreseen. With the growth in domestic demand, some companies have expanded their capacities or set up new manufacturing units for Colour TVs and other Consumer Electronics (CE) products. Encouraged with the potential for growth, some new global companies have set up operations and introduced their range of CE products. Further, OEM units have also strengthened their operations for supply of fully assembled TV sets as well as chassis, cabinet, remote controls, speakers, etc., to the branded players. Some Multi National Companies (MNCs) have recently announced setting up or expansion of R&D facilities in the country. India has emerged as an attractive destination for outsourcing. Multi National Companies are looking at servicing the markets of the Asian region through their facilities in India.

Production of flat screen TVs is estimated to be over 2 million nos. during 2004-05. There has been a phenomenal growth in production of flat televisions, which accounts for over 20% of the total colour TV production. About 85% of flat screen TV share is accounted by 21 inch segment in the country. Prices of entry level 21 inch flat CTV have dropped to Rs. 9,000. Demand for 29 inch flat colour TV is also growing at a rapid pace. CPT manufacturers have initiated setting up of production for 29 inch flat CPT,



which is likely to start commercial production in second quarter of 2005. Some companies have also introduced DVD combo flat TV. Keeping pace with the worldwide development, a number of companies have introduced hi-end TV, including Projection TVs, Plasma Display Panels (PDP) and Liquid Crystal Display (LCD) TVs. It is projected that LCD TV and Plasma will grow very fast and by the year 2008, out of the global demand of 197 million TVs, about 50 million will be LCDs and Plasma based. In terms of value, there is a huge global opportunity for LCD TVs and PDPs as both would yield about double the revenue of CRT based TVs. An Indian CPT manufacturer is considering to set up PDP line to cater to the growing demand. This facility would be based on indigenously developed technology.

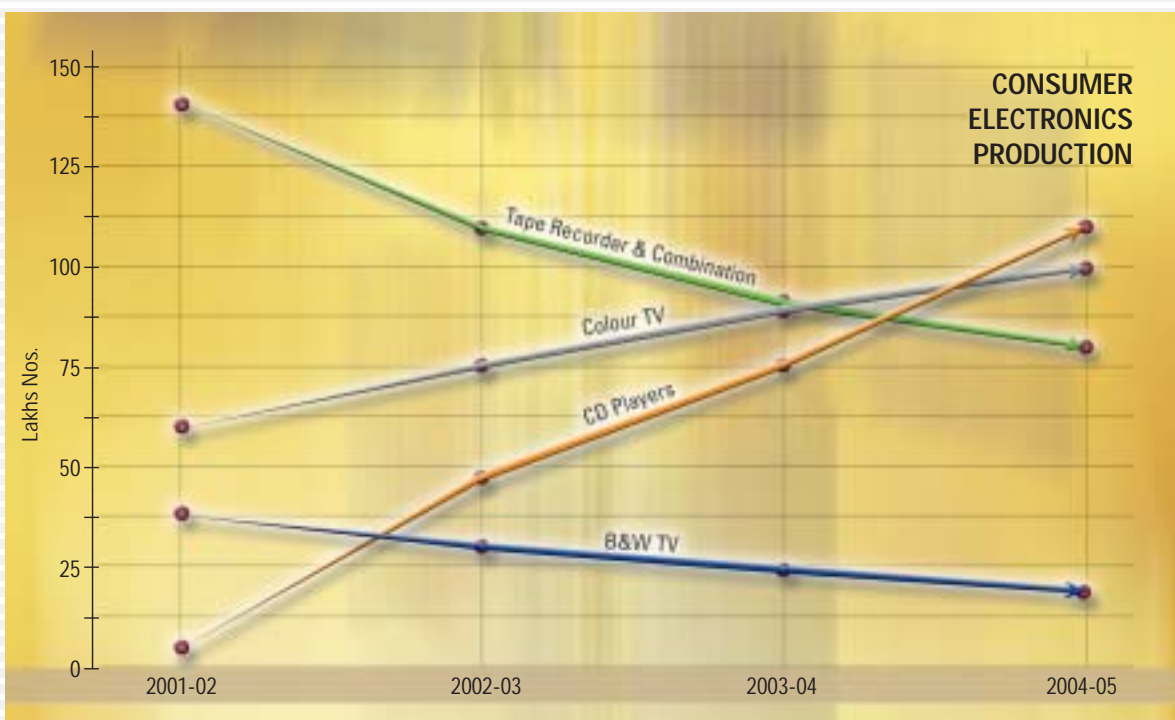
The TV manufacturing companies are using one chip TV solution which has brought down system cost as well as offering improved picture quality and more features. This also provides TV set manufacturers an approach for addressing worldwide markets having different standards through single chassis. Black and White (B&W) TV production has witnessed further decline as the prices by branded players increased following increase in excise duty to 16%. Availability of B&W glass shell is limited with the existing units slowly converting into colour glass shell. Production of B&W TV sets is estimated at 1.8 million Nos. during 2004-05.

In December 2004, Prasar Bharati launched Direct-to-Home (DTH) broadcasting service covering bouquet

of 30 TV+ Radio Channels (free to air), which is targeted at remote, hills and interior areas of the country where there is no TV signal or access to television is limited to one Doordarshan channel. To access the DTH service, a set-top box and a dish antenna will be required as one time investment. This has opened up an opportunity for manufacturing of set top boxes (STB).

A few companies have introduced audio system incorporating DVD Players. As the prices of audio CDs have reduced to almost at par with audio cassettes, CD based audio systems are growing and Tape recorder sets are declining both in volume and value terms. Popularity of Home Theatre System is driving growth of Hi-end audio equipment. The emergence of FM channels has contributed to the growth in sales of stand alone FM radios.

Home Theatre system are increasingly becoming affordable and have recorded significant growth in 2004-05. The market primarily comprises two segments - Home Theatre in a Box (HTIB) and high end Home Theatres, which is a package of DVD receiver with five satellite speakers and a powered sub woofer. HTIB accounts for about 60 per cent of the Home Theatre market and has tremendous potential for growth with improving lifestyles and increasing disposable income. Increased sale of DVD players, availability of DVD software at affordable prices is also contributing to the growth of this segment. Wireless home theatre systems are also gaining popularity.



There has been an impressive growth in sale of DVD players during 2004-05. A number of MNCs and branded players have entered this market, which is expected to record over 100% growth. There has been a sharp fall in prices of DVD players, which is in line with the trend in international markets. The sub Rs. 4000 DVD players represent the fastest moving segment. The difference between the cost of VCD players and DVD players has narrowed down significantly which has helped in driving growth of DVD Players. Slim DVD players have been introduced in the market with value added features like Dolby digital, 5.1 channel output, JPEG photo, Zoom and multi format disc compatibility.

VCD players are increasingly gaining popularity in rural areas and semi-urban areas due to their low cost and abundance of content at reasonable prices. The total production of VCD/MP3 players is estimated at 8 million nos. in 2004-05. This segment is dominated by unorganized sector. Some organized manufacturers of VCD Players have now started selling critical parts like MPEG Board to the assemblers in unorganized sector.

The microwave oven industry has continued to grow at the rate of 25-30% with significant reduction in prices as well as entry of more players in this segment. Manufacturers are incorporating latest features in their microwave oven range. These value added features are 3D wave distribution system, child lock, auto defrost, steam function, power saver technology, etc.

The production of electronic Clocks and Watches has grown marginally but it is declining in value terms due to reduction in the prices.

The production of recorded optical media covering audio CD, video CD and DVD is growing significantly as the penetration of VCD/DVD players is rising rapidly with decline in prices. During the year 2004-05, a number of CD/DVD replication units have come up and a large capacity has built up. Some units are also exporting recorded DVDs. The production of recorded audio cassettes continued to decline due to popularity of optical media and FM Radio.

During the year 2004-05, export of Consumer Electronics products is expected to rise substantially. Major items of exports are colour TV, B&W TV, PA systems, clocks and watches, video projectors, radio, recorded CD/DVD and electronic calculators.

Components

The colour picture tube industry achieved a landmark in the year as the production exceeded 10 million mark. The production is likely to touch a figure of 11 million numbers, a growth of 26.5% over the production in 2003 which was 8.7 million. The production of B&W picture tubes declined further due to decreased market for B&W TVs. Other than CPT, the components which showed positive growth were Optical Discs, PCBs, Connectors, Ferrites, etc. The total production of components is expected to increase to Rs. 8,800 crore, a growth of 11.3% over the production in previous year.

The components with major share in the export are floppy diskettes, CD-R, DVD-R, semiconductor devices, PCBs, connectors, ferrites, CPTs, etc.

Production of Major Components

Component	Production		
	2002	2003	2004
CPT (million no.)	7.50	8.70	11.0
B/W Tube (million no.)	4.10	3.20	2.0
PCBs (Rs. crore)	544	569	616
Connectors(Rs. crore)	300	330	384
Semiconductor (Rs. crore) Devices	322	278	340

Significant developments took place during the year in the area of colour picture tubes and colour glass parts. Another CPT manufacturer successfully launched manufacture of pure flat tubes, leading to availability of flat tubes from two indigenous sources. The number of pure flat tubes manufacturers is likely to increase to three in the next year as one more unit commenced trial production during the year. More than 30% of flat tubes market was met by the indigenous manufacturers. The growth in CPT industry was led by boost in export which doubled during the year over that in the previous year. The capacity utilisation of CPT industry improved appreciably due to increased production of lines which were commissioned in the previous year. The CPT units continued to plan further expansion of capacities to improve further their global competitiveness. Two more lines are likely to be commissioned in the next year, one for manufacture of large size flat colour picture tubes and the second for computer display tubes. Keeping pace with the downward trend in prices of color TVs, the prices of CPTs also fell.



One of the CPTs manufacturers has successfully developed Basic prototype of the 42" PDP and work is in advanced stage of developing a prototype, which will meet fully the commercial specifications as required by the market. This is planned to be completed by the end of year 2005. Next stage will be setting up a Pilot manufacturing line, which will be used in optimizing all process parameters for manufacturing Plasma display panels.

The color glass parts manufacturer implemented major expansion of its capacity to meet increased local requirement due to substantial growth in CPT production. The unit also started manufacture of glass parts for pure flat tubes as the demand for such tubes increased due to one more unit launching production during the year. Both the existing manufacturers of B/W glass parts continued the production of colour funnels in their existing lines. They were also planning to make large investment to set up manufacturing facilities for colour panels in near future.

In the optical storage device segment, an Indian company has the distinction of being the world's third largest manufacturer of optical storage media. The company was exporting around 80% of the

production to 82 countries across the world. The company was supplying to leading Original Equipment Manufacturers in the world and having a share of 18.5% of the global market share.

A number of existing units imported capital goods for under various schemes for expansion of their capacities in PCBs, connectors, cable assemblies, colour picture tubes, compact disc, glass parts for colour picture tubes, transformers, etc.

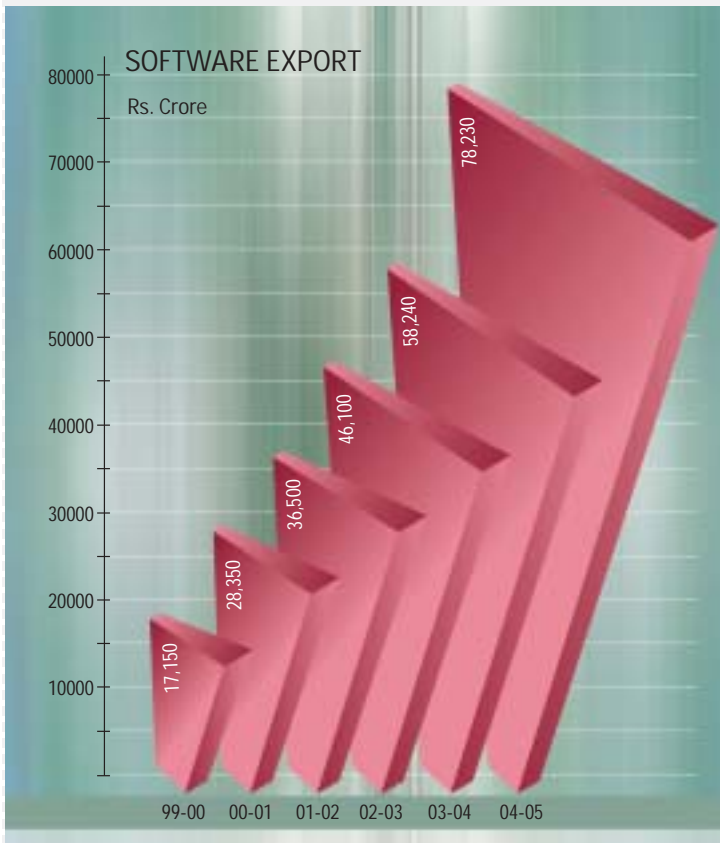
The serviceable market for professional grade components PCBs, semiconductor devices, connectors, wound components, antennas, etc., is likely to go up due to expected launch of manufacture of mobile phones in the country in the near future.

The industry associations/forums related with components have been taking steps to attract investment in component sector through various means like organizing seminars/ exhibitions/ workshops, sector specific inter-action with equipment manufacturers, etc.

Computer Industry

According to International Data Corporation (IDC) India's information technology (IT) market is set to





grow the fastest in the Asia-Pacific region in 2005. The main growth drivers as per the survey would be mobility, convergence and IT management.

High corporate consumption and buoyancy in small towns is driving sales of PC and is likely to touch 3.4 million units in fiscal 2004-05 taking the total PC penetration to 14m in the country. Internet traditionally been a significant driver for PC sales in the country and with the announcement of new broadband policy by the Indian government will provide further boost to PC penetration. Broadband will usher in a whole new set of services including online games entertainment, education and other interactive public utility services, which will give further impetus to PC consumption. Delicensing of wireless for indoors and outdoors, to help mobility, will lead to the increase in laptop demand.

With reduction of excise duty on PCs to zero, a safeguard duty of 6 to 7% has been imposed by the government to safeguard local manufacturing of computers. The prices of entry level PCs have reduced to about Rs. 15,000 and notebooks to about Rs.40,000. The prices of other peripherals are also falling, a laser printer is available at a price of Rs.10,000. The technology wise trend is also shifting towards multifunction devices (MFDs) having features of a laser printer, fax, copier and scanner all combined in one device.

The Hard Disk Drive technology is not limited to computers only, now with miniaturisation to the size of postage stamp (sub-one-inch form factor) and a storage capacity of 4GB, that too with less than 10 grams of weight, is all set to be part of digital music players, mobile phones, PDAs, digital still cameras and camcoders, etc.

To provide Internet access in locations such as airports, coffee shops, and so on, Wi Fi technology is being used. The number of locations providing such facilities is increasing.

The impact of computer technology is becoming visible in all spheres of life. More and more organisations and agencies are providing a range of online services apart from regular information and data related to it. The efficiency and quality of all sectors whether it is manufacturing or services has greatly improved with the use of Information Technology.

Software and Services

The Indian software and services export is estimated at Rs. 78,230 crore (US\$ 17.2 billion) in 2004-05, as compared to Rs. 58,240 crore (US \$ 12.8 billion) in 2003-04, an increase of 34 per cent both in rupee terms and dollar terms. This segment will continue to show robust growth in future also.

India's sustained leadership over other competing offshore sourcing destinations is driven by strong fundamentals comprising a large and growing pool of qualified, English speaking manpower; keen focus on defining and adhering to global quality standards, the demonstrated emphasis on information security, the improving levels and strong government support – focused on improving basic infrastructure and developing policies and an effective regulatory regime that favour the growth of the industry.

With rapid growth in offshore outsourcing and the resultant export of critical data to offshore destinations, companies and individuals in the West have raised concerns around the security of proprietary information and the confidentiality of personal data being sent to offshore locations. Information security concerns are also often cited as a hindrance to offshore outsourcing. Indian vendors have demonstrated that information risk – as any other business risk – is manageable, and have evolved effective frameworks comprising regulations, infrastructure standards and processes to managing information risks in offshore service delivery. Most companies have not faced any issues



while outsourcing their work to India, and Indian vendors (and the government) are committed to ensuring that they understand, match – and preferably exceed – the levels of information security expected by their clients.

Indian ITES-BPO sector industry continues to grow from strength to strength, witnessing high levels of activity – both onshore as well as offshore. Last year witnessed vendors moving up the value-chain to offer higher-end research and analytics services to their clients. Attrition levels also remained high, between 25-40 per cent, as demand for trained talent outpaced supply.

As export revenues from ITES-BPO grew from US \$ 2.5 billion in year 2002-03 to US \$ 3.6 billion in years 2003-04, an year-on-year growth of 44 per cent was achieved. In year 2003-04, ITES-BPO exports accounted for over 27 per cent of the total export revenue earned by the Indian IT-ITES industry. The value of ITES-BPO exports from India is expected to exceed US \$ 5 billion mark in the year 2004-05.

The Indian IT success story has also highlighted India's attractiveness as an investment destination – also beyond the IT sector. Another key impact of the global sourcing model popularised by the growth of IT - ITES has been the reversal of the brain drain – as people of Indian origin (who went to pursue careers abroad), as well as young expatriates, are now attracted to work in India.

Indian IT - ITES growth has had a significant multiplier effect on the Indian economy. Apart from the direct impact on national income and employment, the sector has also contributed to the growth of several ancillary industries, a rise in direct-tax collection and an increase in consumer spend due to the significantly higher disposable incomes.

The rapid growth of ITES-BPO and the IT industry as a whole has made a deep impact on the socio-economic dynamics of the country. The sector has risen to become biggest employment generator with the number of jobs added almost doubling each year, has spawned a number of ancillary businesses such as transportation, real estate and catering, and has contributed to a rising class of young consumers with high disposable incomes.

The industry's contribution to the national economic output has nearly tripled-from 1.2 per cent in the year 1997-98 to 3.5 per cent in 2003-04. With this growth, the sector is estimated to account for 4.1 per cent of the national GDP in the year 2004-05.

Indian IT ITES-BPO companies consider security to be an important aspect while providing services to clients. Most Indian companies provide comparable and at times a better security environment to their clients for offshoring work. Tier-IT and ITES-BPO companies follow global best practices in providing adequate security cover to their clients. Tier-II companies, though restrained by their size and investment, provide adequate security cover to meet their clients' requirements.

The total number of IT and ITES-BPO professionals employed in India has grown from 284,000 in 1999-2000 to over 1 million in 2004-05, growing by over 160,000 in the last year alone. The IT services and software sector is expected to add 109,000 jobs in the current fiscal, ITES-BPO another 94,500 jobs. The number of professionals employed in India by IT and ITES sectors is estimated at 1,045, 000 by March, 2005 of which 345,000 were in the IT software and services export industry; nearly 348,000 in ITES-BPO sector; 30,000 in the domestic software market and over 322,000 in user organizations.

Control, Instrumentation and Industrial Sector

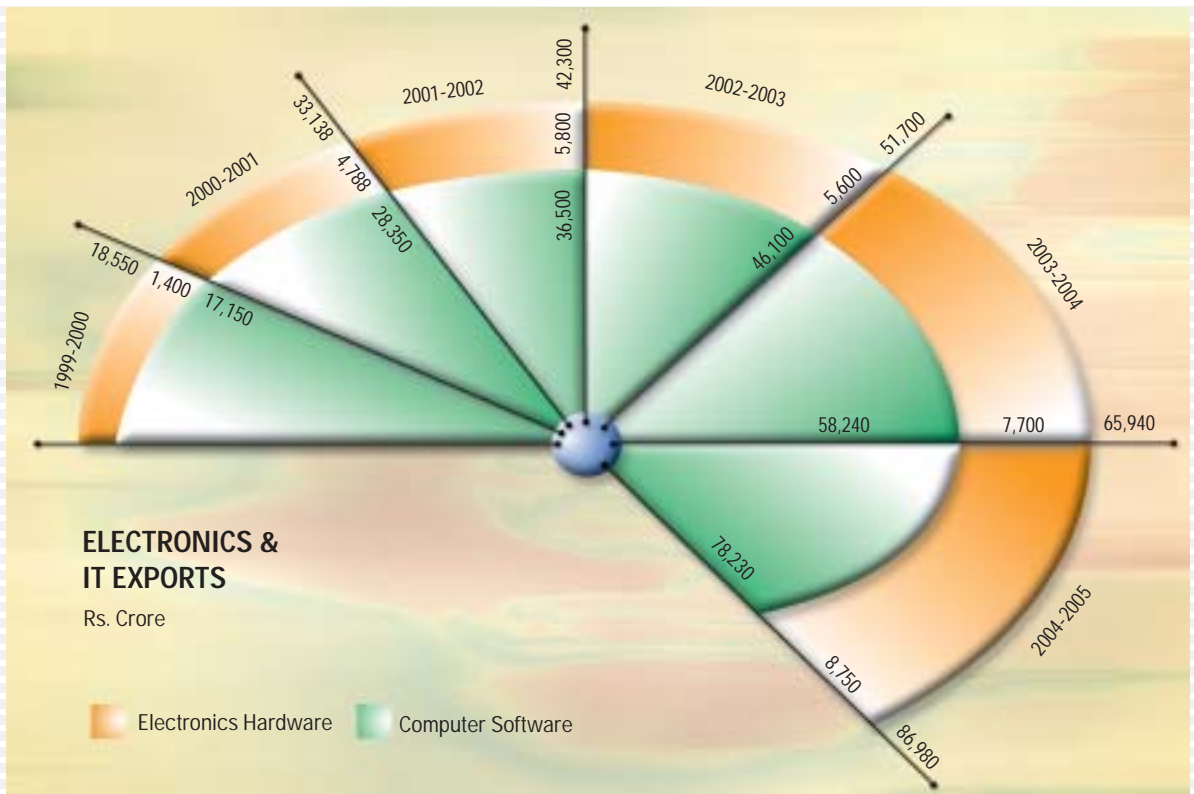
This sector consist of Industrial and Process Control Systems, Process Control Instruments, Analytical, Diagnostic System of Instrumentation and General Purpose Test and Measuring (T&M) Instruments.

The T&M Industry forms the backbone for development of state of art technologies. Digital Measuring techniques are rising to meet user expectations for better capabilities. Improvement in Micro-controller Based and Surface Mount Technologies have resulted in much wider range of T&M applications. Micro-controller based T&M instruments with PC interface have provided higher throughput and cost effective solutions. Use of Surface Mount Devices (SMDs) have considerably reduced the size of instruments.

Communication and Broadcasting Sector

Unprecedented growth of telecom subscribers have occurred during the year 2004. As many as 22.18 million subscribers have been added during the year 2004. A tele-density of 8.62 per 100 persons in the country has consequently been achieved by December 2004, crossing 92 million mark. An interesting observation is that 19.50 million mobile subscribers were added during the year, taking the total of this category to 48 million, and thus wireless phones overtook fixed wireline connections. India has





emerged as the second largest market for mobile handsets. Following the fast growth in the mobile market, a number of companies have announced setting up production based for mobile hand sets in the country for meeting domestic as well as export markets.

Direct to Home (DTH) broadcast service in Ku-Band through satellite was also started by the National Broadcaster, in addition to one private DTH service provider. Good quality digital broadcast reception is available almost everywhere in the country to the citizens, on their television sets through the use of small dish antenna and a Set Top Box (STB).

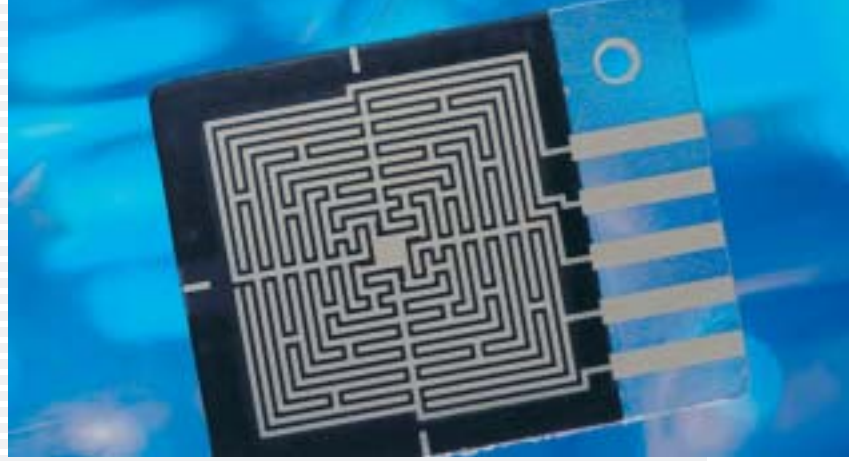
Strategic Electronics

The production in the strategic electronics sector during the year 2004-05 is estimated to be Rs. 3,050 crore, as compared to Rs. 2,750 crore during the year 2003-04.

Electronics Exports

During the year 2004-05, electronics and IT exports are estimated to be Rs. 86,980 crore, as compared to Rs. 65,940 crore in 2003-04, showing a phenomenal growth of 32 per cent. The software and services industry continues to show a robust growth and the total value of software and services export are estimated at Rs. 78,230 crore (US\$ 17.2 billion) in the year 2004-05, as compared to Rs. 58,240 crore (US\$ 12.8 billion) in the year 2003-04, an increase of over 34 per cent in both rupee terms and dollar terms.





Initiatives in Information Technology Sector

E-Governance

Government is committed to bring about total transparency in administration and make government functioning more citizen centric. E-Governance has immense potential in realizing these objectives and in improving efficiency, responsiveness and convenience for end users of Government services. Government, therefore, proposes to promote E-Governance on a massive scale by harnessing all possible resources that are available both in public and private sectors and would provide required policy initiatives and budgetary support needed to stimulate its growth.

Achievements during 2004-05

National E-Governance Plan

A National e-Governance Plan has been drawn which seeks to implement 25 Mission Mode Projects for the present at the Centre, State and integrated service levels so as to create a citizen-centric and business-centric environment for governance, create the right governance and institutional mechanisms, set up core infrastructure, formulate key policies and channelise private sector technical and financial resources into the national e-Governance efforts.

Line Ministries/Departments nodally responsible for the implementation of Mission Mode Projects have been advised to prepare project proposals covering service goals being aimed at, implementation strategy, funds requirements and gaps, time lines for implementation etc. The mission mode projects account for major fund components of the National e-Governance Plan.

An Apex Committee for the National e-Governance Plan has been constituted under the Chairmanship of Cabinet Secretary with Secretary, Department of Information Technology as Member Convener. The Apex Committee oversees and provides Policy directions for the implementation of National e-Governance Plan and will ensure inter-ministerial coordination.

Programme Implementation Structure / Unit

A Consultancy assignment for programme management structure and funding arrangement for National e-Governance Plan has been awarded to Pricewaterhouse Coopers Pvt. Ltd. The task include: i) to recommend appropriate Programme Management Structure (PMS) for National e-Governance Plan covering all project and components; ii) to recommend broad project management mechanism and structures for various projects and components and their linkage with PMS; and iii) to recommend an appropriate fund mobilization, management and deployment strategy and structure for National e-Governance plan. The draft report by the consultants on the programme management structure and funding arrangement for National e-Governance Plan has been received and is under active consideration of the Department.

Replication of Successful e-Governance Projects

The Department of Information Technology has initiated a pilot scheme aimed at spreading the benefits of e-Governance to citizens in all parts of the country. One key component of this multi-pronged initiative is to identify and replicate major



successes that have been achieved in some states. The specific success stories that have been identified on this basis are:

- Land Records
- Transport Department
- Registration
- Municipalities
- Gram Panchayats
- Integrated Citizen Service Centres (front ends like e-Seva, Friends, etc.)

Each of these projects has been implemented very successfully in one or more States. Other States, for various reasons, have not been able to cross

implementation hurdles and derive the benefits of these projects. The Department of Information Technology has, therefore, formulated a strategy to replicate these successes in other States. In the first phase, projects on Land Records, Transport and Registration have been taken.

The projects under above category were initiated from the year 2002-03. The project initiated during the year 2002-03 and 2003-04 are at different stages of implementation. A brief status on the projects initiated during 2002-03 and 2003-04 are given below.

Land Records Computerization Projects

Project implementation complete and pilot implementation being taken as reference for State-wide rollout on Public Private Partnership (PPP) model in the State of West Bengal, Himachal Pradesh, Sikkim and Gujarat. Pilot has been made online operational and is working in a specified District of the State of Orissa. Implementation of computerization process has been progressing well in the States of Haryana, Punjab, Kerala, Madhya Pradesh, Rajasthan, Uttaranchal, Assam and Pondicherry.

Computerization of Property Registration

Pilot project has been completed and Statewide rollout plan being finalized in the State of West Bengal. Pilot project is in final stage of completion in Himachal Pradesh. Site preparation has been completed in Punjab and progressing well in the States of Pondicherry, Orissa, Uttaranchal, Sikkim, Assam, Rajasthan and Tripura

Computerization of Transport system at RTOs

Project site is running successfully and formal inauguration of pilot site being planned in West Bengal. Pilot project is working satisfactorily in Kerala and Delhi and is progressing well in the States of Tripura, Punjab and Himachal Pradesh.

India Portal

This is a Mission Mode project under the National e-Governance plan to provide a single window interface for all the Government services to the citizens at the National and State levels. This project is being implemented by the NIC and would be an extension to their 'India Image' portal catering to the G2C services.

MISSION MODE PROJECTS

Mission Mode Projects	Line Ministries / Departments
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Central Government

01	Income Tax	Ministry of Finance / CBDT
02	Passport Visa & Immigration Project	Ministry of External Affairs / Ministry of Home Affairs
03	DCA1	Department of Company Affairs
04	Insurance	Department of Banking
05	National Citizen Database	Ministry of Home Affairs / RGI
06	Central Excise	Department of Revenue / CBEC
07	Pensions	DOPPW & Department of Expenditure
08	Banking	Department of Banking

State Government

01	Land Records	Ministry of Rural Development
02	Road Transport	Ministry of Road Transport & Highways
03	Property Registration	Department of Land Resources / Ministry of Rural Development
04	Agriculture	Department of Agriculture
05	Treasuries	Ministry of Finance
06	Municipalities	Ministry of Urban Development
07	Gram Panchayats	Ministry of Rural Development
08	Commercial Taxes	Ministry of Finance
09	Police (UTs initially)	Ministry of Home Affairs
10	Employment Exchanges	Ministry of Labour & Employment

Integrated Services

01	EDI (E-Commerce)	Ministry of Commerce & Industries
02	E-Biz	Department of Industrial Policy & Promotion Planning / DIT
03	Common Service Centres	DIT
04	India Portal	DIT and DAR&PG
05	EG Gateway	DIT
06	E Procurement	Ministry of Commerce & Industries / DIT
07	E Courts	Ministry of Justice / Ministry of Home Affairs



India Development Gateway (InDG)

This project is funded by the Development Gateway Foundation (DGF) and Department of Information Technology and is being implemented by C-DAC. The grant agreement between DEA (Department of Economic Affairs) and DGF has been signed. A booklet on the InDG project and website on the same were launched.

National e-Governance Service Delivery

Gateway

The National e-Governance Service Delivery Gateway is a part of the Core Infrastructure under the National e-Governance Plan and will be serving various Mission Mode Projects at the State and Centre. The gateway will enable multiple backend applications to connect with multiple front-end service providers in a secure and reliable manner by enabling standards based communication. It will also enable inter-operability among autonomous and heterogeneous entities of the Government (be it in the Centre, States or Local bodies) that essentially communicate in an asynchronous mode.

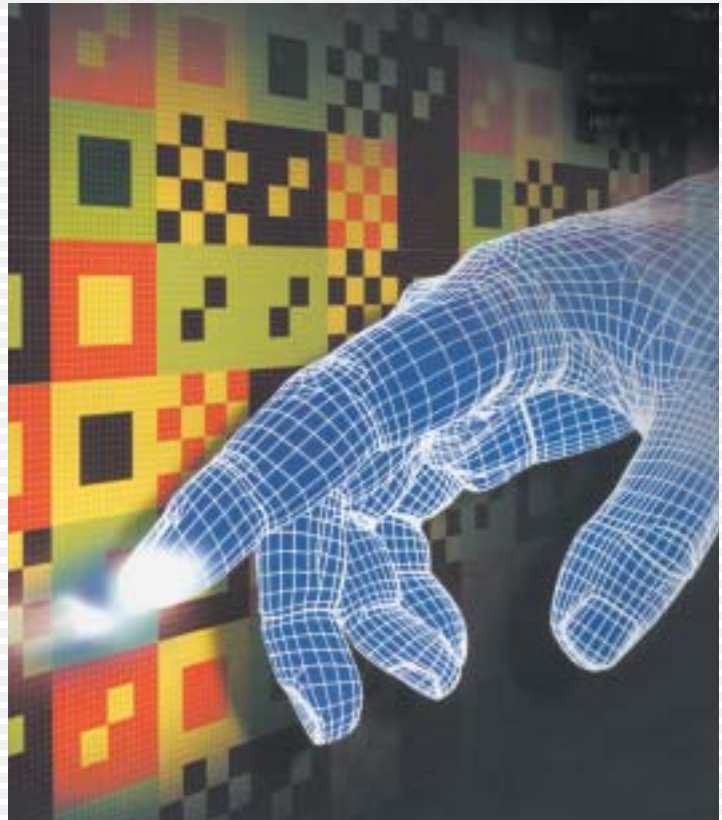
This project is technically, financially and structurally very challenging and complex. While government was looking for some industry partner; Consortium of Industry partner's led by Intel came forward to develop the concept and implement a pilot.

An Advisory and Technical Sub-Committee Group comprising of members from NIC, NISG, C-DAC, DAR&PG and industry has been constituted to oversee and guide the implementation of the Gateway pilot.

A proof of concept of the Gateway Pilot has been built and demonstrated. Work on the various vendor stacks, gateway topology and request for proposal is currently being carried out. An operational gateway would be available by the end of this year.

E-Assessment

E-Assessment is one of the important components of the National e-Governance Plan. It is planned to list out all the e-Governance projects running across various States and at the national level and undertake summary / detailed assessment of these projects for their effectiveness and sustainability. A Working Group has been constituted to provide



overall guidance and steer the e-Assessment programme. A sub-committee for evaluation of proposals for e-Governance project assessments (summary and detailed) has also been constituted.

State Wide Area Network

Network connectivity is a significant enabler of any modern, efficient administration. The Development Block is the basic tier of the development administration, particularly for rural areas in our country. Provision of reliable network connectivity, particularly for rural areas, is an imperative. It has, therefore, been decided that high-speed, high capacity (minimum 2 Mbps), reliable network connectivity for Government-to-Government communication will be extended up to the Block level through State Wide Area Networks and/or NICNET. The latter is currently being run by the National Informatics Centre i.e. NIC, primarily as a VSAT based network up to the District level.

It is intended that various e-Governance projects, which would be implemented in a phased manner over the next 4-5 years by the Line Ministries/ Departments concerned at the Central and State levels may avail themselves of seamless connectivity using these State Wide Area Networks (SWAN) and NICNET. This network connectivity



could also be progressively leveraged to provide services electronically to citizens at the village level by extending its reach through wireless and other technologies relevant for the last mile.

The Department of Information Technology is primarily responsible for establishing the shared core backbone infrastructure identified in National e-Governance Plan . Policy guidelines have been issued laying down the modalities for technical and financial support that will be provided by the DIT to the States for establishing State Area Wide Networks (SWAN). These include the technical and administrative norms to be followed by the States, depending on the implementation option adopted by each State to establish the SWAN.



State Data Centre

State Data Centre has been identified as one of the important element of the core infrastructure for supporting e-Governance initiatives under the National e-Governance Plan . It is proposed to create data repositories/data centres in various states so that a common secured data storage could be maintained to serve host of e-Governance applications.

Standards in e-Governance

A Core Group on standards in e-Governance has been constituted by the DIT. Four sub-groups (major priority areas, documentation, quality and localization) have been constituted under the Core Group to look into specific areas.

e-Readiness

The Department has commissioned e-Readiness Assessment Study 2004 through the National Council of Applied Economic Research (NCEAR) for the States and Union Territories and the report is expected to be released shortly.

ICT for Development

A UNDP funded project 'ICT for Development' has been approved at a total outlay of US\$ 5 million over a period of 4 years and is being implemented by National Institute for Smart Government(NISG). The project has identified 4 themes viz., Integrated Citizen Services, Enhancing Livelihood and Transforming Rural Governance and Woman Empowerment. The project has the management structure comprising of Project Management Board and Steering Committee. NISG has invited proposals under this programme and a list of proposals have been identified for providing support.

Other Projects undertaken during 2004-05

- State Wide Area Network DIAMOND for the State of Kerala
- State Data Centre in Karnataka
- Feasibility study for design and implementation of State Wide Area Network for Rajasthan.
- Pre-project study and requirement analysis assignment for comprehensive e-Governance solutions for Office of Development Commissioner (Handicrafts)
- Rural Area Development Monitoring and Information System for Pudukkottai District (Tamil Nadu)
- Land Resource Information System (LRIS) for Mysore District
- Creation of citizen ID and database for rural digital services in Karnataka
- Panchayats empowerment and communication with the Government in local languages in Sikkim
- Comprehensive e-Governance solution in the transport sector for the North-Eastern States.

Miscellaneous

E-Government Champion Training Program for decision makers has been conducted by NISG to develop strong leadership, clear accountability and improved levels of project management skills for championing e-Government projects in the States.

Training programmes on e-Governance initiatives across India were conducted during January to July, 2004 for institutes in NCR region. 37 institutes with nearly 30 students from each institute participated in the training programme.

Web enabled version of the newsletter, Pardarshi, was published in June 2004 on DIT Website.



E-Commerce & Information Security

The Department of Information Technology has been giving importance to promote research and development in the field of Information Technology and Electronics in the country and provides financial support for undertaking research and development. The programme continued to pursue its efforts to promote competence and indigenous technology development and test bed applications in information security area.

The four projects which were completed during the years have led to setting up of a Technical Resource Centre for cyber forensics at C-DAC, Thiruvananthapuram; steganographic capabilities at C-DAC, Kolkata; capabilities around biometric systems at IIT, Kanpur; and adaptive intrusion detection, analysis and response system at C-DAC, Bangalore.

The on-going projects are presently aimed at development of neuro psychological methods of interrogation of suspects; frameworks for managing enterprise network security; embedded devices and system security; elliptic curve cryptography products; adaptive intrusion detection systems; steganography; enterprise security management framework; data mining techniques; secure and survivable storage; high speed (gigabit/s) network monitoring tool; print document security tool kit; system and software for collection of electromagnetic signatures from digital equipment; lawful interception of VoIP traffic; secure smart card OS; storage securing device with intrusion detection capabilities; and algorithm for robust speaker identification.

Eighteen new projects have also been initiated in the areas of chaotic cryptography; security scheme for mobile e-Commerce applications and minimalistic object oriented linux; multimodal biometrics system; secure architecture and development of tools for intrusion detection in mobile adhoc networks; independent component analysis based blind source separation algorithms for audio/image separation; cryptosystems resistant to vulnerabilities and side channel attacks; learning system for intrusion tolerant database system; end system security solution for UDP applications; optimization of search time for evaluation of ciphers using genetic algorithm based cryptanalysis; intrusion detection using soft

computing; support vector machine based intelligent network intrusion detection system; protocols and security framework for mobile payment system; PKI based wireless security; software based system for face identification; integrated security device for tracking and data acquisition using RFID and attack methodology analysis and network attack modeling.

Indian Computer Emergency Response Team (CERT-In)

CERT-In was made operational with the regular issuance of Advisories, Alerts, and Vulnerability Notes. Spread of vulnerabilities on various popular software platforms were monitored on a regular basis as also the release of new viruses and worms. Appropriate Vulnerability Notes and the means for protecting against them were developed regularly and published on the CERT-In website.

Security guidelines on major platforms including Windows, Linux, Oracle and CISCO systems were developed to help spread awareness on protective measures for securing computer systems and networks. In addition to dissemination of the protective measures on the CERT-In website, regular Workshops and Seminars on security awareness were conducted by CERT-In for users from the Government and critical infrastructure organizations.



Website hosting guidelines were issued and the use of domain names under 'gov.in' was also promoted as part of securing government websites. Framework for security of information systems was created with the aim of information security assurance through security audits and penetration testing of Government organizations and critical infrastructure agencies.

CERT-In played its role of mother CERT in the country by organizing Workshops for various sectors such as the Armed Forces to help them nucleate CERTs in their own areas. As the nodal agency for cyber security, it interacted with cyber security officials in different sectors to advise them on matters appropriate to their working. CERT-In also started the process of empanelling of security auditors who would be used by the government and critical infrastructure organizations to conduct information security audits including vulnerability assessment.

A large number of incidents relating to publishing and web defacement were attended to by the technical experts of CERT-In. Analysis of web defacement was carried out on a regular basis. Automated software was developed to track defacements and analyse the same. Deficiencies in legal framework for monitoring of Internet gateways for cyber attacks were analysed and presented to the Government.

Future Outlook

Manpower for CERT-In will be augmented, and the technical teams will deepen their expertise in respective software fields and continue to issue Vulnerability Notes, Advisories and Alerts. The incident response capability of CERT-In will be extended on 24x7 basis in due course.

Proactive monitoring of cyber attacks at Internet gateways of Internet Service Providers (ISPs) will



be initiated through appropriate legal enablers. This will help CERT-In stop proliferation of malicious attacks detected in an ISP from spreading to other ISPs.

Security Auditors for information systems assurance including penetration testing of systems and networks will be empanelled by CERT-In. All government organizations and critical infrastructure agencies will be encouraged to follow the practices issued in the CERT-In Guidelines on Security Assurance Framework.

IT Act /Certification

The Information Technology Act 2000 provides the legal framework for establishing trust in the electronic environment in the country. Both e-Commerce and e-Governance transactions are covered under the ambit of the IT Act, which facilitates acceptance of electronic records and Digital Signatures. During the year, three more Certifying Authorities were licensed under the IT Act, 2000. These include Mahanagar Telephone Nigam Ltd (MTNL), Central Board of Excise and Customs (CBEC) and (n)Code Solutions – a division of Gujarat Narmada Fertilizers Corporation, bringing the number of CAs licensed by the CCA to seven.

The Root Certifying Authority of India (RCAI) – the root of trust for authenticated electronic transactions; the National Repository of Digital Signatures Certificates (NRDC) which hosts the Digital Signature Certificates issued by the licensed CAs; and the website cca.gov.in comprise the technical infrastructure being operated by the CCA.

Efforts to promote the use of Digital Signatures continued throughout the year. Special focus was given to the integration of digital signatures in e-Governance applications – DCA'21 of the Department of Company Affairs and the eBiz portal of the Department of Industrial Policy and Promotion – by studying common RA (Registration Authority) requirements and aligning them with the service offerings of the Certifying Authorities. A special Class of certificate was proposed to cater to all digitally signed interactions with the Government. Digital signature certificates are already being used in a number of sectors like stock broking community, banking, income tax and for e-governance.



A number of training programmes were organized for the Police and Judiciary. Specialized three-and-a-half week course on Penetration Testing and Network Security was held at Police Headquarters in New Delhi while two one-week workshops on Cyber Crime Investigation and Cyber Forensics were held for police personnel. Cyber Forensics training programme using CyberCheck, a forensic tool developed under DIT funding was also conducted under collaboration with other agencies.

The number of Digital Signature Certificates grew from around 10,000 in 2003-04 to nearly 30,000 in 2004-05.

Amount of Bank Guarantee to be submitted by licensed CAs was reduced from Rs 10 crore to Rs 1 crore for new companies and from Rs 5 crore to Rs 50 lakh for companies incorporated more than a year before submission of application for grant of licence. Rules were formulated relating to electronic filing of forms, application and any other document as well as for creation of secure electronic record and secure digital signature.

Plan for 2005-2006

The DR site will be made fully operational. The updation of the National Repository of Digital Signature Certificates with the Certificates and CRL of the CAs will be automated. A software to aid verification of digital signatures will be developed to

aid relying parties in ascertaining authenticity of digitally signed documents. Courses will be organized for training Adjudicating Officers under the IT Act and for training investigating agencies in Cyber Forensics. A Cyber Forensics laboratory will be made operational in the office of CCA.

The Semiconductor Integrated Circuits Layout-Design Act 2000

The Semiconductor Integrated Circuits Layout Design Act 2000 provides for protection of Semiconductor Integrated Circuits Layout Designs and for matters connected therewith or incidental thereto. The Act is in line with the TRIPS Agreement to which India is a signatory. As per the provisions made under the Semiconductor Integrated Circuits Layout-design Act 2000, a Registry known as the Semiconductor Integrated Circuits Layout-design Registry has to be established to facilitate the registration of layout-designs. Cases/appeals arising from Registry, etc., are to be dealt by an Layout Design Appellate Board.

During the year, several actions for establishing the Semiconductor Integrated Circuits Layout-design Registry at Delhi including necessary infrastructure, interactions with Patent Office in Delhi and Kolkata, evolving methods and practices to be followed at the Registry, etc., were pursued. Also, further follow up on Appellate Board matters with Ministry of Law was taken up.





Technology and Application Development

Media Lab Asia

Media Lab Asia was set up as a not-for-profit Section 25 Company with an aim to research and innovate Information and Communication Technologies (ICT) relevant for the common man and to promote deployment of research projects in rural and remote areas to serve the poor and other needy population. The Technology Advisory Board of Media Lab Asia identified use of ICT for Education, Healthcare, Livelihood and for the disabled as major application areas of focus and Wireless Communications, affordable access devices and tools as technology research areas.

Achievements during 2004-05

Agro Explorer

The project at IIT, Bombay aims at multilingual access for the agricultural information available on the Web. The query of the farmer, in local language, is converted into Universal Networking Language (UNL) form and the Web is searched using this. The documents archived on the Web as results of the search, which are in different languages, are again converted into UNL form. The final documents are presented to the user in his native language by decoding the UNL form. The system is currently being developed for Marathi, Hindi, Bengali, and Tamil languages.

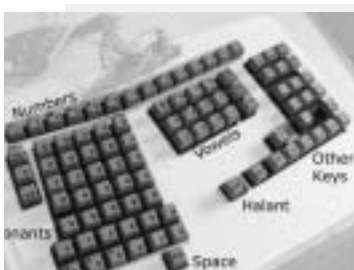
Using the above technique, a discussion forum AQUA for the villagers / farmers has been developed. The system is being field tested in villages near Pune in collaboration with Vigyan Ashram, Pabal.

Key-lekh keyboard

The project at IIT, Bombay aims at the development of an easy to learn, user friendly keyboard in Indian languages. A study on optimizing finger travel and efficiency on the keyboard for Indian languages was first carried out. Based on this, several designs of keyboards were prototyped for pilot testing and evaluation. The pilot testing is currently being done at selected information kiosks in rural Maharashtra.

Bhav Puchiye

The system developed at IIT, Bombay provides online information on various agriculture products and their current market rates at different near by markets. The system uses the market information available from NIC Agri Portal with appropriate user interface and helps the user in taking decisions in marketing his commodity taking into account the market rate, transport costs, etc. This would help the farmers to get better returns on their produce. The system is being field tested in villages near Pune in collaboration with Vigyan Ashram, Pabal.



Poly Sensors

The project at IIT, Bombay aims to develop inexpensive conducting polymer sensors for determining ionic contaminants (pH, Fluoride, Potassium and possibly Chloride) as well as Urea in water. A pH Sensor has been developed with good repeatability of measurement. Replicability of the sensor is to be tested. Other sensors are in various stages of development.

Multilingual Interface to Gram Chitra

A Geographical Information System (GIS) for handheld computers on Linux was developed in an earlier project. The current project aims to provide multilingual interface to this GIS. An initial translation package to run on desktops has been developed for English to Hindi. Work is being done for translation from/to Telugu and for porting of this software on handheld devices. The domains of Agriculture are being considered as starting examples in developing the software. This technology will also be used for providing multilingual interface on portable terminals.

Ad-hoc Networks

An ad-hoc network is a dynamically changing unpredictable network that is created by the mobile nodes when needed for their own communication purposes. Under the project at IIT Delhi, a test implementation of IEEE 802.11b WiFi standard based self-configurable network with PCs and Hand Held Computers (IPAQs) has been developed on Linux. Further, a temperature sensor network has been designed and tested. Other than measuring the temperature, the sensor is able to schedule measurements and communicate the same to a 'collator'. The collection of collators, in turn, form an ad hoc network, discover the central 'temperature management station' and communicate all collated information to the temperature management station.

A Video-based surveillance network has also been tested for implementation of a surveillance network under the project.

Recently, the working of Voice-over-IP over an infrastructure based wireless network has been demonstrated. The quality of voice in terms of transit delay and jitter is under investigation.

Low Cost Computing Technologies

The aim of this project at IIT, Delhi, is to work with various microprocessor based platforms and various embedded operating systems to provide a matrix of solutions from where a user can choose a specific solution optimised for a given application. Software drivers for different interfaces have been developed to run on ARM925 and OMAP510 processors.

Making Legacy Documents Available on the Web

The aim of the project at IIT, Delhi is to develop image analysis techniques for making legacy or classical Indian language documents Web accessible. Work is being done on development of i) a model guided page segmentation scheme; ii) an XML based representation scheme for segmented document images; and iii) image compression scheme for Devnagari texts.

Sanyog: Visual Language with particular application to the communication needs of the children with neuro-motor disorders

The project at IIT, Kharagpur aims at developing a visual language technology and associated multimedia platform to provide a new and more natural communication for the under-privileged segment of the society. The development utilizes Computational Semantics, Artificial Intelligence including Natural Language Processing in Indian Languages. The segments of the society who will directly benefit from the proposed technology include the neo-literates and pre-literates in the rural area, and people with speech and neuro-motor disorders (cerebral palsy). A prototype system is currently being tested at the Indian Institute of Cerebral Palsy (IICP), Kolkata.

Samvidha: Content Personalization for Rural Schools

The system developed at IIT, Kharagpur aims at providing the students and teachers in rural schools of India access to information relevant for them from the Internet at low cost. The system provides off-line Internet access to the schools and provides the users with relevant content in answer to their queries on subjects related to their curriculum.

The basic architecture of the system consists of one or more schools connected to a central server. The



users in a school are presented with a virtual browser, in which they can enter their search queries. The queries are used to access information from a local cache which is presented to the user. No internet access is required if the user is satisfied with the results. For internet search, the queries are collected and sent to the server whenever a connection is established with the server. The server retrieves documents from the Web, and identifies documents relevant to the user and sends them to the schools when connection is established. This technique significantly reduces the cost of internet access in a public switched network based connectivity. The system is currently being tested at the Central School at IIT, Kharagpur.

Rural Wi-Fi

The research lab of Media Lab Asia at IIT, Madras is working on mesh peer-to-peer topologies for rural IEEE 802.11 standard based networks that will solve the 'last 25 km' access problem of rural India, as many rural communities in India are within 25 km of fiber. The lab version of the system has been tested at IIT, Madras for distances up to 5 km. VoIP experiments were also successfully conducted in the lab using 802.11b based single hop. Extensive tests are planned to be taken up over a bigger network.



A Web camera capable of sending video

System-on-Chip for Messaging Terminal as an Access Device

MeTel Plus is a low cost messaging terminal. It is targeted for applications in rural areas, in conjunction with a connectivity solution such as the CorDect wireless system. The aim of the project at IIT, Madras is to provide a terminal for simple web-browsing, e-mail, chat, SMS, stock quotes and market price checks, etc., over a wireless connectivity. The prototype is being made using Field Programmable Gate Arrays (FPGAs).

Gram Patra

Gram Patra developed by Media Lab Asia is useful for delivering digital content at locations which do not have online internet connectivity. It has the advantage of providing the convenience of off-line email delivery, low cost infrastructure, deep penetration and reach. Pilot deployment of this technology is being taken up in conjunction with Bhoomi Project for land records in rural setups of Karnataka.

A Mobile Health Care Delivery System

A mobile healthcare system typically consists of mobile units equipped with computers and diagnostic devices. These units are supported by specially developed software and hardware for health screening, health education, information dissemination, patient data acquisition, and communication with doctors for diagnosis, prescription and treatment. The entire system is proposed to be designed for use by a paramedic at the patient end. In addition, the mobile units can be used to provide other services, such as veterinary services, agricultural services, education for children and adults etc. A project to deliver holistic healthcare using a mobile platform has been initiated at IIT, Kanpur.

Digital Mandi

Digital Mandi developed at IIT, Kanpur is an electronic trading platform for agro commodities. The idea is to connect dispersed village level primary mandis, down market and mills through a web based interactive marketing platform. This can facilitate speedy and efficient information dissemination for better price realisation and risk management. A prototype of the system has been developed, and its pilot deployment is under consideration.

Shruti-Drishhti- Computer Aided Text-to-Speech and Text-to-Braille System for Visually Impaired

A system has been developed in collaboration with C-DAC Pune and Webel Mediatronics Ltd, (WML) Kolkata; to enable visually impaired persons access electronic documents from the websites both in speech and Braille forms. The beta version of the system developed has been donated to Ms. Kicky Nordstorm, Chairperson, International Blind Association, Sweden.



BRICS

The project at IIT, Kanpur aims at development of technology elements to facilitate hands-on learning, focusing on tools for Digital Learning and Programming - without the use of computer. A low-cost motorized robot kit, which can follow a wall and turn in one direction, has been developed and a vendor is now manufacturing the kit. Trial batch of 100 pieces has been made and a few dozen kits have been deployed in the Navodaya Schools. A handheld key-based programming device PrISM (Programmable Interface for Sensors and Motors) has also been designed for program entry.

Screen Access For All (SAFA)

A screen reading software in Hindi and English to enable the visually impaired persons use a Personal Computer (PC) is being developed at the National Association for the Blind, New Delhi. This would enable visually impaired persons to access information on PC / Internet, using speech output.

Futuristic Technologies in Secure Computer and Communication Infrastructure by TIFR, Mumbai

The project has been initiated at Tata Institute of Fundamental Research, Mumbai to realize the recent thrust of the Government in the realization of perpetually available secure critical infrastructure. The envisaged plan is to build highly secure, available and survivable infrastructures with computer network and information technology. A demonstrable test bed comprising about 50 node wireless mobile ad-hoc network is being set up for testing the protocols/algorithms.

Cyber Forensic Lab

The Department of Information Technology (DIT) is providing support for the establishment of a Cyber Forensic Lab in the Central Bureau of Investigation. This Lab would act as a Resource Centre and provide support to Law Enforcement Agencies. The project was implemented by ERNET India, an Autonomous Society under DIT. The project was completed during the year 2004-05.

Technology Development for Indian Languages Programme (TDIL)

The world is in the midst of a technological revolution nucleated around Information and Communication Technology (ICT). Advances in Human Language Technology will offer nearly universal access to information and services for more and more people in their own language. Today most of the content on

the Web is in English, which is spoken by only 8% of the World population and only 5% of Indian population. In a multilingual country like India, with 22 official languages and 10 scripts, it is essential that information processing and translation software should be developed in local languages and available at low cost for wider proliferation of ICT to benefit the people at large and thus paving the way towards 'Digital Unite and Knowledge for all' and arrest the sprawling Digital Divide.

A number of initiatives have been taken towards development of software tools and human-machine Interface systems in Indian Languages under the Technology Development for Indian Languages (TDIL).

Resource Centres

Thirteen Resource Centres for Indian Language Technology Solutions (RCILTS) have been established at various educational institutes and R&D organizations covering all Indian languages to develop niche technologies (such as OCR, TTS, Text-editors, conversion utilities, spell-checkers) for providing IT solutions in Indian languages, build repository of Information Processing tools and products for Indian languages and technology dissemination through specialized training programs.

The technologies and products developed by the Resource Centres include - Basic Information Processing tools e.g. text-editors, spell checkers, fonts, keyboard drivers, bi-lingual dictionaries and Morph-Analyzers for all Indian languages; core optical character recognition (OCR) engines for seven Indian languages (Hindi, Marathi, Bangla, Punjabi, Tamil, Telugu and Malayalam); messaging systems in 2 Indian languages (Hindi, Malayalam); online English to Hindi machine translation system; and text-to-speech systems (Hindi, Bangla, Malayalam, Tamil, Oriya).

Achievements during 2004-2005

Content Development & IT Localization Network

COIL Net (COntent Development & IT Localization Network), aimed at taking the benefits of developments in Information Technology to the masses in the Hindi speaking region has been initiated in the Hindi Speaking states of Uttar Pradesh, Madhya Pradesh, Rajasthan, Jharkhand, Uttranchal, Bihar and Chattisgarh. These centres have developed content and websites in Hindi. Deployment of localized test-beds specific to each state is also being undertaken.



Many software applications and content have already been developed in Hindi and deployed in the domain of e-health, e-education, e-tourism, etc., at various places.

International Summit on Localization

International Summit on Localization was organized by the Department of Information Technology during 8-10 November, 2004 to address issues such as Standardization, Localization Tools and Linguistic Resources, Terminology, Transliteration and Translation. The Summit also focused on implementation issues in Localization in context of Multilingual India.

Standardization

Unicode Standards are widely being used by the Industry for the development of multilingual software. Most of the recommended changes have been incorporated in the latest version of the Unicode Standard to ensure adequate representation of Indic scripts in the Standard. Initiatives have been taken to include Vedic characters and symbols, ancient Indian scripts and minorities scripts in the Unicode Standard.

Evaluation and Benchmarking of the Indian Language Technology Tools

Testing, evaluation and benchmarking of the Indian language technology tools is essential for wider acceptance of the Indian language technology products. The Standardization Testing and Quality Certification (STQC) directorate of DIT has been designated as the third party for evaluation of the language technologies tools and products. Two STQC IT centres have been established in Delhi and Bangalore for this purpose.

TDIL Portal

The TDIL website is bi-lingual (English and Hindi) and contains information about the TDIL Programme, its initiatives and achievements. The Unicode have been used in the website to enable content search in Hindi. It provides access to Indian scriptures, articles, reviews, and online machine translation from English to Hindi and vice versa. During the last one year, the number of hits on this website have increased. The website also provides downloadable software and tools in Indian Languages viz. Plug-in, Indian Language Word Processors, NLP tools, NLP Resource for Windows/Linux. The Website provides free downloadable Unicode compliant open type

fonts, font converter and other language processing utilities.

Gyanaudyog

Gyanaudyog project has been initiated at Banasthali Vidyapith in the State of Rajasthan to promote Small Office and Home Entrepreneurship in the area of Information Technology for catalyzing IT enabled services (ITES), specifically, content creation, content localization and application software localization, remote customer interaction services, computer aided design with support for technology monitoring, financial support guidance and market information.

Newsletter of Indian Language Technologies

The *VishwaBharat@tdil* is a quarterly newsletter which provides information on products, tools, services, activities, developments, achievements in the area of Indian language technologies. It serves as a means of sharing ideas among technology developers. It creates awareness in the society regarding the availability of language technology resources. The news letter are also available on TDIL web-site as well as on a CD.

Indian language Technology Resource Centres

The important technologies developed by the Indian Language Technology Resource Centres includes the Optical Character Recognition (OCR), Spell Checkers, Bi-lingual Dictionaries, Machine Aided Translation System (MAT), etc. The technologies developed by the Resource Centres are consolidated in the packaged form of Basic Information Processing Kit (BIPK) and Optical Character Recognition Systems (OCR) in all major Indian languages. The BIPK consists of word processors integrated with spell checkers, text editors and built-in dictionaries.

New Initiatives

Intelligent Cognitive System

A new project in the domain of Intelligent Cognitive system named Knowledge UNDERstanding and Acquisition of Languages, INferencing and Interpretation (KUNDALINI) is being initiated to develop methodologies and tools for knowledge representation, extraction, mining, gisting, inferencing and interpretation; knowledge frameworks and access mechanisms based on Indian tradition; and Sanskrit based Networking Language as Machine Translation Interlingua.



Cooperation for Localization and Open Technologies

A new initiative named Cooperation for Localization and Open Technologies (C-LoT) is being initiated to coordinate development of open source software, open standards, open systems aiming at producing affordable and user-motivating PCs and ICT appliances. Jana –Bharati the flagship project to develop localized GNU environment and application based on LINUX operating system has been initiated. A project on ' Linguistic Resource Development' is also being proposed.

Human Resource Development in Language Technology

A proposal for introducing Master's level and Post Graduate Diploma level courses in the domain of Knowledge Engineering, Computational Linguistics and Software Localization at various institutions in India is being initiated. The project aims at developing trained manpower in the field of Language Technology to overcome the present shortage of manpower in this field.

Indian Language Technology Resource Centres Phase II

In the second phase of the Resource Centres (RC – Phase-II) integration and enhancement of the technologies developed in the Phase-I would be initiated. Development of the niche technologies such as Cross-lingual Information Retrieval (CLIR), Speech-to-speech Translation System (S2S) and Localization technology would be taken up.

Development and incubation of speech technologies such as speech translation and speech synthesis are being initiated. A futuristic speech technology programme with the basic objectives of _unlimited-vocabulary spoken translation systems and fully online understanding and generation of integrated natural speech will be initiated.

Rajbhasha Information Technology Application Programme (RITAP)

Rajbhasha Information Technology Application Programme (RITAP) has been initiated on the recommendations of Parliamentary Committee on Official Languages. This programme is aimed at development and deployment of software applications in Hindi and other Indian languages in Government sector.

Gaon Gyan Kendra (Village Knowledge Center)

The Gaon Gyan Kendra (GGK) project is based on the local agricultural communities demand for information on sustainable agricultural practices, credit, marketing of produce and value addition by agriculture experts. The aim of the project is knowledge delivery to the villagers, and thereby achieving their proactive participation in the knowledge economy.

The GGK centre will be established with the latest IT infrastructures to provide access to information of the interest to the villagers like Agriculture, Health, Education, Empowerment Entrepreneurship, Vocational Training, etc.



Woman Actuated Network of Information Technology Applications (WANITA)

The Department of Information Technology along with UNIDO (United Nations Industrial Development Organization) is proposing a new scheme for empowerment of Indian rural women through awareness about vocational skills and education using IT as tool. The project will seek essentially to empower the poor, small town women to make use of the choices available in the economic, social and political spheres through people centred and sustainable development initiatives. This will be achieved by making poor women working in existing Self Help Groups aware of the potential of using IT as a tool to enhance their skills and productivity and marketing channels.

Digital Library

Digital Library of India (DLI) Initiative was launched in the year 2002 with the objective of digitization and indexing the vast Indic heritage knowledge and to provide a test bed that will support other research

domains such as scanning techniques, optical character recognition, Information Retrieval, Storage Area Network, etc.

Under the Digital Library Initiative of India (DLI), so far 21 Scanning Centres and 4 Regional Mega-Centres have been established across the country. The Mega-Centres are involved in the development of niche technologies such as Cross-lingual Information Access, Multi-lingual Crawler, Automatic Search indexing tools and Multi-media Interface for physically challenged. The Scanning Centres are involved in the Digitization of Heritage Knowledge embedded in manuscripts, palm-leaves and rare books. So far, 84,000 books have been scanned and cropped and OCRed in various Indian Languages viz. English, Telugu, Tamil, Sanskrit and Kannada. The Development of niche technologies have started at 4 Mega-centres.

Industrial Electronics Promotion Programme

During the year, the project Design and Development of Comprehensive Facility for Thermal Management of Electronic Equipment was successfully completed at SAMEER. The project has created an unique facility for design, evaluation and offering consultancy services to the interested agencies with regard to the thermal management, packaging, etc., of electronic PCBs and equipment. A Workshop was organized for dissemination of the information at Bangalore and was attended by a large number of participants from the industries, academic and R&D institutes.

The General Purpose Control System (GPCS) project was formally closed on its successful completion. The technology of GPCS developed by C-DAC, Thiruvananthapuram for use in a variety of process industries was transferred to industry during ELITEX'04 for commercial production.

After study of various sensing methods, most suitable method was selected for fabrication of prototype of Sensor System under the project on Development of a Slab Gap Detection Sensor for identification of slabs in Steel Plant Project at RDCIS, Ranchi. After completion of pilot mills trials, the prototype is undergoing field trials at steel plant. The project is likely to be completed by March, 2005.

A detailed project report was prepared and system specifications were finalized for the project on

Development of an Affordable Supply Chain Management (SCM) System for SMEs at C-DAC, Hyderabad. A national Workshop on the SCM technology was organized and feedback from industries and likely end users was obtained for incorporation in the system requirement specifications. The software development for four modules of SCM is in progress.

The first prototype electronic kit in form of a Fluted Roller Instrument for quick identification of mechanical deficiency in ring frame used in textile mills was developed and tested in the laboratory/field trials to help increase yarn production at ATIRA, Ahmedabad. Fabrication of two more prototype instruments was under progressed.

The development of a PC based automated system in form of an instrument to measure dirt count present in the paper using machine vision technology was developed under the project on Paper Dirt Speck Analyser at CEERI, Chennai. The prototype system is undergoing testing. The project is likely to be completed by March, 2005 and expected to help the paper industry to enhance quality of their final product using this technology.

The development of modeling tools for IT based techniques for acoustic sea floor classification was progressed at NIO, Goa. The modeling tool being developed is a high end software package that will help in understanding the characteristics of ocean beds thus eliminating the need for actual collection of sediments samples from the seafloor.

After completion of design work, prototype fabrication work has progressed in the project for development of an Automatic Counterfeit Currency Detection System at CSIO, Chandigarh. Testing and trials will be carried out in consultation with user agencies. The design and development of prototype system was progressed in the Automated Liquid Media Dispensing System Project at CSIO, Chandigarh.

Design and implementation of Graphical User Interface, Web based Feature Modeler, Computer Aided Process Planning and Communication Modules were completed in the project on WebNC - Internet based Collaborative Design and Manufacturing System for Intelligent CNC Machining at IIT, Bombay. After completion of CNC coding and system integration, this software package will be



subjected to beta testing by users for evaluation and feedback for further fine-tuning.

Two new projects a) Development of Pump Efficiency Monitoring System using state-of-art Instrumentation and Information Technology by CSIO, Chennai and b) Development of Low Voltage Real time Controller for Series Hybrid Electric Three Wheeler Vehicle were initiated in November, 2004. Another new project on Development of MEMS based Capacitive Accelerometer by IIT-Kharagpur is under consideration.

Efforts were also made to explore new project proposals in the thrust areas identified by the Working group on Industrial Applications. The new project proposals likely to be taken up are: Setting up of Resource Centre on Real Time System at C-DAC, Thiruvananthapuram, RF Drying System for leather industry, New Drafting System for Textile industry, Phase-II of the Hybrid Layered Manufacturing System, Robotic Telescopic Manipulator for Explosive Handling, IT applications in Steel, Textile and other core sectors on industries.

Convergence Communication, Internet and Broadband Technologies

Convergence technology as the driving force, integrating the hitherto distinct Information, Communication and Entertainment (ICE) technologies, has given rise to a new range of business opportunities for the manufacturers and service providers in the fields of Information Technology, Communications and Broadcasting. With the growth of 25 – 30% achieved in these sectors in India, the convergence technologies hold great promise. To sustain this growth and meet the challenges of globalization, there is a continuing need to invest in quality infrastructure, promote R&D efforts in convergence communications, Internet and broadband technologies, and address the related policy issues.

The activities of the Department in this sector are organized with the following broad objectives:

- Promote R&D in the areas of Convergence Communication, Internet and Broadband Technologies
- Promote commercial exploitation of the technologies developed
- Initiatives for the growth of Internet and Internet derived services
- Promote activities aimed towards cooperative

programmes with International bodies such as ITU, UN-ICT Task Force, WSIS, ICANN, APNIC, European Union, etc.

R&D Activities

The Department provides financial support to projects/schemes for undertaking research/development in the areas of Convergence, Communication, Internet and Broadband Technologies. A number of academic institutions, industries and research labs spread all over the country have been involved in the programme.

Following are important developments in progress, as example projects

- Research in broadband wireless access technologies and deployment of Wi-Fi protocol based campus network
- Digital Connectivity through Amateur Radio to assist in Disaster Management
- Wireless Communication for Underground Mines (including Trapped Miner Communication)
- Secure Hybrid Network (wireline and wireless) and Managed Security System
- Special Internet Protocol (SIP) based IP Telephony
- A technology demonstrator for VOIP Telephony
- Web based Agricultural Expert Advice Dissemination system.

Over the last 5 years, technologies which were successfully developed and commercialized are :

- TETRA standard based Digital Trunking Radio System for professional voice and data applications
- Call Centre equipment and software with multilingual capabilities
- Set Top Box technology for Internet access via Cable TV / DTH
- IP Telephone
- Bluetooth short range wireless communication adapters
- Portable X-Ray baggage system
- Explosive Detection System
- Satellite based Vehicle Tracking and Management Systems
- Non-linear Junction Detector
- Electronic Stethoscope
- Velocity Panel for small caliber projectiles
- Automated Dependent Surveillance system for Civil Aviation
- GPS Receivers for Defence applications
- DVD Subtitling System.



The focus of development in the coming years will be on the following:

- Next generation wireless technology based communications
- Low cost Communication and computing access devices
- Wi-Fi, Wi-Max, Hybrid Network deployments for important applications
- Developments in VOIP technology and IPv6 protocol software tools
- Security devices.

Initiatives for Internet growth

Following initiatives have been taken for promoting growth of Internet during the year :

- A National Internet Exchange of India (NIXI) has been set up in order to provide cost-effective Internet services with quality of service (QOS).
- .IN Network Information Centre has been set up as .IN Registry for increased proliferation of Internet domain names under .IN category with market focus, following the announcement of new policy in this regard.
- Prepared a report on new Internet protocol IPv6 migration road map in India; its implementation is in progress.
- Prepared a paper on Rural Services for proliferation of Internet in Rural areas.
- Provided inputs for Broadband Policy 2004 concerning NIXI, .IN Domain, delicensing of frequency spectrum, proliferation of DTH and VSAT based services, etc.

International Cooperation

The Department provided interface for the following International organizations, and cooperation between India and the relevant agencies in this area

- World Summit on Information Society (WSIS). The subjects handled are Internet Governance, Intellectual Property, Cyber Security, ICT for bridging Digital Divide, etc.
- Governmental Advisory Committee (GAC) to the International Corporation for Assigned Names and Numbers (ICANN)
- UNICT Task Force for development and deployment of ICT tools for bridging the Digital Divide
- Asia Pacific Network Information Centre (APNIC)
- Component of Internet and Internet based services in International Telecommunications Union (ITU)

- As part of the International Cooperation with other countries under the Protocols signed by the Department, projects proposed to be supported under Indo-EU Cooperation under Framework FP6 have been prepared in the areas of ERNET/GEANT connectivity, QOS for 4G Mobile Networks and IPv6 tools.

New Initiatives

Broadband Policy 2004

The Broadband policy was announced by the Government in October 2004. The new policy encourages creation and growth of infrastructure through various access technologies which can mutually co-exist, like optical fibre, digital subscriber lines, cable TV network, satellite and wireless technologies. The Department provided inputs relating to NIXI, proliferation of DTH and VSAT based services, delicensing of 2.40 to 2.48 GHz band for low power outdoor use, delicensing of 5.15 to 5.35 GHz band for indoor and outdoor use of low power Wi-Fi systems, etc.

New Policy for .IN Internet domain name and National Internet Exchange of India (NIXI)

Internet domain names play a key role in providing an identity to the user in the Internet space. ICANN (Internet Corporation for Assigned Names and Numbers) has allocated .IN as the country code top level domain (ccTLD) for India. In order to promote and proliferate the .IN domain name, the Government decided to revamp the .IN domain name Registry in India to provide greater thrust to its activities. The new policy aims at adopting a liberal and market friendly approach to register large number of .IN ccTLD names. The responsibility of operating the .IN Registry has been entrusted to NIXI to implement the new policy framework for .IN Domain Name by creating a .IN Registry, maintaining .IN domain and ensuring its operational stability, reliability and security. The .IN registration under the new policy has been launched on January 1, 2005.

The Department, in association with Internet Service Providers Association of India (ISPAAI), has promoted the National Internet Exchange of India (NIXI) as a not for profit organisation under Section 25 of the Indian Companies Act to promote improved Internet services in the country. As part of the implementation plan of NIXI, four Internet Exchange Nodes have been set up and operationalised at Noida (Delhi), Mumbai, Chennai and Kolkata in the premises of the Software Technology Parks of India.



As many as 40 Internet Service Providers (ISPs), including major Class A ISPs, have joined NIXI as members.

To address the problem of excessive cost of connectivity for smaller (Class B and C) ISPs operating in secondary cities, the Department is considering a proposal to set up, in partnership with the State governments, and with the ISPs as stakeholders, a second tier of NIXI hubs in a few selected provincial capitals.

Migration to Internet Protocol version 6 (IPv6)

In order to meet the growing needs of Internet address space, improve on security and quality of Internet service and mobility on Inter Protocol (IP), migration to Internet Protocol version 6 (IPv6) from the current IPv4 is taking place worldwide. In India, likewise, a Roadmap towards implementation of IPv6 has been evolved with an objective to achieve the migration by 2006. A project on 'Establishment of IPv6 enabled Test Bed' by ERNET India and IIT, Kanpur is under implementation. A few other projects for software tools development and deployment are being initiated by the Department. A Workshop on the subject has also been held involving various stakeholders.

An inter-agency implementation group under the Chairmanship of Secretary, Department of Information Technology has been set up to oversee its implementation.

Transport and Power Electronics Programme

During the year, the developmental activities in the project on Custom Power Devices were completed and the technology was successfully demonstrated to the end user in the field trials carried out at a mini Steel Plant in Calicut. After successful completion of this project, the competent authority has approved its formal closure. This state of the art power electronics technology developed by the C-DAC, Thiruvananthapuram has been transferred to an industry for commercial exploitation and dialogues are being held with more industries who have shown interest in taking the technology.

The technology of Flexible AC Transmission System (FACTS) Controller was successfully demonstrated under the FACTS Controller project implemented by BHEL with financial support from the Power Grid Corporation and the Department of Information Technology. This state of art power electronics

system was commissioned on the 400 KV transmission line between Ballabgarh and Kanpur. With application of the FACTS controller technology, enhancement in the power transmission capability of existing power line with minimum investment has been demonstrated to the end user for the first time in the country through indigenous R&D efforts.

The project on Distribution Automation for Thiruvananthapuram city was completed after successful demonstration of the technology for automation of power distribution system. This technology developed by C-DAC, Thiruvananthapuram has been transferred to an industry for its commercial exploitation. Some other industries have shown interest in taking the technology of some components of Distributed Automation System.

After installation and commissioning of the field equipment, the integration of Power Stations II and II with Power Station I was completed in the project on Development of Scalable Distributed Intelligent SCADA for Retrofit and IT enabling of Hydel Power Plant and its implementation in Teesta Canal for Hydel Power Stations by C-DAC, Thiruvananthapuram. The system stabilization activities are being carried out for demonstration of technology of Scalable Distributed Intelligent SCADA for Retrofit and IT enabling of Hydel Power Plant.

A new project on National Mission on Power Electronics Technology has been initiated in November 2004. The project aims at strengthening of the infrastructure and R&D base in the country in power electronics field to make India a significant player internationally in next 5 years.

In the transportation areas, after completion of system acceptance test and all other remaining activities, the project on Automatic Fleet Management System (AFMS) for DTC Buses was successfully completed. The technology of AFMS developed in this project by CMC Ltd., Hyderabad is being commercialized.

The project on development of Vector Controlled AC Motor Drive for Hybrid Electric Vehicles have been completed after satisfactory conclusion of the endurance test of two prototype Hybrid Electric Bus implemented by Ashok Leyland Ltd., Chennai with C-DAC, Thiruvananthapuram. The achievements made under this project jointly funded by the Department of Scientific and Industrial Research and



the DIT are comparable with the development taking place internationally in the field of Hybrid Vehicles.

The development activities related to hardware and firmware up gradation of ATC compatible controller, traffic simulation software and optimization model, preparation of Central Control Room and up gradation of street furniture, surveys for impact analysis of traffic scenario before implementation of Area Traffic Control System at Pune city were completed. This project is being implemented by C-DAC, Thiruvananthapuram with support from Pune Municipal Corporation. The installation and commissioning of the ATCS controllers and other equipment are likely to be completed by March, 2005 at 36 traffic junctions. Thereafter field trials will be completed by June, 2005.

A prototype system was designed and developed by C-DAC, Mohali under the project on Development of Black Box for Automobiles. The system integration and testing activities are being progressed.

Dialogues were held with the academic and R&D institutes for evolving new project proposals in transport and power electronics field in the identified thrust areas. A project proposal on Hybrid light Commercial Vehicle/Mini Bus for small town applications is expected to be evolved during next year.

Technology Development Council (TDC)

TDC supports R&D initiatives in emerging areas of Information Technology towards developing competitive advantage. Multi application smart cards, open source software, ubiquitous computing, security systems, and supporting technology incubation at IITs and IISc are some of the initiatives under this programme.

Multi Application Smart Card Initiative

Multi-application Smart Card (MASC) is an emerging area having significant potential for deployment in ID related applications as well as for payment applications. Common Standards for Multi-application Smart Cards had been formulated. As the next step, implementation of a few test bed/technology development projects are underway.

The Department has financially supported development of core technologies for Smart Card Operating System for Transport Applications (SCOSTA) standard. Two projects namely 'Development of an OS for Smart Cards' and 'Testing

Tools for and Extensions of SCOSTA' have been successfully completed at IIT, Kanpur. The Ministry of Road Transport and NIC are using the OS. Further development of SCOSTA has been initiated at SCL, Mohali. Several State Governments are introducing Smart Card based vehicle registration / driving licenses.

A project on 'Smart Card based Computerization of Accounts for Small Business Enterprises' is under implementation at C-DAC, Kolkata and project titled 'Multi Application Smart Card based Payment System' is under implementation jointly at the Institute for Development and Research in Banking Technology (IDRBT), Hyderabad and IIT, Bombay. The preparation of customized Common Electronic Purse Specifications (CEPS) in the Indian context, secure operation procedures, and key management system have been completed; and two phases of pilot test for CEPS/ EMV for MASC have been carried out.

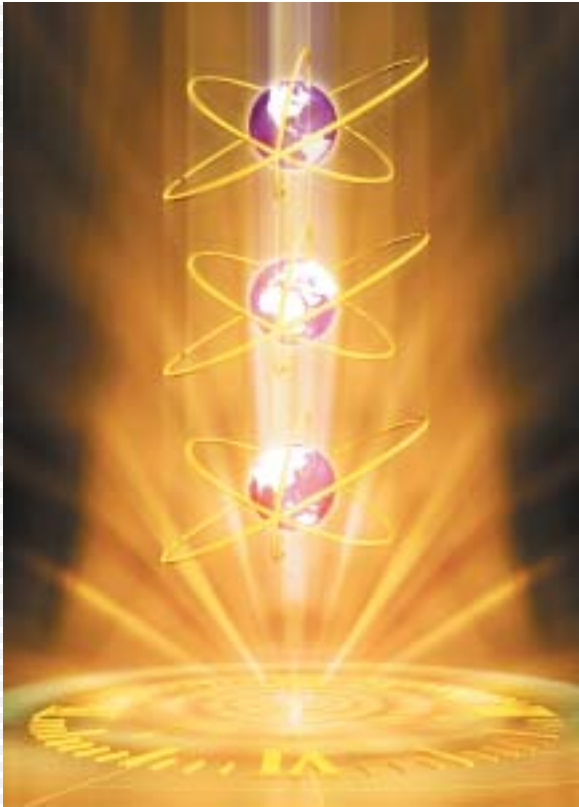
Innovation Promotion in IT

In the knowledge-based economy of the 21st century, innovation and its promotion through various models have become key to our strategy towards accelerating the emergence of India as R&D hub, and innovation 'happening place' of the world. A series of initiatives have been taken in this regard.

To build-around technical capabilities available at our premier institutions, namely IITs and IISc, a national techno-entrepreneurship support programme has been designed and supported at six premier institutions. As a result, these institutions have adopted a framework for technology incubation, and are encouraging faculty and students to consider entrepreneurship as a viable option. Six new companies have already been provided the financial support under this programme. These companies would be a role model for others to emulate.

As a part of the curriculum, over 200,000 student projects are taken every year in the areas of Electronics, Information Technology and Computers at B.Tech, MCA and M.Tech levels. Many colleges and academic institutions lack the wherewithal to define, guide, and execute student projects in a systematic manner. As a result, many student projects are repetitive and incomplete. It is proposed to start a pilot project to establish a virtual platform to assist students in their project work.





Bioinformatics

A Bioinformatics Resources and Application Facility (BRAAF) has been created at C-DAC to equip their supercomputing facility 'Param Padma' for bioinformatics research by various users on a shared-basis.

AyuSoft

Ayurveda is a unique discipline of Indian medical system. A project entitled 'AyuSoft' with C-DAC as the lead implementing agency and a set of collaborating institutions having inter-disciplinary domain knowledge related to Ayurveda has been initiated. The objective of the project is to develop authentic, interactive and intelligent software to assist medical practitioners and researchers.

Vehicle Underside Scanner (VUS)

Subsequent to the attack on Parliament House through entry of unauthorized vehicles, a project to develop vehicle authorization system and a vehicle under-carriage inspection system was taken up at IIT, Delhi to check entry of authorized vehicles, authorized drivers and to inspect hidden objects, if any, in the underside of vehicle. The prototype system was tested at the Cabinet Secretariat. The process of Transfer of Technology is in progress.

Medical Electronics Program

Linear Accelerators for Medical and Strategic Applications

One of the major projects being implemented under the Medical Electronics program is a Jai Vigyan Mission mode project for the development and deployment of 6 MV Medical Linear Accelerators for Cancer Therapy. Linear Accelerators offer one of the most preferred modes of treatment of the dreaded disease of cancer by tele therapy. As per the norms laid down by World Health Organization (WHO), around 1000 linear accelerators are required to tackle the disease in India. These machines are expensive and are to be imported. At present, there are only around 50 linacs in operation in India. Even these are predominantly confined to major cities. To combat this problem, the DIT has initiated the development of a state-of-the-art integrated 6 MV medical linear accelerator system including 3D Treatment Planning System and a Virtual Simulator by a consortium comprising SAMEER, Mumbai; CSIO, Chandigarh and 2 industrial partners viz., Panacea Medical Technologies, Bangalore and TSG Integrations, New Delhi. The Jai Vigyan project is being implemented in two phases with a total outlay of Rs. 14.95 crore. The first phase covers the development and deployment of 2 systems and based on the feed back from the operation of these two systems in the field in second phase, 4 more machines incorporating modifications, if any, are to be deployed in the field. The first machine under this program is now undergoing quality assurance tests for enabling its mandatory qualification by the Atomic Energy Regulatory Board before it is shifted to Mahatma Gandhi Institute of Medical Sciences (MGIMS), Wardha for installation and commissioning. The fabrication of the second machine is in progress and all major sub-assemblies for this are ready. The assembly and testing of the second machine is expected to be completed during the year 2005.

Development of Braille Literacy in Indian Languages

This project also has been initiated under Jai Vigyan National S&T mission program. Under this project, a number of hardware and software products have been developed. These include a refreshable tactile reader that enables blind persons to read any file in a computer. The software converts the word/text files into Braille format which are then fed to the device which activates the piezo electric elements to



generate the Braille dots. This can be used for any of the 12 major Indian languages and English. Braille to Text, Text to Braille software, Direct Braille Keyboard, Electronic Class Room for the blind, an Electronic Library for the blind using the tactile devices are other products that have been developed. The software and hardware products developed under the project have been deployed in 30 blind schools/institutions all over the country and are reported to be working satisfactorily.

Handheld Scanner Based Hindi and English Text Reading Machine for Visually Impaired Persons

The project envisages to develop a Light Weight Portable Hand Held Scanner that will be interfaced with OCR and Text to Speech Software in English and Hindi to enable blind persons to read/consult normal printed text books. The first prototype of the Hand Held device is now ready and is being integrated with the OCR and Text to Speech in Hindi. The system will be offered for feed back and evaluation by blind persons during the year 2005.

Information Technology for Internet Access and Rehabilitation for Visually Handicapped

The project aims to develop software packages that could enable blind persons to browse web pages or read their e-mails with the help of the Tactile Device or a Text to Speech System. The project is progressing satisfactorily.

Design of Closed Loop Anesthesia Delivery System

The first prototype of closed loop anesthesia delivery system has been developed and is currently undergoing clinical trials at PGIMER, Chandigarh under actual Operation Theatre environment.

Development of Radiation Field Analyzer for Radiation Treatment by Linear Accelerators

The Radiation Field Analyzer (RFA) is an essential accessory for the linear accelerator units which are used for the treatment of cancer patients. Currently, such systems are being imported from abroad. The project on the development of radiation field analyzer has been initiated at Variable Energy Cyclotron Centre (VECC), Kolkata. Efforts are underway to commercialize the same as soon as the technology is proven.

Telemedicine

Information and Communication Technology has enabled major potential contributions in a large

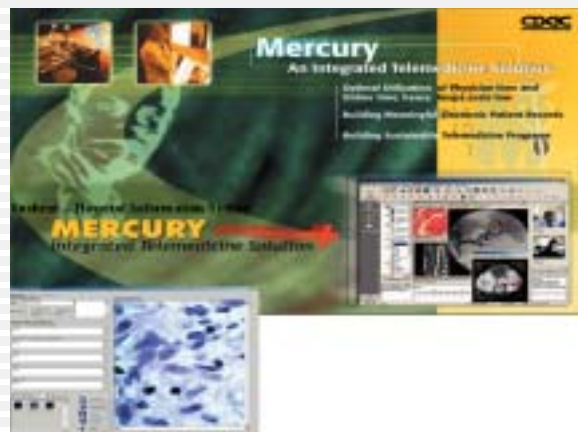
number of economic and social sectors. Telemedicine is one such area, which utilizes telecommunications for affecting specialized consultations for diagnosis and treatment of diseases at a distance. India's more than one billion population, is predominantly rural and distributed in distant geographical locations. While 70% of our population lives in rural India, 90% of secondary and tertiary care facilities are located in the cities and towns, far away from the rural India. Telemedicine, a major application of IT, helps patients in rural and distant areas to avail timely consultations of



Sushrut - Hospital Information System

specialist doctors without going through the ordeal of traveling long distances.

The Department of Information Technology, as a facilitator, has taken initiatives for development of technology, initiation of pilot schemes and standardisation of Telemedicine in the country. The pilot schemes take into account the diverse issues related to currently available telecommunication infrastructure, specialist availability, geographical considerations, etc.



Mercury - Telemedicine



Highlights of the on-going Telemedicine programs

The Department has supported development of telemedicine software systems by C-DAC. Under this project, technology developed has been used for connecting three premier medical institutions, viz., SGPGI-Lucknow, AIIMS-New Delhi and PGIMER-Chandigarh; using ISDN connectivity. These premier institutions are in turn being connected with medical colleges at Cuttack, Rohtak and Shimla respectively. The technology developed is now being deployed for setting up other telemedicine systems in the country.

Telemedicine for diagnosis and Monitoring of tropical diseases in West Bengal using low speed WAN, developed by Webel (Kolkata) and IIT-Kharagpur, has been installed in School of Tropical Medicine, Kolkata and two district hospitals. About a thousand consultations have already taken place over this network. Two more projects for setting up of telemedicine facilities at five referral hospitals and nine district hospitals using the above technology are also under implementation.

The above technology is also being employed to set up a telemedicine network in the state of Tripura where two referral hospitals in the capital Agartala are being connected with four sub-divisional hospitals.

An Oncology Network for providing telemedicine services in cancer detection, treatment, pain relief, patient follow-up and continuity of care in peripheral hospitals (nodal centres) of Regional Cancer Centre (RCC) has been established. The telemedicine network utilizes Internet connectivity in addition to leased lines. The project was implemented by C-DAC, Thiruvananthapuram and RCC. More than 4000 patient consultations have been made till January 2005 using the network. The project is now being upgraded to include high bandwidth VSAT connectivity and other advanced features in teleconsultation.

Another project for Telemedicine and Telehealth Education facilities is being set up in Kerala using the technology developed by C-DAC, Pune where three specialty medical hospitals at Medical College Hospital, Sri Chitra Tirunal Institute of Medical Science and Technology; and the RCC; are being

linked up with 4 District/ Rural Hospitals. Continuing Medical Education (CME) is also a part of this project.

To provide specialty health services to remote areas of North Eastern States of India, another initiative of setting up telemedicine centres is underway connecting super specialty Apollo Hospital, Delhi with hospital in the States of Mizoram and Sikkim with technology developed by C-DAC. The Department of Information Technology had earlier facilitated setting up telemedicine system at Naga Hospital, Kohima which is connected with super specialty hospital Inderprastha Apollo Hospital, New Delhi for consultations. In addition to providing teleconsultation, it is also being used for continuing telemedical education of doctors/paramedics.

Design and development of an advanced hospital management system and its implementation at Mahatma Gandhi Institute of Medical Sciences at Sevagram is under implementation by C-DAC, Noida. The objective is to demonstrate improvement in patient care by providing efficient and timely services through this computerized hospital management system.

A project on 'Development and Implementation of Human Resources Portal' for Department of Health, Government of Kerala and jointly funded by the Government of Kerala and the Department of Information Technology has been initiated and is being implemented by C-DAC, Thiruvananthapuram.

An exercise has been carried out to suggest a framework for IT Infrastructure for Health (ITIHF) to efficiently address all information needs of different stakeholders (government, hospitals, insurance companies, patients, vendors and others) in the healthcare industry. The framework addresses to the key elements of Standards, Legal Framework and Medical Informatics Education. A document, the Framework for Information Technology Infrastructure for Health in India, has been prepared and is being widely disseminated through the Department of Information Technology web-site for feedback and comments from the different stakeholders and public.

To streamline the establishment of telemedicine centres and standardize services available from



different telemedicine centres, 'Recommended Guidelines and Standards for Practice of Telemedicine in India', has been prepared by the Department of Information Technology through deliberations of a Technical Working Group. It is aimed at enhancing interoperability among the various Telemedicine systems being set-up in the country.

Applications in Water, Agriculture and Rural Development Sector

Water Sector

Information Technology plays an important role towards betterment of human life. IT has various applications in water sector. It has a vast potential in evolving suitable Decision Support System (DSS) in Waste Water Treatment Plant and Canal Irrigation System to improve the efficiency of the plant and bring savings in energy, create better environment conditions in waste water disposal and efficient use of water, a very important resource.

Achievements during 2004-05

Automation of Okhla Waste Water Treatment Plant

The project on Automation of Okhla Waste Water Treatment Plant, aimed at developing technology for automation and bringing in the savings in energy and create better environmental conditions in waste water disposal, has progressed and was monitored closely. The necessary system hardware and software were installed and commissioned. Joint On-site Acceptance Testing (OSAT), an important milestone in the project implementation, has been completed by ECIL, Delhi Jal Board and the DIT. The System is awaiting handing over / taking over process.

IT for Improved Management of Canal Irrigation

The project, Andhra Pradesh Irrigation Information System, in the area of canal control and communication system has been completed and handed over to the user.

Khadakwasla Canal Control and Communication Project Phase II: The migration of application software developed under Phase I of the project to latest platform is complete with all the modules already installed in Main Control Centre. The application software has been accepted by the implementing agency. The automatic gate control system has been implemented at all the identified

gate control sites. The user training and orientation has been completed and the system is awaiting user acceptance test.

Rural and Agriculture

Under the project, Integrated Automation of Tea Processing and Model Tea Factory, construction of the Model Tea Factory (MTF) has been completed, all machinery for tea processing has been procured and installed, including computers for automation. Simulated testing and fine tuning was done and all cabling including LAN was completed. Software development has been completed and testing at site as well as commissioning of the MTF was completed. Trials with tea leaves were made and a full load demonstration was made. History data is to be collected to crystallise the optimum parameters required for the four processes of tea manufacturing, viz., Withering, CTC, Fermentation, and Drying. The results will be disseminated to the tea industry. The integrated automation solution promises great benefit towards improvement of productivity, efficiency, energy saving and quality of the manufactured Black Tea. Experimental results would be analysed with advanced IT techniques like data mining. Three workshops to disseminate the outputs of Samadhan Kendras (Rural IT centres) are planned in Andhra Pradesh, Madhya Pradesh and Tamil Nadu.

IPR Promotion Program

'Intellectual Property Right (IPR)' have been a vibrant activity in the country in the recent past. As India is a party to the Trade Related Aspects of Intellectual Properties (TRIPs) Agreement of WTO, the concerned Ministries of the Government of India, have been pursuing for either putting in place a new Act or issuing necessary Amendments of relevant IPR Acts and notifying the rules and enforcements related to them so as to conform to the TRIPs. Notable in this regard are - The Semiconductor IC Layout Designs Act 2000, The Patents Acts 1970 as amended through an Ordinance dated 26.12.04. The Ordinance amends the Indian Patent Act 1970 for the third time to introduce product patent protection regime for all technologies. The Ordinance also issues further clarifications relating to patenting of software related inventions when they have technical application to industry or are in combination with hardware. Again, India being signatory to the Patent Cooperation Treaty (PCT), large number of patent applications from abroad made India as one of the 'Designated Country' and Indian inventors also



have started to appreciate cost effectiveness and ease of PCT route for filing patents internationally. As regards Copyright Act, a core group is deliberating to incorporate WIPO Copyright Treaty (WCT) and WIPO Performances and Phonograms Treaty (WPPT) in the Indian Copyright Act, 1957.

The IPR culture in India is, at present inadequate and calls for a focussed efforts for increasing IPR awareness, training, facilitation for obtaining technological ownership and market exploitations. The IPR Cell in Department of IT made concerted efforts to enhance the awareness of national and international IPR developments in the ICT sector. Areas specially focused were - i) to create awareness and impart training ; ii) to provide promotional and facilitator support for enhancing IPR portfolio of the country ; iii) to develop tools, augment knowledge databases and expertise to provide valued-added Technology Alert based on Patent Search System (TAPS), so as to assist technology assessment, development / acquisition and to arrive at investment decisions; and iv) to respond to IPR needs of the digital era.

Achievement

Towards enhancing IPR awareness and imparting training, a PG Diploma Course on IPR in a e-learning mode for wider public outreach has been sponsored and initiated at Indian Law Institute, New Delhi. Workshops were organized for enhancing IPR awareness amongst SME's, researchers, academia and ICT professionals at Jadavpur University, Kolkata in addition to separate IPR Clinics at C-DAC, Thiruvananthapuram and C-DAC, NOIDA. Three techno-legal analysis reports on current topics were published in leading journals making the total of such reports as 25. Separate IPR Manuals dealing exclusively for Electronics and IT sector were prepared, published and distributed widely including at ELITEX 2004. As regards IPR facilitation applications for 12 national Patents, 6 software Copyrights and one Trademark were filed making the total number of IPR cases filed so far as 137 Copyrights, 58 Patents, 28 Trademarks and 4 Designs. So far, as a total of 4 Patents, 32 software Copyright and 4 design certificates have been obtained.

As outcome of the DIT project, a book entitled 'A Glimpse of the Indian E&IT Patents 2000-2003' was published jointly by the Anna University and the IPR Cell, DIT and was circulated in the ELITEX 2004. Proceedings of ATRIP international conference were

also published by ILI, New Delhi in form of a book entitled 'Legal Dimensions of Cyberspace'. A patent mapping tool to provide R&D technology roadmaps to Indian E&IT industry was developed by IIT, Kanpur and tested it for providing roadmap to R&D efforts of ITI, Naini.

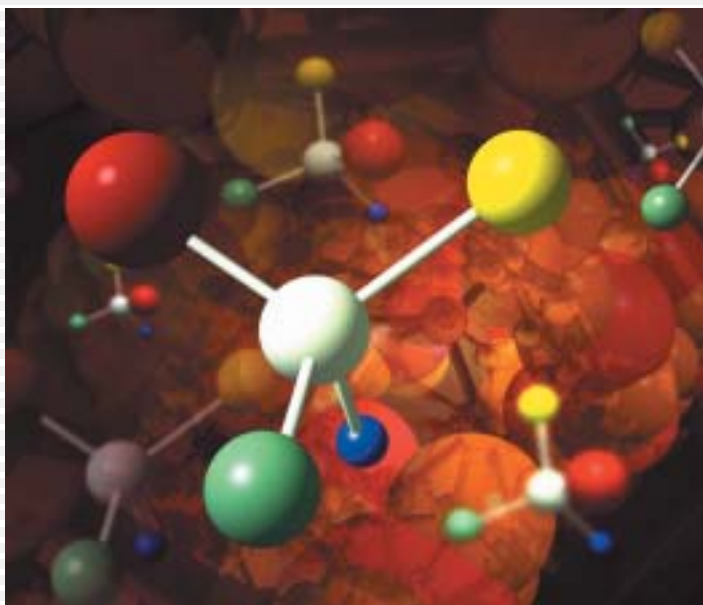
Electronics Components and Materials Development Programme

Components and Materials sector provides the crucial infrastructure for the growth of IT and electronics industry. In the era of liberalisation, there is a need of continuous availability of professional grade components for use in high quality manufacturing of electronics equipment in the country. A number of targeted R&D programs are aimed at bridging the gap of technology in this sector. Under this programme, well identified goal oriented R&D projects are sponsored to National Laboratories and Educational institutes where basic infrastructure exists.

During the year, following four new projects were recommended for funding by the DIT:

- Development of multi-layer coatings for high density optical storage devices - IIT, Delhi.
- Development of liquid crystalline polymers - Advanced Study in Science and Technology IIT, Guwahati.
- Tunable microwave dielectric Materials and Devices - IISc, Bangalore.
- Development of MgO Coating by sputtering for Plasma Displays – IIT, Kanpur

In addition to these new projects, there are nine ongoing projects which are in progress.



Environmental Management in Indian Electronics Industry

Environmental Protection is imperative for sustainable development, and is the collective responsibility of the global community. In order to limit the environmental impact of the hazardous processes related to it, the IT and electronics sector has to adopt stringent environmental safety standards. A systematic and integrated approach to environment is thus inescapable in the long run. The project on 'Environmental Management for the IT Industry in India' implemented by the Department of Information Technology jointly with United Nation Development Programmes aptly addressed this. During the implementation of the first phase of this project, a technical guide has been prepared highlighting the cleaner production technologies that are available world over and the best sustainable technologies in the Indian context. This technical guide has been widely circulated to a number of international and national agencies and industries. A comprehensive second phase programme for implementation has been submitted to UNDP for consideration.

Microelectronics and Nanotechnology Development Programme

Microelectronics provides the basic building blocks for the hardware of the IT, internet and communications revolution. The continued drive towards miniaturization and appearance of new technologies like nanotechnology are expected to lead to even smaller devices enabling realization of more and more complex circuits on a single chip of silicon. The objective of this programme is to build a strong R&D base in the country covering various aspects of microelectronics such as circuit design, process technology, discrete devices, etc. With the emergence of nanotechnology, thrust is being given to build competence at the academic institutions and R&D laboratories on various facets of nanotechnology covering nanomaterials, nanoelectronics devices, nanometrology, etc.

During the year, a project on design, simulation, development and fabrication of microcontroller for electronic voting machine was initiated. Project proposals are also being evolved in the areas of dielectric materials for VLSI applications, silicon carbide thin films for power devices, embedded flash memories, etc. In the area of nanotechnology, four

projects have been initiated. These are: development of nanocrystalline silicon MEMS pressure sensor for vacuum and low pressure applications, development of technology for quantum structures and their applications in futuristic silicon based nanoelectronic devices, fabrication of organic thin film transistors, and development of quantum-well infrared photodetectors. In addition, projects have also been evolved in the area of applications of carbon nano-tubes for drug delivery systems and nanometrology.

Photonics Development Programme

Photonics is an important enabling technology for development of communication and information sectors. In the information age, technologies for transfer of high speed and high volume data in different environments are extremely important. Photonics has various advantages e.g. fiber optic volume capability, high switching and routing speed, EMI free environment, security from tapping, etc. This is on account of photon based transmission/switching devices. Fiber optic communication and networking forms the backbone for broadband connectivity not only for ultra long distance and metro network but even in the access network. The Department, through its Photonics Development Programme, has sponsored projects at various institutions to develop indigenous technologies and expertise in this area, covering systems, devices and material aspects.

A National facility for pigtailling and packaging of photonic devices is being set up at SAMEER-Mumbai. In the first phase, auto alignment system to align fibers with devices for maximum coupling of light using epoxy bonding has already been set up. This would be useful for passive photonic devices including Planar Light Circuits (PLCs) built on variety of substrates e.g. glass, lithium niobate, silica on silicon. Trial packaging runs have been carried out on power splitters successfully. Some of these devices (1 x 8 splitters) are also being evaluated by industry. Laser Weld system, primarily needed for active device packaging is also being set up.

Laser diode chips have been developed and their processes e.g. mesa etching, scribing, cleaning, etc., have been optimised at CEERI-Pilani. Indigenously developed laser diode chips have been packaged and are being subjected to burn in tests for characterisation and improvement of yield. Packaged



devices have given 60% coupling efficiency. Power outputs of larger than 150 mw have been obtained.

Efforts are being made at IIT-Delhi to develop an optical amplifier system (EDFA) using indigenously developed Erbium doped fiber from CGCRI and laser diode source from CEERI. Simulation studies of the system have been carried out. Flattening of gain for multichannel application are being studied using long period grating.

The Metallo Organic Vapor Phase Epitaxy (MOVPE) line required for growth of quantum well structures under controlled conditions has been commissioned in the new lab premises at TIFR. The same is being purged of residual impurities before trial runs are carried out. Trial runs are expected shortly. Quantum well structures based on GaAs/AlGaAs and InGaAs would be tried on two-inch dia Gallium Arsenide (GaAs) wafers towards developing lasers diode operating at 980 nm.

At Calcutta University, use of nitrogen doping in GaSb has shown band gap reduction. The studies would be extended to tailoring the band gap in GaAsSb as well. It is planned to undertake liquid phase epitaxial layer growth of GaSb on GaSb substrates as well as growth of Galn AsSb layers.

Initial studies on polymer based photonic devices have been carried out using polymers as sandwich layer between fixed and flexible electrodes at JNCASR-Bangalore. Polymer based Photo Field

Effect Transistor (FET) and Polymer based angle sensitive detectors are currently being investigated with a view to develop low cost sensors.

Efforts are being made at IIT-Bombay to experiment with the concept of generating beat signal generation at 10 GHz by using Erbium Doped Fiber Amplifier (EDFA) in the saturated mode for Wavelength Division Multiplexing (WDM) applications. The problem of higher losses between coupler and optical fiber are being tackled. Facilities created at SAMEER for splicing and spectrum analysis are being shared.

Studies on selection of proper laser source as well as recording material are being carried out at CDIT-Thiruvananthapuram towards development of Volume Bragg Grating (VBG). This is an extension of available 2-D holographic knowledge to 3-D holograph recordings for photonics applications for writing gratings.

At IIT-Madras, Nanoclusters of TiO₂ and ZrO₂ with nano metal cores of gold have been prepared and optical limiting studies have been conducted. Some light absorbing dyes have been synthesized and characterized. At IIT-Kanpur, Single Crystal Fibers (SCF) are being prepared using Laser Heated Pedestal Growth (LHPG) technique from single crystals of Nd:YAG and LiNbO₃. Process for preparation of the powder has been standardized. Efforts are being made to control the growth parameters.





Human Resource Development

Vidya Vahini

During the year 2003-2004, Department of Information Technology has implemented pilot project of 'Vidya Vahini' in 140 schools, 20 schools in each of the 7 selected districts in 6 States in the country. The objective of the pilot project was to demonstrate proof-of-concept and establish standards in the areas

- Providing Information and Communication Technology (ICT) infrastructure;
- Training of the teachers to use ICT for imparting education;
- Providing different learning resources, which include related educational tools, course curriculum and other learning material.

Intranet and Internet connectivity established through Broadband VSATs at these schools was continued to be supported by Department of Information Technology. Department of Space has provided free transponder space segment and Department of Telecommunications has waived of licence fee for providing connectivity to these schools.

The key features of the scheme 'Vidya Vahini' were incorporated by the Ministry of Human Resource Development in their programme 'ICT in Schools'.

Gyan Vahini

During the year, the project was extended to set up campus-wide network at Allahabad University (Uttar Pradesh), Kashmir University (Jammu and Kashmir) and Annamalai University (Tamilnadu). At each of these Universities, a hybrid network consisting of fibre optic backbone connecting to each of the academic, administrative and library building was planned. A mix of technologies using

VDSL/xDSL and 802.11b technologies has been developed for these centres.

Campus-wide network at Allahabad University was completed and made operational. A complete Management Information System (MIS) has been implemented by the University on the network. The faculty and students are able to access digital libraries and e-journals hosted on the UGC-Infonet through campus-wide Local Area Network.

The implementation of campus-wide network at Kashmir University and Annamalai University are under progress and expected to be completed by June, 2005.

During the year, ERNET has signed an MOU with Rajasthan University, Jaipur to design and implement state-of-the-art campus-wide network at their campus. Technical support was provided to Manipur University, Imphal and Gorakhpur University, Gorakhpur to design their campus-wide network. The complete proposal was prepared to set up the network.

e-Learning – R&D Projects

E-Learning is imparting education using new educational tools and communication media. These education tools can be effectively used to enrich the courseware with multimedia features. Advances in digital electronics have made e-learning possible because digital data can be accessed randomly; retrieved fast; manipulated; requires less storage space, etc. Educational tools make use of this digital revolution – digitization of the courseware rich in multimedia features and its communication using Internet. During this year 2004-05, following e-Learning R&D projects have been processed:



Web Based Intelligent Interactive Tutoring at IIT, Delhi

Web based online courses on intelligent Interactive Tutoring platform for three Engineering subjects – engineering mechanics, structural analysis, bridge engineering have been developed and made available free online to the students of all Engineering colleges. The courses are available at <http://www.ncst.ernet.in/vidyakash> and also at <http://paniit.iitd.ac.in/webiit>.

Multimodel Digital Distance Education for IT and other critical Technologies

School of Education Technology, Jadavpur University is developing appropriate courseware engineering methodologies for web enabled multimedia multi-model courseware in the areas of courseware engineering, software engineering and multimedia and web technologies as also to offer these post graduate courses in both classroom and e-learning format to train a manpower of more than 150 in each subject. The two PG programmes viz., PG Diploma in Multimedia and Web Technology, and M.Tech IT (Courseware Engineering) were launched in January 2005 under the project.

Development of Content Delivery

IIT, Kanpur is developing the Learning Management System i.e., an asynchronous e-Learning tools (Brihaspati) for the whole institute. For all the courses and their students about 3000 accounts were used. A workshop was conducted for the facilitation of the faculty and based on the feedback received from the users, architectural changes are being incorporated. 33 institutions have shown interest or have been using this open source LMS Software.

Training of Trainers in e-Learning

A project has been initiated for implementation on e-Learning for undertaking a training programme for the teachers of the schools, colleges and other institutions in e-Learning at the DOEACC centres of Aurangabad and Kolkata

Online Course Content on Cyber Security in e-Learning Mode

Video recording of lectures on 'PKI Infrastructure' and 'Linux Security' has been carried out. Interactions with the content authors for course material preparation are under progress. It is planned to create the online content in e-Learning

mode on the e-Sikshak platform to launch the 'Cyber Security' course.

Enhancing Competency of IT Teachers and Industry Professionals at Kanwal Rekhi Institute of Information Technology (KReSIT) and IIT, Mumbai are multicasting high end IT courses at Post Graduate levels. Different trails and demonstration are being done by multimedia software provided by Venera Technologies in the real time encoding, streaming, compression and storing of encoded content in the hard disk. A pilot run will be conducted on low cost remote centre set-up for transmitting the live lectures to the new or existing Remote centres.

Courseware for Quality Teaching of IT using Interactive Multimedia in Vernacular Languages

The objective of the project is to boost the quality of existing Class-room teaching/training in the non-metropolitan (or major) cities in IT with Interactive Multimedia-based Courseware in Vernacular Languages and complete curricula on basics of IT for beginners (artisans, school students, etc..) and imparting education synchronously at multiple locations based on the prepared Interactive Multimedia-based Courseware on IT-related courses.

C-DAC, Kolkata has developed a convivial computer-based EKALAVYA in Integrated Development Environment (IDE) for Courseware preparation and maintenance. It supports Gagne's Instructional Design theory as a part of its authoring support. It also provides a client-end delivery system for education and pedagogic supports in the classrooms.

The Courseware developed has been on field trial in various districts of West Bengal and results have been extremely successful. Berhampore Cooperative Society is imparting training to the local silk weavers of the district of Murshidabad of West Bengal on use of this interactive multimedia based content. About 432 artisans of the Birbhum district, West Bengal have been trained.

Vision Paper on e-Learning

A draft Vision Paper on e-Learning R&D projects have been prepared and following thrust areas in e-Learning R&D Projects have been identified:

- Training of teachers in e-Learning
- Development of new and inexpensive



- technologies for design and delivery of content
- Content development independent of platform and environment (Open source) and
- Setting up of Quality assurance Framework in e-Learning.

The paper has been circulated to Educational Research Institutes and Industry for comments / views.

Information Security Education and Awareness Programme

Information Security has been identified as one of the thrust areas by the Department of Information Technology. A project on 'Information Security Education and Awareness' is being initiated during the year to undertake the following activities:

- **Introduction of Information Security Curriculum**
 - Training faculty of Participating Institutes
 - Setting up of the lab at the Resource Centres and Participating Institutes
 - Development of Learning Material on specified topics
 - Information Security Education Exchange Programme – Invite experts in Information Security at Resource Centre
 - Organize International Conference.
- **Train Executives/Officials from Central & State Government**
- **Awareness Programme** : Organizing Conferences, Workshops, Dipstick analysis, talks on TV/Radio, publish articles etc.

Task Force on Human Resource Development in Information Technology

To prepare a long-term strategy for significantly increasing the number of well trained IT professionals in line with the economic projections for the IT enabled services sector, Department of Information Technology constituted a Task Force on 'Meeting Human Resource challenges for IT and IT-Enabled Services'. The Task Force was chaired by Shri F.C. Kohli and had prominent members from the industry and NASSCOM. The recommendations of the Task Force are on the following strategic lines:

- Attracting resources into IT/ITeS.
- Educating/developing requisite skills.
- Certifying skill levels of resources.
- Deploying trained/certified resources.
- Monitoring and guiding efforts related to IT/ ITeS and R&D.

Recommendations, which have been selected for immediate implementation, are

- a) Create an 'IT/ITeS Awareness fund' with industry support.
- b) Provide special fiscal incentives to attract expatriate talent for high-end work.
- c) Introduce changes in telecom and custom/excise regulations to enable working from home for IT/ITeS industry.
- d) Impose greater discipline associated with information security adherence.
- e) Co-ordinate efforts to develop a common, on-line test for ITeS (IICT).

Bioinformatics Manpower Survey

Bioinformatics has the potential to be one of the fastest growing sectors of the Indian economy, given the strong intellectual base of the country. This sector has immense job opportunities for the future. The Department of Information Technology having realized this potential commissioned Confederation of Indian Industry (CII) to prepare a report to forecast the human resource requirements in Bioinformatics.

The aim of the study was to identify the existing and anticipated mismatches between supply and demand for the Bioinformatics profession across all sectors of the economy. The report quantifies the gaps in the supply of Bioinformaticians and identifies some important reasons for the shortfall in the skills of the individuals taking up Bioinformatics-related courses. It will act as a point of reference for both the Industry and the Government. The salient features of the report are :

- Introduce Modular Courses
- Launching a Quality improvement programme (QIP) in which 'Train the Trainer" approach is followed.
- Set up Centres of Excellence for research and training purposes.
- Ensure uniformity and focus across various institutions offering Bio-informatics courses.
- Standardisation of the course structure and laying down minimum requirements for infrastructure, competence and industrial training in the duration of the course.
- Introduce Bioinformatics as a separate discipline in premier institutes like IITs/IIScS.
- Establish linkages in the form of faculty and student exchange programs to enhance the exposure of students to global developments and practices.



- Set up shared facilities for In-silico and In-vitro research including software tools and databases.
- Strengthen India's IPR regime.

Information Technology and Electronics System Maintenance Programme

In order to upgrade the technicians' skill at the grass root level and to make it available for hardware maintenance used in the fast changing IT and Telecommunication Sectors, a new trade namely 'Information Technology and Electronics System Maintenance (ITESM)' has been introduced in 100 Government run Industrial Training Institutes (ITI) located all over the country. The programme has the following major components:

- Training to the Instructors of the 100 ITIs in the new trade.
- Preparation and consolidation of the course material for the new trade.
- Supply of IT and electronics equipment to the 100 ITIs where the new trade is being introduced.

The intake for the programme is 20 per ITI. It is expected that 2000 students will pass out every year in this new trade. The course has been introduced in 55 ITIs during the year 2004-05, the remaining 45 ITIs will commence this trade from next year.

Employment Generation Training Scheme

The objective of the Employment Generation Training Scheme (EGTS) scheme is to enhance employment opportunity of educated youth in IT Industry by pursuing DOEACC 'O' and 'A' level computer courses. The scheme helps in promotion of IT in remote areas. A modified version of the EGTS scheme is being implemented for the last 2 years (2003-05). Under modified EGTS scheme, Fee Reimbursement Assistance (FRA) is provided to students of weaker sections (SC & ST) in the North Eastern States including Sikkim for pursuing DOEACC accredited IT courses 'CCC', 'O' and 'A' level (assistance varying from Rs.2,500/- to Rs.20,000/- depending upon IT course) through NGOs/ institutes having DOEACC accreditation. It covers DOEACC accredited IT courses, for which syllabus and duration of courses are strictly as prescribed by DOEACC Society. The complete information of the scheme is available on the DIT website <http://www.mit.gov.in>.

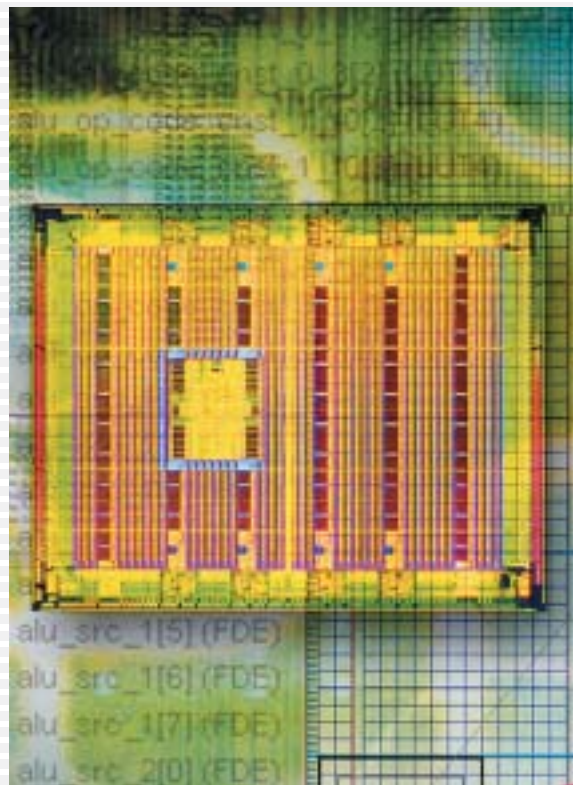
Distribution of Microsoft Software Packages to Schools

In pursuance to the visit of Mr. Bill Gates, Chairman, Microsoft Corporation, USA during September 2000, the Department has been receiving free of cost the Microsoft Academic Software packages for the 3 years for distribution to schools. Each package contain MS Office, Visual Basic and MS School Bus Series. The Department had been distributing these packages to various schools run by KVS, Navodaya Vidyalaya Samiti and other agencies.

The fourth consignment of these packages was due for distribution to various schools, but the same has not been received from Microsoft Corporation, USA. During the year, MS Academic Software packages numbering 934 have been distributed to various schools out of the proceeds of last year packages.

Special Manpower Development for VLSI Design & Related Software

The availability of quality manpower has become the dominant and critical resource for development of knowledge based industrial sectors such as VLSI design, Embedded system development etc. The trained manpower in this area has also become



essential for the booming software sector in the country for both accelerating and maintaining the growth rate by way of moving up the value chain. In this context, the DITs 'Special Manpower Development for VLSI Design and Related Software' (SMDP) programme started in 1998 is helping India to become a major global destination for VLSI design. About 125 VLSI design and Electronic Design Automation (EDA) tool companies are already having their design centres in India. The SMDP programme is being implemented at 12 Participating Institutions (PIs) with the support of 07 Resource Centres (RCs). It includes the activities such as setting up of VLSI Design infrastructure at various institutions, development of Learning Material (LM) by RCs on 25 selected topics, training of faculty of PIs by RCs through Instruction Enhancement Programme (IEP) on all the LM topics, training of laboratory technicians on hardware and software and teaching BE/B.Tech, ME/MTech including Ph.D programme. The IEPs on all the topics have been completed. The LMs developed under this programme are being reviewed and suggestions are being incorporated. The LMs on 17 topics have been completed after incorporating reviewers' comments. Eight PIs, in addition to BE/B.Tech, ME/MTech with students taking 2-3 VLSI design subjects, have started full ME/MTech programme in the area of Microelectronics/VLSI design. With a view to increase India's share in the emerging global business, increase in availability of quality manpower has become necessary. A Working Group set up by the DIT has evolved the next phase of manpower development programme in this area which includes identification of institutions, development of curriculum for the M.Tech programme, requirement of hardware and Electronic Design Automation (EDA) Tools and other details. Consent for participation in the programme from the identified institutions has been obtained and names of Participating Institutions as well as the Resource Centres have been decided for the next phase.

Development of Weaker Section

The Department allocates its resources on various projects / programmes for infrastructure development or sponsored projects for specific technology or manpower development.

To encourage students from the weaker sections in computer education, the DOEACC Society of the

Department, has introduced a scholarship for students from weaker sections (SC/ST/OBC and disabled) and female students for DOEACC/O/A/B/C level courses since January 2003. Under this scheme, a candidate shall be reimbursed Rs. 2,000 on successful clearance of first two papers and additional Rs. 2,000 on completion of balance papers in subsequent examinations. So far, 17,118 SC/ST students have been registered with the DOEACC.

The Department has also formulated an Employment Generation Training Schemes (EGTS) for the benefit of students of weaker sections (SC/ST/OBC). The emphasis of EGTS scheme is on Fee Reimbursement Assistance (FRA) to directly benefit students of weaker section (SC/ST) in North-Eastern States, who are not in a position to spend from their own resources for their computer literacy needs. The EGTS scheme has direct bearing in filling up the shortage of trained personnel in the field of IT. In addition, Centre for Development of Advanced Computing (C-DAC) runs IT/Computer courses, which are open to SC/STs and disabled persons also.

Gender Issues

The IT and electronics sector is one of the largest employers of skilled and educated persons. This sector is also one of the largest employers of women and therefore, can go a long way in women empowerment and reducing the gender bias. IT sector provides flexibility to its employee of operating from home and in working time, which enables women to carry on with jobs with family life.

Indian IT software and services industry is estimated to provide employment to 10,45,000 IT professionals by March 2005. 76 per cent of software professionals in software companies were men, whereas 24 per cent were women. This ratio is likely to be 65:35 (male to female) by the year 2007. The IT Enabled Services (ITES) sector provides more opportunities to women. This ratio of males to females in the ITES sector is reverse, i.e., 31:69. In electronic assembly lines also, females are the preferred employees.

To encourage female students in computer education, the DOEACC Society of the Department of Information Technology, has introduced a scholarship for female students for



DOEACC/O/A/B/C level courses since January 2003. Under this scheme, a candidate shall be reimbursed Rs. 2,000 on successful clearance of first two papers and additional Rs. 2,000 on completion of balance papers in subsequent examinations. The female students numbering 1,59,256 account for about 32 per cent of total number of 4.96 lakh students registered with the DOEACC.

This sector has, thus, successfully addressed the gender issues.

Welfare of Disabled Persons

Braille literacy in Indian languages with the application of IT: This project was initiated under Jai Vigyan National S&T Mission program for development of software and hardware products for Braille literacy in Indian languages for the empowerment of blind people in the country. 30 blind schools in the country have already been provided with the IT infrastructure for Braille literacy under this project. A tactile device for reading the information from the computer has been developed. This device displays 20 Braille Characters at a time and enables a blind person to read computer files at his own pace. These devices along with the necessary software have been deployed in the 30 blind schools covered under the project.

Hand held scanner based Hindi and English text reading machine for visually impaired persons: The machine under development would consist of a hand held light weight portable scanner interfaced with OCR software and text to speech software for Hindi and English. The system would enable the visually handicapped persons to read normal printed books, etc., in Hindi and English language.

Information Technology for internet access and rehabilitation of the visually handicapped: Screen reading software and various other software in four Indian languages are proposed to be developed to enable the blind persons to access internet and operate computer independently for various applications such as word processing in Indian languages, e-mailing and web browsing, etc.

Browsing of Conference websites through listening by Visually impaired persons: Media Lab Asia in collaboration with Center for

Development of Advanced Computing (C-DAC), Pune and WEBEL Media Electronics Ltd. (WML) has developed an integrated system of Text-to-Speech and Text-to-Braille titled 'Shruti Drishsti', which enables the visually impaired conference attendees to browse the proceedings of the conference website through listening and reading from Braille. The development of the system has been completed and prototype systems are proposed to be suggested for detailed evaluation/field trials.

Sanyong: A communication System for the People effected with Palsy: The project aims at developing a visual language technology and associated multimedia platform to provide a new and more natural communication and educational tools an interfaces for the under-privileged segment of society. The segments of society who will directly benefit from the proposed from the proposed technology include the neo-literates and pre-literates in the rural areas and people with speech and neuro-motor disorders (cerebral palsy). In conjunction with the Text to Speech research (Shruti), the proposed technology has a very large impact in establishing a new and effective education and communication medium for the people, through its deployment. A prototype system is undergoing field trials at Indian Institute of Cerebral Palsy, Kolkata.

The **screen reading technology** has revolutionized the lives of persons with vision impairment. This technology provides independence in reading and writing to them. This has an extremely positive impact on the educational, vocational and recreational opportunities in their life. In India, this technology is being used since 1990, however, limited only to the persons who can read and write in English language. The software packages are being imported at high cost when compared to the cost of PC itself. Media Lab Asia has recently initiated a project in collaboration with National Association for the Blind (NAB) aimed at development of the screen reading software, which could support English and Hindi languages.





Infrastructure

Community Information Centres (CICs)

The Department of Information Technology had taken up an initiative to set up Community Information Centres (CICs) in the hilly, far-flung and rural areas of the country to bring the benefits of ICT to the people for socio-economic development of these areas by providing broadband connectivity.

North-Eastern States

The Department has set up 487 Community Information Centres (CIC's) at the block level in the North Eastern States of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim. All CICs are operational except one in Assam. The CIC network availability during the year 2004 has been of the order of 94 – 98 % and the percentage of fully functional CICs of the order of 90 – 96 %. During the year, 49523 persons visited CICs, 8431 persons were trained, and total revenue of Rs 49 lakhs (including Rs 33 lakhs from training) was generated. In addition 78 Post Offices in the North Eastern States have been provided with a computer and peripherals for connectivity with CICs. As per MOU, CICs would be handed over to State Governments by February 2007.

CICs are a citizen interface for IT enabled e-Government services and training. The CICs provide e-mail, Internet access, citizen centric services through CIC portal (www.cic.nic.in) and web-based services such as agri-market information, hospital bookings, election results and board examination results. Training to the local community on the fundamentals of using computers, conducting tele-consultation sessions, dissemination of information related to employment opportunities, data entries for Below

Poverty Line (BPL) census, and other awareness and entertainment programmes are the regular features of the CICs in the region.

For optimum utilization of CICs, the relevant local content has been developed and updated by the State Governments and NIC. CIC Operators were trained by the NIC on eNRICH – a tool to develop Block Community Portals, troubleshooting VSAT equipment installed at CICs, and uploading the content. Further, seven Workshops were conducted at Guwahati (Assam), Agartala (Tripura), Shillong (Meghalaya), Imphal (Manipur), Aizwal (Mizoram), Dimapur (Nagaland), and Itanagar (Arunachal Pradesh) by the National Institute of Administrative Research (NIAR) Mussorie, a Society of Lal Bahadur Shastri National Academy of Administration (LBSNAA) to identify the local needs of the people.

The Indira Gandhi National Open University (IGNOU) is conducting Computer Literacy Programme (CLP) through the CICs in North Eastern States. 5271 candidates have been trained, so far, through this programme of IGNOU. DOEACC, a Society under DIT is also conducting 'Course on Computer Concepts (CCC)' through CICs in North Eastern States. 273 CICs have been accredited so far for conducting the 'CCC' programme. On-line exams of 'CCC' Course were conducted using Computer Assisted Paperless Examination System (CAPES) technology of NIC at CICs in which more than 1000 students appeared.

Jammu and Kashmir

Based on the experiences and performance of the CIC project in the North Eastern States, the Department of Information Technology has taken



up another project during February 2004 to set up 135 CIC's at the block level in the State of Jammu and Kashmir (J&K). The project is being implemented by NIC / NICS in two phases i.e. 60 CICs in the first phase by October 2004 and remaining 75 CICs in the second phase by October 2005. 60 CICs of first phase have been made available to the people of J&K for providing citizen-centric services as in the North Eastern States. Community Portals of all 60 CICs have been created and the CIC operators have been trained to upload local content on sites.

Andaman and Nicobar and Lakshadweep Islands

The Department has taken up another model for setting up of 71 Vidya Vahini CICs in the government schools located in the Andaman and Nicobar Islands (41 schools) and Lakshadweep Islands (30 schools) with dual purpose of imparting ICT based education and training as well as for providing citizen-centric services to the people of the region. During school hours, Vidya Vahini CICs would be utilized for education purpose and off school hours the equipment would be used by the general populace to access citizen-centric services as in the North Eastern States. ERNET India is implementing this project.

Uttaranchal

The Department intends to set up of 328 CICs (95 CICs at the block level and 233 CICs at village level) in an entrepreneurship mode in Uttaranchal. State Government would implement the project and meet the 10% of the cost of the project. State Government would ensure interfacing of CICs with their SWAN (State Wide Area Network) and NICNET.

Standardization, Testing & Quality Certification (STQC)

Standardisation, Testing & Quality Certification (STQC) Directorate which functions as an attached office of Department of Information Technology, provides Assurance Services in Quality and Security on a national level with the vision of being a 'key enabler in making Indian IT Industry and users achieve compliance to International Quality Standards and compete globally'. This programme has been in existence over three decades and has received substantial support from the German

Government in the form of Indo-German Technical Cooperation project spanning over 15 years (1980-1995). The German Government support is available, at present, for establishing 5 centres for Training in Test Engineering and Quality Assurance in Electronics and IT. Apart from being a major Testing and Calibration network in the country, STQC has initiated a number of schemes aimed at Exports Promotion, Information Security and Software Quality Engineering.

STQC Services and Network

STQC services are executed through a countrywide network comprising of Electronics Regional Test Laboratories (ERTLs), Electronics Test and Development Centres (ETDCs), Centre for Reliability (CFR), Indian Institute of Quality Management (IIQM), Centres for Electronic Test Engineering (CETEs), Centres for IT Services and Certification Cells. Major STQC Services include

- Testing and Calibration
- Quality and Security Certification
- Training support in Quality Management and Technology, Test Engineering, Information Security and Software Quality
- Consultancy and support services for Product and Process Improvement.

Accreditation and Recognitions

The Directorate enjoys the status of a Prime Assurance Services provider in the area of Electronics and IT in the country and is represented in all the major national fora such as Bureau of Indian Standards (BIS), Quality Council of India (QCI), National Accreditation Board for Test and Calibration Laboratories (NABL), National Physical Laboratory and major Industry Associations.

STQC laboratories hold all the major National Accreditation like NABL, Ministry of Defence, DOT, RDSO, DG(Mines Safety), Chief Controller of Explosives, Director General, Shipping and many others.

The Certification services are Internationally accredited and recognized. Besides, STQC is also represented in major International Standards and Certification organizations and has collaborative arrangements with major Certification agencies like BSI UK, UL USA, TUV Germany, JOA Japan and many others. STQC has also been offering testing, calibration, training and certification services to



overseas countries like Nepal, Bhutan, China, Singapore, South Korea, Taiwan, Dubai, Germany, UK, USA and Mauritius.

Revenue Earnings and Budget

STQC has a clientele of over 10,000 customers comprising Multinational Industries, Small and Medium Enterprises and Government Institutions. STQC facilities and services are continuously being upgraded to meet the growing demands from the users and customers. All the STQC's services are extended on commercial basis with the objective of providing International level services at affordable cost with special focus on assisting small and medium enterprises. After initial establishment and consolidation phase of STQC programme, the revenue earnings from STQC services have been steadily growing during the last five years with an annual growth rate of about 30%. Presently, STQC has already reached cash point and is able to meet the revenue expenditure out of its earnings. However, all the earnings of STQC services go to the Consolidated Fund of India (being an attached office of DIT) and STQC expenditure both Capital and Revenue has to be met from the DIT budget. The current Annual Budget (2004-05) for STQC programme is Rs.37.80 crore and the revenue earning target for the year is Rs.33 crore.

Recent Initiatives

Information Security Initiatives

Information Security Management System:

STQC has been a pioneering organization in introducing the Information Security Management System certification concept in the country and is the first Certification Body to introduce the certification in this area. Certification Scheme launched by STQC in this area has been Internationally accredited. So far, STQC has already certified 25 organizations covering 45 locations under the scheme. STQC clients include major IT Industries, such as Satyam, Hughes, ST Micro Electronics, HCL, Polaris, Cognizant, Iflex, Wipro, etc. and other organizations like TISCO, L&T, ICICI, Siemens. STQC has also certified a few overseas clients like Doha Bank, Qatar; Vertex, USA and Polaris, USA. STQC is also active in supporting National/International standardization activities in this field.

Security Product Testing and Certification:

A programme for setting up a Common Criteria

Security Test/Evaluation Laboratory as well as a Certification scheme based on ISO 15408 standard has been initiated recently. The project aims to meet the needs of Government and industries for security evaluation and certification of IT products.

Penetration Test Facilities: Penetration Testing Laboratory has been established at Kolkata to provide commercial services with primary focus to assist IT users in critical information infrastructure and protecting their networks against disruptive attacks.

Training in Information Security: Towards developing manpower for Security Assurance activities, certified training courses on various aspects of Information Security have been designed and conducted. These courses are based on the contemporary practices and International standards.

Software Testing, Evaluation and Certification

Software Testing and Evaluation activities have been given lot of emphasis and major projects on Testing and Evaluation from NIC, BEL, DRDO laboratories, Language Product developers and State Government. Financial agencies and Smart Card Manufacturers are on hand. STQC has launched a scheme for software product, evaluation and certification. The first product certified is the 'Bhulekh Software' developed by NIC and implemented in four states (Delhi, West Bengal, Rajasthan and Tamil Nadu) under their Land Record Information System. Testing and Evaluation of Software developed by DRDO laboratories for their projects AKSHAY and SHAKTI and SANJAY has also been undertaken.

A project on Quality Evaluation and Certification of Indian Language Technology Products has been initiated at Bangalore. Under this project Language Technology Products like Optical Character Recognition (OCR), Machine Translation, Text to Speech and Speech to Text Software and other products will be tested and evaluated as per the International Standards. Quality development support and training would also be provided to the Resource Centres and other agencies developing these products. Necessary infrastructure has already been created and the Centre is equipped with state-of-the-art facilities and Software Test Tools.



Quality in IT Service Management

With a view to improve the quality of IT services such as Web service, Facility Management, Internet and Telecom Services (covering end to end service management), STQC has introduced a certification scheme for IT service management based on internationally known Standard BS 15000. For this, STQC has specially trained a team of 15 Engineers on the foundation course in ITIL and Lead Auditors course for BS 15000 (these are the only Indian Auditors available in the country). The certification scheme has been launched. STQC has also obtained International recognition from IT Service Management Forum (itSMF) UK and happens to be one of the 9 certification bodies in the world and the only body in Asia offering certification services for IT Services Management.

Quality Assurance Framework for e-Governance

Recognizing the importance and focus for e-Governance, STQC has taken initiative to support this major initiative of DIT on the aspects of Standards, Quality and Security. For this, STQC Directorate have evolved a Quality Assurance framework covering the aspects of Quality of Application Software, Security of e-Governance System and ensuring Quality of IT Service Delivery. The framework is based on the International standard like ISO 9126, BS 7799 and BS 15000. STQC has also evolved a quality model for testing and evaluation of Application Software based on the latest International Standards and have also validated this model through testing of number of e-Governance Applications like Land Record Information System, Property Registration, Treasuries Information System, etc.

Highlights of Services

Testing and Calibration Services

- ERTL(East), Kolkata has established National facilities for Explosive Atmosphere Compatibility Testing (for electrical/electronic equipment used in potentially explosive atmosphere) and Fiber Optic Instrument Calibration and have rendered services to a large number of organizations across the country. The laboratory holds all the National and International recognitions in the area of Explosive Atmosphere Compatibility Testing and is assisting in Exports Promotion.

Test reports of the laboratory in the area of safety testing have been recognized by Intertek ETL Services an Internationally known Certification body in Sweden and Europe for the purpose of 'CE' Marking as per the European Low Voltage Directives. ERTL (East) have also established new facilities for calibration of Process Parameters like Viscosity, Volume, Density and PH and have also obtained National recognition by NABL to help the industries in the region. The laboratory has extended its services in the area of safety testing, EMC testing and calibration as well as explosive atmosphere compatibility testing to overseas organizations like Austria, Germany, UAE, Bangla Desh, Oman, etc.

- ERTL (West), Mumbai assisted a number of industries in getting 'CE' Marking as per European Machine Directive for exports to European countries. The laboratory has also helped in Quality Evaluation of Office Automation products for Government of Maharashtra. A unique facility for calibration of SP Resistance Thermometer by fix point technology has been established at ERTL which is the only facility outside National Physical Laboratory (NPL) in the country.
- ERTL (North), Delhi has established state-of-the-art EMI/EMC testing facilities, which are fully



operational. The Laboratory has also expanded its Power and Energy testing base to overseas customers in Australia, Singapore, Canada and Philippines. Experts from Turkey and Switzerland have visited the Laboratory in connection with Power and Energy testing of their products. ERTL (North) has also been assisting the Indian Exporters in obtaining CE Marking of electrical/electronic products and is a leading Laboratory in STQC having all the International Accreditation like IECQ, CBTL, NABL, etc. The Laboratory was also chosen by the NABL for APLAC Peer Review in the area of calibration which has been successfully completed.

- ERTL (South), Thiruvananthapuram has moved to its newly constructed building at Akkulam and would be operating from the new site shortly. The Laboratory has specialized in testing of medical electronics equipment/instruments and has obtained International Accreditation for this in terms of Certified Laboratory under IECEE-CB scheme operated by International Electro-technical commission.
- ETDC, Bangalore has recognition in conducting Proficiency Test (PT) programme in the field of EMC for the first time in India. ETDC has also secured best score in PT programme conducted by FM Australia and has also co-ordinated Proficiency Test Programme for NABL involving 22 laboratories all over India. The Laboratory has also been certified as an Independent Test Laboratory in the Solar PhotoVoltaic area under the International IECQ Scheme.
- STQC Laboratory at Hyderabad has been involved in Environmental and Vibration testing of Missiles Sub-systems and have also provided calibration services to Defence, Space, Atomic energy, Power, Pharmaceutical, Railways and Telecom sectors.
- ETDC, Chennai has established state of the art facilities for calibration of Dead Weight Testers and EMI/EMC Testing. This Centre has also assisted Indian Railways in analysing the cause for derailment of suburban trains.
- ETDC, Pune have upgraded its testing and calibration facilities to provide effective services to Automobiles industries. The Laboratory has been providing services to Defence establishments like DGQA, High Explosive Factory, Armament Research and Development

Establishment, Vehicle factory, etc., and has also been accredited by VSSC, Thiruvanthapuram for testing power modules and amplifier used in PSLV/GSLV projects.

- Centre for Reliability (CFR) at Chennai has been providing Reliability and Failure Analysis services to a number of organizations. These include Indian Railways, ISPAT Industries-Mumbai, Crompton Greaves, TVS Electronics, Larsen & Toubro, DRDO and many others. The Centre has also engineered and further upgraded software tools such as software test coverage and software code compliance developed by IIT, Kanpur so as to market them commercially as 'off the shelf' products. These tools were released during ELITEX exhibition in April 2004.
- ETDC at Goa is now fully functional from its new prestigious building at Bambolin at a site leased out by Goa University. The Laboratory is rendering calibration services to the local industry and have provided their facility to Nuclear Power Corporation of India Ltd. (Kaiga Power Plant).

Training Services

- STQC Directorate have conducted over 300 training courses covering over 700 organizations and 6000 participants in the area of Quality Management, Quality Technology, Metrology, Test Engineering and Process Automation, Information Security and Software Quality Engineering;



- Indian Institute of Quality Management (IIQM) at Jaipur has been acting as an Apex Institute in STQC to provide trainings in the area of Quality Management, Quality Technology, Laboratory Management and Environmental Management. The Institute has been recently accredited by the International Registrar of Certified Auditors (IRCA), UK for conducting their Registered Lead Auditor courses for ISO 9000 and Information Security Management System. This is a significant achievement as there are very few Indian organizations having this accreditation. STQC/IIQM happens to be the only Indian organization offering IRCA Accredited Lead Auditor course in Information Security.
- Centres for Electronics Test Engineering (CETEs) established under the Indo-German Technical cooperation Project continued to conduct skill based training in Metrology, Electronics Manufacturing, Industrial Automation, Test Engineering and Quality Assurance. CETEs have also been conducting Quality Assurance training courses sponsored by quality Council of India. CETE at Bangalore are conducting training courses for small industries sponsored by SIDBI to promote Quality Awareness. The Centre has also introduced long term courses (three months and one year duration) for weaker section in collaboration with NSFDC. CETEs have also launched new training programmes like Fibre Optics, Networking, Medical Electronics, Six Sigma and others. CETE at Kolkata is also working as a resource Centre for Post Diploma Course on Bio Medical Instrumentation by University of Kolkata and is also negotiating with BE College, Shibpur for launching a Post Graduate Diploma Course on Process Control and Industrial Automation.
- Centre for Reliability, Chennai and IIQM, Jaipur have also conducted Certified Reliability Professional Training courses which have gained popularity;
- ETDC at Goa has been providing faculty support to Goa University for their MSc (Electronics) Curriculum and Student Projects in Electronics. The Centre has also established itself as an important STQC centre for Linux Application Training;
- In the area of Information Technology, STQC IT centres have been successfully conducting Certified Training Courses like Certified Information Security Professional, Certified Internal Auditor and Lead Auditor for Information Security Management system, Certified Network Security Assessment, Certified Software Quality Professional and Test Manager and the like. These courses have gained very much popularity and importance amongst IT Industries and user organizations.

Certification Services

- Internationally Accredited Certification services for ISO 9000 (Quality Management System), ISO 14000 (Environmental Management System) and Product Safety have been provided to about 800 customers. STQC is also offering International Certification services for safety of electrical products under IECEE-CB and for electronics components under IECQ system. Both these systems are being run by the International Electro Technical Commission (IEC) based at Geneva, Switzerland. Some of the major Government clients/PSU served by STQC for certification services include Bharat Sanchar Nigam Limited (BSNL), ISRO, DRDO Laboratories, Telecom Training Centre, Central Bank, Military Engineering Services, and Interim Test Range for Missiles under DRDO, C-DAC, DOEACC apart from a number of private organized units and SMEs including Philips and Tata Group of companies.
- Certification Services have also been extended to some of clients in Sri Lanka, China, Taiwan and USA. Considering the importance of IT in finance and banking, the scope of Quality and Security Certification has been extended to this sector and STQC have also sought International Accreditation for providing Certification Services in this area.

STQC Overseas Services

STQC has also been providing overseas services on pilot basis in the area of Product Safety, Inspection and Certification, Testing and Calibration and Training. The services provided during the current year are detailed below:



Country	Type of Services rendered
USA	ISO 9000 Certification, Product Safety, Security Certification
Germany	Explosive Safety/Inspection
UK	Explosive Safety
France	Explosive Safety/Agency Inspection
South Africa	Intrinsic Safety
UAE	Safety, EMC, CMM and e-Security Training
Qatar	e-Security Certification
Saudi Arabia	SASO Certification
Taiwan	Safety Certification, CMM and e-Security Training
Hong Kong	CB Laboratory Assessment
Nepal	Calibration
Bhutan	Calibration
Bahrain	Information Security Management System Certification
Sri Lanka	IECQ Certification, Calibration
Bangla Desh	Calibration, Laboratory Assessment for NABL
Oman	Calibration
Mauritius	Training in QMS and Information Security
Norway	Safety Certification

Services in North East Region

Two Electronic Test and Development Centres (ETDCs) one at Guwahati and the other at Agartala are functioning under the STQC programme. ETDC Guwahati is being developed as the main hub of STQC to serve the North Eastern State. Following services are being provided by the centre for the benefit of industries and organizations in NE State:

- State-of-the-art calibration facilities;
- Facilities for clean energy testing has been recently established at the centre;
- Entrepreneurs development training courses for the benefit of young entrepreneurs in PC hardware maintenance and moving display manufacturing and others;
- DOEACC 'O' and 'A' level courses for computer education in the NE region. These courses are also being conducted for SC/ST and other

backward community at a very nominal charge;

- Major customers of ETDC, Guwahati include ONGC Ltd., IOCL, NRL, BRPL, Oil India Limited, NEEPCO Limited, PGCIL, Airport Authority of India, HPCL, Hindustan Lever Maruti Service Stations, Coca Cola and other MSI, SSI units in the NE region.

National Internet Exchange of India (NIXI)

NIXI, a Section 25 Company has been established to facilitate handling of domestic Internet Traffic. This will enable more efficient use of International Bandwidth and save Foreign Exchange. NIXI has been hosted in the premises of Software Technology Parks of India (STPI) at its present locations at New Delhi, Mumbai, Chennai and Kolkata. For more details, please refer society chapter.

Broadband Economy Initiative

Studies across the globe have shown a positive correlation between broadband access and high gross domestic product (GDP) growth rates. A report on 'India's Broadband Economy: Vision 2010' has been brought out jointly by the Department of Information Technology (DIT), Department of Telecommunications (DOT) and Confederation of Indian Industry (CII). This study has provided important inputs to the Telecom Regulatory Authority of India (TRAI) report on 'Broadband India: Recommendations on accelerating growth of Internet and broadband penetration'.

The DIT and DOT have identified the fiscal, administrative and technical issues involved in the promotion of the broadband economy and have made specific recommendations for achieving the objective of 10 million broadband subscribers by the year 2010. In this regard, DIT has supported the recommendations of TRAI on:

Fiscal concessions such as

- Waiver of sales, excise, entertainment and income tax;
- 100% depreciation in first year on Personal Computers (PC's) and broadband Consumer Premises Equipment's (CPE's);

Regulatory issues such as:

- Delicensing of wireless spectrum for providing wireless broadband access to the rural broadband service providers;



- Facilitation of granting Right-Of-Way (ROW) to all licensed Basic Service Operators and Internet Service Providers; and

Infrastructure development:

- Boosting growth of National Internet Exchange of India (NIXI) with rationalized tariff structure.

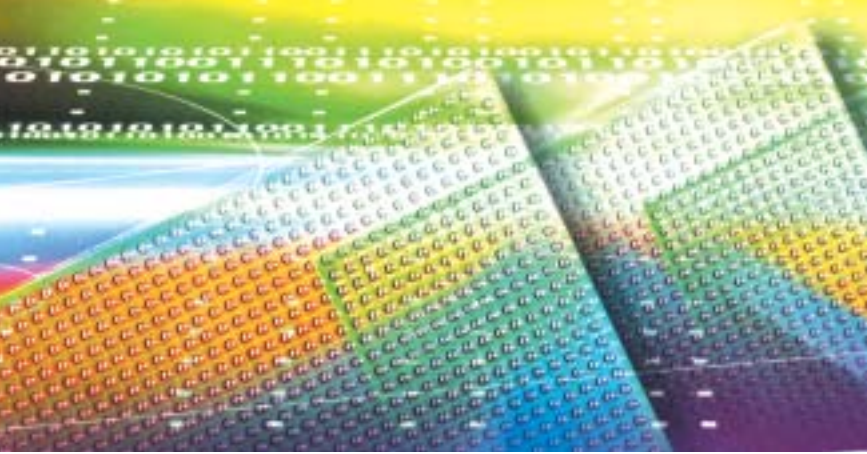
Providing broadband connectivity to all, at the most reasonable prices involves affordable access devices / terminal equipment, low cost connectivity to wide band communication networks, and low cost multimedia content for different user requirements. The following initiatives have been undertaken to promote growth of Internet and Broadband in the country:

- National Broadband Policy 2004 has been announced by the Minister of Communications & Information Technology with a view to provide impetus to broadband and Internet penetration in the country. The new broadband policy aims to target three million broadband subscribers and six million Internet subscribers with a timeframe of December 2005. By the end of the year 2010, the policy aims to target 20 million broadband subscribers and 40 million Internet subscribers.
- The 2.4 GHz – 2.48 Ghz band has been further liberalized by Wireless Planning and Coordination

(WPC) for indoor use, thus enabling wider coverage of wireless LAN, etc.

- National Internet Exchange of India (NIXI) has been set up. 25 Internet Service Providers (ISP's) are connected to the NIXI nodes. NIXI has also framed the routing policy and tariff structure.
- Efforts have been initiated for creation of framework for increasing .IN domain name registration, preparing roadmap for Internet Protocol (IPv6) migration, promoting Voice over Internet Protocols (VoIP), and next generation mobile wireless technology standards
- The National Informatics Centre (NIC) has been entrusted the task of preparing detailed Geographical Information System (GIS) maps.
- Further issues that need to be addressed for roll out of Broadband in India have been identified such as Internet issues for opening up of VPN (Virtual Private Network) to the private ISPs; promote Wi-MAX option for leveraging rural broadband rollout; spectrum release for urban and rural wireless roll out; mandate standards and QoS (Quality of Service) for cable networks architecture to make them Broadband capable; and suitable amendments to the Copyright Act.





Societies

Centre for Development of Advanced Computing (C-DAC)

The Centre for Development of Advanced Computing (C-DAC) is a multi-locational, multi-activity organization spread out at 10 locations with 14 laboratories and has a work force of about 1800 employees. The year 2004-05 was the first full financial year of merged C-DAC after the merger of i) Electronics Research and Development Centre of India (ER&DCI), ii) National Centre for Software Technology (NCST) and iii) Mohali Centre of the Centre for Electronics Design & Technology of India (CEDTI) into C-DAC on December 16, 2002. The new, strengthened C-DAC focused on the following core technology areas during the year:

- High Performance Computing (HPC) and Grid Computing
- Multilingual Computing, Applied Artificial Intelligence and Speech Processing
- Power Electronics, Agri-Electronics, Real Time Systems, Embedded Systems and VLSI Design
- Cyber Security
- Broadband, Wireless and Internet Technologies
- Geomatics
- Health Informatics
- Software (including OSS/Linux), Multimedia, Graphics and Database Technologies
- e-Governance and ICT for Addressing Digital Divide
- Education and Training.

The key achievements during the year in each of these areas are given below.

High Performance Computing (HPC) and Grid Computing

After having built and commissioned the PARAM Padma system during the last financial year, there were focused efforts this year to increase its user base. As a result, the use of PARAM Padma has steadily increased in terms of utilization time and is today servicing a large number of researchers working in frontier areas and mission critical user groups in a variety of disciplines. There are over 40 technical affiliate users from various disciplines and premier institutions. C-DAC is also encouraging new users to taste the benefit of such a system, in turn, leading to demand for more clusters of varying compute power in their own organization or as a shareable facility. A new PARAM Padma system will be installed at National Centre for Medium Range Weather Forecasting (NCMRWF) by March 2005.

Other activities during the year in the area of HPC included commencement of PARAMNet III design (10 Gbps interconnect for clusters), Reconfigurable Computing Solutions (RCS) prototype testing for Raman Research Laboratory (RRL), upgrades in system software, and significant amount of work in HPC applications areas such as Bioinformatics, Weather Forecasting, Computational Fluid Dynamics, Structural Mechanics and Evolutionary Computing. A Bioinformatics Resources and Applications Facility (BRAAF) was set up and inaugurated by the Secretary, DIT, MCIT at C-DAC's Terascale Supercomputing Facility (CTSF), Bangalore on June 14, 2004.

In the area of Grid Computing, a prototype Grid was set up by interconnecting the National PARAM Supercomputing Facility (NPSF), Pune and CTSF, Bangalore through a 100 MBPS link and a



bioinformatics portal was demonstrated over this Grid environment. The prototype environment was extended further by setting up a 100 MBPS link between CTSF at Bangalore and a Linux cluster in Hyderabad. A project on Prototype Grid Computing Initiative (GARUDA) has been approved for implementation over the next 12 months. It will be a phase of Proof of Concept (POC) for efforts in architecture, technology and standards relating to Grid Computing and will also provide the underlying network fabric at 100 MBPS at 17 locations to enable remote access to PARAM Padma and PARAM 10000 and those at other institutions. The work has commenced on grid computing and rapid progress has been made in all components of the project including research, technology development, standards, computational resources and grid enablement of applications. C-DAC has entered into agreements for significant

Information Extraction/Retrieval System (Anveshak), the Indian Language Interface to Mobiles, the Indian Language Open Office Suite (BharateeyaOO), etc.

The key achievements during the year in this area are :

A Computer Aided Text-to-Speech and Text-to-Braille System (Shruti-Drishti) for Visually Impaired was launched with support from the Department of Information Technology and Media Lab Asia. It integrates C-DAC's Extractor and Vachantar applications with the webel's Text-to-Braille, emboss-printer, Braille script viewer and tactile reader to enable visually impaired persons to listen to the proceedings of conference websites.

- The development, embedding and integration of Indian language solution for mobile handsets was done for Sony Ericsson and Samsung.
- The EPSON, Japan project, which involved giving 10 Indian language support for their dot matrix printer range was successfully completed. The printer supports ISCII, PC-ISCII and EA-ISCII interface. It has total 40 built-in fonts, 4 fonts per script.
- C-DAC's LILA (Learn Indian Language through Artificial Intelligence) PPP (Praveen, Prabodh, Pragy) SLA (South Indian Languages) package was launched on September 14, 2004. The package enables learning of Hindi through the means of South Indian Languages.
- The Malayalam e-mail package (SANDESAM), developed by the Regional Language Resource Centre of C-DAC, Thiruvananthapuram was released on November 20, 2003.
- The first copy of C-DAC's Malayalam Optical Character Recognition software (NAYNA) was sold to Malayalam Manorama, the leading regional newspaper in Kerala.
- Intellectual Property Right (IPR) was acquired by C-DAC, Mohali for its SAMPADAK, a Punjabi Word Processor with Spell Checker under the MS-Windows platform.
- The development of highly compact and efficient Open Type Nastaliq font and its deployment on Deutsche Welle, Germany news portal was completed.



C-DAC's Terascale Supercomputing Facility

collaborations in grid computing with University of Hyderabad, Anna University, National Chemical Laboratory (NCL) and National Centre for Atmospheric Research (NCAR), USA.

Multilingual Computing, Applied Artificial Intelligence and Speech Processing

C-DAC has a proud legacy in this area with lots of successful products such as, the Language Interface Card under DOS/Unix (GIST), the Indian Language Word Processor (LEAP), the Indian Language Interface to Linux (INDIX), the Sanskrit Language Parser (Desika), Indian Language Parser (Vyakarta), the Indian Language Learning Package (LILA), the Machine-Assisted Translation System (MANTRA), the Hindi (Chitrakan), Marathi (Chitraksharika) and Malayalam (Nayana) OCR, the Natural Language Processing (NLP) based





Shruti drishti

- The design and development of a Machine Assisted Translation System for translating JAE question papers of Indian Institute of Bankers and Finance from English to Hindi was completed.
- C-DAC and Sun Microsystems released Solaris 9.0 with Indic support. The Indian language support was provided to Sun Microsystems by C-DAC in this development.
- Linux localization (Indix2) and Office Suite localization (BharateeyaOO) was done for Indian languages.
- A TDIL portal has been maintained and updated with information on language technology developments and standards. The portal e-publishes the periodicals, calendar of events, links to related sites in bi-lingual (English and Hindi) mode. The portal also extends regular services like Hindi E-Mail Seva, Machine Translation and Samadhan Seva.

Power Electronics, Agri-Electronics, Real-Time Systems, Embedded Systems and VLSI Design

Power Electronics as a vital part of industrial control is a major thrust area for C-DAC. The advancement in Real time high speed Digital Controllers and Power Semiconductor devices have enabled this technology to play a key role in the areas of power quality improvement, electric traction, pollution free vehicles, automotive electronics, non-conventional energy sources, remote controlled vehicles, energy efficient power supplies and drives, etc.

C-DAC has taken keen interest in updating its knowledge base in frontier technologies and innovations to meet the technological revolution and new challenges in the area. In close

coordination with premier academic institutes in the country, C-DAC's development activities are targeted towards realizing the mission to make India a global player in power electronics technology.

The products/solutions delivered during the year in this area include the following:

- The Underwater Range (UWR) Complex set-up by C-DAC was dedicated to the nation on June 9, 2004. The Complex, consisting of two magnetic and a shallow water noise range, is an important health-monitoring facility for naval ships to enhance their combat-worthiness. This is the first over-run range in this part of Asia. The data handling system and electronics in the offshore part were developed and installed by C-DAC.
- The Model Tea Factory (MTF) at Toklai, Jorhat, Assam has been constructed under 'Integrated Automation of Tea Processing' project funded by Department of Information Technology, Department of Commerce and Council of Scientific and Industrial Research (CSIR) and implemented by C-DAC, Kolkata, CEERI, Pilani and TRA. MTF was inaugurated by the Hon'ble Chief Minister of Assam Shri Tarun Gogoi on September 25, 2004.
- Development of a Remote Inspection Device (RID) was completed. This development was sponsored by Babha Atomic Research Centre (BARC). They have appreciated the effort and have now contacted C-DAC for the development of a larger version of RID to handle 'classified' waste.
- A Trouble Call Registration and Management System was commissioned at the Kerala State Electricity Board (KSEB) control room, in Kochi. With this system in place, consumers can register their fault reports and can get their registration docket numbers via SMS. The system also uses GSM technology for dispatching the fault jobs to the mobile maintenance staff deployed at various places.
- The Compact PCI Industrial Computer developed by C-DAC's Real Time Systems Group (RTSG) at Bangalore was launched on July 2, 2004. The development was an initiative of the Industrial Applications Division of the Department of Technology.



- A power supply module for Mirage Aircrafts was developed. It has passed all types of approval tests, and is now ready for flight trials in the fighter aircraft.

Cyber Security

In the area of Cyber Security, C-DAC developed Cyber Forensics Tool Suite consisting of the following:

- **TrueBack.** It is a DOS application with event based DOS Windowing System. It performs a self-integrity check and minimum system configuration check.
- **CyberCheck.** It is a software for analyzing the disk image taken using TrueBack software. It is a Standard Windows application.
- **E-MailTracer.** It is a standard Windows application, which provides a facility for automatic extraction of Microsoft Outlook Mailbox from the hard disk and a facility to list all the DBX files in the system.

These tools have been distributed among law enforcing agencies of the country to enable them to follow-up the implementation of the IT Act 2000, specially with respect to cyber crimes. They have been successfully used in the investigation and analysis of the sensational pornographic blackmail (threatening e-mail) of Kidangor Engineering College.

C-DAC-Kolkata developed Steganalysis software, which was successfully integrated with the Packet Sniffer software developed by IIT, Kanpur.

During the year, C-DAC also started some new activities in this area including Lawful Interception of VoIP Traffic and On-line Course Content Development for Cyber Security to offer in e-Learning mode.

Broadband, Wireless and Internet Technologies

The C-DAC has developed and commercialized the entire protocol suite including base-band and terminal equipment complying to EU (European Union) standard for professional Radio (TETRA). During the year, this technology was exported to United Kingdom (UK) and China. It is also being used by Bharat Electronics Limited.

C-DAC also designed and developed a broadband Software Defined Radio (SDR) equipment for customer premises to provide rural connectivity. The system is based on OFDM (Orthogonal Frequency Division Multiplexing) architecture and consists of base band, RF and IF modules. The system has been designed based on Conexant Chipset and uses wireless LAN 802.11g architecture. Device drivers and interfaces have also been developed to integrate various devices. The system will be manufactured by ITI Limited and will be utilized initially by IFFCO for distribution of fertilizers through their retail outlets.

Another initiative taken by C-DAC in this area was the integration of the Connax Conditional Access System (CAS) on its Set Top Box to meet the requirements of various MSOs like Zee TV. The technology partner Real Time Systems, New Delhi was facilitated to upgrade the design of the Set Top Box with enhanced Conditional Access System to be delivered to Zee TV. Another technology partner ITI Limited commenced the prototype manufacturing of Direct to Home (DTH) Set Top Box to provide access to free-to-air bouquet of channels being launched by Doordarshan and Zee TV.

Geomatics

In the field of Geomatics, C-DAC offers technology solutions in areas like Thematic Mapping, Spatial Database Development, Terrain Visualization, Spatial Decision Support System and Web GIS. The solutions are oriented to real world problems pertaining to natural and man-made environments assimilating multiple disciplines, namely, GIS, remote sensing, photogrammetry, cartography, GPS and geodesy. From identifying landslide prone areas to biodiversity characterization, C-DAC stands at the forefront of excellence in offering geo-intelligence solutions for effective planning, management and governance.

Two important systems developed during the year in this area include GeLMS and MARS. GeLMS is a GIS enabled Land Monitoring System for the Delhi Development Authority. It deals with land records automation, acquisition and utilization of land and vectorization and digitization of maps, all fully integrated through the GIS stream. MARS is a Map Archival and Retrieval System for GIS applications. Unlike other similar tools available in the market, this is an effort to develop an open source



technology based system, which is a platform/database, independent tool. The tool provides all the GIS capabilities like zooming, planning, searching, information browsing, etc. This also includes storage of spatial map data in any database along with the textual information. The map engine works both with Intranet and Internet environments without the need of conventional Internet Map Server.

The Geomatics group of C-DAC also did a project for identification of hilly zones within Pune Municipal Corporation (PMC) limits using high-resolution satellite imagery. The project gains in significance from the urban encroachment in the 'tekdi' (hilly region) areas of Pune city, which has drawn sharp criticism from environment conscious citizens and has also led to a major movement by NGO's to save the hills.



TETRA (Terrestrial Trunked Radio)

Health Informatics

In the area of Health Informatics, C-DAC has created software suites for Hospital Information System (HIS) and Telemedicine. The HIS system (Sushrut) has been commissioned at the Sanjay Gandhi Post Graduate Institute (SGPGI), Lucknow and the Guru Teg Bahadur Hospital (GTB), Delhi. The current version of the same is being implemented at the Mahatma Gandhi Institute of Medical Sciences, Sevagram, Maharashtra.

C-DAC's telemedicine system (Mercury), after having been deployed and tested at the All Indian Institute of Medical Science (AIIMS), Delhi, SGPGI, Lucknow and PGI, Chandigarh, is being extended to cover additional three medical colleges at Shimla, Cuttak and Rohtak. It is also being deployed in two states in North-East and in the State of Kerala.

ONCONET (CancerNet Phase-II) is a telemedicine project implemented by C-DAC at the Regional Cancer Centre (RCC), Thiruvananthapuram. It

provides telemedicine services in cancer detection, treatment, pain relief and patient follow-up at the RCC and its nodal centres. Based on the success of the CancerNet, an enhanced project has been taken up by C-DAC with participation by the RCC, ISRO and the DIT. The main objective of the project is to establish 'Knowledge enabled CancerNet' – Online cancer detection and patient follow-up management system – enhancing its quality and impact using high bandwidth connectivity with matching hardware and software, upgrading and integrating backend systems and processes. The project was inaugurated at the MCCS (Malabar Cancer Care Society) Early Cancer Detection Centre in Kozhikode on October 28, 2004.

In another Kerala based initiative, the health directorates and hospitals are being progressively computerized. The first phase involves the computerization of the five health directorates: the Directorate of Health Services, the Directorate of Medical Education, the Directorate of Indian Systems of Medicine, the Directorate of Ayurveda Medical Education, the Directorate of Homoeopathy and the computerization of the Medical College Hospital, Thiruvananthapuram.

Other challenging task addressed by C-DAC is the monitoring and reporting of health and nutrition status of children, women and girls at the 24,000 anganwadi centres in 163 blocks.

Software (including OSS/Linux), Multimedia, Graphics and Database Technologies

Building on existing expertise on Linux and other open source systems and projects such as Indix and Vidyakash, activities have been initiated to develop technical and human resources in this area. A portal for open source software is being developed. Specific proposals are being taken up to fund this effort from the DIT and other sources including industry. In this direction, C-DAC, Mumbai, IBM, India and IIT, Mumbai signed an agreement on October 6, 2004 to set up a 'Open Source Software Resource Centre (OSSRC)' at Mumbai.

In October 2004, C-DAC launched its 'Janabharati' project focusing efforts on developing a software suite based on Linux for Indian languages. The project aims at inviting, building and supporting community initiatives to produce and disseminate



free and open source software systems, breaking language barriers and bridging the digital divide. The project will cover the development of technology into diverse areas through info-kiosks, cyber-cafes, and so on. It draws on C-DAC's INDIX project to make GNU/Linux operating systems 'intelligent', when it comes to Indian scripts.

The Institute of Mathematical Sciences (IMS), Chennai and C-DAC's National Multimedia Research Centre, Pune have jointly produced CD-ROMs on the Life and Work of Indian mathematical genius, Srinivasa Ramanujan (1887-1920). This is the first multimedia initiative for preserving scientific heritage of Ramanujan. The CD set was launched in New Delhi on December 22, 2004.

e-Governance and ICT for Addressing Digital Divide

C-DAC has taken far-reaching initiative in the domain of e-Governance to deploy e-solutions, which promise improved transparency, speedy information dissemination, higher administrative efficiency and improved public services. As in other areas, C-DAC thrust in e-Governance is a combination of participation with government and industry efforts in development of architecture, standards, technology, processes and the development and deployment of practices, projects and skill sets using state-of-the-art technology.

C-DAC's e-Governance solutions in the Pradhanmantri Grama Sadak Yojana (PMGSY), Public Works Department (Maharashtra and Tripura), Stamp and Registration (Maharashtra and Karnataka), Municipal Corporation (Karnataka) to name a few, are touching the lives of thousands of Indians across the country.

During the year, C-DAC has been working with state governments in Karnataka, Kerala, Delhi, West Bengal, Uttar Pradesh, Himachal Pradesh, Orissa, Tripura, Goa, Pondicherry as also the Election Commission, the Indian Patent Office, the Railways, the Ministry for Rural Development and other agencies. On June 14, 2004, C-DAC received the CSI-Nihilent e-Governance Award for the 'Best Technical Company in e-Governance'.

Towards the use of ICT for digital divide, C-DAC's Bangalore centre in the Electronics City campus, together with IIT, Mumbai have partnered with the Digital Gateway Foundation (IDGF), a United States based non-profit institution, in which the Government of India is a member, to develop

meaningful technologies in ICT for addressing digital divide. As part of this initiative, C-DAC has developed interesting tools including SMART-Vyapar (Small and Medium Applications for Rural Technicalization) and CMS4C (Content Management System for the Community). SMART-Vyapar is an online meeting place for villagers to trade and post information about goods, products and services. It provides a mechanism to initiate buying and selling transactions. To demonstrate the system and spread the culture of e-business, C-DAC and DGF have set up physical concept stores.

CMS4C serves as a clearing-house for weather information, agricultural market information, matrimonials, employment exchange and bullion market movements. It has been deployed at the DHAN (Development for Human Action) Community Centre at Melur, in Tamil Nadu, which has also seen the first deployment of Vyapar.

Another development has been the Vartalaap virtual classroom, in local languages. To provide computing capability for such rural initiatives, C-DAC has created an Indian language version of the OpenOffice.org suite known as BharateeyaOO.o as well as a text-to-speech tool, Matrubhasha, for local Indian languages.

Education and Training

During the year, C-DAC continued to offer its various certificate, diploma and post-graduate diploma courses in Software technologies, Enterprise System Management, Geomatics, VLSI Design, Digital Multimedia, and the Programme for Advancing Computer Education (PACE).

New education programmes namely, M.Tech (IT) and M.Tech (VLSI Design) were launched during the year by C-DAC, Noida. C-DAC, Mohali conducted specially designed training programmes for international participants covering Advanced Course on Multimedia and Web Designing Technology, Repair and Maintenance of Telecom Equipment, Computers and Peripherals, Repair Service and Maintenance of Bio-Medical Equipment. More than 50 students from more than 20 countries participated in these training programmes. The activity was sponsored by the Ministry of External Affairs, Government of India under the Indian Technical and Economic Cooperation (ITEC) and Special Commonwealth African Assistance Plan (SCAAP).



C-DAC also continued several specialized and customized national level corporatized training programmes for the Indian Airforce, Central Soil and Material Research Station, Ministry of Agriculture, etc.

Software Technology Parks of India (STPI)

The Software Technology Parks of India (STPI) main objective has been the promotion of software exports from the country. The services rendered by STPI for the software exporting community have been statutory services, data communications services and incubation facilities. STPI has also played a developmental role in the promotion of software exports with a special focus on SMEs and start up units.

Software Technology Park (STP) is a 100% export oriented scheme for the development and export of computer software using communication links or physical media and including export of professional services. The STP scheme has been widely successful and the exports made by STP units have grown manifold over the years. Today, STPI registered units accounts for about 90% of the total software exports from the country.

The datacom connectivity is a critical requirement of software exporters and STPI has been providing this service since inception. This has resulted in a gradual shift from onsite software development to offshore software development. To overcome the last mile problem and to maximize uptime, STPI has made provision for radio connectivity for the last mile. Over the years, STPI's major revenue source has been its datacom services. During the year,

STPI has commissioned its new centres at Durgapur and Kharagpur in West Bengal, Imphal in Manipur and Gangtok in Sikkim. With the additional of these four new centres, STPI now has 44 centres across the country.

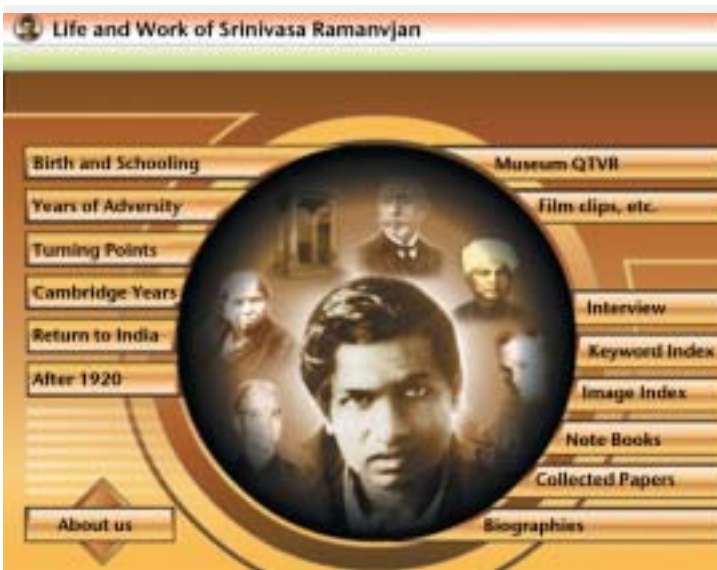
The STPI has been providing incubation facilities for the software exporters, specifically to the SMEs and start up units. The incubation facilities include ready to use built up space with plug and play facilities and other backup resources such as power, DG set, internet enabled workstations, etc., which have been very useful for the start-up units and SMEs. Short gestation periods and minimal investments in terms of capital have encouraged the software exporters to start exporting operations. STPI has also been providing value added services such as web hosting, data centre, video- conferencing, ISDN connectivity, etc.

High Speed Data Communication Facility

One of the important contributions of STPI to the software-exporting sector is that of providing High-Speed Data Communication (HSDC) services. STPI has designed and developed state-of-the-art HSDC Network called SoftNET, which is available to software exporters at internationally competitive prices. STPI provides both fibre and satellite based High Speed Data Communication links and has set up its own International Satellite Gateways at all its locations.

Local access to International Gateways at STPI centres is provided through Point-to-Point and Point-to-Multipoint microwave radios for the local loop which has overcome the last mile problem and enabled STPI to maintain an up time of nearly 99.9%. The terrestrial cables (fibre/copper) are also used wherever feasible. These communication facilities are the backbone of the success in the development of offshore software activities.

STPI is having working relations with major international telecommunication operators such as AT&T, MCI, Sprint, Intelsat, New Skies Satellite, British Telecom, etc. STPI provides worldwide connectivity for its software export units and is radiating more than 400 MBPS. STPI has also acquired International and Domestic fiber bandwidth of capacity STM1 in order to meet the customers demand for the services on fiber. With this, STPI is able to provide Internet Private Leased Circuit (IPLC) and IP services on fiber.



STPI is offering IPLCs on full circuit basis completely on fiber between Indian customer and USA customer on attractive terms. As one stop solution to the customer, it facilitates single point of contact and ease of coordination. Implementation or deployment of the service is faster when compared to conventional bilateral services. The bandwidth is provided in multiples of nx64Kbps or nxE1.

To provide better Quality of Service (QoS) to the customers in terms of latency and reliability, STPI is tied up with Tier – 1 Service provider in USA for Internet backbone. The customer who are availing STPI's Internet Service will be connected to Tier – 1 Service provider's backbone in USA through STPI's Internet Gateway. The bandwidth is provided in multiples of nx64Kbps or nxE1.

STP Units

More than 5500 units registered under STPI, out of which 4809 units are operational and 4088 units are exporting.

Exports

Member units of STPI have exported software of over Rs.51,458 crore during the year 2003-04. The software exports are likely to be around Rs 66,000 crore during the year 2004-05.

**Project Management and Consultancy
Khajane NET**

KhajaneNET is a Project undertaken by the Karnataka Government to interconnect all the Treasuries in the State. The Treasuries are interconnected using VSAT's to a centralized HUB located at Khanija Bhavan building in Bangalore. The VSAT based satellite network is designed to provide data services. The VSAT HUB network is built with sufficient equipment redundancy.

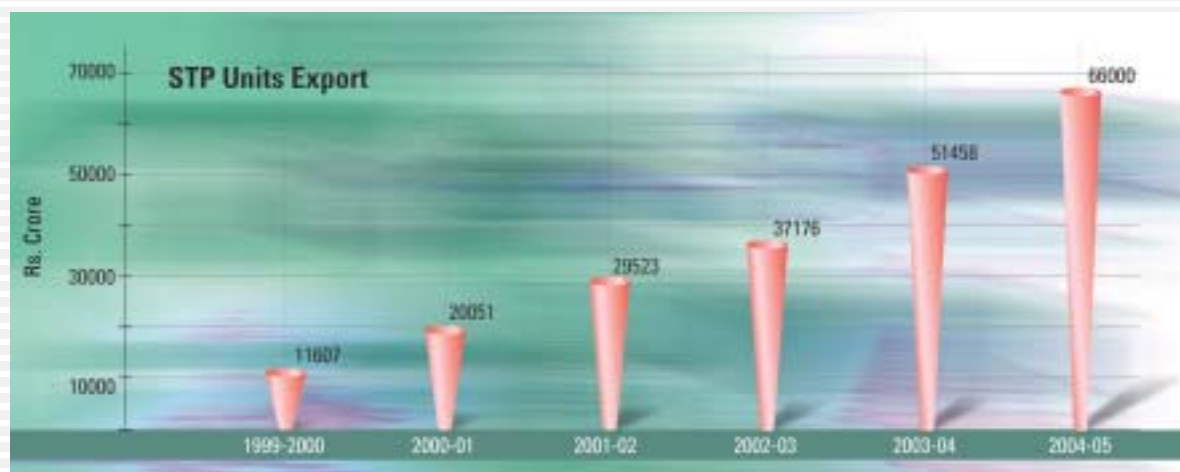
The work of Department of Treasuries is spread across all the Districts and Taluks of the State numbering about 215. All these Treasuries function as 'Pay and Accounts Office' for all Government of Karnataka transactions. The MIS reports and reports of expenditure on salaries, pensions, deposits and revenue receipts will be made available to the Government as well as the audit. STPI, Bangalore has been nominated as the primary nodal agency for the Consulting and Project management for KhajaneNET project. The KhajaneNET owned by the Department of Treasury, Ministry of Finance, Government of Karnataka, is already operational and being managed by STPI on a 24 x 7 basis.

STPI also takes care of robust fault reports management system, preventive maintenance of hub and remotes, USATS, traffic analysis using network management system, application related problems, management of servers, backup facility, inventory control of Hub and remote equipment, etc.

Khajane NET is the first Consultancy project successfully executed by STPI, Bangalore and has obtained the award of contract for operations and maintenance of Hub and remote locations for a period of 5 years.

Commercial Tax Department, Karnataka

Value Added Tax (VAT) is a multi point levy of tax on the value addition in various stages. VAT administration, therefore, requires keeping a track of the transaction. The volume of data is huge and needs a large and efficient information system infrastructure. Government of Karnataka with the support of STPI has successfully implemented the project.



VAT in Karnataka is administered in a networked environment spread across the State in about 92 locations. The interface with taxpayer will be through TPS (Tax Payer Service), which will comprise of LVO's (Local Vat Office) in large places and VSO's (Vat Sub Offices) in smaller places. These Offices are completely computerized with a server in each LVO and will be on a LAN in client – server architecture. VSO's will not be having any local server and will be depending on the respective LVO server. Each of these LAN's in LVO and VSO are interconnected through VSATs to the central server in which state data resides and generate MIS reports for tax administration at the State level.

STPI has conducted a feasibility study and a design for sharing the existing Hub facility of KhajaneNET – the Treasury Network has been suggested. The project is successfully commissioned with backhaul connectivity from KhajaneNET to Central server CTD Office. Remotes are already operational and being managed by STPI on a 24 x 7 basis.

The project has been successfully completed and has obtained the award of contract for operations and maintenance of Hub and remote locations for a period of 5 years along with Backhaul connectivity.

Communication System Monitoring Equipment (CSME) for Europe Star Satellite

The Europe Star teleport facility is located in the STPI Network Operation Centre at Bangalore for monitoring the downlink signals covering the ISN Region (India / Nepal / SriLanka) through the CSME facility (Communication System and Monitoring Equipment) and connected to the CSMN facility Tolohouse, France through Frame-relay circuit. The CSME set-up is be capable of monitoring the multiple high-powered beams (Ku-Band) focused on (ISN) region and generate the report on the status of carriers for Ku-Band Europe Star transponders. The STPI has made the set-up operational on a 24 x 7 basis, maintains CSME facility at Bangalore, Upgrades CSME facility in line with Europe Star team, and provide, support for Calibration Testing.

Carrier Monitoring System (CMS) for PanAmSat Satellites

STPI, Bangalore centre is supporting the CMS facility (Carrier Monitoring System) for the PanAmSat PAS-7 Satellite and also for the recently

launched PAS-10 Satellite covering the Indian Ocean Region (IOR). The CMS System located at STPI-Bangalore, India will be capable of monitoring the multiple high-powered beams (Ku-Band) focused on India and generate the report on the status of carriers for Ku-Band PAS transponders. The set-up is connected to PAS NOC centre at Atlanta via Leased Line Internet Circuit provided by STPI, Bangalore with a contract for 5 years.

Nortel Networks HUB

STPI, Bangalore has been housing the Nortel equipments since 1996, for providing the hub management, 24/7 supports for the development of Nortel projects, as Bangalore being identified as one of the major development centre for Nortel in the Asia Pacific region. STPI has facilitated Nortel for establishing the connectivity's to their partner locations in Bangalore and other cities, which includes Infosys Technologies, Wipro and Sasken communications.

NICNET

This project envisages to set up an integrated network operation centre and Internet Data Centre at the National Informatics Centre (NIC), New Delhi. NIC has entrusted the project iNOC – Integrated Network operation centre to STPI, Bangalore for implementation. As part of the project, STPI-Bangalore has designed and implemented Infrastructure for iNOC and Integrated Data Centre. The Network Operations Centre will be a multi layer system, which provides a capability to manage, monitor and control the NIC Network spread across the country through the NOC.

STPI-Bangalore made a detailed study of the NIC Network and assessed the needs of NIC for network management and proposed to build an integrated and centralized IT Management system for NIC that helps NIC in terms of managing the restoration time, Optimize IT resources, service levels and business continuity. STPI-Bangalore has provided value added consultancy in a project management, design of infrastructure and deployment, consultancy, procurement and deployment of the network management system, display system for monitoring network components.

The iNOC and the IDC centres have been successfully handed over to the client. The soul of



the project is the Network Management System. The implementation of the Network Management System is under progress. NIC's effort to replicate the State of the Art Infrastructure in various other State centres is in progress and STPI has successfully delivered the NIC Hyderabad Infrastructure.

Integrated Management Information System (iMIS) for DDA

STPI has been providing consultancy on network architecture and design, software development, etc., on turnkey project for the past many years to reputed clients. STPI is offering consultancy services to Delhi Development Authority (DDA) on Software Project Management for development of 'Integrated Management Information System (iMIS)' for the housing development sector. STPI has already floated RFP to find out a suitable consultant who can assist STPI in planning the requirement in terms of Software/Hardware.

International Projects

Business Parks of Mauritius Ltd (BPML) – International Project

Business Parks of Mauritius Ltd (BPML) is a company set up by the Government of Mauritius to develop and manage new age Business Parks in the country. The first task of BPML has been the development of the Ebene Cyber City.

The Government of India made available a special line of credit of US\$ 100 million for the creation of cyber city project. The Software Technology Parks of India as a nodal agency on behalf of Government of India has successfully implemented the Ebene Cyber City project on turnkey basis. STPI's role includes project management and consultation, identification of network and communication infrastructure, identification of office infrastructure, integration of network operations centre and display system for monitoring network components.

STPI's initiative on Bio IT Park

The bio-informatics industry in India is in a nascent stage and the right initiatives need to be taken by the Government to provide the necessary impetus for the growth of this sector. Incubation facility for Start-up units by the Government would be beneficial in the field of Bioinformatics. To facilitate the export of Bio-informatics and attract FDI, it is proposed to set up 'BIO-IT Park'.

The proposed 'Park' shall be a joint effort of Central Government, State Government and Private Bodies. This would be a Public-Private partnership project. A stakeholder consultation process was undertaken by STPI and to understand the needs of the industry. This included Workshops at six locations in the country that had a concentration of Biotech/Bioinformatics companies. The Workshops were held at Bangalore, Hyderabad, Lucknow, Pune, Kolkata, Delhi (Noida). Taking into account the issues/points raised by the participants of the Workshop, a 'Feasibility Report' has been prepared for setting up the proposed Bio-IT Park. The report has received 'In-Principle' approval from the Planning Commission. The Park would also have State Government as a key stakeholder. The private promoter would be selected through an open bidding process.

National Internet Exchange of India (NIXI)

To enhance the spread of Internet in India, the cost of Internet connectivity needs to come down while the bandwidth and the quality of service (QoS) needs to be improved. One of the effective mechanisms to accomplish this is the establishment of Internet Exchange Points (IXP) in the country. An IXP interconnects Internet Service Providers (ISPs) in a region or a country, allowing them to exchange domestic Internet traffic locally, thereby avoid routing the Internet traffic across multiple international hops to reach their destination within the country.

The Department of Information Technology, in association with the Internet Service Providers Association of India (ISPAI) has promoted the National Internet Exchange of India (NIXI) as a Not-for-Profit Company under Section 25 of the Indian Companies Act, 1956 with the objective of facilitating improved Internet services in the country. In its operation, NIXI aims to ensure that the Internet traffic which originates within India and also has destination in India, remains within the country, resulting in improved traffic latency, reduced cost and better security.

As part of the implementation plan of NIXI, four Internet Exchange Nodes have been set up and are operational at Noida (Delhi), Mumbai, Chennai and Kolkata in the premises of the Software Technology Parks of India. Forty Internet Service Providers (ISPs) have joined these nodes and number of ISPs



is increasing with the demonstrated experience on improved traffic routing and financial benefit through saving on usage cost of bandwidth.

NIXI has implemented a dynamic traffic routing and tariff policy for its members with effect from July 1, 2004. The policy is regularly reviewed by the Board of NIXI to ensure that the requirements of the members are addressed while ensuring that the objectives set for NIXI are met.

In order to address the problem of excessive cost of connectivity for smaller ISPs (Class B and C) operating in secondary cities, the Government is considering a proposal to set up, in partnership with the State Governments, and with the ISPs as stakeholders, a second tier of NIXI hubs in a few selected provincial capitals.

Society for Applied Microwave Electronics Engineering and Research (SAMEER)

Society for Applied Microwave Electronics Engineering and Research (SAMEER) is engaged in the research and development in the areas of Microwave Engineering, Electromagnetic and Millimeterwave Technology. It has three centres at Mumbai, Chennai and Kolkata.

Mumbai Centre specializes in the area of linear accelerator technology for cancer therapy, optoelectronics, microwave and radio frequency systems and sub-systems and components. It undertakes and executes sponsored projects for various government agencies, public sector undertakings and industries.

Chennai Centre is a national facility for advanced research and development in electromagnetic interference and compatibility (EMI/EMC). It offers comprehensive test, consultancy, training, engineering and research services to national agencies and electronic industries in India.

The Centre at Kolkata has been established recently and is involved in the development of RF, microwave and millimeter-wave components and sub-systems for different users in the country.

SAMEER continues to be in a position of strength in handling design, development and delivery of hardware to meet stringent specifications of user agencies in its expert areas of high power RF amplifiers, RF communication systems,

atmospheric radar instrumentation, linear accelerators, electromagnetic interference / compatibility (EMI/EMC), thermal engineering of electronic hardware, RF / microwave / millimeter wave antennas, photonic devices, microwave components/modules and industrial RF/microwave application products.

SAMEER has further progressed in pursuing excellence in application oriented research and development in the areas of RF and microwave systems. It has also succeeded in handling both the challenging sponsored project assignments, in-house technology development and core R&D projects. Several products such as Cell phone jammers, EMI suppression telephone line filters, patch antenna and sleeve monopole antennas have been developed.

The remote operation and monitoring of Lighthouse operation on the coast of Gujarat for Director General of Light Houses and Light Ships (DGLL) has been a major project SAMEER has undertaken successfully. The operation of lighthouses is automated with the help of microcontroller based Supervisory Control and Data Acquisition (SCADA) system. It has commissioned the installation at 40 Light House stations. This gives remote access through telephone and wireless connection for Headquarters in any location to monitor the health parameters and the status of Light Houses. SAMEER is committed to maintain these systems after installation and commissioning in these remote locations.

Indian Meteorological Department (IMD) as a part of its modernization programme has adopted new indigenously developed Radiosondes for collecting upper air meteorological data. SAMEER has developed and installed at several locations in the country, data acquisition and auto computation system for collection of meteorological data capable of acquiring and processing radiosonde data in real time. Auto computation software for the specific application of computing the Met data obtained through radiosonde and radio theodolites capable of online plots of pressure, temperature and humidity, generation of T-Phi gram, etc., as per world meteorological organization standards. The new autocomputation system has been successfully commissioned at several locations in the country.



The packaging of optoelectronic components is an important step in order to use the components in a system. The packaging requires precise alignment of optical fiber with respect to device, electronic interconnections and hermetic sealing. A unique facility is being created in the country to meet the packaging related needs. A 12-axis autoalignment system for precise alignment of photonic components with respect to fibers has been installed and commissioned. This system can be used to fiber pigtail a variety of devices like planar waveguides, array waveguide gratings, optical modulators, switches and photo diodes.

SAMEER has been recognized as a qualified developmental centre for Space electronics hardware. The C-band transponders for INSAT series satellites are being developed at SAMEER Chennai premises. An in-house High Reliability Electronic Fabrication (HIREF) facility for development, test and evaluation of transponders for onboard spacecraft applications has been established. Class 1.0 lakh clean room facility, space qualified wiremen and inspection team have been created.

The EMI/EMC programme in SAMEER has blossomed into a world-class service. The regular up-dation of expert skills, test and measurement facilities and the excellent design consultancy knowledge base have brought SAMEER to centre stage in the field of EMI/EMC in this part of Asia Pacific region. United Nations Development Programme (UNDP) funding in the 1990s and the CE Marking project funded by the DIT currently being implemented at the three Centres of SAMEER has expanded the reach of SAMEER in offering EMC design service to all parts of the country. SAMEER has taken major steps at its Chennai Centre in bench marking of EMC facilities through certification and accreditation. It has ISO 9001, NABL, FCC listing, CSA quality certification and TUV certification for the EMC test facility. The salient features of the augmentation include 10 m ferrite lined shielded anechoic chamber at Chennai and 3 m ferrite lined shielded chambers at Mumbai and Kolkata which have been installed and commissioned.

SAMEER has been a pioneer in bringing microwaves to industrial use. One of the techniques used worldwide is treatment of

infectious bio-medical waste in hospitals before disposal. The bio-medical waste creates a major health hazard owing to the presence of multitude of pathogens infectious in nature. With microwave technology it is entirely achievable to effect bulk heating of the wastes, thereby achieving total disinfection at very low temperatures compared to conventional incineration system which uses thermal-oxidation which requires high temperatures as heat propagates to the inner core of the waste. SAMEER has developed indigenously disinfection system of various capacities which has low import content and adheres to norms formulated by Ministry of Environment.

SAMEER has emerged as the premier institution working in the area of linear accelerators. The primary application of linear accelerators is in the treatment of cancer (radio therapy). This is an effort of two decades expertise in ultra high vacuum technology, high power microwaves, accelerator technology, high voltage engineering and precision mechanical engineering. SAMEER has been identified as the main institution by the Apex Committee for the developmental programme of Cancer institutions in India for low energy linear accelerators for medical applications. Under jai vigyan programme of government of India, the first indigenous 6 MV machine is being installed at MGIMS hospital at Wardha.

Projects Completed in 2004-05

- Automation of lighthouses: Automation of all the 39 lighthouses has been completed in the Gujarat coast and is operational.
- The C-Band high power transmitter has been installed and commissioned at SHAR.
- The distance measuring instrument after successful demonstration delivered to user agency.
- Hand held data terminals for pilot balloon data processing has been demonstrated and delivered to user.
- Packaging of Photonic Devices: The 12 axis auto alignment pig tailing system has been installed and commissioned. Workshop to disseminate information on facility, design and fabrication capability was held in August 2004.
- Two microwave disinfection units of lower





capacity have been designed, fabricated tested and delivered.

- Class 1 lakh clean room facility has been commissioned at Chennai for fabrication of C-band TTC transponders.
- Development and installation of New Auto-computation System for Radio-Theodolite System at 28 sites have been completed.
- Binary Phase shifters and high power transmitting antenna development for NMRF Tirupati. Design, testing and delivery completed.
- Wide-band Antenna and RF Front end for transceiver module. Demonstration of transceive module with wide band antenna to the required size (40mm) and the extraction of beat frequency signal corresponding to 9m+/-4m height completed.
- Design and development of planar microstrip array antenna at S- band. Design, fabrication and delivery of four engineering models of antennas.
- Design and development of Co-Secant Squared Reflector Antenna at X- Band and delivery of 2 engineering models of antennas completed.
- Medical linear accelerator machine under Jai Vigyan programme ; commissioning of first machine. MGIMS hospital has been identified for installation. The final testing has been completed and machine will be installed at Wardha.
- Spare linac tube for VSSC has been tested and delivered.
- As a part of EMC test facility for CE Marking project, at Chennai 10m chamber has been installed and shielding attenuation

measurements completed. At Mumbai EMC test facilities have been installed. The three meter anechoic chamber installation is in progress. At Kolkata three meter chamber has been installed and commissioned.

- Design and development and supply of integrated line and radio modem to private industries: Fabrication of 4 numbers of IRLM and 1 number of configuration unit have been completed and delivered.
- Microwave dryer for user agency has been installed and commissioned at Durgapur.
- RF Dryer for user agency has been installed and commissioned at Mysore.

Projects continued and initiated

- 15 MeV linac system: all subsystems have been fabricated and tested.
- Distance measuring instrument is being field evaluated and demonstrated.
- Development of airborne communication antenna for LCA - prototype is being fabricated.
- 10 MeV RF- LINAC , EMC design consultancy: testing of subsystems and grounding.
- Joint Programme with L&T for development of C&S Band transmitter preliminary design review and procurement of components completed.
- C-Band Transponder fabrication for ISAC ISRO: Fabrication of two numbers of C-band Transponders at SAMEER, Module level testing and carrying out environmental test and fabrication of C-band transponders under progress.
- Development and supply of PM telemetry receiver: fabrication of prototype completed.
- Establishment of Vacuum furnace pilot plant for ITO coating on glass: design and test facility establishment is under progress at Perungudi, Campus.
- System and Software for collection of EM signature from IT equipments: Firming of technique and procurement of project hardware has been completed.
- Development and evaluation of V/UHF antenna for HAL: Evaluation and Demonstration of prototype, fabrication of first batch completed.



- Development of Comparators for S/X Mono-pulse Tracking Feed and Evaluation for ISAC. Procurement and assembly of passive components for the mono-pulse tracking feed is under progress.
- SAMEER's interaction with Industry in the field of EMI/EMC has resulted in 250 test and design consultancy assignments. For World wide acceptance of Test and Evaluation results conducted at SAMEER laboratory, the EMC facilities have been certified by ISO 9001, listed by Federal Communication Commission (FCC), USA and certified by CSA International Canada for witness testing and Accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL). SAMEER is also establishing EMC facilities for obtaining CE marking status for European norms.
- SAMEER has signed an agreement with World Space Corporation, Washington, USA for 3rd party evaluation of their Consumer Radio Receiver (CRR). This receiver, which directly receives satellite broadcast digital signal, is being manufactured by several companies in Japan, China, India and Thailand.
- High power CW amplifier: 2 KW amplifier has been designed fabricated and tested. The 40 KW amplifier design completed and critical fabrication under progress.
- Thermal modeling of spacecraft sub-systems for ISAC: Thermal analysis of INSAT-4A for transfer orbit, on-orbit and launch phase. Thermal analysis of spacecraft panels and sub-systems for INSAT-4B, etc.

DOEACC

Realising the wide gap in the availability of quality computer professionals to meet India's ambitious leadership plans in software exports, the society has revolutionized computer knowledge dissemination, by offering its meticulously prepared curriculum through the non-formal sector.

DOEACC's holistic quality policy entails the creation and regular upgradation of curriculum by the country's leading academia and IT professionals; offering these courses through screened institutes; centralised examinations at several centres across India to ensure seriousness both at the institute's and individual's level.

The mandate of the Society is to carry out Human Resource Development and related activities in the area of Information, Electronics and Communication Technology (IECT) and in its pursuit to meet its objective, the Society is implementing a joint scheme of Department of Information Technology and all India Council for Technical Education (AICTE). DOEACC Society is spread out at 10 locations with its Head Quarter at New Delhi. The Society has a work force of about 592 employees. The objective of DOEACC Scheme is to harness the infrastructure and the facilities available in the computer training institutions in the non-formal sector to generate qualified manpower.

To achieve the objective of the Society, various Education and Training Programmes are designed by the Society to build and mobilize skilled human resource in the area of IECT to serve the needs of the Industry by utilizing the resources and facilities available in Public and Private Sector training institutes in the non-formal sector. The programme design takes into account the following aspects:

- The Education and Training offered by the Society should be highly job and skill oriented, different from other educational programmes of similar nature in scope and quality.
- Highly flexible programme with fast updation of Course Curricula, which are customer driven, so that the students graduating from the Society are gainfully employed by the Industry.
- Industry participation in the formulation and running of programmes, particularly for imparting hands-on-experience.
- Quality service provided based on total quality management system in line with ISO 9001-2000 Certification by the DOEACC Society and all its Centres.
- Regular feedback from customers.
- Programmes to be available in the Distance Learning mode.
- Programmes to be available in the Web-based mode to provide complimentary inputs to the classroom mode for delivery of instruction.

Core Areas of Education and Training

- Information Technology and Tools
- E-learning



- Electronic Design and Technology
- Electronics, Instrumentation and Automation
- VLSI Design and Embedded Systems
- Maintenance Engineering
- Electronic Manufacturing Technology (CAD / CAM)
- Agri-Electronics
- Opto-Electronics
- Industrial Design
- IT for Masses
- Consumer Electronics.

Courses offered by the Society

The DOEACC offers education and training programme for students, working professionals, training of trainers and new courses in emerging areas especially in those areas where the Private Sector or the Formal University Sector have yet to launch the programme.

Long Term Courses

- DOEACC O, A, B and C Level courses
- M.Tech Courses
- Post Matric Diploma Courses
- MCA Programme.

Short Term Courses/ Training Programmes

- Awareness Programmes
- Corporate Training Programmes
- Certificate Courses.

DOEACC Scheme on Computer Courses

The DOEACC Scheme plays a pivotal role in generating competent manpower by utilizing the resources available in the non-formal sector for education in the area of Information Technology. Harnessing the resources available at private computer training institutions to meet the projected manpower requirements assumes greater significance since this sector is better equipped to keep pace with the fast rate of obsolescence in IT industry.

Under the Scheme, following four levels of courses are offered:

Level	Equivalency
'O' Level	Equivalent to Foundation level course
'A' Level	Equivalent to Advanced Diploma in

Computer Applications

'B' Level Equivalent to MCA level course

'C' Level Equivalent to M. Tech. level course

'O' / 'A' and 'B' level of courses are recognized by the Government of India for the purpose of employment in Central/State Government, PSUs, etc. The activities of the Society, under the Scheme, inter-alia include:-

- Registration of students at various level of courses;
- Accreditation of courses being conducted at institutions in the non-formal sector of IT education;
- Conduct of examinations, twice a year, and awarding certificates/diplomas;
- Regular updation of syllabi;
- Design of course curriculum.

The DOEACC Scheme on computer courses has been financially self-sustainable since its inception. The expenditure is being met out of its own revenue generation.

Registration

During the year 2004-05, 26192 candidates were registered for various level of courses bringing a total number of students registered for various levels of courses as on 31st October, 2004 to 4,89,190.

Accreditation

Under DOEACC Scheme, the courses run by institutions in the non-formal sector are granted accreditation for the DOEACC computer courses at 'O', 'A', 'B' and 'C' levels, based on well defined norms and criteria regarding space, faculty, hardware, software, library and other parameters/facilities. These norms and criteria are as laid down in the Guidelines for Accreditation for relevant level. Accreditation is given to a specific course conducted by an institution at a specific location and not to the institute as a whole or to other courses, which are conducted by the institute during the year 2004-2005 (October, 2004) 83 courses have been accredited.

Examinations

Examinations at all the four Levels, viz., 'O'/'A'/'B'/'C' are conducted on all India basis twice



a year in the months of January and July. Candidates can either appear through an institute conducting DOEACC courses or can appear directly, subject to relevant experience in the area of Information Technology as prescribed for the particular Level.

DOEACC Centres

The DOEACC Centres located at Aurangabad, Aizawl, Calicut, Chandigarh, Gorakhpur, Imphal, Jammu/Srinagar, Kolkata, Tezpur are conducting long-term courses, which are not offered by the Universities/Institutes in the Formal Sector. These courses are at the post-graduate and diploma levels in Electronics Design and Technology, Process Control and Industrial Automation, Computer Systems and Maintenance and Repair and Maintenance of Consumer Electronics Products. The Centres, in the North-Eastern Region, offer Diploma Programmes approved by respective State Governments in Electronics Engineering and Computer Science and Engineering. The Centres are also conducting short and long-term programmes to meet the needs of local industry. In addition, the erstwhile CEDTI had been running a Franchising Scheme (CFS) under which short and long term courses in the field of IECT are offered. It has been decided to phase out the CFS in a phased manner. The last examination under CFS would be held in March 2006. In the meanwhile, CFS-ATCs are being encouraged to apply for DOEACC Accreditation.

DOEACC Centres located at Kolkata and Chandigarh are engaged in activities relating to IT Education and training, data processing, software development and consultancy projects.

Bioinformatics Courses

The courses on Bioinformatics were launched by the Society. Bioinformatics is the convergence of Information Technology and Life Sciences. Bioinformatics is a fast growing discipline and has emerged as a cutting edge technology of the knowledge revolution. India's achievements and strategic advantage in Information Technology and Biotechnology have positioned the country to play a crucial role in the post genomic era. Quality Human Resource Development in this area is therefore a challenging task.

The prospective employers of these courses may be in Drugs, Pharmaceuticals, Biofertilizers, Agriculture and Energy Sector, Environmental Engineering industries, Research and Educational organizations. Bio-informatics courses at 'O' and 'A' Level have been introduced by DOEACC Centre Chandigarh, being the nodal agency for the implementation of Bio-informatics course including conduct of examination at 'O' and 'A' Level. The syllabus for courses under 'B' and 'C' levels is under preparation. 407 students were registered for 'O' level course in Bio-informatics by December 2004. The first batch of 'O' / 'A' Level qualifiers from the various DOEACC Centres would be qualifying by December 2004. Efforts are being made for placement of DOEACC 'A' Level (Bio-informatics) qualifiers.

Training of Trainers in Bioinformatics

To ensure quality training of participants in Bio-related modules, training of Trainers was organised at DOEACC Centres in Kolkata, Chandigarh and Aurangabad. The training of trainers for DOEACC Centres were organized by DOEACC Centre, Chandigarh in association with IMTECH, Chandigarh and Department of Bio-technology, Punjab University. Another programme for training of trainers was conducted by DOEACC Centre, Kolkata in association with Indian Institute of Chemical Biology, Kolkata and Bose Institute, Kolkata. A third programme of training of Trainers has also been conducted by DOEACC Centre, Aurangabad in association with Swami Ramanand Tirth Marathwada University (SRTM), Nanded. 40 participants got trained in the various programmes.

Training Programme for Nurses in Soft Skills and IT Skills

The Training Programme for Nurses in Soft Skills and IT Skills has been introduced with DONER assistance, in the State of Mizoram through



DOEACC Centre Aizawl. The syllabus for training the nurses has been developed by DOEACC Centre Aizawl with feedbacks from leading health care institutes. The course aims to tackle 6 domains that have influence on patient's satisfaction with nursing care, the socio-demographic (cultural) background of the patient, patients expectation regarding nursing care, the physical involvement, communication and information, participation and involvement, interpersonal relation between nurse and patient. The duration of the course is 2 months.

Regional Institute of E-learning and Information Technology at Kohima

With a view to facilitate the Naga youths to have easy access to education and training in the field of Computer Science and Information Technology thereby generation of quality industry ready manpower, Hon'ble Prime Minister of India, announced setting up of RIELIT in Kohima on October 29, 2003; with an outlay of Rs.20 crore for which land to be provided free of cost by the State Government of Nagaland. DOEACC Society was given the responsibility to establish the institute.

The Regional Institute of e-Learning and Information Technology (RIELIT) will have the prime objective to create quality manpower in the area of Computer Science and Information Technology and related disciplines in the non-formal sector, making available industry ready professionals and to promote and facilitate education in e-learning mode. The Institute will offer training programme to improve employment opportunities and facilitate availability of quality IT manpower, which will lead to growth of IT industry in the region.

The institute is being planned to have State-of-the-art infrastructure for providing e-learning solutions including content development and delivery having a facility to train about 500 students per annum by 2006-07 and a placement cell to take care requirements of entire North East region.

The institute will offer courses in Computer Application - CCC / O / A / B / C levels, Bio - informatics, IT Enabled Services (ITES) / Business Process Outsourcing (BPO), Hardware Courses, and other short term training programmes for industry ready professionals.

Training of Trainers in E-Learning

A project on 'Training of Teachers in e-learning' of

Department of Information Technology has been undertaken by DOEACC Centre at Aurangabad and Kolkata in the first Phase. The project aims to propagate the knowledge on e-learning and its applications among teachers to integrate e-learning methodology and approach with teaching and learning for improvement in educational methodologies (Pedagogies).

Project Implementation

The Project will be implemented by the DOEACC Centre Aurangabad. The courses / training programs will be conducted for the benefit of teachers from Maharashtra, Gujarat, Goa, Chattisgarh and Madhya Pradesh. The total duration of the project is of 18 months. 120 teachers would be trained in six (6) batches. The venue of training is DOEACC Centre, Aurangabad.

The Project will also be implemented by the DOEACC Centre Kolkata. The courses / training programs will be conducted for the benefit of teachers from West Bengal, Orrisa, Sikkim, Bihar and Jharkhand. The total duration of the project is of 18 months. 120 teachers would be trained in six (6) batches. The venue of training is DOEACC Centre, Kolkata.

Course Curricula

The course curricula consists of two broad topics viz., imparting of knowledge on computer operations and using of e-learning tools, LMS/LCMS and introduction to content creation. Therefore the course is divided into two categories of teachers i.e. teachers with and without computer background.

Identification of Beneficiaries

The beneficiaries of this project are teachers from the following categories of formal education.

1. Category I – Primary and High School Teachers
2. Category II – HSC / Junior College Teachers
3. Category III – Arts, Science Colleges and University Teachers
4. Category IV – TTTI, ITI and Polytechnic Teachers
5. Category V – Engineering College Teachers.

The first batch of Training the trainers in e-learning is likely to start by December 2004 at the two Centres.



Content Development for e-Learning

Crystal e-learning, an initiative of GTZ, Germany has envisaged to undertake a comprehensive programme for building e-learning institutions. Crystal offers a packaged service for enabling teachers to produce blended courseware cost efficiently, manage an instructional project and provide for change management when setting up an e-Learning institution.

A core element of the Crystal Programme concept is the linking of capacity development and institution development. Training of staff is embedded in the support of institutional development that leads to the establishment of an e-learning Competence Centre within the Indo-German Network of Industrial Services (IGNIS).

The first joint project of the Indo-German Network of Industrial Service will be the establishment of an e-Learning Competence Centre in collaboration with the BMZ-sector project Crystal. Together with Crystal, IGNIS will conduct a comprehensive 10 months blended learning training programme for the required capacity development and institution development, starting in July 2004.

DOEACC Centres at Aurangabad, Calicut, Imphal and Aizawl are likely to participate in the 10 months blended learning training programme for Capacity building in e-learning.

DOEACC Courses on ITES / BPO

The Department for Development of North-Eastern Region (DONER) in association with DOEACC Society, Department of Information Technology has offered ITES (IT Enabled Services) / BPO (Business Process Outsourcing) agents training courses to the students of the North-East to tap the English language proficiency of the youths in the region. DONER in association with the DOEACC Society, has launched training of manpower in the Information Technology Enabled Services (Call Centre). It is felt that potential of NE youths could be very meaningfully utilized in the field of ITES (Information Technology Enabled Services), where fluency in speaking and understanding English language is essential. DOEACC is conducting ITES (Call Centre) agents training at DOEACC Centres located in the NE Region viz., Guwahati, Imphal, Tezpur and Aizawl. It is also being offered at Gangtok and Agartala in association with Department of Information Technology,

Government of Sikkim and Tripura, respectively. DOEACC has also launched the course in the States of Nagaland and Meghalaya in the North-East Region. The course is being offered at Regional Institute of e-Learning and Information Technology (RIELIT), Kohima, an institute under DOEACC; and Meghalaya Administrative Training Institute (MATI), Shillong from October 2004.

The course will build upon the talent and skills of the student to bring out the qualities, which are required for the successful career in the ITES industry. The unique course curriculum has been designed in consultation with leading players in the industry. It covers training on various Call Centre skills such as Communications Skills, Behavioral Skills, Personality Development, Customer Relationship Management Skills, Basic and Computer Operational Skills. On completion of this course, the student will be able to effectively use computers and applications like word processors, spreadsheets, databases, etc., and will master the effective use of the Internet as a tool. While gaining this technical knowledge, the student will also be trained to develop a well-groomed personality, develop communication skills, and understand business communication and corporate culture. The student will further undergo behavioral training in areas such as time management, stress management, selling skills, etc. The ITES course is a full time course.

M. Tech in Embedded System at DOEACC Centre, Calicut

M. Tech in embedded systems at DOEACC Centre, Calicut is being launched during the year.

Upgradation of Centres in North East Region

The Centres in the North-East Region are being upgraded in terms of basic infrastructure development, additional office space and Students Hostel during the year 2004-05 with financial assistance from DIT.

Centre for Materials for Electronics Technology (C-MET)

Centre for Materials for Electronics Technology (C-MET) has been set up for the development of viable technologies in the area of materials mainly for electronics. C-MET is operating through its laboratories situated at Pune, Hyderabad and Thrissur. The objectives of C-MET are:



- To establish technology up to pilot scale for a range of electronic materials transfer the same to industry for commercialization.
- To establish relevant characterization facilities.
- To undertake applied research activities in the area of its operation.
- To establish national data base on Electronics materials.

C-MET's mission is to develop knowledge base in electronics materials and their processing technology for the Indian industry and become a source of critical electronic materials, know-how and technical services for the industry and other sectors of economy.

During the Tenth Plan period, C-MET will continue to work in the selected two areas, i.e., thrust area (Ultrahigh Pure Materials and Electronic Packaging) and emerging area (Optoelectronic materials and Sensors and Actuators), where it will develop unique expertise in India. In many of these programme, nanotechnology will be used to develop materials, devices or components.

C-MET Achievements during 2004-05

Ultra-high Purity Materials

- De-oxidation of cadmium to <1ppm was achieved by distillation /melting in presence of hydrogen.
- 7 N Te and 6 N TeO₂ have been supplied to SPL and BARC respectively for their use.
- Tantalum powders of CV value in the range of 12000 to 14000 mFV/g and DC leakage in the range of 0.005 to 0.0005 mA/mFV have been achieved.
- 1 Kg Tantalum pentoxide prepared by calcination of hydroxide .
- Initial trials for magnesium reduction of niobium oxide have been carried out to obtain Nb metal.

Electronic Packaging

- RMA solder paste at 1Kg scale was prepared and given to B T Solders for evaluation at user end.
- Achieved 50 mm line and space resolution using prepared aqueous developable photoimageable silver paste.
- Different paste compositions of photoimageable silver paste with respect to variation in glass

content (0-10%) were prepared keeping constant inorganic to organic ratio (72:28) and polymer solid content (85.0%). The samples were analyzed for microstructure and sheet resistance.

- A class 10,000 clean room to house the prototype LTCC line is under fabrication.
- Electroless plating of Cu on bare Alumina substrates optimized.
- Nanosized RuO₂.xH₂O powder was synthesized for supercapacitors for VSSC.
- Achieved >95% densification in glass + cordierite compositions at 8500C for LTCC work.
- Excellent dimensional stability and dielectric properties are obtained for high K substrates by varying the filler concentration in the range 65 to 68 wt%.

Optoelectronics Materials

- Prepared 70 mm glass blanks of OG-515. The UV cut off in the range 510-516 nm has been obtained by heat treatment at 580-6500C.
- m-Nitroaniline (m-NA) single crystals were developed in different solvent systems and doped in PMMA and Liquid Crystal to obtain non-linear optic materials.
- Bright blue light emitting CdS-Polymer composites were prepared. UV-visible spectra indicated band edge around 367nm and PL spectra indicated emission peak centred at 408 nm.

Sensors and Actuators

- Chemical synthesis of Poly(3-Methylthiophene) using FeCl₃ and its characterization done for polymeric humidity sensor.
- Multilayer PZT and PMN-PT actuators were fabricated for NPSM.

Electronics and Computer Software Export Promotion Council (ESC)

Electronics and Computer Software Export Promotion Council (ESC) is a non-profit, autonomous organization mandated to promote India's export of Electronics and Information Technology Services.

Small and Medium Enterprises

ESC has a wide base of membership, primarily comprising of around 2200 SMEs. The Council have



been laying emphasis on facilitating the interaction of Indian SMEs with foreign markets. All delegations of the Council have SME representation.

During the year, the Council emphasized on market development for small and medium enterprises as a focused effort towards market diversification for IT exports by Indian SMEs. ESC actively supports small enterprises in the IT sector. The Council proposes to initiate a separate project with the specific objective of creating awareness in foreign markets to highlight the capabilities of Indian SMEs, conducting market studies / surveys, participation in exhibitions / conferences, organizing road shows and buyer-seller meets. The ultimate goal is to assist Indian SMEs in the IT sector to graduate to being global players.

Market Diversification

Over the years, ESC has emerged as the India's premier organization for promoting export of Electronics and IT Services to the rest of the world. During the year, the Council has undertaken several initiatives to diversify India's IT export markets by focusing on the IT markets of Latin American region, the European Union, Far East, African, CIS, ASEAN and Middle East countries.

With a view to assist the exporters to promote their products and services in global IT markets, the Council has organized participation of Indian companies in various overseas events, especially in potential / newer markets of EU, Middle East and Far East. ESC's participation to the various events provided immense opportunities to the member companies for enhancing their IT exports to global markets.

The Council has sponsored a delegation visit to Ethiopia, Tanzania and Kenya. The Council has also organized a delegation visit to Singapore and Philippines during January 2005.

Incoming Delegation Meetings

The Council received several delegations from global markets, which include China, Bulgaria, Mexico, Japan, Philippines, Canada, Venezuela, etc. The Council organized meetings with the member exporters to assist them to explore the possibilities of cooperation in the area of Information Technology.

ESC Annual Export Awards

With a view to further accelerate India's electronics and software exports and to recognize the achievements of exporters, ESC has instituted Annual Export Awards. To encourage women entrepreneurs, the Council has also instituted special awards for outstanding Women Entrepreneurs. The Exports Awards for 2002-03 were distributed on February 14, 2005.

Indiasoft 2005

The Council (ESC) will be organizing INDIASOFT 2005 (Global IT Networking event) on March 21-22, 2005 at Chennai Trade Centre, Chennai.

ERNET India

The activities of ERNET are organized around five technology focus areas: Nationwide Academic and Research Network; Research and Development in the area of Data Communication and its Application; Human Resource Development in the area of High-end Networking; Educational Content; and Campus-wide High Speed Local Area Network. All the five areas have contributed significantly in the growth of ERNET India. The innovations and



breakthrough achieved through these areas represent the core strengths of ERNET. During the year, ERNET has been working to ensure that end-users enjoy the best experience and satisfaction. Robust, seamless, state-of-the-art Nationwide Academic and Research Network keep us ahead of our competitors and deliver competitive advantage and value to educational institutions who connect themselves on ERNET. The educational institutions enjoy convenience of secure and seamless connectivity with enhanced performance at regularly decreasing connectivity cost.

The architecture of the Network is designed to deliver broadband value added services and applications like Webcasting, IPcasting, Digital Library and Distance Learning. ERNET is in a position to connect any institution anywhere in the country on its backbone to share resources and undertake collaborative research and applications. The network backbone has been migrated to support IPv6 features. The first IPv6 enabled communication backbone in the country will enable researchers in public and private sector to develop and test IPv6 enabled products. The IPv6 features on ERNET backbone will also help our users to get large allocation of IP addresses, peer-to-peer connectivity and applications at their desktop.

ERNET has 13 Points of Presence (PoPs) at premier educational and research institutions in the country. Each of the PoP is equipped with state of the art Information Technology infrastructure that can provide connectivity in the range of kilo bits per seconds (Kbps) to 155 Mega bits per second (Mbps). The PoPs provide access to Internet and Intranet through Leased Lines, Radio Links and Dial-up Links to connect to the user institutions. These PoPs also provide technical support and initial handholding to the users.

The Capacity of existing Satellite Hub in the C-Band of frequency spectrum was enhanced to connect 700 nos. of VSATs. The Satellite bandwidth was augmented by adding one more transponder of 36MHz (C#17). The transponder has been used for connecting Agricultural Universities and Research Institutions in the country. With this additional transponder, ERNET is beaming 3 transponders on its Network. During the year, International bandwidth capacity was augmented by 40Mbps. The additional International bandwidth was

installed at ERNET PoP at ERNET Headquarters New Delhi, Software Technology Park (STP) Bangalore, Centre for Advanced Computing (CDAC) Mumbai, Indian Institute of Technology (IIT) Kanpur and Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune.

The network connects 1160 educational and research institutions in the country.

Reduction in Bandwidth Tariff

During the year, the Internet bandwidth charges registered reduction by about 45%. The reduction was observed both in the Satellite and submarine bandwidth.

Network Operation Centre (NOC) Services

At present, the ERNET PoPs provide four types of services. These services include subscriber services as well as those provided for routine operations. Accordingly, they are termed as Network Access Services, Network Applications Services, Hosting Services and Operations Support Services.

Services Monitoring and Reporting

The services offered to individual customer sites are monitored round-the-clock. The service levels being offered are measured quantitatively and these measurements are provided to the users on request, so that users can observe the quality of service they received over the month. The performance measurements include: link up/down times, link utilization in both directions, the break-up of the traffic generated by the site (web, ftp, email, etc.), and the web download performance obtained by users at their site.

NOC Services Monitoring and Alarms

In order to detect services failures proactively and ensure immediate response by staff on duty to service outages, a system that provides visual and audible summary alarms have been developed. This system monitors the five main components of our service infrastructure: backbone links, subscriber links, web proxy service, email service, and DNS service. The display is web based with a comprehensive status information on the start page. Each of the status elements in this page is click-able and provides the details of that particular status (cause in case of an alarm). When an alarm is shown, a click on the alarm bar displays the cause of the alarm. The tool monitors the status of primary



MX at all the PoPs. This system has evolved and stabilized over the last 18 months and is now available for access to all other PoPs.

Network Operation Centre at ERNET HQ

Work was initiated to set up Network Operation Centre (NOC) at ERNET Headquarters New Delhi. The objective of the NOC is to monitor the entire ERNET Network including those of Points of Presence round the clock and take proactive steps for traffic engineering and diagnose the problems if any. The entire Network Centre is proposed to be manned by the skilled professionals to provide all necessary assistance to the users to diagnose the problems and also disseminate information received from CERT-India.

NOC is proposed to be equipped with modern tools and servers like Enterprise Management System (EMS), Protocol Analyzer, Workstations, Centralized accounting and charging system, wall mounted projection screens to visualize online/real time monitoring of performance of links on ERNET backbone across the country round the clock.

ERNET Traffic Growth

Large number of links both in the nature of Terrestrial and Satellite has been added on the network. The total average daily incoming traffic to the ERNET has increased from 53 Gigabytes to 100 Gigabytes; a daily average increase of 100% as compared to the increase of 24% last year. The increase in the number of SCPC, DAMA and Leased Line customers, etc., last year to this year is a major contributing factor to this increase in incoming traffic. The total outgoing traffic from ERNET has increased from 24 Gigabytes to 63 Gigabytes as compared to last year; an overall increase of 100% as compared to the previous year's increase of 29.16%. Among the recently commissioned SCPC, SCPC DAMA and Leased Line customers who have dedicated the link for mail traffic and generate heavy outbound mail traffic which contributes to the major increase in the outgoing traffic.

MOU with University Grants Commission (UGC)

An MOU was signed between UGC and ERNET India on April 4, 2002 to connect all the universities and colleges on ERNET and establish Internet facilities at these institutions so as to have virtual

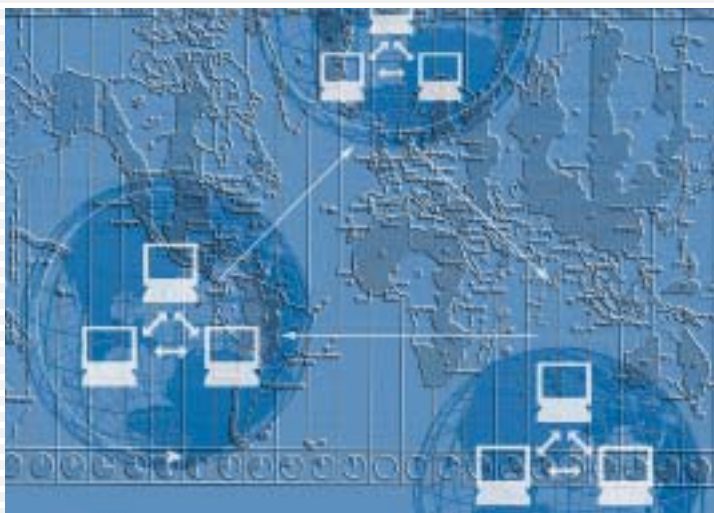
enhancement of academic infrastructure. Under this MOU, ERNET is a technology partner to UGC for upgradation of network infrastructure and connecting and interconnecting universities through the ERNET backbone. 135 Universities were connected on Intra and Internet through ERNET Backbone.

ERNET was also designated to host value added services like digital library and distance learning for universities and colleges. All hardware and software necessary to establish the connectivity at these universities are to be provided by ERNET both at their end as well as user site. Connectivity has been provided through the different feasible media. First preference of ERNET is to establish the connectivity through Terrestrial links. The connectivity through Satellite has been provided only at those locations, which are in remote areas and also where the Terrestrial infrastructure is weak and cost is higher.

MOU with Navodaya Vidyalaya Samiti (NVS)

An MOU was signed between ERNET India and Navodaya Vidyalaya Samiti (NVS) to provide technological support in the area of Information Technology to the Navodaya Vidyalaya Samiti and its 482 schools across the country. The technological support includes connecting of the Navodaya Vidyalayas in the country on Intranet and Internet on a bandwidth of 128Kbps.

100 Navodaya Vidyalayas across the country have been connected on Intranet and Internet with NVS Headquarters at Delhi through ERNET backbone. Many of these schools where connectivity has



been provided are in the far-flung areas where the communication infrastructure is very weak. For the first time, many of these schools have been connected on Internet. Three schools are in Andaman and Nicobar and one is in Lakshdweep Island. The staff managing the connectivity at schools have been provided training to operate the VSAT network and other equipment installed at the schools. The basic training in the area of computers was also arranged for the teachers of the Navodaya Vidyalayas through the Microsoft.

MOU with Indian Council of Agricultural Research (ICAR)

ERNET India and Indian Council of Agricultural Research (ICAR)/ National Agricultural Technology Project (NATP), Ministry of Agriculture have entered into an agreement to connect the agricultural universities and research institutions under ICAR on Intranet and Internet through ERNET backbone. The agreement provides for extending similar kind of facilities to ICAR institutions as being provided to universities and colleges under MOU with UGC.

In the Phase-I, 104 agricultural universities and research institutions across the country are to be connected on the Intranet and Internet through ERNET backbone. The facilities are to be extended to 182 institutions in the Phase-II of the programme. The entire cost of establishing the Internet and Intranet of these institutions is being made partly from the World Bank funding and partly from the funds from Government of India.

Collaboration with European Union (EU) – Connectivity with GEANT

Under the Indo-European programme - 'Collaboration in the area of IT', Department of

Information Technology, Ministry of Communications and Information Technology has proposed to connect GEANT, an Educational and Research Network of European Union with ERNET. The proposed connectivity would facilitate Indian universities, colleges and other educational institutions connected on ERNET to log into the network of their counterparts in Europe to share information and also undertake collaborative research and development. The European Union has proposed to provide funds for the implementation of the project to the extent of 50% of the total cost of bandwidth connectivity between ERNET and GEANT.

R&D Proposal under IST Programme of European Union

European Union under IST Programme has offered to fund R&D in the area of Communication including e-communication, Internet2, 4G Mobile, etc. Accordingly, an R&D project proposal on 'QoS Framework for 4G Mobile networks' was formulated under IST Programme. The project proposal would be executed by ERNET along with Indian Institute of Technology Madras, Indian Institute of Science Bangalore, Indian Institute of Technology Guwahati, Tata Institute of Fundamental Research Mumbai and two foreign participating agencies, namely, Institute of Computer Science and Business Informatics, University of Vienna (Austria), Department of Information and Communication Technology, University of Trento (Italy).





National Informatics Centre

The National Informatics Centre (NIC) of the Department of Information Technology is providing network backbone and e-Governance support to Central Government, State Governments, UT Administrations, Districts and other Government bodies. It offers network services over high-speed long distance and local leased line Ku-band (TDMA, FTDMA, IPA and DVB and SCPC VSATs), Wireless, Metropolitan Area Networks (MANs) and Local Area Networks (LANs) with NICNET gateway for Internet resources, facilitating informatics services for decentralized planning, improvement in Government services and wider transparency of national and local Governments. NIC assists in implementing Information Technology Projects, in close collaboration with Central and State Governments, in the areas of a) Centrally sponsored schemes and Central sector schemes, b) State Sector and State sponsored projects and c) District Administration sponsored projects. NIC endeavour to ensure that the latest technology in all areas of IT is available to its users. NIC has signed the MoUs with following user Departments to extend ICT solutions: a) Rajiv Gandhi National Drinking Water Mission (RGNDWM), Department of Drinking Water Supply, Ministry of Rural Development and NIC, b) Department of Panchayats and Rural Development, Government of Chhatisgarh, Raipur c) The Directorate of Treasuries, Accounts and Pensions, Government of Chhatisgarh, Raipur, d) Public Health and Engineering. Department, Government of Rajasthan for development of MIS, e) Agreement for distribution, support and Marketing of COLLABCAD software with Kolinga Institute of Industrial technology (KIIT), Bhubaneswar, Orissa.

NICNET- A Government Informatics Network for E-Governance and Decision Support

Due to the legacy technology the FTDMA/IPA OG Hubs were closed from April 2004 and users were upgraded to DVB VSATs. IPA VSATs have been upgraded to DVB VSATs in Bihar, Chhattisgarh, Orissa, Gujarat and Maharashtra. DVB VSATs are installed in 55 CICs under Jammu and Kashmir CIC project and 11 treasuries under Chhattisgarh Treasury Project. Additional Sky blaster HUB chain is installed to accommodate more VSATs. 162 VSATs under Chhattisgarh RD project are being installed in the new HUB chain. Gramsat Network was made operational with independent Direcway 6000 HUB and 350 remotes. The inbound channels of Skyblaster HUB have increased from 32 to 52 numbers with turbo coding to accommodate more VSATs. In-house developed monitoring tool for the VSAT status is made available to the users. The DAMA VSATS in all the states have been upgraded with high-speed card to operate as a backup link for the 2Mbps leased line. DAMA VSATs are installed and commissioned for providing voice, data and VC services in districts of Rajasthan, Chhattisgarh, Madhya Pradesh, Tripura, Punjab, Nagaland and Sikkim

Network Infrastructure Services of NIC

The network group continued to assist several Government Departments in setting up the network infrastructure during the year. LAN upgradation was carried out in 12 major Bhawans at Delhi has been done. This will provide fiber backbone for Bhawan LAN's, segmentation



through L-3 Switch, implementation of Anti Virus setup and centralized operation and monitoring. Around 1000 nodes have been added during the year.

Operation and maintenance of LAN / WAN

LAN Plan implementation has been started for the Ministry of Water Resources (Bhoopal Bhawan), Simla Secretariat, addition of 200 nodes to DOPT LAN and Courts project, Cabinet Secretariat., Chanakya Bhavan, Lok Nayak Bhavan and Jaisalmer House and New Secretariat, Complex at Guwahati, Secretariat and other buildings in the North Eastern States, Implementation has started. Network Support for events such as ELITEX, Pravasi Bhartiya, etc. Anti Virus solution was provided for all network nodes in all major LAN's in Delhi, approximately fifteen thousand network nodes. This activity involves cleaning of all network nodes, installing AV Client, installing AV servers and reconfiguring the network. The bandwidth provided to all the major Bhawans and State Capitals, is being doubled. This involves about hundred E1 links. 2Mbps links are being added to Udyog Bhavan, North Block, Yojana Bhavan, Nirman Bhavan, Krishi Bhavan, National Advisory Council, IMD, NAFED, National Security Council, Chanakya Bhavan, Rajya Sabha, Doordarshan, Janpath Bhavan, Lok Nayak Bhavan and IIMC. Commissioning of STM1 at Guwahati. and 2Mbps links are being added to all NE State Capitals from Guwahati has been taken up 2Mbps links to Pune and Goa from Mumbai, Srinagar, Jammu and Simla from Chandigarh and Cochin from Trivandrum are under implementation. Additional Internet gateway is being implemented for NIC-DR facility at NIC-Hyderabad.

Network Security

The objective of network security is to secure network, servers and applications of NICNET. During the year Network security restructuring plan has been worked out and implemented for NIC (Hq) LAN. For Secure Network Infrastructure Implementation in NIC State Units, a plan was prepared comprising of Firewall, Antivirus server, patch management, network segmentation, etc. Procurement of the infrastructure (hardware and software) has been completed for 20 States, and systems installed in 19 States. The network / services Security Policies and procedures to improve the network security have been developed

and hosted on the website for implementation. Augmentation of Services of Computer Security Incident Response Capability of NIC has been done through provisioning of online form and response for the Vulnerability Assessment Service. Implementation of VPN across NICNET has been done to enable secure access of the internal resources and for updating of critical servers. Regular auditing of Public access servers at network level is conducted for the Servers installed in the States and NICHQ. Security trainings for NIC and Central Government officials have been carried out. Setup was made with tools and techniques for application security audit. Technical know-how was gathered for the same. Web-sites hosted/ to be hosted (about 200 in nos.) on the NICNET have been audited and tested for possible penetration and exploitation such that vulnerabilities highlighted can be removed. This is done both manually and with the help of a tool for application security audit. Two workflow applications, namely, Firewall Rule-Entry Request System and Tour Approval System with digital-signature enabling facilities have been developed.

India Image Portal

India Image is a nationwide programme of NIC with a mission to extend comprehensive WWW services to Government Ministries and Departments starting right from consultancy, web design and development, web hosting, value added web services to promotion of web sites, enhancement of web sites and training. Wide range of services are being offered to various Government agencies Central, State, District and Block level. Under this project, over 2500 Government of India websites are being hosted on NIC Internet Data Centre. Over 300 new websites have been hosted on this WWW infrastructure for government Ministries, Departments, States and UTs as well as District Administrations. Government Tenders Portal for Online Publishing and Maintenance of Government of India Tenders was developed and launched. A Web Enabled Content Management System for updating and maintaining the content of the website of the President of India was developed. The content of the India-Image Portal was updated to include a number of new sections featuring useful information about India and its Government. An XML Based Solution for Management for 481 Block Level websites under the CIC Enrich Project was



developed. The Division also published results of various exams such as those conducted by the CBSE, State Education Boards, Universities, Staff Selection Commission, and Institute of Chartered Accountants, etc., on the web servers, (<http://results.nic.in>). Also hosted the results of various professional entrance examinations such as engineering and medical. Also extended the facility to receive results through email and to download the admit cards for certain examinations directly from the net. In addition some results were also delivered through IVRS and SMS. Online Admission Counseling for AIEEE and Regional Technical Universities was carried out. Live Webcast of important events including Union Budget, Pravasi Bharatiya Divas, Rath Jatra, Republic Day, Asia IT Summit 2004, Elitex 2004, Tirupati Balaji Brahmotsavam 2004, etc., was carried out. Oracle Enterprise Database Server in Cluster Mode was set-up and operationalised in the Data Centre at NIC HQ. NIC has been designated for 'GOV.IN' Domain Registration of Government websites as per the new Domain Name Policy announced by Department of Information Technology.

Informatics-the E-Governance Bulletin of NIC was published quarterly (print as well as online version) to disseminate information about the e-governance activities taking place all over the Country.

Establishment of Certifying Authority at National Informatics Centre (NICCA)

NICCA has been licensed to function as Certifying Authority in G2G domain, under section 21 of IT Act 2000. NICCA is offering three different types of digital certificates as listed below, a) SMIME Signing Certificate, b) SSL Server Certificate, c) SSL Client Certificate, [Under two classes of Certification Services - Class 1 and Class 2.]

NIC has setup a state-of-the-art secure infrastructure and de-facto standard with biometric sensors and surveillance system of International quality at NICHQ for housing the infrastructure of NIC Certifying Authority. During the year, NICCA has issued about 1000 digital signatures to various Government users.

Government Informatics Training Programme

A Core Competency Development Team for National Level e-Governance Projects was created. Workshops were organized in collaboration with four technology solution providers like IBM,

Microsoft, Oracle and Open Source for working out open standards. Draft technical standard for Interoperability Framework of e-Governance (IFEG) was prepared. Base document of national projects was prepared. A collaborative project development environment was set up at the Data center with security through VPN server. A framework for Intranet portal for G2G/ G2E services was designed for DIT.

For NIC professionals, training activities in open source technologies were organized in topics like Linux, Java, J2EE, Network, Internet, Security, Software Project Management, User Interface Design, UML, Networking Trends, Mobile Computing, Smart Card Technology, Data Warehousing/OLAP, etc. Management Development Programmes for senior officers were planned in collaboration with IIM, Bangalore. Seminars/workshops on e-Governance were organized for Government officials. Some of them were sponsored by Department of Personnel and Training. Customized workshops for National Productivity Council were also conducted. Sectoral e-Governance training programmes are being designed now. Executive Development Programmes on Networking, DBMS, ICT Tools for e-Readiness in Government (DOP&T sponsored), Hindi courses (DOL sponsored) were also conducted. Sectoral Programmes in Biomedical Information Retrieval, Application of IT in Library Sciences, Automated Mapping and Customized programmes for various ministries were also conducted. Training of QMS implementation and the internal auditing was also done. National level training calendar was printed and web hoisted. The division's web portal included e-learning packages, courseware, training activities management system, web casting, etc.

Videoconferencing (VC) Services

With the aim of creating high quality videoconferencing facility in the country using cost effective solutions, NIC has established Videoconferencing facility up to district level using VSAT solutions in few selected States/Districts. The following major services were provided: Videoconferencing has been commissioned and installed at around 320 locations across India.

SCPC DAMA VSAT has been established at all districts of Uttar Pradesh (70), Maharashtra (44), Rajasthan (39), Jharkhand (23), Uttaranchal (22),



Chattisgarh (17), Madhya Pradesh (49), Punjab (18), Nagaland (13), Tripura (6) and selected districts of Bihar (11), Jammu and Kashmir (9), Orissa (7), Himachal Pradesh (3), Lakshadweep (3), Andaman and Nicobar (2). VSAT and VC installation has been commissioned at Prime Minister's office and President House respectively. During the year, Videoconferencing sessions were organized for various users. Honourable President of India has utilized NIC Videoconferencing services for conducting remote interactions, inaugurations and for delivering speeches on 15 occasions. Commissioning of 48 users Multipoint Control Unit to facilitate conferences with more number of sites as well as facilitating simultaneous concurrent conferences has been undertaken.

Bibliographic Informatics Services

The Division continued to provide bibliographic information services. 3890 searches were received. A MetaMED search tool enabling searching of IndMED and international PubMed databases simultaneously was added to the web page. Translated version of the web page was made possible by using AltaVista translation tool. IndMED search and display were made more users friendly. The medIND database was updated to include 26 journals from 2000 onwards. Three training programmes on 'Biomedical Information Retrieval' were conducted. Two user awareness programmes to promote the Union Catalogue were also conducted.

Library Services

NIC Library (<http://library.nic.in>) It provides Current Awareness and SDI services to users through IntraNIC portal, email, document lending, Inter Library Loan, and reference services. Also Online services like ACM Digital Library, Information Technology Research Reports from GARTNER, and Science Direct from Elsevier Science, Internet resources, Newspaper Clippings Service-

NEWSNIC, Web browser access to books, Catalogue, articles database, journals holdings, special issues of journals, etc, are provided to NIC officials up to district level. NIC has come out with a low cost solution, e-Granthalaya Library Management Software for automation and networking of libraries. The software has been installed in many libraries in India. With a mission to identify possible areas of convergence among the Departments viz., Department of Telecommunications, Department of Posts and Department of Information Technology in the Ministry to optimize usage of mutual resources and strengths, a Consortium of Libraries of the Ministry of Communications and Information Technology has been formed.

Intellectual Property and Know-How Services

Intellectual Property and Know-How Informatics Division provides the global patent Information to Indian Industries, R&D Organizations, Consultants, Patent Attorneys, Scientists, Researchers and Interested public. NIC provides three kinds of Patent Services i.e., Bibliographic service, Abstract service and Full text service. Beside this, NIC provides On-line Patent Bibliographic service for Patents of 1968 onwards. It contains the data of 72 countries containing 36.66 Million records. The database is available on-line 24 hours a day by browsing the Web site <http://patinfo.nic.in>. This is an on-going project.

Analytics and Modeling Services

Developed a data warehouse model on import data for Customs department. A data warehouse model using limited data set has been developed for the Bhoomi project for the State of Karnataka. Third and fourth round of time series analysis of export-import data for RIS/Ministry of Commerce completed. Established a centralized data warehouse environment at NIC Head quarter. NIC divisions/state units can make use of it for undertaking data warehouse projects.

Other projects are: data warehouse and On-Line Analytical Process (OLAP) system of export data for customs department and detailed data mining, Agriculture and Health data warehouse systems on village level information for the state of Uttar Pradesh, Technology demonstration and prototype development for the states of Gujarat, Maharashtra and Madhya Pradesh in the area of Business



Intelligence, Preparation of road map for business intelligence applications in the government - both at the centre and state level.

Computer Aided Design Activities

The analysis project - Review of the Design of Sheet Pile Quay Wall (WQ7 Berth) using SESAM software for a dredged depth of (-) 14.0 m was carried out for Visakhapatnam Port Trust and report submitted to the client in April 2004. Seismic Analysis of Bargi Dam and Spillway Radial Gates was taken up for Narmada Valley Development Authority, Bhopal in October, 2004. Purchase orders for SESAM Educational License were received from 5 educational institutions - NIT, Kurukshetra, Rourkela, Surathkal, UVCE, Bangalore and PEC, Chandigarh. CollabCAD a CAD software with Design, Drafting, Surface and Solid Modeler with Numerical Control, Bill of Material and Scripting facilities, was developed using Open Source libraries and is being used by BARC, NPCIL, VSSC, ADA, DRDL. A consortium has been built around CollabCAD. An Initiative to put this CAD Software, the IPR of which belongs to NIC, in educational Institutes is being taken so that it can be used by students as part of their study. Also, a series of industry seminars are being planned to address the needs of small and Medium Scale Industries.

GIS and Remote Sensing Services

Major activities are Multi Layered GIS at National level as part of updation of National Spatial Database, Release of Web based portal of NSDB, Geocoding and mosaic king of IRS WIFS data for the entire country, Geo-referencing of IRS LISS III scenes for MP and Andhra Pradesh and other data processing, GIS based Emergency Planning and Management for MAH units- completed for 20 districts in 4 states and is under progress for 20 districts in 10 states, GIS for retrieval of Environmental Information for MP and Orissa. GIS for Dairy and Poultry is completed, Mapping of Health facilities in 7 districts spread across the country, Creation of spatial data at 1:250,000 scale for soil, forest cover, catchments areas, etc., across the country, Development of 1:50,000 scale database on essential locations and networks e.g., Railway stations, major towns, village locations, village boundaries, Railway line, etc. and Web based GIS system for Total Sanitation Campaign.

Courts Information Systems-COURTIS

NIC has taken up the Digitization of old case files in the Supreme Court and implemented a Document Management System. Developed an application software to display the case hearing status in each of the Supreme Court courtrooms. Now, the last minute dropped cases and cases including in position places are being done through an application software developed by NIC. Computerization of 29 City Courts of State Capitals in the country is being implemented. Computerization of CAT Principal Bench and its 17 Benches across the country is being implemented.

Community Information Centres in the North East

Basic services like Internet access, email and Training to the local populace were provided by all CICs. Several citizen centric services or E-Governance services were implemented at the CICs. Some of them are E-Suvidha, a one-stop service facilitation centre for issue of certificates, forms, etc., by the Government to citizens, Rural Soft i.e., monitoring of Government schemes for the common man, Hospital Appointment Booking system to remotely book appointments for medical tests or consultations with specialists at the Government hospitals in state capitals from the



CICs, etc. E-Suvidha has been implemented in approximately 100 CICs. Computer Literacy Programme (CLP) of IGNOU and Course on Computer Concepts (CCC) of DOEACC were conducted at the CICs. Online examinations were held for the CCC programme using NIC's Computer Assisted Paperless Examination System (CAPES) at the CICs. 208 students from 21 CICs and 269 students from 31 CICs participated in the CAPES exam held in May and November 2004 respectively. CICs were used for publishing voters list, election results, etc., and uploading counting data live work during the Elections. Tele-consultation sessions were conducted in the area of Health. Workshops for need assessment for services to be provided by CICs were held at some CICs. 487 block community portals were prepared.

E-Governance Division: IntraNIC

The Intranet Portal to Empower NIC Employees, operational since October 2002, has been made more distributive in nature by giving 'author permission' to various divisions / sections at NIC Hqs and State Units and it had led NIC to become a 'less paper' office.

Quality Management System

Internal Quality Audit Training was conducted and 62 officials have been certified for Internal Quality Auditing by Indian Institute of Quality Management, Jaipur. Internal Quality Audit On-job Training (IQA-OJT) has been conducted in seven batches of IQA-OJTs each with eight NIC Internal Quality Auditors along with two STQC officers to generate audit skills amongst the Internal Quality Auditors covering Audit Planning, Execution and Reporting.

Land Records Computerization Project

Computerization of Land Records (CLR) Project, a joint venture between NIC and Ministry of Rural Development (MRD) is currently operational to a varying degree in 582 districts in the country.

At present there are approximately 3000 Revenue Circles where a computerized copy of ROR is being distributed. NIC is a nodal agency for providing technological support for implementation of project along with Ministry of Rural Development. During the current year, 123 tehsils have been covered in Uttar Pradesh.

In continuation with Quality certification of application software, KARNATAKA; ANDHARA;

MADHYA PRADESH; ORISSA have also acquired ISO 9126 certification. Security provisions based on biometrics have been extended to all the states.

Chattisgarh; Manipur; Tripura; Himachal Pradesh have recorded satisfactory progress in terms of implementation. In Manipur and Tripura, Land Record computerizations were inaugurated for public delivery.

Uniform Coding Standards; Security guidelines formulations, facility for Web enabled distribution of ROR for several states are some of noteworthy advances in project eco-system.

Overall Computerization of Land Records continues to remain one among the top priority in National E-governance Action Plan for UPA government and is Mission mode project of Government of India. NIC State units and Headquarters. have been continuously engaged in making it a success.

Utility Mapping Services

Major activities carried out are updation of map sheets on scale 1:1250 covering 40-sq. km. area of four villages of Delhi. City mapping and verification of sewage network for Delhi City, Network data collection and its entry into the system by MTNL staff, Reliance India Limited and TATA Cable network and related data entry into the system completed, 95% Gecoding of Delhi Address data and development of Address locating application, Compilation of 150 sq. km. area of Namchi sub-division area of Sikkim State. Superimposition of land parcel images for 30 sq-km areas on digital base map, undertaken Computer Aided Digital Mapping Project For Six Cities (Chennai, Ahmedabad, Kolkata, Hyderabad, Mumbai and Bangalore) from January 2005, and 5 days training conducted for utility agencies.

North East Informatics Services

System studies were carried out for MIS for NLCPR and NEC projects/schemes and SRS prepared for both. Augmentation of Training infrastructure at NIC North East state units has been under implementation. Data centres are being set up in Assam, Meghalaya, Nagaland, Sikkim and Tripura. Provision for Videoconferencing at District units has been taken up for all 8 states. The Secretariat LANs are being established/augmented. Revamping of DONER website has been initiated.



NIC services to the Central Government Ministries/Departments

Agriculture

The DACNET (<http://dacnet.nic.in>) Project has been implemented to bring in e-Governance practices in the Attached/Subordinate offices/Directorates and Field Units (172 offices) of the Department of Agriculture and Cooperation (DAC), Intranet solution (<http://intradac.nic.in>) for messaging, collaboration, knowledge sharing, paperless automated administrative services and enhanced self-service among employees. Impact study of DACNET reveals that the project has increased the organizational productivity and efficiency and improved the delivery of services.

Major application software implemented include Plant Quarantine Information System, Integrated Pest Management Information System, Web based Query Modules were added to computerized registration of pesticides for company wise and product wise pesticides registration and made operational at <http://cibrc.nic.in>. Crop Weather Watch for tobacco, oilseeds, sugarcane, wheat and millet market prices analysis. Market Intelligence Units Reporting System, Bio-fertilizers Informatics on-line, Knowledge Management System ' e-Granthalaya', and Farm Machinery Informatics on-line. Windows based Budget Information System and Intranet based Release Monitoring System and Photo and Film Library Management Information System for Directorate of Extension.

NIC has undertaken Implementation of AGMARKNET at further 537 markets, preparation of GIS based National Atlas on Agricultural Marketing, development of portals in regional languages and wider dissemination of AGMARKNET data through mobile phones as a joint venture among BSNL, MTNL, DMI and NIC. Dissemination of commodity prices and arrivals information in Hindi was made operational.

Department of Agriculture and Cooperation, Ministry of Agriculture, has entrusted again the Computerization of Agricultural Census 2000-01 and Input Survey 2001-02 to NIC on turnkey basis with a cost estimate of Rs. 8.69 crore and the work is in progress.

DISNIC-PLAN: Information Technology in Micro-level Planning

In order to provide a framework and to strengthen the planning machinery in districts, it is envisaged to usher in 'database based planning' by building

databases, decision support systems, and internet information access for facilitating grass-root level planning in a meaningful way; to promote informatics tools in micro level planning to strengthen analytical capability in districts; to develop necessary infrastructure facilities in the District Planning Cells/Boards to handle both spatial and non-spatial information in an integrated manner; to bring in a qualitative change in manpower to provide database and analytical support to the district planning team; and to provide necessary training to narrow-down the gap between the planners and various subject specialists in districts. A project proposal has been submitted to Planning Commission for implementing the project in 28 pilot districts.

Accounts

PAO - 2000 software package for Pay and Accounts Offices of the Government of India was upgraded with several utilities. Demonstration and Workshops were conducted at Bangalore, Mumbai, Delhi (INGAF), Ministry of External Affairs, Agriculture, Ministry of Finance, and Directorate of Accounts, Andaman and Nicobar Islands (Videoconferencing). A new software package CDDPAO has been developed for Cheque Drawing DDOs, which will enable export and import of data to and from PAO 2000 package. This will reduce drudgery work of data entry of CDDO vouchers by PAO and enable finalization of expenditure figure quickly. The Contributory Pension Fund Management system was developed and implemented. NIC continued to provide support for computerized systems: GAINS, Loans and Advances, DDO Code Directory, etc. The composite Payroll system was enhanced/modified to provide linking of GPF and Salary module, inclusion of Dearness Pay, Tier 1 deduction as per new pension scheme, new reports, etc.

Art and Culture

Manus Granthawali - a Unicode compliant multilingual software package for metadata compilation of about 5 million Indian manuscripts is made operational in 33 Manuscripts Resource Centres across the country. So far more than 1.5 lakh Manus Records are created. In another major development, the mission has assigned challenging tasks of digitization of 10 lakh manuscript pages of Orissa and Assam. Department of Archaeology and Museums, Government of Rajasthan has entrusted NIC with the work of digital documentation of 5000 artifacts of its 13 museums and videography of 10 temples. Besides these the automation of grant in



aid schemes of Department of Culture and Cultural Exchange Programme have been completed.

Audit

NIC assisted the office of the CAG to develop a framework and IT Audit strategy Plan to audit e-governance programs. A 3 year action Plan for IT solutions in IA and AD department and world class IT security manual and handbook have been prepared. CAG Portal has been set up. An excellent center for Information systems audit has been set up. NIC has also assisted in the implementation of workflow solution in the direct taxes wing of CAG office.

Central Vigilance Commission (CVC)

Implemented Disciplinary cases Monitoring System in all Ministries, PSU's and Banks under the Jurisdiction of the Central Vigilance Commission. Monthly Status Report of Chief Vigilance Officers has been made online and designed and developed a database Information system based on it. Web enabled Monitoring Systems for the following projects have been fully implemented in the Commission Vigilance Complaints Monitoring System and Commissioners for Departmental Inquiries Information System. File Tracking System has also been implemented in the Commission

Civil Aviation

Designed, developed and implemented Civil Aircraft Registration Information System with web based query module for DGCA. Query based on seating capacity, registration number, operator, etc., are made public on website. Web based medical Assessment for the pilots designed and implemented. The Pilots can take a printout of their medical assessment from the website and use it. Composite payroll implemented at the Ministry.

Commerce

To facilitate the electronic communication of business documents in the international trade, Electronic Commerce (EC) / Electronic Data Interchange (EDI) for Trade project has been strengthened to enhance the functionality as well as its domain. The project was selected as best project in the Trade Facilitation category and awarded eAsia2004 Award instituted by Asia Pacific Council for Trade Facilitation and Electronic Business (AFACT) held at Chinese Taipei. EC/ EDI portal (<http://etrade.nic.in>) has been launched to provide an information resource support to all participating agencies like Customs, Banks and

DGFT, etc., under EC/ EDI Project. Latest ICT tools like Digital Signatures, encryption, etc., have been introduced to enhance the security and authenticity during IT based transactions in various applications.

In the Office of the Directorate General of Foreign Trade (DGFT), online filing/processing of applications for import/ export licenses under various trade promotion and regulatory schemes along with on line submission of annual trade return by importers/ exporters are integrated with digital signature and electronic payment with banks. The project won an award in e-Asia 2003.

Cooperative

Development of software for business transactions at NAFED Branches particularly the Agricultural Commodity Sales Operations has been developed and pilot testing undertaken at NAFED Indore and Jaipur Branches. IFFCO five VSATs at Head Office and Zonal Offices upgraded to DVB technology based Sky blaster VSATs for faster network access. The Market Borrowing System software for NCDC was modified to include Education Cess imposed by Government of India. The Software modules for all the processes for grant of loans by NCDC viz., Application Details, Sanction, Releases, De-sanctions, Advance Releases and Generation of reports completed and installed at user site for Testing.

Customs, Central Excise Project and EDI Services

Enabled e-filing of Central Excise documents - Excise Return 1/2/3 (ER 1/2/3). The project was launched on June 30, 2004 at all India level and the assesses are filing the returns online through Internet. ECIR (Electronic Challan Integrated with REVACT): ECIR is being launched to capture the Central Excise Duty payment details paid by the assesses in the banks through challan. The information will be captured online through a service provider and will be pooled on a central server of NICNET. SERMON is operational in 93 Central Excise Commission rates and 480 Divisional Offices. Additional utilities have been provided to the user for information retrieval.

Indian Customs EDI System (ICES) application is augmented with additional functionalities to cover more number of documents for online processing. Nearly 98% of export documents and 90% of the import declarations are getting processed under the EDI system. Trade is facilitated for e-filing of



import and export declarations. Nearly 50% of the documents are being filed over Internet. An ICE is operational in 31 Customs location of which 8 are operationalized during 2004-05. NIC is providing technical assistance to all the Customs locations. ICES enables message exchange with Customs trading partners namely - Banks, DGFT, Airport Authority of India and Ports, etc. Around 135 message formats have been adopted and implemented.

Defence

File Tracking, Court Cases monitoring, Assets Management Applications initiated in Defence Ministry on MOD LAN. Web sites of Navy, Coastguard, Armed Forces, CGDA, DRDO hosted on NIC Server. Tenders Hosting of Army Ordnance Corps, MOD and Ordnance Factory Board, Ex-Servicemen Grievance Portal, DNS and Web portal for Armed Forces, CGDA Portal Defence tenders have been implemented.

Disinvestments

Article Information system and Visiting Card Information system have been implemented in the Department. Website maintenance and updation as well as LAN coordination are regular service provided by the NIC.

Energy

Major activities are updation / enhancement of websites of Ministry, Restructuring of LAN backbone, Installing 2 Mbps leased line, Data monitoring and Tenders/Bidding web site, Intra-Ministries web portal. MIS on REC, Coal production/movement, Lakshadweep citizens, Power and Coal sector GIS, PMO reference Monitoring system, Hydro Power Performance Review, Parliament Questions, OPA, CPS, e-Granthalaya, File Tracking System (FTS), Notice boards, leave monitoring, Annual Action Plan, Incumbency Monitoring of Board Level Officers, PMS, Demand and Supply Monitoring, Adulteration issues, Export/Import Monitoring, Capacity Addition, Training on IT tools, Payment of salary through Electronic Clearing Scheme of RBI, online access of information under COALNET, e-file movement, Enhanced Web Site by putting Basic Petroleum statistics.

External Affairs

Provided technical support for Visa Issuance system at Colombo and London, 30 passport offices in India and 200 District Passport Cells

conducted System study at consular wing of High Commission of India (HCI) Islamabad. This is a turnkey solution from hardware procurement and installation to software development and implementation. System study for computerization of CGI New York has been done. New version of PISON (central system) has been released which provides instantaneous services like issue of loss circular, impounding passports and posting the granted services by PIAs in India and Indian Missions abroad, ID card issuance system for Foreign diplomats in India, Composite payroll has been implemented at MEA (HQ). Integrated Mission Accounting System has been tested and approved by CCA-MEA and ready for implementation. New Version of web Registration of passport applications has been designed and developed with the generation of Barcode for File Reference Number.

Environment and Forests

GIS based Emergency Planning and Response system implemented in four states and is being extended to 10 states now. It assists the civil administrators and public in case of any accident in Major Hazardous industries. Web based Forest Clearance Proposal Monitoring Software helps in approving proposals for diversion of forestland for non-forestry purposes. IFS Officers Cadre management website has been upgraded with the emphasis on the training, posting and deputation of IFS officers. GIS based Indian State Basic Environmental Information Database and National River Conservation Directorate is under planning.

Fertilizers

Web Based Applications developed and implemented in Department of Fertilizers for Planning and Monitoring of Production, Distribution/ Movement, Concessions/ Subsidies payments.

Finance

Market Loan Monitoring System has been developed and implemented for Rupee Loan Section of the Office of CCA of the Ministry of Finance. It enables to monitor the internal debt raised by the Government through different instruments viz., Treasury Bills (14/91/182/364 days), Market Loans, Compensation and other bonds, Ways and Means Advance, Loans from International financial institutions, National Small Savings Fund (NSSF), Investment of Surplus cash balances.



Loans, Grants and Investments Monitoring System has been developed and implemented for State Loan section of the Office of CCA of the Ministry of Finance. It enables to monitor the releases to states made by Ministry of Finance, the repayments made by the States, defaults and outstanding balances in respect of loans, grants and investments.

Training Circular Information System has been developed and implemented. Composite Payroll System was implemented in the Department of Economic Affairs. Intranet was established for Economic Division of Department of Economic Affairs to disseminate information to officers regarding various economic indicators.

Food, Public Distribution and Consumer Affairs

The turnkey project on Integrated Information System for Food grains Management (IISFM) has been implemented for the Food Corporation of India. A network based Application software developed by NIC is to be deployed at 1400 FCI locations. Project includes H/W, training, support and networking. Integrated Computerization of BIS Activities is another major project under which turnkey solution is provided for deploying a workflow application for Issue and Monitoring of ISI Licenses to Industry CMMS at all 33 offices of BIS. Software and hardware have been provided for application areas like Standard Formulation, Payroll, File monitoring and Library.

Food Processing Industries

INTRANET solution for bringing e-governance and less paper office has been implemented in the Ministry of Food Processing Industry.

Health and Family Welfare

More than 350 PCs of the Ministry are connected to the Local Area Network (LAN), which in turn, connected to NICNET through RF Link and leased line circuits. Updation of the web-site was being regularly done in respect of the all the three departments, viz., Departments of Health, Family Welfare and AYUSH (Indian System of Medicine).

NIC designed the data entry and report software for the survey of health facilities. The data so collected has been used for mapping of the health facilities using Geographical Information System (GIS). NIC has initiated the development of a web-based

application for data compilation of all the Government Health facilities across India.

Home Affairs

Immigration Control System (ICS) Application software has been successfully implemented at Bangalore, Hyderabad, Delhi, Cochin, Calicut, Thiruvananthapuram and Ahmedabad Project Proposal for Networking of all Immigration Check Posts (ICPs) with Bureau of Immigration project is in the advanced stage of completion, Passport Reading Machines (PRMs) have been installed at IGIA Delhi. The ICS application software integrated with PRMs, The new Immigration control software has been developed incorporating additional requirements of the BOI. The web-based ICS application software has been implemented at Indira Gandhi International Airport, New Delhi, Web based version of the package Office Procedure and Automation (OPA) has been released. Visa Control System for Bangladesh Nationals implemented at HCI, Dhaka, Bangladesh. Integrated IPS Monitoring System - designed, developed and implemented. Computerization of Reception Organization in North Block has been carried out. LAN extended at MHA, North Block, Jaisalmer House and Lok Nayak Bhavan.

Human Resource Development

Provided Automation Support for the Conduct of AIEEE 2004 Examination involving Development of AIEEE 2004 website with url: <http://aieee.nic.in> or <http://ccb.nic.in> for hosting the details of Examinations, syllabus, admit card information and publication of results. All India Pre-Medical/Dental Colleges Entrance Examination: Computerized involving acknowledgement of receipt of application forms, admit card and results, Development of Systems Requirement Specifications for Sarva Shiksha Abhiyan (SSA) after making field visits to three States. Provided Technical Support to Central Counseling Board for online counseling of All India Engineering/ Pharmacy/ Architecture Entrance Examination (AIEEE) 2004, Uttar Pradesh Technical University for online counseling for UPTU-SEE 2004, Guru Jambheshwar University, Hisar, Haryana for online centralized counseling for CEE-2004. The website Kendriya Vidyalaya Sangathan has been redesigned and hosted on NIC server. Results of the recruitment of the teachers have been published on the website. Draft and final lists of transfers have



been ported on the website after the development of web access software packages in consultation with KVS and NIC has setup a 12 nodes LAN/WAN connectivity at Book Promotion office at Curzon Road.

Industry

Implemented web based system for i) Industrial Park Scheme for Department of IPP ii) Counseling, Retaining and Redeployment of PSU employees who have taken VRS, iii) Flash Results and Fact Sheet of PSUs under DHI iv) Reports and queries on Survey database for Board for Reconstruction of PESS, v) Online Investors Grievances Redressal System, Corporate Information System for large size non government companies in Ministry of Company Affairs ICT support initiated for Commission on Enterprises in Unorganized/Informal Sector under Ministry of SSI. Websites developed and launched for ROC Hyderabad, ROC Delhi and Haryana, Cost Audit Branch, Investors Education Protection Fund of Ministry of Company Affairs and OECD Global Forum Website on International Investment.

Investor/Citizen services centric feature and content improvisation for the websites of Ministry of Company Affairs - for Investors Grievance Redressal Department of IPP. Interactive chat and bulletin board service, BIFR for online status of registered cases with BIFR, web site for the Pay and Account Office, Industry, website for the Tariff Commission and website for counseling, retaining and redeployment of PSU employees.

Company Directory (CD-ROM) Series 6.0 (Commercial Product) released containing registration details in respect of over 6.52 Lacs companies in India.

Information and Broadcasting

Conducted online Web Based CAPES for DOEACC courses all over India at 98 centers and at CICs in North East. Other activities are Results Data Transmission over NICNET to DD for broadcast for General and Assembly Elections. Result IVRS for CBSE, Haryana and HP Board Results, IVRS for CPWD (12 Lines) Courtnic (2lines) on NIC Server, AG Haryana and NAGPUR GPF and Pension IVRS, developed GUI based Intra Websites for DG(DD), Computerization of Commercial Billing and Accounts at Mandi House, Live News Bulletin and TV Bulletin Operations run 24 hours from News

Room Automation Services, Video Broadcast Services of DD Channel to North East, VC session and Telemedicine (Doctors meet over VC), DD News Websites <http://www.ddinews.com> and <http://www.ddindia.com> are successfully hosted and managed. Unique feature on the site is Streaming Live Video of news.

Information Technology

IntraDIT – a G2G/ G2E Portal has been made operational to give a single window access to various applications and services related to an individual. Portal provides access to various applications such as file tracking system (OPA), project monitoring system, parliament question and answer, expenditure monitoring and services/ features such as Pay slip, GPF statement, income tax calculation sheet, personal details, education details, leave details, notices/ circulars/ up coming events, instant messaging, message board, useful links, etc. Under G2E program, in order to empower the employees more and more information is being made available on the Portal.

Labour

National project on development of 'Common Application System for Employment Exchanges' has been initiated. Automation of Protectorates of Emigrants has been completed and implemented in Delhi and Chandigarh in the first phase. Tracking system for conciliation of industrial disputes by the Industrial Relations Division has been implemented.

Project monitoring systems for i) National Child Labour Project (NCLP), and ii) labour welfare schemes connecting all regional offices of Director General of Labour Welfare are under development. Software maintenance support has been provided for a) the databases of ITIs and other training institutes of DGET, b) application software for management of cases of retrenchment, layoff and closure in industrial units.

National Human Rights Commission

LAN was recreated at new location. Same software has been implemented at Maharashtra and MP. Natural Hazards Management Information System As a part of 'Natural Disaster Knowledge Management Network programme' of NIC, a framework has been designed and the portal(<http://nhmis.nic.in>) development is in progress. Experiences of NIC for providing the ICT support



during the recent major disasters have been documented and published on the web site. The drought vulnerability Atlas development is in Progress. As a part of drought vulnerability Atlas development, drought prone districts information and the rainfall information system (Version-1) have been completed.

Official Language Department

NIC implemented Office Procedure Automation (OPA) package in Hindi in the Department. Technical support was continued provided to the Department for its portal and computerized systems relating to monitoring of Town Official Language Implementation Committees, Hindi Salahkar Samitis, Bilingual Hardware/Software Information System, etc.

Parliament

The existing software for Question Branch of Lok Sabha Secretariat for Notices of Questions, which will be tabled during the question hour, has been converted to Windows based platform.

Pension and Pensioners Welfare

Upgraded ICT infrastructure at CPAO using Router, 2Mbps Leased lines, Switches, thin clients, etc. Reengineering of few Modules of CPAO application for development and implementation has been done. Designed, developed and implemented database system for consolidation and reconciliation of demographic and contribution information received from PAOs of Central Civil, Railways, Post and Telegraph and Defence for new entrants to Government service.

Personnel and Administrative Reforms

The system implemented are file tracking systems (FTS); record management information system (RMIS) along with integrated FTS; A centralized Single Portal Public Grievance Redress and Monitoring System (PGRAMs) replacing the existing PGRAMs; E-GPF/other advances information system; and, Centralized single portal web-enabled disciplinary cases monitoring and management information system (DCMMIS) in all PSUs, online data updation on posting/transfer of IAS Officers by all cadres in the states through a centralized web-enabled IAS personnel information system; INTRA IAS-Portal and IAS E-Mail for IAS officers; INTRA-MOP Portal for the officials of MOP; BUDGET MONITORING SOFTWARE; ACC decisions information system; ACR digitization of IAS officers; decision support system (DSS) for creation of panel for postings under CSS.

Planning Commission

Enhancements and updates were carried out in the website of Planning Commission including Tenth Five Year Plan (2002-2007). Training Programmes for the awareness of latest technology for officers of Planning Commission conducted for their IT related needs. Designed and developed a web based information system for centrally sponsored schemes for Plan Coordination Division. Designed and developed database for departmental record section, for maintenance of Annual Confidential Reports of officers /officials. A web enabled comprehensive database for procedural reforms in Governments interface with public has been developed. A web-enabled retrieval system was developed for Labour, Employment and Manpower Division of Planning Commission. OPA has been implemented in Planning Commission.

Posts

The following projects have been implemented in all the Postal Circles/Regions: ePost, Postal Life Insurance, Rural Postal Life Insurance, Head Post Office Transaction Processing System for PLI (HPOTPS), PLI (MIS) software for circles, Tender Information system, Compilation of Accounts at circle (CPACT) and Regional level Pension Accounting (RPACT) information system and GPF Accounting software.

Budget Accounting Information System since October 2000, Capital Building Projects Performance Indicator Review System for monthly review to Secretary (P), Compilation of Accounts (DOP) for submission of CGA (PACT) using CONTACT software, All India Remittance statements / State wise figure of small scale collection for Ministry of Finance, Reserve Bank of India information system, central check register of Directorate and Pay Roll have been implemented. Hosting facility has been provided for various citizen centric applications like speed post tracking, public grievances, money order, etc.

Programme Implementation and Statistics

Software for monitoring of works recommended by Hon'ble MPs under MPLADS was developed and implemented in all the districts of the country. Web enabled version of the application has also been launched. Web enabled application to get data from states for monthly report of Twenty Point Programme of the Government has been implemented.



Continued providing support for development/modifications for the projects monitoring (for monthly monitoring of central sector projects costing Rs. 100 crore and above, and quarterly monitoring of central sector projects costing Rs. 20 crore and above, Member of Parliament Local Area Development Scheme Twenty Point Programme (TPP) of the Government and monitoring of selected infrastructure sectors.

Road Transport and Highways

Information System developed for the basic road statistics of India covering information on all categories of roads. Intranet for the Department of Road Transport and Highways designed and launched. Document Management System(DMIS) for monitoring movement of receipts and files implemented after extensive training of officers and staff of the Department.

As an e-Governance initiative, Ministry of Road Transport and Highways initiated the project of computerization of all the RTO's, and issuance of Smart Card based Driving License and Vehicle Registration Document. Ministry entrusted NIC to work as Technical Consultant for the complete project. Following activities are performed under this project:

- Rollout of National Symmetric Key Infrastructure
- Rollout of issuance of Smart Card based Driving License and Vehicle Registration, The states of Delhi, West Bengal and Jharkhand have rolled out and the Driving License and Vehicle RC's are issued in form of SCOSTA compliant Smart Cards.
- The states of Maharashtra, Chattisgarh, Gujarat, J&K, and Nagaland are in advanced stage to start the rollout of this project.

Rural Development

NIC extended full technical support in National Project Committee deliberations for approval of project proposals for state level computerization of PHEDs/Jal Nigams/Water Boards. Other major projects are compilation and presentation of All India Habitation Survey data for Rural Water Supply Status in 21 States (9,00,000 habitations) of the country, development of online monitoring systems for Swajal Dhara (Phase II), total sanitation campaign (TSC), normal gram purushkar (NGP) programmes of the Department in both water and sanitation sectors. Intranet Portal of the Ministry 'Daily' was revamped with scope enhancement and included majority of functions required in day-

to-day usage by staff of the Ministry. It was provided with application software packages for SGSY Special Project, DRDA staffing pattern, SARAS online (to support the rural product exhibition in Annual Trade fair at Pragati Maidan). Prepared, distributed BPL software and provided technical support during the implementation. Provided technical consultancy on PMGSY computerization and CAPART computerization project. National Panchayat Portal (<http://panchayat.nic.in>) was prepared and was launched by Hon'ble Minister for Panchayati Raj.

Coordinated various efforts related to software preparation and implementation of back-end software solution for rural PRIs. The package included PRIASoft (Panchayati Raj Administration Software package, <http://priasoft.nic.in>), with its other variations such as accounting software (Orissa, TN, Pancha-Lekha for MP, etc.), Tax evaluation for houses in villages (Aasthi for Karnataka), e-Panchayat in AP for rural PRIs.

Under the Computerized Rural Information Systems Project implementation of Rural Soft (<http://ruralsoft.nic.in>) for stateRD/DRDAs/Blocks to process the data related to poverty alleviation schemes and RuralBazar(<http://ruralbazar.nic.in>) to strengthen the marketing efforts of products produced by rural artisans. Released 'DRDA Portals' software. The product has been tested for quality by STQC and certified. Research project on 'Community level ICT initiatives in India' with Asia-Pacific Research Centre at Stanford University, USA undertaken. Released customized version of enrich (Community Software Solution Framework) to WHO, Akshaya project of Government of Kerala, Info Youth Portal for UNESCO and One World South Asia for the Open Knowledge Network Centres of North India and Sri Lanka. Provided technical expertise to UNESCO (Paris) in translating enrich into French language.

Science and Technology, Biotechnology and Ocean Development

Web based software for National Survey on R&D Expenditure completed generating R&D statistics and handbooks. Implemented Software for PROBE targeting the students, meteorological department and research institutions in Uttaranchal. Web based Ocean Science and Technology Awareness quiz organized. Intranet for Department of Ocean Development and Department of Scientific and Industrial Research undertaken. Virtual Private



Network is under planning to establish electronic connectivity between the subordinate offices.

Shipping and Transport

Computerized system on commodity wise cargo handled by minor and medium ports designed, developed and implemented. Document Management System (DMIS) for monitoring movement of files and receipts in department of shipping implemented. Support Services (including hourly updation of shipping website) provided to the control room setup for monitoring movement of ships between mainland and Andaman and Nicobar Islands carrying materials for Tsunami Victims.

Social Justice and Empowerment and Tribal Affairs

National Informatics Centre has prepared an Information Technology plan on e-Governance in the Ministry. Developed website on the Status of Resettlement of the affected families in different states under Sardar Sarovar Project as per the directive of PMO. The Universally accessible portal of Rehabilitation Council of India has been designed and launched. Websites for various autonomous organizations have been maintained as desired by the organizations. Network architecture was designed and connectivity was provided through RF link at Jeevan Prakash Building. Office Procedure Automation software has been implemented.

Telecommunications

Settlement of subsidy claims for the telecom operators by USO across the country has been implemented. Website for the Village Public Telephones (VPTs) has been designed and maintained to monitor their performance. Telecom Accounting Software (TACT) is operational in all telecom circles.

Textile

An intranet portal has been developed to provide an integrated interface for various information services and applications like MIS on Textiles Sectors, day-to-day office automation, etc. File Monitoring System is successfully operationalized at all the functional nodes of the Ministry. A web site maintaining various Handlooms designs of Weavers along with the latest fashion trends has been released on NIC web server for the

Handlooms sector. Database on objects of National Handicrafts and Handloom Museum is developed and will be made available on Internet as a knowledge resource.

Tourism

A web-based software has been designed and implemented at NIC web server for managing the inventories of 8 categories and 181 subcategories likes maps, brochures, etc. The software serves two major purposes one to provide stock maintenance facility to LTC and Indian Tourist Offices.

Projects Monitoring System is developed to monitor the projects sanctioned to various agencies such as ASI, CPWD, and ITDC, etc. Foreign Tourists Arrival system has been continued this year. File tracking system has been implemented in the Ministry.

Urban Development and Poverty Alleviation

NIC has taken up the computerization of land management for Land and Development Office. It has completed the development and implementation of the conversion module for converting leasehold properties into freehold. The other modules such as Substitution and Mutation of properties are currently under development. Composite Payroll System has been implemented

Water Resources

A database on approximately 20 million minor irrigation structures in the country has been created and Decision Support System has been implemented in 25 States/UT's under the project entitled 'Computerization of 3rd Census of Minor Irrigation Schemes'.

Local Area Network, comprising of 150 nodes, has been established at Central Soil and Materials Research Station (CSMRS) to provide Internet/NICNET connectivity. Website (bilingual) <http://csmrs.nic.in> for CSMRS has been published to disseminate the information to citizen.

Flood Forecast Warning and Network Performance Appraisal System has been implemented by the Central Water Commission (CWC) to facilitate integration of data from these sites on daily basis, generation and dissemination of flood bulletins on the website <http://cwc.nic.in>.



Women and Child Development

NGO monitoring system has been developed and implemented. Network based GIS application integrating spatial data up to village level and non-spatial data including DWCD data and census has been taken up. National Resource Centre for Women (NRCW) is being conceptualized totally on virtual cyber space for its location and access not only in India but across the entire world. Implemented Budget Monitoring System and File Tracking System in the Department. Developed and implemented the MIS of Swayamsidha schemes for monitoring the 38 point programmes of the self help group.

Youth Affairs and Sports

The Sports Portal called Sportal was launched. Document Management Information System (DMIS) has been partially implemented. A web-based package for monitoring Grant-in-aid released to NGOs and State Government has been developed, Software for DCC, SAI is under development. Cabling done for establishment of Local Area Network at DCC, Computer Centre. MoU between Nehru Yuva Kendra Sangathan and NIC for integrated computerization of NYKS activities has been finalized. Provided IT support to National Youth Commission.

NICNET Support to State Government

Andhra Pradesh

Smart Village/ePanchayat Project implemented in about 40 Panchayats in Andhra Pradesh. Successfully hosted Asia IT Ministers' Summit at Hyderabad. Developed e-Khazana software for Treasury computerization. Implemented e-Hospital in about 10 hospitals. Developed and implemented financial accounting system for DRDAs and is being implemented in all States. Initiated software development for Panchayat Raj Engineering Department (PHED). Developed and implemented software for financial accounting of University of Hyderabad. Developed and implemented online web based LRMIS (Land Records Management Information System). Installed Disaster Recovery Site (DRS) for Delhi SAN Data Centre at Hyderabad. Installed and operationalized Andhra Pradesh SAN Data Centre. Hosted all Land Records of Andhra Pradesh on the web for public access. Extended CARD project for online web based access for public.

Arunachal Pradesh

Payroll software Ver2.0 developed and deployed. Customization of Employment Exchange Software completed. Web based Income Certificate software developed. Web based Helicopter Seat Booking System developed for the Department of Civil Aviation. Design and development work of the website of HE the Governor of AP initiated. Official website of the Department of Civil Aviation has been designed, developed and hosted. Website for State Transport Services developed and launched. Development of web based MIS package for PHED, Government of AP has been taken up in the State. Secretariat LAN established at Civil Secretariat.

Assam

Major activities are pension and pensioners grievance monitoring system for pension payment orders, Gratuity payment and other admissibility reports for Pension Department, Teachers Database for all Government and provincialised schools of Assam for more than 2.2lakhs teachers, PIS for Forest Department, National Register for Citizenship of Assam, 'Dharitri' a Land Record Computerization software for implementation in districts. Website for Legislative Assembly was launched. Web Based File monitoring system, MIS for Chief Electoral officer, Assam developed and Dak Monitoring System for CM office. e-Suvidha implemented in Kamroop districts through CICs.

Bihar

The total branch automation (TBA) was implemented in 11 branches of the Bihar State Co-operative Bank located in Patna, Jamshedpur and Dhanbad. The Taxpayers Identification Number (TIN) Information System was developed as the first system of the Application Suite for Value Added Tax Management Information System (VAT-MIS) for Bihar. The STAMINA (Sales Tax Management Information System Network Aided) was horizontally transferred to the Nagaland State. The GPF Information system was implemented at GPF Directorate Patna and selected district level GPF Offices of the State. Websites were designed and developed for: Patna High Court and Department of Public Relations, Government of Bihar. The School Computer Centres consisting of 50 client systems and one server was implemented under the project sanctioned by the State Government. 7 School Computer Centres are already operational. 7



training programmes were conducted for various Government Departments of the State. The e-governance plan for IT infrastructure creation and horizontal spread of e-Governance applications in the districts of the state has been prepared.

Chattisgarh

e-kosh system has been implemented for online Treasury Computerization at Districts and Sub Treasury level by connecting the offices through VSATs. Software developed for excise department for automation of draw of lots for liquor contract awarding. Software for automation of various phases of Assembly Election 2003 and General Election 2004 was developed/implemented in all districts. Electoral rolls kept on web for public access. Enhanced Land Records software and incorporated security features based on biometric finger print verification.

Delhi

Major activities carried out are WAN for Delhi Secretariat established in Nine Districts, Education Department; E-Dastavej under implementation in 2 more districts; Land Records: Kahtauni (ROR) hosted on website; e-Praman Patra software implemented in all Districts, status made available through IVRS and SMS; PAO 2000 software under implementation in 10 PAO's; Computerization of PFA and L&B Department achieved; e-COURTIS (Court Cases Information System of Delhi Government) implemented for Delhi Government; Computerization of Social Welfare Department done for Ten Financial Assistance schemes, Data of Old Age Pensioners (about 1,30,000) is available on Website; Letter Monitoring System implemented; Web Site Hosting of over 20 Departments in one year; Web Based software for Pulse Polio Immunization Programme developed and implemented; Support for 7th AISES project of NCERT.

Goa

NICNET and Goanet were integrated. About 60 offices connected to Goanet. A Data Centre is being set up. Bills processing, compilation, receipts and payments modules have been developed. Pension Accounting Module is under development. Online Mutation System for Property Cards (City Land Records) has been developed and implemented. Mutations are carried out on line at all 11 taluka offices and four city survey offices.

Municipal Administration Software, covering registration of Births and Deaths, House Tax, Trade Licenses and Accounts, has been implemented in all 13 Municipal Councils. Infogram is being implemented in 15 Village Panchayats. For General Elections 2004, implemented a System for posting of polling staff, monitoring voter turnout online and counting. Organized 17 training programmes 293 officers/ staff were trained and 21 Web Sites have been designed/hosted.

Gujarat

NIC is Total Solution Provider for Panchayat, Agriculture, Forest, Gujarat Assembly, Women and Child and Information departments. Integrated Disease Surveillance and district panchayat accounting is implemented in all districts. The land record is made operational in all 225 Talukas, Ration Card in 190, One Day Governance in 199 talukas and e-Gram in 400+ villages. The panchayat portal is prepared in Gujarati. HBA/MCA system for DPPF and application for Directorate of Insurance is implemented. Property Card System for Urban Land Record and Sarathi is implemented in one district. A generic application e-Patruk is developed and implemented in three departments. Lodging and Boarding billing is implemented at Gujarat Bhavan. In Gujarat Vidhan Sabha E-Granthalaya, Payroll, PIS, Software for Research Branch are implemented. Management System for ITIs admission 2004 is automated. A media response system is implemented at Secretariat and all districts. PAO, Ahmedabad is made operational. The web based intranet applications like Pension case, Pay and Account bill status, essential commodities prices, land record, BPL survey queries, monitoring of Police verification of passport applications, ICDS, etc., and Antivirus solution for SWAN are made operational. The digital signature certificates are issued to NIC, Gujarat personnel. Trainings arranged for Agmarknet project. Flash statistics for 7th All India survey is published.

Haryana

The major projects are Employees Portal with more than 95 lakh GPF/Pensions records for 2.80 lakh plus employees, SOCJIS Workflow based Sub Ordinate Courts Justice delivery and Judicial Information System), e-Health. Net (Eight software packages implemented in all districts, Online counseling for Haryana CEET-2004 for around 20,000 candidates - 100% transparency achieved,



e-Finance.Net (Workflow based Integrated Finance Information System), Web enabled students Information System for 21 Government Polytechnics, Police.Net (Six Software packages for G2G and dynamic Web Portal for G2C domain), HaPPIS - Haryana Pensions Processing Information System for 13+lacs social welfare pensioners, Property Registration (HARIS), Land Records (HALRIS), Road Transport (Sarathi and Vahan), Treasuries (OTIS), Gram Panchayats (e-Gramvikas.Net - Sarkar Apke Dwar Programme System with 95000+ projects details, VATMACS - Haryana first state to implement VAT System, House Tax - 10 lacs properties data in database, Agriculture (DACNET, Agriculture Marketing Network), Integrated Services under Nai Disha Ekal Sewa Kendra, e-Food.Net, SAN based Haryana State Data Centre with 01 TB storage capacity. Haryana School Education Board Exams and Results on Web, Web services in G2G, G2C, G2E domain on continuing basis, 3000+ government employees trained, Lok Sabha General Elections - 2004, Passport, Customs and Excise, High Court projects.

Himachal Pradesh

Major activities carried out are implementation of HimBhoomi (land records computerization) in all the districts of HP and making 50 tehsils online, Implementation of HimRis (Himachal Registration Information system) firstly in District Shimla and Solan followed by replication in all the districts, establishment of Pehal (E-Governance Centres) in 10 new sub-divisions, implementation of REFNIC (Reference Monitoring) in all branches of HP Secretariat and also in few of other departments, implementation of Online Treasury System (OTIS) in remaining 7 districts and Implementation of E-Granthalaya in HP Secretariat. and Vidhan Sabha Library.

Jammu and Kashmir

55 CIC operational, Urdu electoral rolls software, Court Cases Monitoring software implemented at 5 places. Issue of Birth and Death certificate software implemented at 2 places. Development of Scanning of Old Land Record Software, Implementation of GPF (GENPROFIT) software at Civil Secretariat and Leh, MIS for Service Selection Board, Treasury software integration with bank at three locations. Support to Election department for conduct of Parliamentary election, DRDA portal for

2 district, website of State Vigilance department, website of Raj Bhawan, website of J&K schemes, website of Election department, finalization of 5,00,000 BPL family database. Development / Implementation of software for State Self Employment, NICNET: Video Conferencing facility at 4 new locations, Up gradation of districts VSAT to sky blaster, LAN at High Court Jammu, 2 Mbps leased line in Jammu. 6 days training to 110 CIC operators.

Jharkhand

Implementation of VAHAN and SARATHI in District Transport Offices. Implementation of Treasury Computerization District Treasuries. Implemented web enabled GPF information for Jharkhand Government Employees. Implemented Web based Mobile billing Information System developed for BSNL, Jharkhand Telecom circle. Technical Support provided to the Lok Sabha Election 2004. Developed computerized Annual Budget for the Jharkhand. Computerized 7th All India Education Survey. Successfully provided technical support for all outdoor. 24 Nos. of VSAT based and 50 Nos. of ISDN based Video Conferencing Systems used by Hon'ble CM, Ministers, and Secretaries in operation. Video Conferencing being used between Jail and District Court, Ranchi. Providing technical support for online inaugurations by Cabinet Ministers on special occasions. Maintaining about 400 Internet nodes in Jharkhand Secretariats.

Karnataka

BHOOMI4 implemented in 5 talukas. Land Records documents at 25 Village Kiosks through web. BHOOMI integrated to Simputers, bar code, PKI; integrated with Land Registration and Survey Departments data. SARATHI and VAHAN in 5 more RTOs. Pilot to replicate data of 5 RTOs for dissemination to Centralized server. RAITAMITRA Website for updation by District agricultural officers. Bhoophala software for soil health centres in 2 pilot districts. KRISHI MARATA VAHINI-33 more markets equipped. ELECTRONIC TENDER SYSTEM-Pilot operational at APMC Mysore for Gate, tendering computerization's function on handheld devices. SAHAKARA DARPANA-20,000 societies audit report on abridged balance sheet, profit and loss account, irregularities and ration card analysis. AHARA, bilingual website for Government's Food Policy; over 50 lakh BPL family particulars, 20,000 fair price shops. Pilot for



Allotment software being implemented. SAMANYA MAHITHI data mapped to Census 2001 codes and data up-to village level. AASTHI-Training to Master Trainers Accounting Software being developed. RURAL DIGITAL SERVICES-Citizen centric e-Governance project providing IT interface for Government services at the Village. 42 services planned in first phase of the Revenue Department at Taluk such as Birth, Death, and Income Certificates. Currently 25 services provided. COMMERCIAL TAXES DEPARTMENT-Project proposal submitted to Government for computerizing the remaining 22 checkposts. RFS on Windows 2000/Oracle 8i for 6 Acts implemented in 140 Bangalore offices. Bank Collections integrated. e-MAN being implemented all over NIC.SEG-SAN installed and operational with Web, Mail and Database services. 2 MBPS Leased Line established with NIC Hyderabad. WEB SERVICES-Additional 50 web sites developed taking the count to 100. QMS-Training to all on QMS implementation. Mock audit, MR conducted periodically. e-GRANTHALAYA in 10 more sites.

Kerala

All 14 district websites launched. DC suite modern collectorate with data centre, VC, training, touch screen, etc., was launched by Hon'ble CM. Fully workflow based Transport system with touch screen and web portal launched in Ernakulam. Employment portal introduced transparency in the employment exchange data and networked the employers and employees. Civil Supplies national model initiated. Touch screen services in the area of File status in Collectorates, Grievance status, treasury pension details, regional transport office services, etc. Web services of blood donors, Haj, Tsunami, Malabar Mahotsavams , etc. Disease monitoring and surveillance systems portal. Web based grievance launched in all districts. KerNIC - Kerala NIC Intranet portal automating admirations services G2E. 57 training programmes and 15 update programmes.

Madhya Pradesh

Design and Development of comprehensive State-wide MIS covering the Schemes, water resources, inventory, personnel, etc., for PHED; Panch-lekha for computerization of Panchayati Raj Institutions Accounts; MIS for Bank Recovery Incentive Scheme for Finance Department; Development and implementation of web-based MIS for Directorate

of Small Savings and State Lotteries; web-based monitoring system 'Farm Machinery Online' for all the Farm Machinery Training and Testing Institutes in the country; Election Results Monitoring System for CEO; Geomatics-based application for Planning Rural Road Connectivity to Habitations (Geo Approach) under Prime Minister's Gram Sadak Yojna for M.P. Rural Road Development Authority; Customization and deployment of E-Gram Suidha in Dhar, Damoh and Mandla districts; implementation of Agmarknet in 31 additional Mandis (Phase III); development of Loans and Share capital Advances Recovery Monitoring System for Registrar (Cooperative Societies); setting-up of VC Network connecting District Headquarters and Mantralaya, commissioning of Storage Area Network (SAN) and development/hosting of over 50 web-sites on M.P. portal.

Maharashtra

Preparation of proposal and discussion with Government of Maharashtra for establishment of OFC based WAN. Submission of proposal to RDD for establishment of C&C Network of Panchayat Samitis as part of 11th Finance Commission report implementation. Design, development and implementation of following web enabled applications for the DGIPR, L&HD, Planning(EGS) Status Information Management system (<http://mahasim.nic.in>) for all departments. Computer and Communication Services and VC facility to the Hon'ble President and PM during their visits to Mumbai.

Web registration and hosting of district websites on <http://district.nic.in> .Commissioning of online Land Record Computerization programme in two tehsils each of 35 districts . Implementation of Zilla Parishad Accounting system. Support extended all Central Projects.

Manipur

Land Records Computerization, Hosting of Exam Results of Class X and Class XII Treasury Computerization, Implementation of VAHAN and SARATHI at Transport Data Entry of 7AISES, Central Projects: AGMARKNET, ICDS, TPP, BPL Data Entry Support to Holding 14th Lok Sabha Election, Implementation of Payroll Value Added Tax, PMGSY, Daily Treasury Monitoring, Preparation of E-G Document for Manipur,



Conducting DONER sponsored Training, Conducting Computer Training to the State Government Employees and conducting CCC online examination.

Meghalaya

Design, development and launching of the Portals of Government of Meghalaya (www.meghalaya.nic.in), Election Department (www.ceomeghalaya.nic.in), State Cancer Society (www.scsm.nic.in), Agriculture Department (www.megagriculture.nic.in). Workshop for Citizen Centric Services, Transport Computerization, e-governance master plan, integrated MIS and Software application for PHED, Utilization of IT Tools for Senior officials of State Government. Completed compilation of BPL Census 2002, Habitation Survey, 7th AISES activities. Installation of 2 MBPS lease line. Preparation of SRS for PHED project. Setting up IT infrastructure for the Commercial Tax Department and Computerization of Shillong Municipality Board. Computerization of the CM's Secretariat. Commissioning of DRDA Portal.

Computerization of the Shillong and Tura Municipal Board, e-Billing for the Electricity Board, Value Added Tax for Sale Taxes Department integrated MIS for PHE Department, Meghalaya Public Service Commission. Implementation of VAHAN and SARATHI.CIC activities .

Mizoram

Online issue of Driving License implemented at DTO Aizawl, Vehicle database integrated with website for public consumption, Online filling of FORM 6 (request for name insertion) functionality modules integrated with <http://ceomizoram.nic.in>, developed LEILUNG mutation and RoR module, coordinated 2 days CIC content creation workshop at Aizawl sponsored by DIT, establishment of LAN at CM Secretariat Aizawl, 2mbps leased circuit between Aizawl - New Delhi installed and 5 days DoNER sponsored training conducted at Aizawl.

Nagaland

State E-governance Plan approved by the Hon'ble CM of Nagaland (The chairman of IT Council); 8 (eight) more Departmental website developed and launched; 24 hours telecommunicating services is made operational; Videoconferencing facility (SCPC-DAMA -Network) at CM's Official residence

Kohima, Nagaland House New Delhi and 9 district out of 11 districts of Nagaland installed and inaugurated; Dissemination of Examination results and transmission of daily reports of SBI are facilitated through CICs; computer training imparted to about 600 Secretariat staffs under Mass Skill up-gradation programme; organized DONER training in coordination with NICSI where 26 Officials were trained; Web-based village profile for Agriculture department developed and hosted.

Orissa

E-Governance Projects implemented in Orissa are Bhulekh (Land Records Computerization) for 171 tehsils of 30 Districts, e-Bhulekh online viewing and printing of ROR of any tehsil of the state, Land Registration (ORIS) implemented in 12 districts, treasury computerization for 36 Treasuries, Priasoft and ruralsoft implemented in all the 314 blocks of Orissa, Sarathi implemented for Bhubaneswar RTO office, CCR Information system developed and implemented for GA department, Intranet based application developed for Assembly and Lok Sabha Election, Software for Election management for simultaneous Election, Web based MIS for Food , Supply and Consumer Welfare, MIS on CDPO's MPR under ICDS Scheme, Holding Tax Assessment and Collection automation system, Birth and Death Registration System, Plan Expenditure Monitoring System, Web based MIS for Industry Department, Water and Sewerage billing fully computerized for the Bhubaneswar, Teachers Provident Fund Computerization, Budget Computerization, e-Grama implemented in 22 blocks of Ganjam district, list of Business Information System, Computerized Filing Counter, Caselaw Information Retrieval System, Passport Computerization

Punjab

Property Registration Information System Module (PRISM 4.0) got ISO certification and implemented at 110 sites; Integrated Treasuries Information System (ITISP) has been implemented at all Districts and Sub Treasuries; Single User-friendly Window Disposal Help line for Applicants (SUWIDHA 2.0) implemented in all districts; Launch of SUWIDHA Back-end Services (SUBS) project with 9 applications in districts; Social Security Information System (SSIS) has been implemented in all districts; Websites of 6 districts hosted; E-mail Server launched on NIC e-mail Server having 800 accounts; Release of Office Automation System



(OAS) CD containing 6 generic modules implemented in 7 sites; AGMARKNET Project implemented in all 145 Mandis; SARTHI and VAHAN for Transport Sector implemented at 3 sites.

Rajasthan

An Intranet has been established in the department of Medical, Health and Family Welfare to facilitate monitoring of various health programs connecting the State Headquarter of the department to the field level units including CMHO and Deputy. CMHO. IT infrastructure has been created up-to Deputy. CMHO level. Web enabled monitoring systems are implemented for information flow. A web site of the department has been created. Local area network has been established at the State Headquarter of the department. Internet based online systems for Election Management has been created for all the activities of Elections. Project of digitization of art objects 'NATRAJ' has been initiated in all the museums of the state. Turnkey project for computerization of Employment Exchanges is taken up initially at Jaipur. Data processing for 7th AIES is near completion. 'E-Zila' integrated system for computerization of Collectorates has been implemented in some of the districts. Daily information of Assembly questions has been put on the assembly web site. Data depository system has been implemented in all the district treasuries covering DDOs in the city area. Land records have been made available on the web. LRC system has been used to distribute copies of Jamabandi to the landowners. Web sites of various government departments and agencies have been designed and hosted. NIC has extended NICNET/Internet connections to various users in the state. An application package called 'Carisma' has been developed to address the need of facilitation centers at village level for people. NIC has extended its facilities at state level and in all the districts for Prashasan Aapke Dwar , a special campaign of the state government.

Sikkim

The Treasury computerization has been extended to works computerization, The Registration project is being implemented in South District. GPF computerization for Government employees ; LOAN information system for Finance Department; Web-based PIS for Government of Sikkim; Employment Card information system; Revenue Management System - Transport Department;

Pension software has been developed and implemented in the respective Departments. The VC installation at Raj Bhavan completed. Implementation of the Digital Signature in NIC Sikkim, has received request from State Government for the same. VAT implementation for the IT&CT department. A web based application Sikkim Market Price Information System for use of farmers at www.sikkim.nic.in/smpis.

Tripura

Developed, deployed and integrated comprehensive Hospital Management System for Healthcare sector. Comprehensive Energy Billing System - the Revenue Management System has been designed, developed, deployed and integrated for Power Sector. E-Suvidha- A workflow based comprehensive solution for SDM offices targeting 22 citizen centric services. Village level databases created and deployed for decision support and macro level resource based planning at the block level. Deployed Land Records application software Jami Version 3 at Revenue Circle level in 3(three) Revenue Circles in West and South Tripura District. 7th All India School Education Survey (AISES) project- completed.

Software Development Centre, Pune

Integrated web based application comprising of 32 modules for Department of Explosives for their HQ at Nagpur, 5 Circle Offices and 13 Sub-circle offices all over the Country, Indian Ocean Computerized Information System: The web portal of IOMOU has Information about Restricted Area of IOCIS. IOCIS application is used by 20 member countries of the IOMOU for online entering of ship survey data and retrieval of the same, Treasuries, Employment Exchanges (National level Workshops were held for these projects in Pune. The Development is underway using the State of the art SDLC tool suite) , Consultancy to e-governance project of Mercantile Marine, Department (MMD) and Censor Board of Film Certification (CBFC).

Management of Taluka Seed Farm, MIS for Agropolyclinic and Farmers Training Monitoring System, Model project plan and Saturation Index for Watershed Project, Cropwatch for soil sowing status, KOSHWAHINI database containing approximately 1 crore vouchers and challans is updated daily by all 300 Subtreasuries and Treasuries, gives ecision support queries for Finance Department authorities. This is appreciated



by the Finance Minister, Government of Meghalaya in his budget speech, the Chairman 12th Finance Commission and many other Finance Secretaries from other states and State Government. Monthly Pension Payment system for 4 lakh pensioners and Millennium Corporation Project for new 10 models completed and released. Developed web based system for Stock Accounting and Search Parts of Heavy Earth Moving Machines. Developed web based Information System for Tribe/Case Certificate Verification (LAMP Architecture). Completed development of Sevaarth package, a web-based system for Integrated Personnel

Information and Payroll catering to comprehensive requirements of Government of Maharashtra. Case Information System is developed on complete open source technology platform of LAMP (Linux, Apache, MySQL and PHP) resulting in saving of huge money to the exchequer. The system is operational in several courts of Maharashtra. CIS is beneficial to the society, Litigants, Lawyers and Judicial Administration.

Tamilnadu

NICNET facilities were utilized after Tsunami in all the coastal districts of TN for transmitting urgent communications between various offices. A website was hosted for posting details on relief operations, commenced the implementation of systems for Village Panchayats, workflow based Treasury system implemented at Karur and Theni District Treasuries, commenced regular activities at the newly established Madurai Bench of High Court of Madras, Intranet based systems implemented for various departments such as Agriculture, Revenue, Education, Backward Classes, Prohibition and Excise and others, Touch Screen Kiosk based systems installed in 97 more taluks under Tamil Nilam project. Projects Monitoring System was developed and implemented for CPWD, Census 2001 data of Tamilnadu was hosted on Internet for disseminating village level data and for generating dynamic maps. Systems requirements study were conducted for many departments such as Agriculture, Municipal Administration and Water Supply, Energy, Rural Development and others and Rack and SAN Servers installed at NIC Chennai.

Uttar Pradesh

Treasury Computerization – ITSANIC 5.0 (Integrated Treasury System Application of NIC) got the ISO Certification; Pilot implementation of Lok

Vahini project has been carried out at District Sitapur. The project aims at redressing the public grievances in the district; The 'PRERNA' software was designed and developed for all kind of property registration in the Land Registry Department, pilot implementation running successfully at the SRO Offices in Lucknow. Online counseling of UP Technical University was carried out for admission to various engineering and management Institutes of the state. In which 50,000 candidates in 180 institutes participated; The 'BHULEKH' software was restructured and reengineered for implementation in all the 305 Tehsils, computerized khataunis are being generated and farmers are getting computerized ROR copies from the Tehsil Computer Centres. The software for online mutation has also been developed and is under trial run; 'e-Patrawali Pranali' - A web based software developed for File and Reference/Letter monitoring system, the State Government has issued a GO and directed implementation of the software in all the departments; A web based solution for Fortnightly Crime Report for U.P. Police Department, this consists of about 70 different forms that are filled at the district level and the consolidated reports are generated at the state level for analysis. In addition software was developed for Automation of Lok Ayukta office, Panchayati Raj Scheme Monitoring, advocate generals Office, Sachivalaya Administration. NIC-UP has also been declared as the nodal implementation agency for State Wide Area Network in UP (UP SWAN) by the State Government

Uttaranchal

Computerization of Sub-Registrar, Treasuries, Transport, CM Letter Monitoring, Pension Management, Sarv Shiksha Abhiyan, Lokayukta, Societies, Forest Land, MPR RD, High Court, Sankhiki Patrika, BPL Survey, Panchayat Information System, Group Insurance Management System, Budget Directorate, Election, Health-CNAA, E-payroll of State Government, Seventh All India School Education Survey Uttaranchal Government Orders on the Web, Twenty Point Programme, Board Results on Website, Check Posts, Ruralsoft 2000, Mandis of Uttaranchal, Employment Exchange, Videoconferencing set-up at State Headquarters, High Court and Districts, Networking of Secretariat, Benchmarking of Hardware, E-mail and



Internet to Government Officials, trainings to Government Departments, Websites of Districts, Departments such as Finance, Chief Electoral Officer, Transport, Arhkumbh, Rajbhawan, Lokayuk, Uttaranchal High Court, Registrar Societies and Managing Web Server

West Bengal

The pilot projects on BANGLAR BHUMI (Land Records Computerization in West Bengal) and CORD (Computerization of Registration of Documents) under the Citizen Centric Services initiated by the Department of Information Technology were implemented by the NIC at Hoogly districts. The Smart Card based Registration (VAHAN) and Driving License (SARTAH) was made operational at the Public Vehicles Department from October 2004. VAHAN is also operational at 24 Paraganas (South). The system for Provident Fund for Landless Laborers (PROFLAL) was implemented in all blocks in Bankura and will be replicated in all 341 blocks in West Bengal. A website on Missing Persons (<http://kolkata.wb.nic.in/missing>) is used by the Police Stations throughout the State. The e-Government of West Bengal has awarded the total computerization of the Agriculture Department to the NIC in October 2004. The work is likely to be completed by the end of December 2005.

A website on missing vehicles will be launched in February 2005 to track down missing vehicles in the State. The software is in completed and is collaboration between the West Bengal Police and the Transport Department.

Websites of State Central Library, Governor, State Human Rights Commission, Agriculture Marketing, Administrative Training Institute, Howrah Bridge, Director General of Commercial Intelligence, Central Public Works Department, Eastern Region,

Technical Education and Training Department and Central Ground Water Board, Eastern Region were developed and hosted.

Andaman and Nicobar Islands

Implemented Immigration Control system at Airport and hosted websites of the Departments viz. Agriculture, Civil supplies, Public works, Election, and finally Tsunami effects. Established Videoconference between secretariat and Andaman Bhavan and Nicobar Deputy commissioner's office through ISDN lines. Established leased line connectivity between Raj Niwas and secretariat through NICNET. Supported the Administration through NICNET, to help in the relief related work. future Plans: implementation of land records, transport information system, intranet among Departments., SWAN for the administration interconnecting of all islands and payment of bills through e-Seva counters.

Chandigarh

SAMPARK (Citizen centric) centers, connected with Data Center, have been started and providing 11 services of 7 departments from 8AM to 8PM with Provision of online payments through Payment gateway on official website <http://chandigarh.nic.in>. LAN extended further in additional deluxe building, additional town hall building and CTU Depots. Network hub established in the unit connecting NIC offices, major Chandigarh Administration offices for Administration Intranet. VC Studio has also been established in the unit. Data centre has been established with rack servers configured in clustered environment with 1 Terabyte of state of art SAN. Various National level projects like E-Granthalaya for Library Automation, AISES, AIEEE, SCDRC, CAT, Government Tenders Portal, etc. have been successfully implemented. Maintaining around 30 websites.

Lakshadweep

Web-enabled Plan monitoring information system developed and implemented for the U.T. of Lakshadweep; Web-enabled registration information system developed and implemented for MPEDA. Pension processing information system developed and implemented for Lakshadweep Administration; GPF Management System developed and implemented in the office of the PAO Lakshadweep. The employee information system developed for the Lakshadweep administration and details of all the employees



available. The Electoral roll for Lakshadweep has been revised and printed and CD published as per ECI guidelines. Designed, developed and hosted CEO lakshadweep.nic.in and indianseafoodfair.nic.in.

Pondicherry

The Land Records Information System has been enhanced with biometric authentication. Town survey information system for land holdings in urban areas has been developed. Software for issue of Permanent Caste certificate by revenue department has been developed. Sarathi software has been implemented for issue of Learner License and Driving License with Biometric authentication and Web cam. A GIS based dynamic web enabled system has been developed for monitoring of animal diseases through SAHAS (System for Animal Health and Safety) in open source domain.

National Informatics Centre Services Incorporated (NICS)

National Informatics Centre Services Incorporated (NICS) was set up under Section 25 of The Companies Act, 1956, mainly to promote utilization of IT, Computer Communication Network, Informatics Developments of Services, Technologies, Supplementing Developments by NIC, promote value added Computer and Computer Communication Services, etc. Many Central and State Government Departments have retained NICS as their Total IT Solution Provider. Some of the major projects have been implemented/under implementations are: CICs in the NE and J&K, E-Governance Rollout projects, GRAMSAT-Block level networking in Orissa,

Headstart project for Government of M.P. P.R and PHED Computerization in Various States, Vice-Chancellor in the States of Madhya Pradesh, Rajasthan Nagaland, etc. Computerization of Schools in Orissa. Computerization of Treasury and P.R including VSATs at Block in Chattisgarh. DC Suite project for Palakkad in Kerala. Computerization of Department of Revenue ,Gujarat. Computerization of Police HQs of Districts of U.P. Computerization of Education Project, Bihar. Computerization of Treasuries of U.P. Passport Scanning Project of MEA. Computerization of FCI. Immigration Computerization for BoI, MHA. Computerization of Health Services in Rajasthan.

Awards

During the year, NIC received the following awards

- e-Asia award for E-Suvidha and project on-line filing/processing of applications for import/export licenses from AFACT in Taiwan.
- AGMARKNET project was awarded CSI-TCS Special Mention award under Best IT Usage category.
- Special Achievement in GIS award at 24th ESRI Annual User Conference in San Diego, California.
- GOLDEN ICON AWARD for "the solution to publish the Examination Result on the Internet" and DACNET Project received BRONZE ICON AWARD at 8th National Conference 2005 for exemplary initiatives in e-Governance.
- The Director General, NIC has been awarded VASVIK (Vividhlaxi Audyogik Samsodhan Vikas Kendra) Award 2001 for excellence in ICT and SKOCH CHALLENGER AWARD 2005 for e-Governance Applications.





Public Sector Units

Semiconductor Complex Limited (SCL)

Semiconductor Complex Limited (SCL) is a well known chip design, development and manufacturing company in India under the Department of Information Technology. Headquartered at Mohali (near Chandigarh), SCL has an integrated facility comprising class 10, six (6) inch wafer fabrication facility, VLSI design and development, test & assembly, quality assurance and reliability as well as board/system level assembly facility. Major upgradation in the recent past has been the establishment of Micro-Electro-Mechanical Systems (MEMS) manufacturing facility. The company has been designated as the National facility for MEMS under the National Programme on Smart Materials (NPSM) of the Government of India. SCL has identified niche market segments for its chip business such as Application Specific Integrated Circuits (ASICs) for strategic and other market segments and Application Specific Standard Products (ASSPs) for power management and metering as also MEMS for various applications such as biomedical, automotive and strategic sector. In the system/board level segment, focus is mainly on the telecom systems, electronic energy meters as well as specialized professional boards for industrial markets. The company derives its strength from its in-house technological developments over the years as well as from its professional and experienced human capital.

Achievements

Wafer Fabrication

The wafer fabrication activities mainly involved manufacture of Application Specific Integrated Circuits (ASICs) and development/engineering of

products for various customers. Characterization of processes as well as integration with high performance process modules was undertaken to make these versatile enough to offer wafer foundry services to overseas customer(s) meeting international quality standards.

Mems Fabrication

In the area of MEMS, the company developed prototypes for a pressure sensors for different applications including that for tyre pressure measurement sensor for which commercial supplies were commenced. Major on-going MEMS projects include temperature, pressure, humidity sensors and transmitter module for India Meteorological Department (IMD) and RF patch antenna. Future plans include development of hi-end MEMS devices and night vision devices including uncooled Focal Plane Arrays (UFPAs).

Board/System Level Assembly

The main systems level activity during the year included manufacture of electronic energy meters which were supplied to several State Electricity Boards. In keeping with the market trend, the company is concentrating its efforts towards development of hi-end meters including the smart card based pre-paid energy meters. In the telecom systems, the company continued its focus on newer telecom equipment namely family of synchronous transport module equipment and efforts are underway to improve revenues from this segment through strategic tie-up with well-known Indian telecom manufacturers.

Research & Development

The R&D activities have formed an integral part of company's operations since incorporation and are



carried out in accordance with R&D road map evolved from time to time. Steered by an Advisory Committee comprising experts in the area from the industry, R&D establishments as well as academia, the R&D activities are focused on development of process technologies and products in the identified niche market segments. Major highlights of the R&D activities during the year are as under:

VLSI Design

In the area of VLSI design, prototype of the products such as SoftDAS, 12 Bit DAC were delivered to the customers. Prototype of another product namely FFT processor was tested successfully and delivered to the customer. IP core for microcontroller was successfully developed as also the flight worthy FM clock driver ASIC. The new designs taken up during the year included Read Out IC (ROIC), a multi-institutional project launched by the office of Principal Scientific Adviser to the Government of India, Transmitter Module for India Meteorological Department (IMD), IP cores like ROM, DSP processor, SD DAC and DLL. On the design technology front, the 0.8mm cell library development was further enhanced by way of addition of new cells of higher complexity such as FVR, SRAM, DPRAM, Multiplexer, etc., as also several analog cells.

VLSI Design Services

The company also embarked upon design services during the year. An MOU was signed with an overseas company for design services by SCL under which two products were completed while two more are in progress. More products are envisaged to follow under the MOU. The company expects the design services business segment to grow significantly in the near future.

VLSI Technology Development

Capability enhancement through development of newer technologies/variants of existing technologies has been the main focus of the VLSI technology development activities. In addition to core R&D activities, the company also undertakes development of specialized technologies meeting specific requirements of the customers. The main technology development activities during the year included progressing further the development of 1.2mm BHC MOS process (80V & 5V med b) and 0.8mm BHC MOS process (5V, high b and 24V, med b), development of prototype of 12KTDI imager and

frame transfer imager for imaging applications. Similarly, the RAD HARD technology development was progressed further and prototype product fabrication commenced. Development work of 0.8mm EEPROM technology progressed and fabrication of PEV/Short loop runs was under progress.

System/Sub-System Development

The systems development mainly included development of newer versions of EEMs, engineering and testing of telecom systems, development of professional boards. In the area of electronic energy meters (EEMs) design activities in respect of single/three phase multifeature EEMs, pre-paid EEMs and three phase CT operated EEM were completed and upon prototype validation transferred to production. Also, development of specialized professional boards was progressed further with completion of design activities and prototype validation. As part of the system development activity, application and engineering including testing and modification of newer telecom products such as STM-1 and Wi-fi equipment for Internet/LAN access was undertaken.

Information Technology Services (ITS)

In the area of Information Technology, the company offered IT solutions to Government and other agencies as part of their e-governance and business process automation initiatives. Efforts were continued to secure IT projects including those based on smart cards in partnership with strategic allies. The company also offered hi-end education courses in the area of VLSI design and real time embedded design. The intake of students was almost doubled during the year and plans are afoot to expand this education programme further.





Promotional Matters

International Co-operation and Bilateral Trade

The Department is regularly interacting with the foreign governments and agencies and our Indian Mission abroad for bilateral cooperation in the IT sector.

During the year 2004-05, focus of activities was primarily on activating the MOUs and the arrangements agreed upon in past with a view to undertaking joint ventures, sharing of expertise and developing a common approach towards emerging issues.

MOUs for bilateral cooperation were signed with Tanzania, South Africa, Kazakhstan and Uzbekistan.

As a follow up action on the Hyderabad declaration adopted at 2nd Asian IT Ministers Summit held in January 2004, a high level team from Bahrain visited India who were assisted in preparations for the 3rd Summit to be held at Bahrain. The event had led to a consensus of regional approach of cooperation and sharing of best practices in IT within the region so as to develop enduring partnership and collaborations in this field.

The Kofi Annan India Ghana Centre of Excellence for Information Technology set up with the technical and financial assistance from India became operational during the year and the first batch of students is being trained.

The Ebene Cyber City being set up in Mauritius with the assistance of the Government of India was also completed during the year. The Ebene Cyber City is likely to be inaugurated very shortly.

With a view to capacity building of IT infrastructure in other developing nations, an initiative was taken to set up IT centres in Tashkent, Uzbekistan and Dushanbe, Tajikistan, at an estimated cost of Rs. 3 crore each. The land, building and the operational costs are to be borne by the respective countries whereas the technical infrastructure, hardware, course curricula and training of the trainers would be undertaken by the Indian side during the project. The projects are expected to be completed in one year time.

Indian Government has also agreed to set up two e-learning centres, one at Yangon and other at Mandalay in Myanmar. It is also proposed to train 50 Myanmar officials of various Government Departments in e-governance projects in India. The total estimated cost of these projects would be US\$ 3 million to be provided as a grant-in-aid from India. The projects are likely to commence during this year.

Setting up of an IT Centre in Laos was completed this year. The setting up of an Advance Resource Centre in Vietnam is in progress. A feasibility report to network important IT institutions of Vietnam has been prepared based on which project is being undertaken.

With the increasing recognition of India's capabilities in the IT sector, several developing countries are approaching the Indian Government seeking technical assistance for developing IT infrastructure networking, e-governance system, etc., within their Governments. Experts were deputed to Ivory Coast, Vietnam and Bhutan, for devising and designing of the infrastructure, purchase of necessary hardware and peripherals if



so warranted, setting up and commissioning of the equipment besides training of the manpower. Similar requests from countries like Madagascar, Tanzania, etc. are in progress. Joint projects are also being undertaken with the EU, France, etc., to develop synergies in areas where complementary skills exist.

ELITEX

The Department organizes Electronics & Information Technology Exposition (ELITEX), an annual exhibition and seminar event to showcase technologies, products and services developed under the aegis of the Department of Information Technology. ELITEX' 2004 was held on 26 – 27 April 2004 at New Delhi. The theme of ELITEX' 2004 was 'Technology Vision : India in 2010'. This event provided an opportunity for close interaction between academia, R&D institutions and industries. Three technologies developed by C-DAC and C-MET were transferred to industries for commercialization and 16 new products and technologies were released during the Exposition.

Lectures on Topics of Current Interest in IT

The Department of Information Technology has initiated a series on lectures on current topics of interests in IT sector by eminent experts. During 2004, the following lectures were arranged: Bridging Knowledge and Innovation Divide : within and among communities, and formal and informal science by Prof. Anil K.Gupta, IIM Ahmedabad; Shared Services in Government by Shri Steve Bittinger, Gartner; Architectural Planning and Risk Assessment through e-Governance for governments, large corporations and non-governmental organizations by Shri James N.

Richhman, Intel Corporation; Highlights on Product Reliability and Mfg Research by Dr. Bharat Thakkar, Adjunct Associate Professor, Illinois Institute of Technology, Chicago, Illinois, USA; Design Patterns in Software Engineering by Prof.V.K.Vaishnavi, Fellow of IEEE; Digital Signal Processing : Road to Future by Prof.Sanjit K.Mitra, University of California; Cable Modems Technology and Last Mile Access Solutions by Dr.Amitava Dutta-Roy, Fellow IEEE, Fellow IEE - Consultant, Writer and Instructor on Data Communication.

Computer Literacy Excellence Awards

The Department has launched a scheme for awarding at National and State levels, the best school in Computer Literacy to promote excellence and learning of IT at the school level. Second Computer Literacy Excellence Awards for 2003 to 50 Schools in various States and 6 National Awards were presented by His Excellency President of India on August 4, 2004. The Third Computer Literacy Excellence Awards for schools for 2004 has been announced.

Support to Conferences / Seminars

Financial support is being extended to conduct National and International level Conferences in the area of Electronics, Communication and Information Technology and related fields in India. During the year 2004-05, a total number of 104 proposals were received. The scheme has been revisited to broaden its coverage, widen scope of GIA support focusing on latest technology trends. Brochure containing guidelines of the scheme and proforma for seeking Grant-in-Aid support has also been posted on the DIT website.



Office Automation

Office Automation Cell continued to provide annual maintenance of computers, printers, LAN, Servers, databases, attendance recording system, laptop, etc.; installation of systems; Network Support for lotus notes, Internet, etc., and providing advice on specifications with regard to purchase of technical stores, etc.

Public / Staff Grievances Redress

A total of 96 cases relating to public / staff grievances were received during the year, out of which 83 cases were settled / disposed off.

Electronics Information and Planning Journal

The monthly techno-economic journal 'Electronics Information and Planning' published by the Department of Information Technology is in its 32nd year of publication. The journal has a wide readership among the Industry and Users. Its coverage includes all aspects of promotion of electronics, including technology development, applications, policies and data.

During the year, the journal covered in-depth analysis reports/articles by professional on the latest technologies in electronics, such as, Information and Communication Technologies for Enabling a Digital Unite, Nanotechnology, India: An Emerging Global VLSI Design Destination, Global IT Outsourcing, Molecular Computation, Electronic Data Interchange, etc. In addition, statistics on Indian Electronics and IT Industry Production, Foreign Collaborations and Technologies/Products develop through support from the Department of Information Technology were also covered in the journal.

To streamline the distribution and accounting system, a computerised data base for the subscriber is being maintained.

The quality of the journal, both in outlook and its contents has witnessed positive changes and has been appreciated by all.

Dewang Mehta Award for Innovation in Information Technology

To recognize the innovation, which has the potential to make a significant impact on national development or bring fame to the country, the

Department of Information Technology instituted an award for innovation in IT in the name of late Shri Dewang Mehta. The concept behind the award is to encourage innovations in an industry, which thrives on brilliance.

Nominations for the Award for 2003, nominations were invited from the institutions such as IITs, IIITs, IIMs, NASSCOM, MAIT, STPI, C-DAC and other premier R&D organizations, Heads of major educational institutions in IT as well as major software units. The Department received 43 nominations for the Dewang Mehta Award for innovation in IT - 2003.

Dr. Sugata Mitra of Centre for Research in Cognitive Systems, NIIT was selected for the Dewang Mehta Award for Innovation in Information Technology for 2003. His development of 'Hole in the wall' concept enables children to learn to use computers on their own irrespective of who or where they are. This will help in spreading IT to Masses. About 50,000 poor children in India, Cambodia, Egypt and South Africa use computers because of this finding.). The award distribution function is being organized on April 12, 2005.

Awards for Excellence in Electronics

In the present liberalized economic scenario, it is only by excellence of products and service that we can hope to emerge as global players. To encourage and publicize the achievements of leaders in the field of electronics, the Department had instituted a scheme of Awards of Excellence in different sectors of electronics. The Award for the year 2002-03 were distributed on 16 September 2004 at a function organised at Hotel Ashok, New Delhi. It was well attended by member industries of Industry Associations, such as, ELCINA, MAIT, NASSCOM, CETMA, IEEMA and TEMA. The following units were selected for the Award for 2002-03 in various products sectors:

Electronics Industry Information System

The data pertaining to production, exports, approvals, foreign collaborations, manufacturers and product directory and other macro level statistics related to electronic industry are maintained in an information system, called, 'LIPS Information System' by the Data Bank and Information Division (DBID) of the Department of Information Technology. The time-series (item-wise



and unit-wise) production and export data is available since 1981. The manufacturer and product directory provides up-to date and reliable information and serves as a Buyer/Seller Guide. It provides manufacturer's information such as address (both office/factory), telephone, telex, fax, gram, name and office of the executive, year of establishment, brand, manpower employed, sector, product range and export product range, etc. It also provides manufacturers and exporters for a given product.

CD on Indian Electronics and IT Industry

The Data Bank and Information Division (DBID) of the Department of Information Technology brought out latest edition of the CD to provide comprehensive information on Indian Electronics and IT Industry.

The CD covers :

- **EIIS Package** : An user-friendly package provides information on Manufacturers Directory, Product Directory, Export Product Directory, Time-series Production and Exports data, Foreign Collaboration, etc. Information can be retrieved on many keys such as Party, Item, Year, City, State, Collaborator, Country, etc.
- **Guide to Electronics Industry** : Covers policies and infrastructural facilities that are relevant to the electronics and IT sector besides other information.
- **Annual Reports** of the Department for the last 4 years
- **IT Act 2000**
- Information on **DIT and its organizations**, etc.

This CD was widely circulated and appreciated by the industry and dignitaries from abroad.

IT in Parliament

During the year 2004, a number of Parliament Question on various issues in Information Technology and electronics sectors like hardware, software production and exports, cyber crime, IT parks, promotion of IT software piracy, internet, websites hacking, computer education, International and bilateral trade, outsourcing, etc., were answered in both the Houses of Parliament.

The Parliamentary Standing Committee on Information Technology took evidence of the committee representatives of Department of Information Technology on Demand for Grants for 2004-05. Discussed in detailed on selected

subjects like Software Technology Parks Schemes, Problems of Hardware and Software Industry and National Informatics Center. The Committee presented its 5th, 8th and 10th Report in the Parliament. The Committee also undertook on the spot study tour to the organizations namely STPI-Chennai and Thiruvanthapuram, SAMEER-Chennai, ERTL-Thiruvanthapuram, C-DAC, Bangalore.

Use of Hindi and Requisite Technology Development

During the year, the Committee of Parliament on Official Language visited the Software Technology Parks of India at Navi Mumbai to oversee the progress with regard to implementation of OL Policy of the Government. The suggestions given by the Committee are being implemented.

Winners	
Consumer Electronics	
Videocon International Ltd, Aurangabad	- First
Digitech Industries Pvt. Ltd, Kolkata	- Second
Computer and related products	
Moser Baer India Ltd, New Delhi	- First
Tata Infotech Limited, Mumbai	- Second
Instrumentation and Industrial Electronics	
Sahajanand Laser Technology, Ahmedabad	- First
Shree Pacetronix Ltd, Indore	- Second
Professional Electronics	
Midas Communication Technologies Pvt Ltd, Chennai	- First
Matrix Telecom Pvt. Ltd, Vadodara	- Second
Electronics Components & Materials	
Vishay Components India Pvt. Ltd, Pune	- First
Cinch Connectors (I) Pvt. Ltd, Bangalore	- Second
Computer Software	
Patni Computer Systems Ltd, Mumbai	- First
R&D in Electronics	
Samtel Color Limited, Ghaziabad	- First
Tejas Networks, Bangalore	- Second
Human Resource Development in Electronics	
DOEACC 'O' level	- Information Technology center, Mogri
DOEACC 'A' level	- UPTTEC Computer Consultancy Ltd, Allahabad





The scheme of National Awards for original books on Electronics and IT in Hindi instituted by the Department is gaining popularity among various sections of authors. During the year, 17 proposals were received for the awards of which, five books were selected for the awards. The Hon'ble Minister

for Communication and Information Technology distributed the awards at a function held in September 2004.

MOUs for cooperation in the field of Information Technology were signed during the year in bilingual/trilingual form with countries like Austria, Kazakstan, South Africa, Tanzania, Uzbekistan and Venezuela.

Hindi fortnight was organized and messages from the Home Minister and the Cabinet Secretary together with an appeal from the Secretary, Department of Information Technology were circulated to all officers and staff of the Department on Hindi Day i.e. September 14, 2004.

Subordinate offices of the Department were visited to review the progressive use of Hindi and guide them on implementation of various provisions of OL Act/Rules.




Electronics Production (Calendar Year)		(Rs. Crore)					
Item	1999	2000	2001	2002	2003	2004 *	
1. Consumer Electronics	11,000	11,880	12,300	13,580	14,850	16,400	
2. Industrial Electronics	3,750	3,970	4,480	5,400	5,980	7,550	
3. Computers	2,500	3,350	3,520	4,180	6,600	8,680	
4. Communication & Broadcast Eqpt.	4,000	4,450	4,450	4,800	5,150	4,500	
5. Strategic Electronics	1,400	1,730	1,750	2,330	2,670	3,020	
6. Components	5,100	5,500	5,650	6,510	7,450	8,650	
Sub-Total	27,750	30,880	32,150	36,800	42,700	48,800	
7. Software for Exports	16,000	27,000	34,000	44,000	55,000	75,000	
8. Domestic Software	7,000	8,800	10,600	12,000	15,500	18,500	
Total	50,750	66,680	76,750	92,800	113,200	142,300	

* Estimated


Electronics Production (Financial Year) (Rs. Crore)

Item	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05*
1. Consumer Electronics	11,200	11,950	12,700	13,800	15,200	16,800
2. Industrial Electronics	3,750	4,000	4,500	5,550	6,100	7,700
3. Computers	2,500	3,400	3,550	4,250	6,800	8,800
4. Communication & Broadcast Eqpt.	4,000	4,500	4,500	4,800	5,350	4,600
5. Strategic Electronics	1,450	1,750	1,800	2,500	2,750	3,050
6. Components	5,200	5,500	5,700	6,600	7,600	8,800
Sub-Total	28,100	31,100	32,750	37,500	43,800	49,750
7. Software for Exports	17,150	28,350	36,500	46,100	58,240	78,230
8. Domestic Software	7,200	9,400	10,874	13,400	16,250	19,630
Total	52,450	68,850	80,124	97,000	118,290	147,610

* Estimated


Electronics Exports (Financial Year) (Rs. Crore)

Item	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05 *
1. Consumer Electronics	300	648	700	750	825	
2. Industrial Electronics	200	500	950	1,400	1,515	
3. Computers	240	1,250	1,800	550	1,440	
4. Communication & Broadcast Eqpt.	50	550	150	500	165	
5. Strategic Electronics	10	-	-	-	-	
6. Components	600	1,840	2,200	2,400	3,755	
Sub-Total	1,400	4,788	5,800	5,600	7,700	8,750
7. Computer Software	17,150	28,350	36,500	46,100	58,240	78,230
Total	18,550	33,138	42,300	51,700	65,940	86,980

* Estimated

SCHEME	Budgetary Support
I. R&D PROGRAMMES	
1 SAMEER	20.00
2 Microelectronics & Nanotech Development Programme	40.00
3 Technology Development Council	17.00
4 Convergence, Communication & Strategic Electronics	6.00
5 Components & Material Development Programme	10.00
6 C-DAC	60.00
7 Electronics in Health	14.00
8 Technology Development for Indian Languages	7.00
9 IPR Promotion Programme	1.00
10 E-Commerce & Info-Security	8.00
11 IT for Masses (Telemedicine)	8.00
12 Media Lab Asia	1.00
R&D Sub-Total	192.00
II. INFRASTRUCTURE DEVELOPMENT	
13 Vidya Vahini & Gyan Vahini Programme	1.50
14 STQC	42.00
15 STPI & EHTP	4.00
16 Digital DNA Park	10.00
17 Electronic Governance	300.00
18 IT Act / Certification & Network Security	7.00
19 Community Information Centres (CIC)	50.00
20 Setting-up of Megafab	10.00
Infrastructure Sub-Total	424.50
III. HUMAN RESOURCE DEVELOPMENT	
21 DOEACC	10.00
22 Manpower Development	20.00
23 Sp. Manpower for VLSI Design	13.00
HRD Sub-Total	43.00
IV. OTHERS	
24 Headquarter (Secretariat & Bldg.)	9.70
25 Semiconductor Complex Ltd.	0.10
26 NIC	260.00
Grand Total	929.30

Summary of Audit Observation

(Department of Information Technology)

(Para No. 4.1 of Report No. 5 of 2004) Scientific Departments

Failure to safeguard financial interests of Government resulting in non-recovery of Rs. 1.80 crore: The Department of Information Technology (DIT) released Rs. 2 crore to M/s Usha (India) Limited, a Private Company, in March 1998 and March 1999 as refundable grants-in-aid against a corporate guarantee and personal guarantee of the Chairman and Managing Director of the firm. The firm paid the first instalment of Rs. 20.00 lakh in June 2000 and did not pay the subsequent instalments. Though the firm had been in default since September 2000, DIT failed to take timely measures to protect its interests in invoking guarantees resulting in non-recovery of Rs. 1.80 crore.

Action Taken: ATN has been sent to the Office of the Principal Director of Audit for vetting.

(Para No. 4.2 of Report No. 5 of 2004) Scientific Departments

Non-recovery of Rs. 20.00 lakh: The Department of Information Technology released Rs. 30.00 lakh to M/s Padmini Multimedia Limited as refundable grants-in-aid in March 1998 under a project. The amount was released against a deed of guarantees executed by the firm on its letterhead which was not a legally enforceable document. DIT terminated the projects in June 1999 as no progress was made and asked the firm to refund Rs. 30.00 lakh. The firm refunded Rs. 10.00 lakh in June 2000 and furnished two post dated cheques for Rs. 10.00 lakh each in June 2001. One cheque which was deposited in the bank bounced due to insufficient funds. Though it constituted a criminal offence, DIT did not take any legal action against the firm resulting in non-recovery of Rs. 20.00 lakh.

Action Taken: ATN has been sent to the Office of the Principal Director of Audit for vetting.

(Para No. 4.3 of Report No. 5 of 2004) Scientific Departments

Short claim of Rs. 38.67 lakh: The Department of Information Technology released financial assistance of Rs. 1.46 crore including loan of Rs. 1.06 crore to Marine and Communication Electronics Ltd. (MACE), Visakhapatnam, an Andhra Pradesh Government Undertaking during the years 1987 to 1990 for undertaking four research and development projects. MACE repaid only Rs. 29.86 lakh towards these loans between January 1990 and December 1991. Thereafter, MACE did not make any repayment in terms of the loan agreements. Subsequently, the company was wound up in April 1996 and an official liquidator was appointed for the company in February 2000. DIT, in June 2002, submitted a claim of Rs. 54.69 lakh including interest to the official liquidator. It was noticed in audit that while submitting the claim, DIT failed to include the outstanding loan of Rs. 38.67 lakh out of Rs. 58.00 lakh sanctioned in November 1998 to MACE. In reply to an audit query, DIT stated in September 2003 that it was advanced by another division of DIT for which the records was not traceable. The reply indicates the absence of effective system of monitoring and control over the loans advanced by DIT, which adversely affects the financial interest of Government. DIT has yet to take action to approach the official liquidator to include the amount in the dues recoverable from MACE (October 2003).

Action Taken: ATN has been sent to the Office of the Principal Director of Audit for vetting.


EMPLOYEES STRUCTURE (TOTAL AND SC/ST) As on 01.01.2005
(Department of Information Technology including its Attached & Subordinate Offices)

Group/ Class	Permanent / Temporary	Total No. of Employee	SC	% age of Total Employees	ST	% age of Total Employees
GROUP A	Permanent					
	(i) Other than lowest rung of Class - I	2121	149	7.02%	45	2.12%
	(ii) Lowest rung of Class - I	703	32	4.55%	23	3.27%
	Temporary					
	(i) Other than lowest rung of Class - I	-	-	-	-	-
	(ii) Lowest rung of Class I	3	-	-	-	-
GROUP B	Permanent	413	47	11.38%	24	5.81%
Gazetted	Temporary	5	-	-	-	-
GROUP B	Permanent	506	81	16%	23	4.54%
(Non Gazetted)	Temporary	261	4	1.53%	9	3.44%
GROUP C	Permanent	669	160	23.91%	41	6.12%
	Temporary	20	5	25%	2	10.00%
GROUP D	Permanent	316	128	40.50%	16	5.06%
(Excl. Sweeper & Farash)	Temporary	26	11	42.30%	3	11.53%
Sweeper	Permanent	52	48	92.30%	2	3.84%
	Temporary	4	4	100%	1	25.00%
Farash	Permanent	20	12	60%	-	-
	Temporary	16	4	25%	1	6.25%
TOTAL		5135	685	13.33%	190	3.70%