INFORMATION TECHNOLOGY

Annual Report

2005-06

सत्यमेव जयते

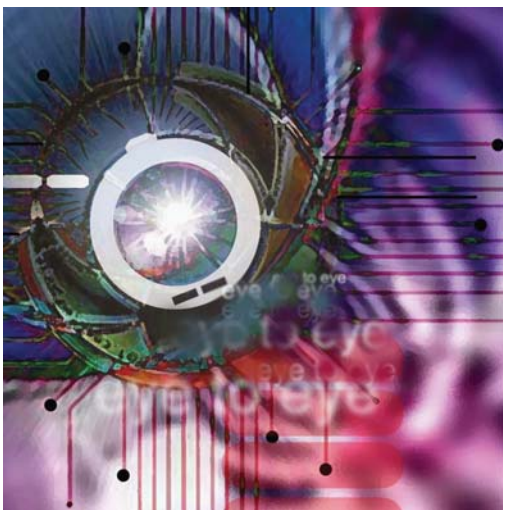
Government of India

Ministry of Communications & Information Technology

Department of Information Technology

Contents

Electronics & Information Technology



Overview

Led by gradual economic recovery and a positive outlook for corporate earnings, worldwide IT-ITES spending witnessed steady growth in 2005. Outsourcing continued to be the primary growth engine with global delivery forming an integral part of the strategies adopted by customers as well as service providers.

Global sourcing is now a key element of corporate boardroom agency. The Indian IT-enabled and Business Services (ITES-BPO) have demonstrated superiority, sustained cost advantage and fundamentally-powered value proposition in ITES. Indian companies are expanding their service offerings, enabling customers to deepen their offshore engagements; the shift from low-end business processes to higher-value, knowledge-based processes is having a positive impact on the overall industry growth.

The software and ITES exports from India grew from US$ 12.9 billion in the year 2003-04 to US$ 17.7 billion in 2004-05. It is estimated that total software and ITES exports from India will exceed US$ 23.4 billion during the year 2005-06. Software and services exports are estimated to grow at 32 per cent in dollar terms during the year 2005-06.

Strong demand over the past few years has placed India amongst the fastest-growing IT markets in the Asia-Pacific region. The Indian software and ITES industry has grown at a CAGR of 28 per cent during the last 5 years. The industry's contribution to the national GDP has risen from 1.2 per cent during the year 1999-2000 to a projected 4.8 per cent during 2005-06.

Recognising the advantages of multi-country service delivery capabilities to better manage evolving customer requirements and execute end-to-end delivery of some new services, Indian companies are enhancing their global service delivery capabilities through a combination of green-

field initiatives, cross-border M&A, partnerships and alliances with local players. Global software product giants such as Microsoft, Oracle, SAP, etc., have established their captive development centres in India.

India's record on information security ranks better than most locations. The authorities in India are maintaining a keen emphasis on further strengthening the information security environment in the country. Specific initiatives underway include enhancing the legal framework through proposed amendments to the IT Act 2000 – currently under review by the Government – increasing interaction between industry players and enforcement agencies to help create greater awareness about information security issues and facilitate mutual support as and when required.

Today, a majority of the companies in India have already aligned their internal processes and practices to international standards such as ISO, CMM, Six Sigma, etc., which has helped establish India as a credible sourcing destination. As of December 2005, over 400 Indian companies had acquired quality certifications with 82 companies certified at SEI CMM Level 5 – higher than any other country in the world.

The total number of IT and ITES-BPO professionals employed in India is estimated to have grown from 284,000 in 1999-2000 to 1,287,000 in 2005-06, growing by over 230,000 in the last year alone. In addition, Indian IT-ITES is estimated to have helped create an additional 3 million job opportunities through indirect and induced employment. Indirect employment includes expenditure on vendors including telecom, power, construction, facility management, IT transportation, catering and other services.

E-Governance

The National Common Minimum Programme adopted by the Government accords high priority to improving the quality of basic governance and in that context has proposed to promote e-Governance on a massive scale in areas of concern to the common man. A National e-Governance Plan (NEGP) has accordingly been drawn up covering 26 Mission Mode Projects and 8 support components to be implemented at the Central, State and Local Government Levels. India is aiming at achieving the objective of :

"Making all Government services accessible to the common man in his locality, throughout his life through a One-stop-shop (integrated service delivery) ensuring efficiency, transparency and reliability and at affordable costs to meet the basic needs of the common man"

State Wide Area Networks (SWANs)

Government has already approved a scheme for the establishment of State Wide Area Networks (SWANs) at a total outlay of Rs.3,334 crore over a period of 5 years. These SWANs will extend data connectivity of 2 Mega bits per second up-to the block level in all States and Union Territories in the country. The block level nodes in turn, will have a provision to extend connectivity further to the village level using contemporary wireless technology. Under the scheme, proposals from 20 States/UTs have already been sanctioned.

Common Service Centres (CSCs)

India is still a predominantly rural country, with almost two thirds of its population living in villages. The Department has formulated a proposal to establish 100,000 Common Services Centres (CSCs) in rural areas, which will serve not only as the front end for most government services, but also as a means to connect the citizens of rural India to the World Wide Web. CSCs would extend the reach of electronic services, both government and private to the village level. Various government departments have been advised to design and evolve their Mission Mode Projects laying adequate emphasis on Services and Service levels in respect of their interface with citizens and businesses. These advances in ICT technologies will enable us to take concrete steps towards turning our dream of 'government at your doorstep' into a reality.

Capacity Building

The nature and scale of e-Governance initiatives planned in the domain of the State Governments

would entail major managerial and technological challenges. This necessitates Capacity Building both at Programme level and Project level in States. The Department in consultation with the Planning Commission has prepared the Capacity Building Guidelines and issued to all States and Union Territories (UTs). The State Governments have been advised to prepare proposal for Capacity Building implementation. Orientation programme, training and workshop have been arranged for key States representatives and personnel.

The Planning Commission has allocated funds as Additional Central Assistance (ACA) to all the States for taking up Capacity Building measures as a first step towards NeGP.

National Electronics/IT Hardware Manufacturing Policy

The Government has identified growth of Electronics and Hardware manufacturing sector as a thrust area. The Government has set up a National Manufacturing Competitiveness Council (NMCC) to provide a continuing forum for policy dialogue to energize and sustain the growth of manufacturing industry including IT Hardware. In view of the special characteristics of Electronics/IT Hardware sector, the challenge posed by the WTO stipulation for elimination of duties in this segment and India entering into FTAs/PTAs with a number of countries/trading blocks, this sector needs a special sectoral treatment rather than being governed by general policy framework. The Department of Information Technology has been in discussion with the NMCC and has proposed a package of incentives needed for the growth of Electronics/IT Hardware sector, which has been submitted to the NMCC.

As a result of the efforts taken by the Department, India has become a major destination for FDI investments in Information Communication Technology sector. World leaders in ICT like Intel, Cisco, SemIndia-AMD, Microsoft, Motorola, Ericsson, Nokia, Kyocera, Siemens, LG, Samsung, etc., have announced large investment plans for India in hardware manufacturing or chip design or R&D or to develop software products.

PC Penetration – Release of affordable Computers

The Government has taken a major initiative to increase PC penetration in the country. As a result of its efforts, the Department of Information Technology had discussions with various computer manufacturers to roll out sub Rs. 10,000 fully loaded computer. Several manufacturers have launched their low cost PC at a price below Rs. 10,000 during 2005.

Indian Language Technology

The benefits of Information Technology can reach the common man in India only when the digitalized information is available in all Indian languages. At present, the success of IT and its rewards are mostly limited to the largest urban areas, the educated and English speakers.

To enable wide proliferation of ICT in Indian languages, the Department of Information Technology has taken a major initiative to make available tools and fonts in various Indian Languages freely to the general public. It has released in the public domain, various Tamil language fonts, e-mail client, Optical Character Recognition (OCR) software, spell checker and dictionary in April 2005. Similarly the Hindi and Telugu software tools and fonts were released in June 2005 and October 2005, respectively. Software tools and fonts in Punjabi and Urdu are ready for release. All Indian languages are expected to be covered in the next one year.

Internet Promotion

In order to bring about a substantially increased proliferation of .in Internet domain name, a new .in Internet domain name policy was announced by the Government in October 2004. It aims at adopting a liberal and market friendly approach to register large number of .IN domain names. The policy has received wide acceptance countrywide. The .in Internet domain name registration has crossed 1,54,000 during the month of December 2005.

Four Internet Exchange Nodes have been set up and made operational at Noida (Delhi), Mumbai, Chennai and Kolkata, and as many as 40 ISPs have been connected with these nodes.

Setting up Root Servers

The Department of Information Technology and National Internet Exchange of India (NIXI) has installed three mirror Internet root servers at Delhi, Mumbai and Chennai. The root servers form a critical part of the global Internet infrastructure. The installation of these root servers in the country will help in reducing the expensive international

bandwidth load, increase the internet resilience by bringing down our dependency on root servers abroad and improve host name resolution from hundreds of millisecond to under-ten millisecond.

Internet Protocol Version 6 (IPv6)

Keeping in view the global trends in IPv6, the Department of Information Technology took the initiative towards IPv6 transition and a National Roadmap for IPv6 implementation. It includes an awareness building programme, research and development, test bed projects on IPv6 migration and deployment by Network providers. In India, IPv6 has been deployed in the ERNET and Sify networks.

Community Information Centres

To reduce the digital divide by providing internet access and IT enabled services to the community at large and to facilitate citizen interface with the Government, we have set-up Community Information Centres (CICs) at 487 blocks in the seven North-Eastern States and Sikkim. In addition, 112 CICs are providing citizen-centric services in Jammu and Kashmir. Another 23 CICs in J&K will be made operational by July 2006. CICs are also being established in the government schools in Andaman and Nicobar Islands (41 CICs) and Lakshadweep Islands (30 CICs) for imparting Information and Communication Technology (ICT) based education.

Review of Information Technology Act

An Expert Committee on Information Technology Act was set up to review the IT Act and propose appropriate amendments in the light of national and international developments post IT Act 2000. Based on the recommendations of the Committee, the amendments to the IT Act are being finalized and will be put up to the Parliament very shortly.

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.

The Board of Media Lab Asia has decided that Media Lab Asia will now focus on facilitation and support for taking technologies from lab to land.

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 Jammu (Jammu and Kashmir), Jodhpur (Rajasthan) and Siliguri (West Bengal). With the addition of these four new centres, STPI now has 47 centres across the country. A total number of 6129 units are operational and 4088 units are exporting as on 31 December 2005. Member units of STPI have exported software of over Rs 74,019 crore during the year 2004-05. The software exports is estimated to be around Rs 95,000 crore during the year 2005-06.

Information Security

The Standardization, Testing and Quality Certification (STQC) Directorate of the Department has established itself as a pioneering organization in introducing Security Management System Certification concept in the country and is the first accredited Certification Body to introduce the certification in this area. Technical security audits through vulnerability assessment and penetration testing are also conducted.

A programme for setting up a Common Criteria Security Test/Evaluation facility based on Common Criteria (ISO 15408) standard has been initiated recently. India has become signatory to Common criteria Recognition Arrangements (CCRA). The project aims to meet the needs of Government and industries for security evaluation and certification of IT products.

Under Indo-US Cyber Security Forum, STQC is working closely with National Institute of Standards and technology (NIST), USA for development and review of Security Standards and Guidelines. This will facilitate Indian organizations to comply with US Information Security requirements for trade in network economy.

e-Procurement

e-procurement solution is being implemented in the National Informatics Centre (NIC) with a plan to extend it to other Government Departments / Organizations in stages. The solution caters to business processes beginning with end-user request, moving on to indenting and then tendering / purchasing activities and finally culminating in Award of Contract / Purchase Order. It includes approval of

workflow at different stages, supplier enablement to facilitate the business users, integration with multiple payment gateways, digital signing and encryption and provisions for secure audit.

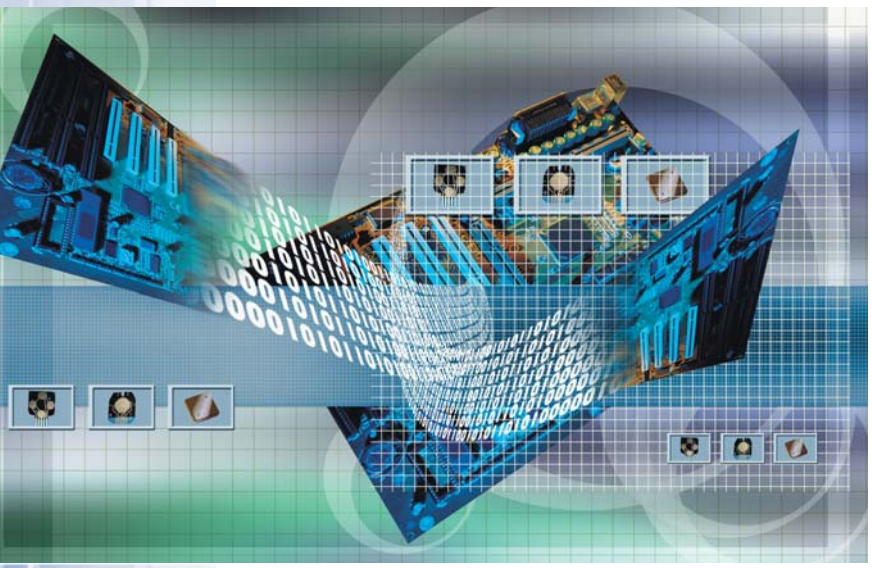
Research and Development

A national facility for electromagnetic Interference (EMI) and Electromagnetic Compatibility (EMC) evaluation of electronic equipments and systems, first of its kind in India and third in South East Asia, has been set-up at SAMEER – Chennai. The facilities would help in promoting the acceptance of Indian electronic products in the International market. The facility has started functioning and was dedicated to the nation on 15th July 2005.

The Government has approved a joint project for setting up Nanoelectronics Centres at the Indian Institute of Science, Bangalore and the Indian Institute of Technology, Bombay with a total outlay of Rs.99.80 crore over a period of five years.

GIS and Remote Sensing Services

The National Informatics Centre (NIC) has developed Spatial Data Infrastructure over NICNET to facilitate development of national level spatial databases with different thematic layers and delivery of spatial data services and applications for various user groups. Administrative District Boundary Database has been created which has successfully set the national framework and data development up to villages. Further enhancements of National Spatial Database (NSDB) in terms various socio-economic, demographic and natural resources layers around GIS core and further delivery of GIS applications services has been undertaken.



Industry Profile

Policy Measures

India has enormous opportunities emerging from globalization and consequent lowering of tariff barriers. Information Technology has given India formidable brand equity in the global markets. The Indian Software Industry has been moving up the value chain as well. Indian software companies have a unique distinction of providing efficient software solutions with cost and quality as an advantage by using state-of-the-art technology. Through joint efforts of Government and the Industry, software development and IT enabled services have emerged as niche opportunities for India in the global context. The Government has been making continuous efforts to make India a front-runner in the age of Information revolution. India today has the advantages of skilled manpower base, active and healthy competition amongst states in attracting investment in infrastructure as well as framing IT applications in areas such as e-governance, e-learning, e-commerce, entrepreneurship, software exports growth and a large potential in the domestic market. Information Technology Act dealing with Cyber Security, Cyber Crime and other information security related legal aspects is in place. Through a policy of sustained R&D in cutting edge technology, we hope to further increase and broad base our exports while also expanding the domestic market.

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.

As a result of technological convergence at the infrastructure, services and industry level; there has been a tremendous up-surge in new products and also consolidation in the underlying industries through

acquisitions and mergers. Consequent shift has been from monopoly of Government as service provider to private entry in telecom to promote competition and establishing a neutral regulatory agency. The essence of the convergence spirit and the vitality of changes have led to lowering of tariffs, plentiful availability of bandwidth at increasingly lower cost, competition and growth in technology.

The Government of India's liberalization and economic reforms programme aims at rapid and substantial economic growth and integration with the global economy in a harmonized manner. The new policies have made governmental procedures transparent, eliminated licensing in almost all sectors, provide encouragement to entrepreneurship through market friendly systems and facilitate easy access to foreign technology and foreign direct investment. In line with its mission of formulating a transparent investor friendly environment, the Government has done away with the complex pre-entry approvals. Approvals for all foreign direct investment proposals relating to the electronics and information technology hardware manufacturing, software development and ITeS Sector, with the exception of Business-to-consumer (B2C) e-commerce are under the automatic route. An outward looking and liberal foreign trade policy is one of the main features of India's economic reforms. India has signed Free Trade Agreement (FTAs) with Thailand and Singapore and has also entered into Preferential Trading Agreement (PTAs) with Chile and Mercosur.

Sales of Personal Computers (PC) crossed 3.6 million units during the year 2004-05, registering a growth of 20%. Sales in 2005-06 are expected to cross 4.7 million units. The growth in PC sales is largely attributed to increased IT consumption by Industry verticals and corporate sectors such as Telecom, Banking and Financial Services, Manufacturing and IT-enabled services. Apart from these traditional sectors, higher consumption is also being witnessed in SMEs, IT training institutes and other computer centric small enterprises. In addition, the trend of increased PC purchase in households, smaller towns and cities is continuing. Aggressive pricing by the PC vendors has also helped improve the PC penetration, especially in the households and the SME segments. The Department has conducted a study on 'Improving PC penetration in the country'. The report envisages a seven-fold growth in the domestic IT market by 2008 with annual PC sales at 28 million. The report recommends achievement of this target through implementation of IT in a mission-mode in education, healthcare and rural economy and stresses on the need for easy consumer finance for purchase of PCs and innovative models of PC deployments such as on rental through Internet Service Providers, etc.

Over the years, Foreign Trade Policy for electronics and IT products has been liberalized, Customs and Excise procedures simplified, EDI implemented by the Customs and is under implementation by Central Excise, Customs duty on specified capital goods and raw materials for electronics/IT hardware has been brought down to zero percent. Electronics Hardware Technology Park (EHTP) and Special Economic Zones (SEZ) schemes have been tailored to boost manufacturing in the country. India is a signatory to the Information Technology Agreement (ITA-1) of the World Trade Organization and w.e.f. 1st March, 2005 the customs duty on all the specified 217 tariff lines has been eliminated. All goods required in the manufacture of ITA-1 items have been exempted from customs duty subject to Actual User condition. Peak rate of customs duty is 15%. Excise duty on computers is 0%. Microprocessors, hard disc drives, floppy disc drives and CD ROM drives are exempted from excise duty. Parts, components and accessories of mobile handsets including cellular phones are also exempted from excise duty.

Supplies of Information Technology Agreement (ITA-1) items and notified zero duty telecom/electronic items in the Domestic Tariff Area (DTA) by Electronics Hardware Technology Park (EHTP)/Export Oriented Unit (EOU)/ Special Economic Zone (SEZ) units are counted for the purpose of fulfillment of positive Net Foreign Exchange Earnings (NFE).

Special Economic Zones (SEZs) are being set up to enable hassle free manufacturing and trading for export purposes. Sales from DTA to SEZs are being treated as physical export. This entitles domestic suppliers to Drawback/ DEPB benefits, CST exemption and Service Tax exemption. 100% Income Tax exemption on export profits is available to SEZ units for 5 years, 50% for next 5 years and 50% of ploughed back profits for 5 years thereafter.

Export Promotion Capital Goods scheme (EPCG) allows import of capital goods on payment of 5% customs duty. The export obligation under the scheme is linked to the duty saved and is 8 times the

duty saved on capital goods imported, to be fulfilled over a period of 8 years. 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.

India is very high on the agenda of several leading global Electronics and IT manufacturers. The Government has identified growth of electronics and IT Hardware manufacturing sector as a thrust area. In order to address the concerns of manufacturing sector, the Government has set up a National Manufacturing Competitiveness Council (NMCC) to provide a continuing forum for policy dialogue to energize and sustain the growth of manufacturing industry including IT hardware. The Department has prepared a discussion paper on 'The Conceptual Policy Framework to promote growth of Electronics/IT Hardware Manufacturing Industry' in consultation with the Industry associations, which has been submitted to the NMCC. The main objectives of the proposed package of incentives for the Electronics/IT Hardware Manufacturing Sector are as follows:

- To make the industry globally competitive
- To attract more FDI in the industry
- To bring down the prices of the end products
- To bring down the production cost
- To increase volumes to take advantage of economies and efficiencies of scale
- To increase the demand
- To compensate for disabilities until the basic infrastructure constraints that the nation faces are removed, and
- To move towards total taxation level of 10 - 15% in the next 3-5 years.

The main suggestions include rationalisation of tariffs and lowering of total taxation level in a phased manner, unification of manufacturing for domestic markets and exports, extending same incentives to ITA and non-ITA items keeping in view the FTAs and PTAs already signed and being entered into with other countries and trading blocks, procedural simplification, etc., in order to meet competition from China and ASEAN countries.

As a result of various initiatives taken by the Government to make India a manufacturing destination, a number of reputed world renowned companies have shown interest to invest in Electronics/IT/Telecom hardware manufacturing in the country. As a result, many of them have already announced their investment plans. One of the companies has signed an MOU for setting up Semiconductor fabrication facility in India involving very large investment.

Production Profile

The software and services industry continue to be the dominating factor in the overall growth of the Indian industry. In 2004-05, the Indian software and services industry exports witnessed a healthy growth, with total exports reaching Rs. 80,180 crore (US$ 17.7 billion), an increase of 37% over the previous financial year. This segment will continue to show a robust growth and the total value of software and services export is estimated at Rs. 103,200 crore (US$ 23.4 billion) in 2005-06, an increase of 29 per cent in Rupee terms and 32 per cent in dollar terms.

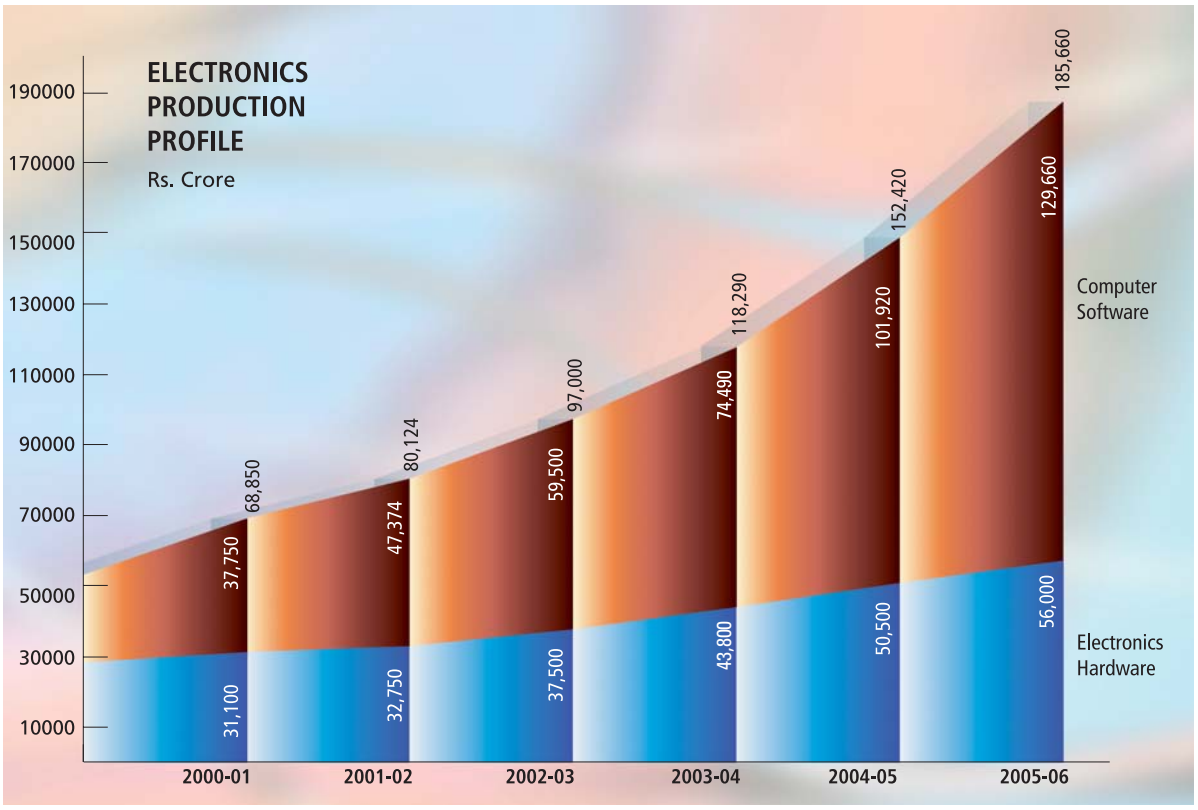
The Business Process Outsourcing (ITES-BPO) sector has emerged as a key driver of growth for the Indian software and services Industry. The ITES-BPO industry is likely to grow by about 37% in 2005-06 to reach US$ 6.3 billion. In 2004-05, the Indian ITES-BPO industry grew by 48% to US$ 4.6 billion.

Consumer electronics sector is estimated to achieve a production level of Rs. 18,500 crore during 2005-06, as compared to Rs. 16,800 crore in the year 2004-05, thus achieving a growth rate of 10%. The fast growing segments during the year were colour TV, DVD players, home theatre systems. The colour TV production has shoot up to over 11 million units during the year 2005-06. VCD/MP3 player sales have witnessed impressive growth and have crossed 10 million mark during the year.

Indian colour TV picture tube could not sustain production level achieved during last year and was 10.05 million numbers during 2005, as against 11.2 million numbers during the year 2004.

The sale of personal computers is likely to touch 47 lakhs numbers during the year 2005-06. The communication and strategic electronics sector is showing a growth of about 10 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	18.2
2004-05	152,420	28.8
2005-06	185,660	21.8

Consumer Electronics

The total production of consumer electronics is expected to increase to Rs.18,500 crore during the year 2005-06, registering a growth of about 10% over production in the previous year. Consumer electronics sector continues to be the main stay of the Indian electronic industry contributing about 35% of the total electronic hardware production. Colour TV remains the largest contributor to this segment. During 2005-06, the domestic market of colour TVs is expected to cross 10 million units. The total production of colour TV sets is expected to be more than 11 million. Flat screen TVs accounts for 45 percent of the total domestic TV sales.

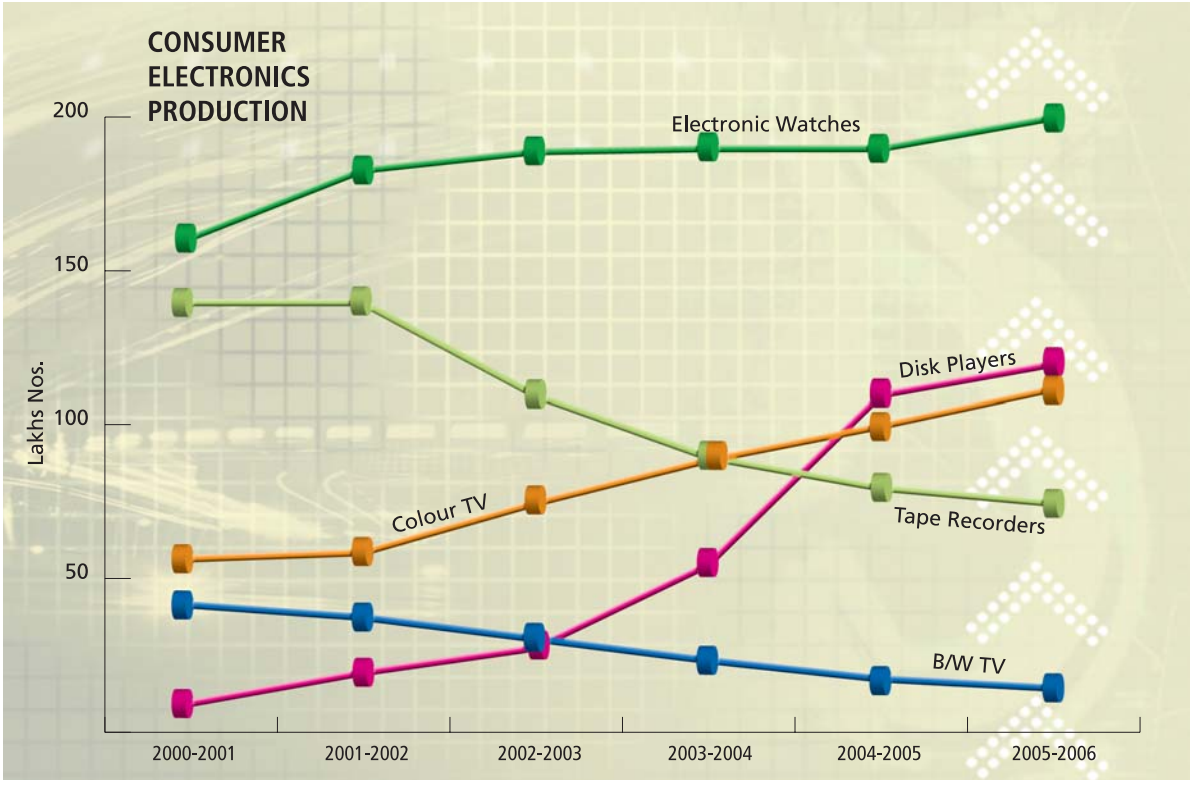
During the year, the prices of colour TV sets have fallen by 8-10%, due to severe competition in domestic market inspite of the increase in input prices. The DVD player market has seen exponential growth in the domestic market because the prices of these products have experienced a sharp drop and also because of falling prices of software, i.e. recorded DVDs.

Hi-end products such as Plasma Display Panels (PDP) and Liquid Crystal Display (LCD) TVs have registered more than 200% growth, though on a smaller base in 2005-06, because of sharp drop in price of these Hi-end products. This trend is expected to continue as the prices would continue to fall. Presently, manufacturing of LCD and Plasma TVs is not taking place in the country, but it is expected that as the volumes pick-up, these will start getting manufactured here.

Computer Industry

The Desktop PC market grossed 23.4 lakhs (2.34 million) units registering a growth of 36% in the first half of 2005-06 over the same period last fiscal. With sound macroeconomic condition and buoyant buying sentiment in the market, PC sales are expected to touch 47 lakhs (4.7 million) units during the year 2005-06. A similar growth trend was also witnessed in all other associated peripherals.

The high growth in PC sales is attributed to increased



consumption by Industry verticals such as Telecom, Banking and Financial Services, Manufacturing, Education, Retail and BPO/IT-enabled services as well as major e-Governance initiatives of the Central and State Governments. Significant consumption in the small and medium enterprises and increased PC purchase in smaller towns and cities was witnessed during the year. It is expected that increased Government focus on pan-India deployment of broadband at one of the lowest costs in the world will soon lead to accelerated PC consumption in the home market.

The southward trend in pricing continued during the year due to technological reasons and other initiatives of the Government, including the sub-Rs.10,000/- PC. The Notebook market is expected to grow by 100% as prices of notebooks have also come down significantly. Entry level notebooks are available in the range of Rs.30,000/-.

The growing domestic IT market has now given impetus to manufacturing in India. The year witnessed not only capacity expansion by the existing players, but also newer investments in hardware manufacturing. India is also high on the agenda of electronics manufacturing services companies.

Software and Services

Global trade in services has entered a new era, with the growing and widespread acceptance of the IT-based global delivery model. International bandwidth and powerful workflow management IT software and services sector today is more easily penetrating into the fabrics of the society than ever before. IT is now possible to disaggregate any business process, execute the sub-processes in multiple centers around the world, and reassemble it, in near –real time, at another location. India has already registered its mark on the globe in ITES-BPO sector.

Worldwide spending on IT-ITES witnessed steady growth in 2005, on the back of healthier spending across key markets of the US and Western Europe, and strong growth in emerging markets. Outsourcing continued to be the primary growth engine with global delivery forming an integral part of the strategies adopted by customers as well as service providers.

Global sourcing is now a key element of corporate boardroom agency. The Indian IT-enabled and Business Services (ITES-BPO) have demonstrated superiority, sustained cost advantage and fundamentally-powered value proposition in ITES. Indian companies are expanding their service offerings, enabling customers to deepen their offshore engagements; the shift from low-end business processes to higher-value, knowledge-based processes is having a positive impact on the overall industry growth.

Buying decisions are witnessing a clear shift from the cautious tone of the past few years, in which cost reduction and regulatory compliance dominated senior management agendas, to more revenue growth-oriented initiatives. Over the past few quarters, IT-ITES spending across industries has been increasingly focused towards improving customer services, sales performance, performance tracking, employee productivity, and product development and innovation, as well as increasing the responsiveness of the IT organization and efficiency improvement. Newer technology applications such as web services and service-oriented architecture that help reduce complexity and increase flexibility in an organisation's IT infrastructure, have witnessed increasing levels of adoption.

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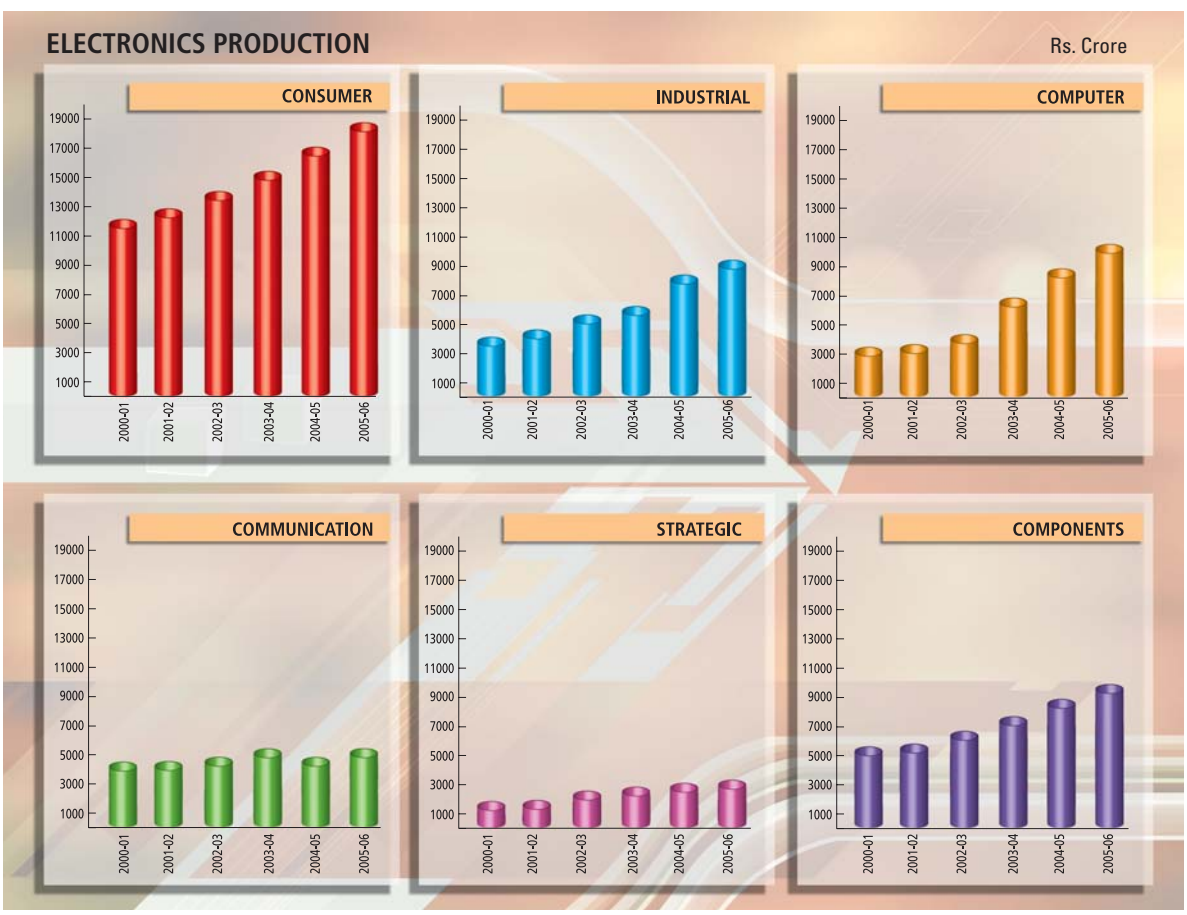
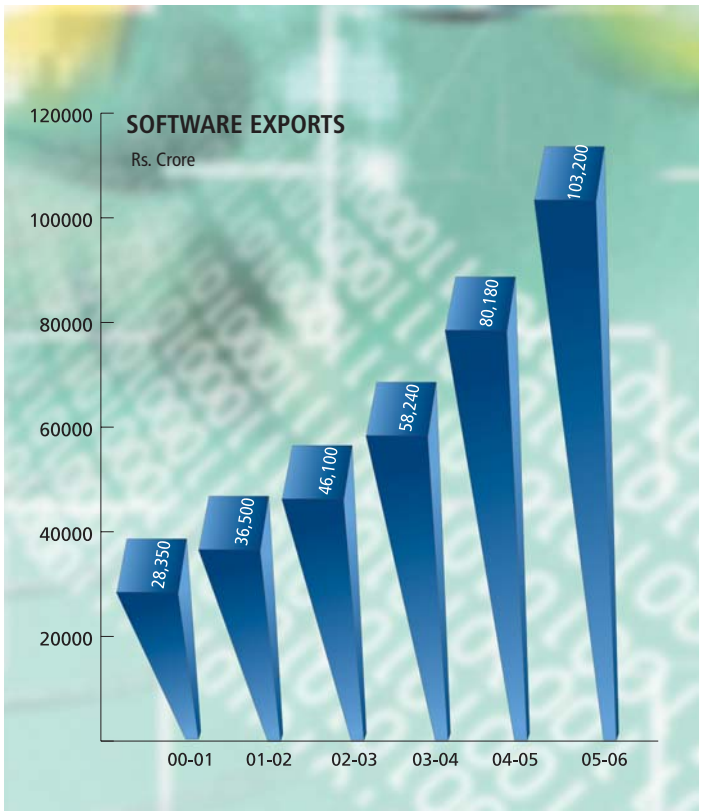
Strong demand over the past few years has placed India amongst the fastest-growing IT markets in the Asia-Pacific region. The Indian software and ITES industry has grown at a CAGR of 28 per cent during the last 5 years. The industry's contribution to the national GDP has risen from 1.2 per cent during the year 1999-2000 to a projected 4.8 per cent during 2005-06.

Recognising the advantages of multi-country service delivery capabilities to better manage evolving customer requirements and execute end-to-end delivery of some new services, Indian companies are enhancing their global service delivery capabilities through a combination of green-field initiatives, cross-border M&A, partnerships and alliances with local players. Global software product giants such as Microsoft, Oracle, SAP, etc., have established their captive development centres in India.

Indian ITES-BPO exports are estimated to have grown from US $ 3.1 billion in the year 2003-04 to US $ 4.6 billion in 2004-05, recording a growth of nearly 48 per cent, and are estimated to reach US $ 6.3 billion by the end of the current fiscal year 2005-06.

The Indian IT-enabled and Business Services (ITES-BPO) have demonstrated superiority, sustained cost advantage and fundamentally-powered value





proposition in ITES. Indian companies are expanding their service offerings, enabling customers to deepen their offshore engagements; the shift from low-end business processes to higher-value, knowledge-based processes is having a positive impact on the overall industry growth. Demonstrated process quality and expertise in service delivery has been a key factor driving India's sustained leadership in global service delivery.

Several global players are now sourcing their engineering and R&D services from Indian third-party providers and/or through their captive engineering and R&D units in India. Indian IT-ITES export revenues from these segments (engineering and R&D services, offshore product development and made-in-Indian software products) are estimated to have grown ten-fold – from a little over US $ 300 million in 2001-02 to over US $ 3.1 billion in 2004-05, and are projected to reach US $ 3.9 billion by the end of the current fiscal year 2005-06.

India's record on information security ranks better than most locations. The authorities in India are maintaining a keen emphasis on further strengthening the information security environment in the country. Specific initiatives underway include enhancing the legal framework through proposed amendments to the IT Act 2000 – currently under review by the government – increasing interaction between industry players and enforcement agencies to help create greater awareness about information security issues and facilitate mutual support as and when required.

Today, a majority of the companies in India have already aligned their internal processes and practices to international standards such as ISO, CMM, Six Sigma, etc., which has helped establish India as a credible sourcing destination. As of December 2005, over 400 Indian companies had acquired quality certifications with 82 companies certified at SEI CMM Level 5 – higher than any other country in the world.

The total number of IT and ITES-BPO professionals employed in India is estimated to have grown from 284,000 in 1999-2000 to 1,287,000 in 2005-06, growing by over 230,000 in the last year alone. In addition, Indian IT-ITES is estimated to have helped create an additional 3 million job opportunities through indirect and induced employment. Indirect employment includes expenditure on vendors including telecom, power, construction, facility management, IT transportation, catering and other services. Indirect employment includes expenditure on vendors including telecom, power, construction, facility management, IT transportation, catering and other services. Induced employment is driven by consumption expenditure of employees on food, clothing, utilities, recreation, health and other services.

Control, Instrumentation and Industrial Sector

This is now a matured industry sector in the country at least as far as various application segments are concerned. State-of-art and reliable SCADA, PLC/Data Acquisition systems are being applied across various sections of the process industry. Latest AC drive systems from smaller to very high power levels also find application in large engineering industries like steel plants and/or metal industries. World class UPS systems are being manufactured in the country to cater to the need of the emerging digital economy. However, it appears there is really no

manufacturing base in the country for the whole range of the latest test and measuring instruments which are invariably procured from outside. A good number of Indian companies in the control and instrumentation sector are able to acquire orders for export systems through international competitive bidding.

However, the creation of knowledge base in the country through industrial R&D in this critical sector has not been improving as desired. There is still lack of needed R&D activities by the industry looking at the global market. On the part of Department of Information Technology some of the latest technology development and applications in this area include Intelligent SCADA Systems for monitoring and control of Mini Hydel plants, Advanced Traffic Control System for urban transportation, Intelligent Power Controllers for improvement of quality of electric power, etc. These systems have been successfully developed and applied in real field conditions.

Communication and Broadcasting Sector

The telecommunication industry has gained tremendous recognition as the key driver for all round development and growth. With about 125 million telephone subscribers (as on 31st Dec.'05) India has emerged as one of the largest in the world and second largest in Asia. As many as 32 million connections were given during the year 2005. More than 8,00,000 Broadband connections have been provided in more than 100 towns in the country.

The share of private sector in telecom industry has increased to more than 48% and the contribution of mobile telephony has gone upto 55%. A target of 250 million telephones (teledensity of about 22%) and broadband connectivity to 10 million subscribers have been set to achieve by end 2007. Broadband connectivity is holding tremendous potential in the country. It is expected that the number of broadband subscribers would reach 20 million by 2010.

India has emerged as the second largest market for mobile handsets. Following the unprecedented growth in the mobile market, a number of companies are planning to set up production base for mobile hand sets in the country for meeting local as well as export markets.

Direct to Home (DTH) broadcast service has gained more and more popularity during 2005. DTH service is available through National Broadcaster and private DTH service provider. Better quality digital broadcast reception is now available almost everywhere in the country to the common people on their TV 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 2005-06 is estimated to be Rs. 3,200 crore, as compared to Rs. 3,000 crore during the year 2004-05.

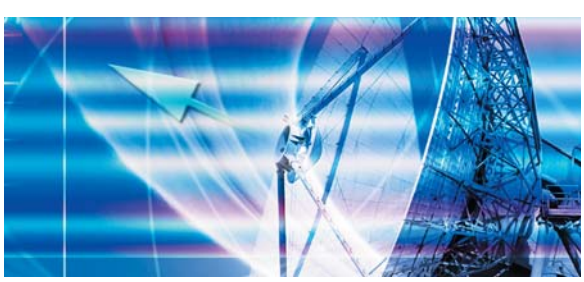
Electronic Components

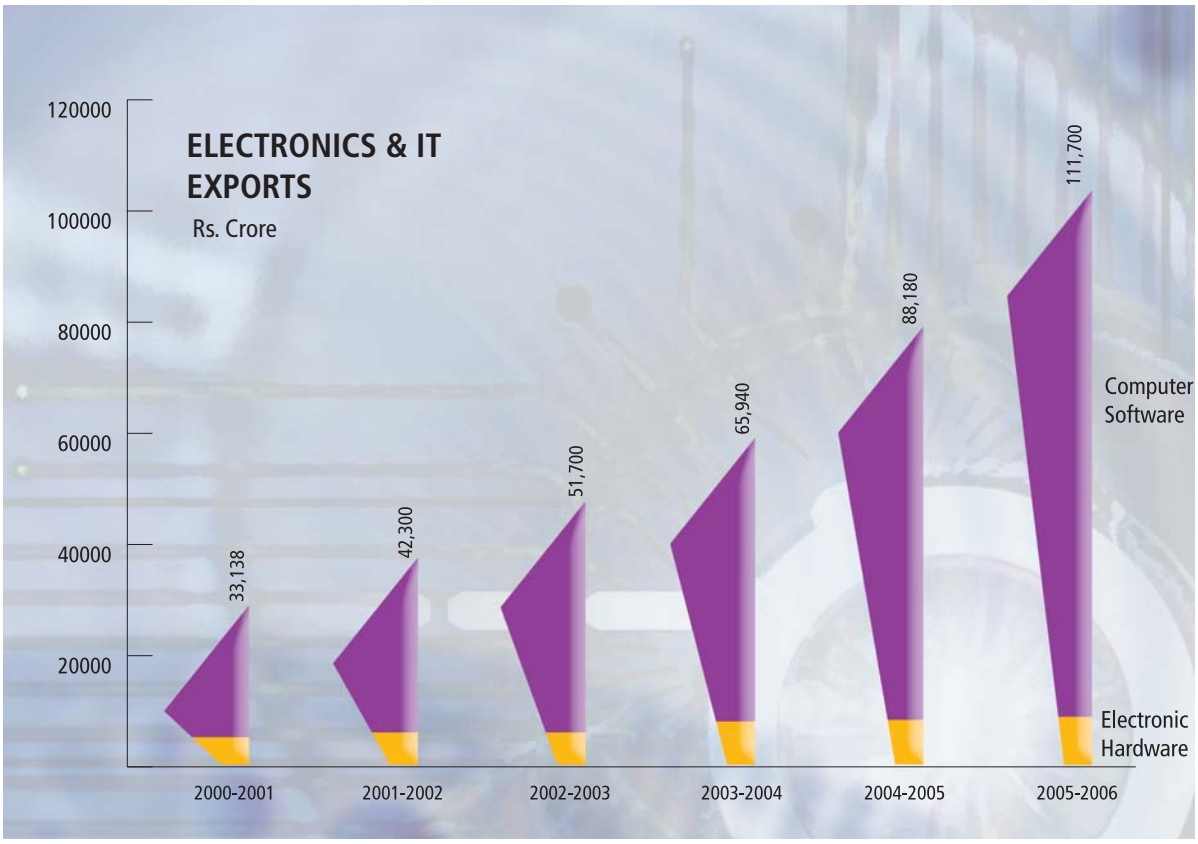
The total production of components is expected to increase to Rs. 9,100 crore during 2005-06. The colour picture tube production is likely to be around 10.2 million, a decline from 11.2 million in the last year. The production of B&W picture tubes declined further due to decreased market for B&W TVs.

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

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 three indigenous sources. The CPT units continued expansion of capacities to improve further their global competitiveness. Two more lines were commissioned during the year, one for manufacture of large size flat colour picture tubes and the second for small size. Two more lines are likely to come up next year. Keeping pace with the downward trend in prices of color TVs, the prices of CPTs also fell.

One of the CPT manufacturers successfully developed a prototype of the 42"Plasma Display Panel. This marked a major achievement of a milestone in the area of developing from green field a Technology development initiative in a Hi Tech area.The focus of development was in optimizing the Plasma Display





Cell design to achieve the desired parameters of Contrast and Brightness, achieving high speed response times and parallely designing the Scan and sustain driver boards to match the Panel parameters.A fully functional video Controller was also designed and developed to match the Logic Circuits of the PDP Panel. In the year 2006, the company plans to begin selling commercially the PDP Panels developed completely inhouse and the focus theron will be to create low cost products through Technological breakthroughs.

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.

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

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

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.

Electronics Exports

During the year 2005-06, electronics and IT exports are estimated to be Rs. 111,700 crore, as compared to Rs. 88,180 crore in 2005-06, showing a phenomenal growth of 27 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. 103,200 crore (US$ 23.4 billion) in the year 2005-06, as compared to Rs. 80,180 crore (US$ 17.7 billion) in the year 2004-05, an increase of 32 per cent in dollar terms and 29 per cent in rupee terms.

Initiatives in Information Technology Sector

E-Governance

E-Governance is the use of Information Technology and Communication Technologies to improve efficiency, convenience, accessibility and transparency in Government. The major emphasis in current effort both at central and state government levels is to focus on these objectives from the perspective of the citizen and businesses. Various IT activities such as creation of e-Governance infrastructure, implementation of mission mode projects, assessment and replication of successful e-Governance projects, development of software applications/ solutions, GIS/GPS, standardization and content development, etc., in e-Governance domain are being taken up.

Achievements during 2005-06

National e-Governance Plan

A National e-Governance Plan (NEGP) has earlier been drawn which seeks to implement a number of Mission Mode Projects (MMPs) 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.

Mission Mode Projects

Central Government Category		
S.No.	Projects	Line Ministry/ Department Responsible
01	Income Tax	Ministry of Finance/Central Board of Direct Tax
02	Passport Visa and Immigration	Ministry of External Affairs/Ministry of Home Affairs
03	MCA21	Ministry of Company Affairs
04	Insurance	Department of Banking
05	National Citizen Database	Ministry of Home Affairs/Registrar General of India (RGI)
06	Central Excise	Department of Revenue/Central Board of Excise and Custom
07	Pensions	Department of Pensions and Pensioners welfare and Department of Expenditure
08	Banking	Department of Banking
09	e-Office	Department of Administrative Reforms and Public Grievances

Mission Mode Projects State Government Category		
S.No.	Projects	Line Ministry/ Department Responsible
01	Land Records	Ministry of Rural Development
02	Road Transport	Ministry of Road Transport and Highway
03	Property Registration	Department of Land Resources/ Department of Information Technology
04	Agriculture	Department of Agriculture and Cooperation
05	Treasuries	Ministry of Finance
06	Municipalities	Ministry of Urban Development and Poverty Alleviation
07	Gram Panchayats	Ministry of Panchayati Raj
08	Commercial Taxes	Ministry of Finance
09	Police (UTs initially)	Ministry of Home affairs
10	Employment Exchanges *	Ministry of Labour and Employment

* Project being considered for inclusion

Mission Mode Projects Integrated Services Category		
S.No.	Projects	Line Ministry/ Department Responsible
01	EDI (E-Commerce)	Ministry of Commerce and Industry/ Department of Commerce
02	E-Biz	Department of Industrial Policy and Promotion / Department of Information Technology
03	Common Service Centres	Department of Information Technology
04	India Portal	Department of Information Technology and Department of Administrative Reforms and Public Grievances
05	EG Gateway	Department of Information Technology
06	E-Courts	Department of Justice, Ministry of Home Affairs
07	E-Procurement *	Ministry of Commerce and Industry/ DGS&D

* Project being considered for inclusion

To sustain the above projects certain key components have also been identified for implementation under the NEGP. These components cut across and support various projects.

Support Components Category		
SNo.	Support Components	Line Ministry/ Department Responsible
01	Core Policies	Department of Information Technology
02	Core Infrastructure	Department of Information Technology
03	Support Infrastructure	Department of Information Technology
04	Technical Assistance	Department of Information Technology
05	R&D	Department of Information Technology
06	Human Resource Development and Training	Department of Information Technology and Department of Administrative Reforms and Public Grievances
07	Awareness and Assessment	Department of Information Technology and Department of Administrative Reforms and Public Grievances
08	Organization structures	Department of Information Technology and Department of Administrative Reforms and Public Grievances

A Cabinet Note has been prepared taking the inputs from Central Ministries/Departments and State Governments. The Note seeks formal approval for the Approach and Key Components of the National e-Governance Plan (NEGP). 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 and time lines for implementation, etc. DIT through a consultant has prepared a report on Service and Service Levels for State and Central MMPs and circulated to all concerned Line Ministries/Departments for suitable adoption.

State Wide Area Network

The Cabinet Committee on Economic Affairs (CCEA) has approved the scheme for establishing State Wide Area Networks (SWANs) across the country in 29 States/ 6 UTs at a total outlay of Rs.3, 334 crore with Central Assistance component of Rs. 2,005 crore over a period of five years. Under this scheme, it is proposed to provide Central Assistance to States for establishing SWANs from State Headquarters upto the Block level with a minimum bandwidth capacity of 2 Mbps. SWAN proposals from 20 States/ UTs have been sanctioned so far, with a total outlay of Rs. 1384 crore and Rs. 277 crore has been released.

SWAN projects of various States							
Sl. No.	State / UT	DIT Share	Amount Released so Far	Sl. No.	State / UT	DIT Share	Amount Released so Far
1.	Andhra Pradesh	97.77	20.00	11.	Madhya Pradesh	58.50	12.00
2.	Assam	72.50	15.00	12.	Maharashtra	31.40	6.00
3.	Chhattisgarh	51.25	10.25	13.	Orissa	95.64	19.13
4.	Delhi	8.90	2.00	14.	Punjab	62.23	12.00
5.	Gujarat	91.52	18.00	15.	Rajasthan	77.37	15.47
6.	Haryana	62.62	12.53	16.	Sikkim	19.94	3.99
7.	Himachal Pradesh	50.21	10.04	17.	Tamil Nadu	97.17	19.00
8.	Jharkhand	77.91	16.00	18.	Tripura	20.04	4.00
9.	Karnataka	95.34	19.00	19.	Uttar Pradesh	168.72	34.00
10.	Kerala	78.70	16.00	20.	West Bengal	66.93	13.00
					Total:	1384.66	277.41

Feasibility study for SWAN from two States and proposal from 5 more of States/UTs have been received and are currently being processed for sanction.

State Data Centres

State Data centre has been identified as one of the important element of the core infrastructure for supporting e-Governance initiatives under NEGP. It is proposed to create data repositories/data centres in various states so that common secured data storage could be maintained to serve host of e-Governance applications. The broad policy guidelines for technical and financial assistance to the States for setting up of Data Centres are under formulation and the scheme will be taken up during 2006-07.

Integrated Service Delivery Centres – CSCs

A draft Framework for establishment of 100,000 CSCs across the country has been finalized and published by the Department of Information Technology (DIT) website to make it available to all stakeholders. National Level Service Agency (NLSA) has been selected to assist DIT in formulating the scheme for the establishment of Common Service Centres (CSCs). The programme is proposed to be implemented through an entrepreneur-driven, Public Private Partnership model. A detailed scheme has been drafted and is being processed for approval

Horizontal transfer of successful e-Gov Applications

The Department has been providing support for pilot replications of successful e-Governance projects (Land Records, Property Registration and Transport). These pilots are being executed at district level in various States and status of implementation is summarized below :

Land Records Computerization Projects

West Bengal: Pilot Project implementation complete, formal project closure being planned. State wise rollout being carried out using experience of pilot implementation.

Himachal Pradesh: Pilot project has been completed, State finalizing Rollout Strategy across entire State. Other sites being prepared for "go live"

Sikkim: Project implementation complete. Project Committee finalizing statewide rollout and integration of land records with GIS.

Tripura: Pilot Project completed, which is being scaled up for Statewide Rollout.

Haryana: System has been put into place and computer generated copies are being issued on a trial basis. Project implementation is delayed.

Gujarat: Pilot Project implementation is completed. Statewide rollout being undertaken through own funds and through Economic Model. Application has been replicated in all Districts of the State. DIT closure audit has been completed.

Punjab: One site has gone live; statewide rollout strategy is being finalized. Bidders to assist in Roll out have been short-listed and RFP issued to them.

Orissa: Four pilot offices are online and the mutation module is operational. User charges for issuance of computerized RoR.

Uttaranchal: Software being developed in three tier. Software development process is delayed.

Kerala: Pilot district is online, with software and hardware installation having been completed. State Committee yet to take a decision on Statewide Rollout and legal changes required for the project.

Assam: Pilot project has been completed with all 7 circle offices online. State has finalized a strategy for rollout of the project across the State. Project funds being transferred to the executing agency.

Madhya Pradesh: Six out of nine pilot offices are online. Consultants have submitted draft plan for Statewide Rollout. Government orders for using online system rather than manual system are yet to be issued. Project is delayed.

Rajasthan: Pilot implementation underway, records being scanned and digitized simultaneously. Delay in selection of vendor for GIS implementation.

Pondicherry: One Pilot site has gone live where transactions are being done online. Rollout Strategy has been finalized.

Property Registration Projects

Himachal Pradesh: Pilot project has been completed, State finalizing Rollout Strategy across entire State.

West Bengal: Pilot project has been completed. Statewide rollout being undertaken on the basis of pilot implementation. One more site has gone live.

Punjab: All 17 locations have been operationalized. Vendor has been selected to assist in statewide rollout.

Pondicherry: Application software being tested. One pilot site to go live within this month.

Orissa: Site preparation underway expected to be completed in December. Approval of project documents is delayed.

Goa Registration: DIT providing technical assistance for completion of Pilot Project and Statewide Rollout. Project is delayed.

Sikkim Registration: Application for Certification Module of ORCHID is being developed by NIC with support from consultants. Site inauguration done at one pilot site.

Assam Registration: Customization schedules, modalities of co-ordination and logistical issues between NIC West Bengal and Assam State Units to be decided. Due to the coordination issues between State units, project is at stand still.

Rajasthan Registration: Application software being tested by the consultants. Site modification across 5 sites is in progress, BSNL had installed lease line and Network equipment at site location. Project is delayed due to delay in software availability.

Tripura Registration: Project implementation underway, go live at one pilot site being planned in January 2006.

Transport System at RTOs

Kerala: Pilot site is operational and online. Statewide rollout being carried out using the pilot as a model. DIT has completed project closure audit.

West Bengal: Vehicle registration and tax software is running successfully at pilot RTO. Sarathi software has been tested by NIC. State is planning for Statewide rollout. Project funds to be transferred to the executing agency.

Himachal Pradesh: Five of the pilot sites are online. Project team to start planning for project closure.

Punjab: One Pilot site has gone live. RFP as part of statewide rollout strategy has being finalized. Project to be completed soon.

Delhi: Pilot site has gone operational with the Licensing software fully functional. Project is delayed due to non-finalization of the BOOT operator and no agreement on medium of license issuance.

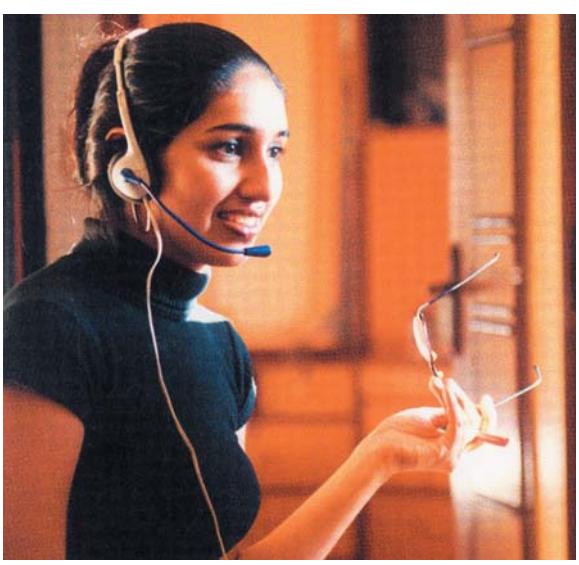
Tripura: Application for vehicle registration is operational at all five transport offices. Licensing Software has also been operationalized. Pilot Project has been completed.

India Portal

The India Portal is envisaged to be a unified portal for accessing information in the Government Sector (Executive, Judiciary, Legislature and Constitutional Authorities), for electronic delivery of citizen services and a major facilitator for implementing e-Governance initiatives. This project is being implemented by the NIC. Project Review cum Steering Committee has been constituted. The First version of Portal is operational now and could be visited at http://india.gov.in.

Service Delivery Gateway

This Gateway would enable standards based communication linkages between the back end applications in the departments with the Service Access providers and will facilitate joined up services. The Department through the National Institute for Smart Government (NISG) has initiated a pilot project for the service delivery gateway. A proof of concept of the Gateway Pilot has been built and demonstrated.



Gateway specifications and request for proposal is currently being carried out.

Awareness and Assessments

E-Assessment is one of the important components of NEGP. 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 in respect of their effectiveness and sustainability. E-Governance Assessment Framework (EAF 2.0) has been prepared and has been put in public domain on the Department of Information Technology website. A Working Group has been constituted to provide overall guidance and steer the e-Assessment programme. The Work Orders issued for carrying out Summary Assessment of 39 identified e-Governance projects.

A programme for the development, awareness creation and mass proliferation of tools and technologies for Indian languages has been initiated through Centre for Development of Advanced Computing (C-DAC).

Capacity Building

The Department in consultation with the Planning Commission has prepared the Capacity Building Guidelines and issued to all the States and Union Territories (UTs). The State Governments have been advised to prepare the proposal for Capacity Building implementation. Orientation programme, training and workshop have been arranged for key States representatives and personnel. National Institute of Smart Government (NISG) has appointed a panel of consultants and deployed for preparing the project report of Capacity Building Road Map of the States. DIT has considered proposals for financial support in respect of all UTs towards preparation of detailed Road Map and proposal for implementing Capacity Building. While Delhi and Chandigarh have initiated the activities, other UTs, like Pondicherry, etc., are expected to follow soon. Efforts were also put towards strengthening all State Administrative Training Institute (ATI) in terms of creating trainers and enhancing infrastructure so that ATI can play a vital role in the respective state for implementation and sustainability of e- Governance projects.

E-readiness

E-readiness Assessment Study (Report) 2004 for the States and Union Territories was released. It places the States and Union Territories in six categories: Leaders, Aspiring Leaders, Expectants, and Average Achievers, Below Average Achievers, Least Achievers.

The Department has initiated steps to institute e-Readiness exercise for the year 2005. National Council of Applied Economic Research has been selected for conducting the e-Readiness Study 2005 and 2006

Standards

Institutional mechanism for evolving and enforcement of Standards for NEGP has been finalized and activated. National Informatics Centre (NIC) has created a separate "e-Governance Standards Division" to steer the process of evolving standards, Apex Committee (under the Chairmanship of Secretary, DIT) would be approving standards and STQC would be responsible for documentation, adoption and enforcement of standards.

Programme Management Unit

The e-Governance Programme Management Unit (PMU) has been set up in the Department and this is

being augmented with induction of professionals from the public and private sector. NISG services have been hired to assist the Department in this process.

Unique ID for BPL Families

The Department has formulated a scheme for the creation of a Common Core Database using the existing Electoral Roll Data to create Unique ID for all residents, so as to channelise various development schemes to the target beneficiaries and to facilitate monitoring of Government of India development and poverty alleviation schemes. The scheme has been approved with a total outlay of Rs.46.7 crore and is expected to be implemented within 12 months. This facility would be housed in the NIC data centre.

UNDP

Under the UNDP sponsored project ICT for development 4 themes were identified namely: Integrated Citizen Services, Enhancing Livelihood and Transforming Rural Governance and Woman Empowerment. In line with these themes, 12 pilot projects were approved and provided initial financial support. These projects are now at various stages of implementation and would be completed in next two years.

Other Projects

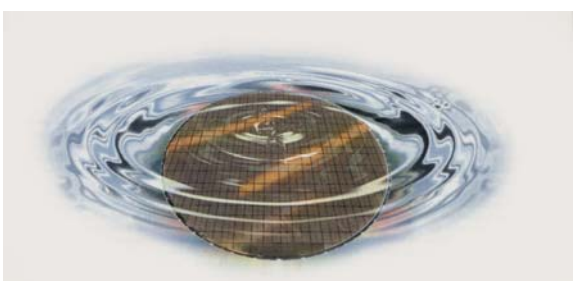
Rural Area Development Monitoring and Information Systems: The project on Rural Area Development Monitoring and Information Systems (RAMIS), under GIS/GPS based application for e-Governance aspect is being implemented on pilot scale at Pudukkottai district, Tamil Nadu. This is being developed and executed by Madurai Kamaraj University Madurai under the active guidance of Rural Development Department, Government of Tamil Nadu. It is basically Multipurpose Information System and Spatial Decision Support System built in GIS environment with advanced Geodatabase. Presently one system has been completed and installed in District Collectorate for trial which is running successfully and rest are being implemented in a phased manner.

Land Resources Information System (LRIS) in Mysore District: This is being implemented by Karnataka State Remote Sensing Application Center, Bangalore in collaboration with Department of IT and Biotechnology, Government of Karnataka for demonstration at Mysore district. In this project a parcel level up-to-date comprehensive land information system and digital cadastral map will be prepared in support of a broad range of developmental and managerial requirements. Presently, digital cadastral map of few villages with the help of Quick Bird Satellite imagery has been prepared in comparison with Bhoomi data.

Creation of Citizen-ID and Database for Rural Digital Services (RDS) in Karnataka: This is being implemented on pilot scale in two taluks Maddur and Mandya in Karanataka for database creation to provide a friendly, speedier, greater transparency, efficient interface between the Government and the public with a cost-effective and self-sustainable model as well as to provide a single window for Government services at village level. Implementation in Mandya is progressing well.

State Data Centre, Government of Karnataka: The project has been successfully completed. The Data Centre, which has been setup, has the central repository of the land record details of the various Talukas. The Data Centre will also host property registration system called 'Kaveri' and eventually shall cater to the requirements of various other departments of the State. A circular has been issued by the State Government to make use of this common infrastructure facility by the departments thereby avoiding the duplicity of parallel infrastructure.

Multiservice Card Project for District Fatehgarh Sahib, Punjab: Data collection and data entry work for 125 villages has been completed as part of the pilot project. It is intended to provide Smart Card to 1.32 lakh people so that e-Services could be facilitated through the system being implemented. Several departments viz. Food and Supplies, Social, Health, Municipal Corporation, etc., are also being integrated with the multi service card database. The project is likely to be completed by April 2006.



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 its website were also launched.

LAN/WAN in Uttar Pradesh Secretariat Buildings: Local Area Network switches and racks have been installed in all Secretariat buildings. Router and modem have been installed in Vikas Bhavan, Naveen Bhavan, Adhikari Bhavan, Shastri Bhavan and Bapu Bhavan. Work order has been placed for the procurement of remaining hardware like server, router and modem, etc. Order has been placed on BSNL for lease line for interlinking of all Secretariat buildings.

Setting up of Nine Computer Laboratory in Uttar Pradesh Secretariat: The training of government employee is a major thrust area for implementing IT policy and the project envisaged would help the government of Uttar pradesh to implement e-Governance in the State. Three laboratories have already been completed and rest is under progress. The State Government has submitted a plan for commencing the training programme for government employees in completed laboratories and a textbook called 'End User Computing' has also been designed and published for distribution to participants.

DIT Website Management: The Department of Information Technology website was regularly maintained and its contents updated regularly. Around 500 web pages were designed regarding Right to Information Act, 2005. The following Government IT Related Policies were posted on to DIT website (URL: http://policies.gov.in/)

- Policies for Electronics and Information Technology Industry
- Policy Guidelines to Establish State Wide Area Network (SWAN)
- Policy for .IN Internet Domain Registration

Indian Computer Emergency Response Team (CERT-In)

CERT-In is the functional arm of Department of Technology to protect Indian cyberspace. It engages in security incident prevention as well as emergency response and provides :

- Proactive services in the form of advisories, alerts, vulnerability notes, incident notes, training and security guidelines and
- Reactive services in the form of emergency response in case of cyber security incidents, recovery services, artifact and forensic analysis

The activities carried out by CERT-In comprises:

Activities	Year 2005
E-mail messages received	1822
Incidents handled	254
Security Alerts/Incident Notes	30
Advisories	25
Vulnerability Notes	120
Security Guidelines	2
White Papers	6
Training	6
Indian Website Defacement	4705
Open Proxy Servers	1156

Efforts of CERT-In have seen more and more organizations taking active interest in reducing vulnerabilities in IT systems and networks by way of implementing IT security best practices, adoption of IT security policy and taking several proactive security measures.

CERT-In is a nodal agency to establish a National Cyber Security Assurance Framework for the protection of IT Security network and critical information infrastructure. As part of the framework, CERT-In has already empanelled 18 auditing organizations to carry out IT security audits of Government and critical sector organizations. Steps have also been initiated to empanel more number of auditing organizations so as to cover all sectors of economy across the country. These audits assist CERT-In in assessing the IT security vulnerabilities in National Critical Information Infrastructure and enable it to develop appropriate proactive and reactive response capabilities. All government and critical sector organizations are being encouraged to follow IT security best practices. Further, in the interest of better coordination and effective execution of its emergency response team in the event of security incident, CERT-In has initiated a

process of developing a comprehensive database of IT security information relating to Government and critical sector organizations as well as creating a network of Chief Information Officers (CIOs).

To facilitate its tasks, CERT-In has initiated steps to collaborate with IT vendors in the country. A Security Cooperation Agreement was signed with Microsoft to assist CERT-In in solving the vulnerabilities in the Microsoft products and to exchange information on the vulnerabilities in Microsoft products worldwide. A similar Security Cooperation Agreement has also been signed with Redhat for Linux operating system and its products and with Cisco for the network components. It is proposed to sign such Memorandums of Understanding with all the IT vendors in the country.

CERT-In plays the role of mother CERT in the country by organizing workshops and training for various sectors such as Armed Forces, Transportation and Finance so as to help them to create CERT in their areas. As a nodal agency for cyber security, it interacts with Cyber Security Officers in the area of critical information infrastructure to advise them in the matters related to cyber security.

To create awareness and to advise the users in implementing the security measures, a Cyber Security Seminar was organized under the aegis of Indo-US Cyber Security Forum at Delhi in April, 2005. A meeting of the Working Group was also held under the Indo-US Cyber Security Forum at Delhi. The working group finalized action plans for collaboration with US organizations in the area of information security. As a result of which action has been initiated for collaboration of CERT-In with CERT/CC and US-CERT. A team from Japan CERT (JPCERT) has also visited to CERT-In for interaction and inspection to make CERT-In a Member of the Asia Pacific CERT (APCERT).

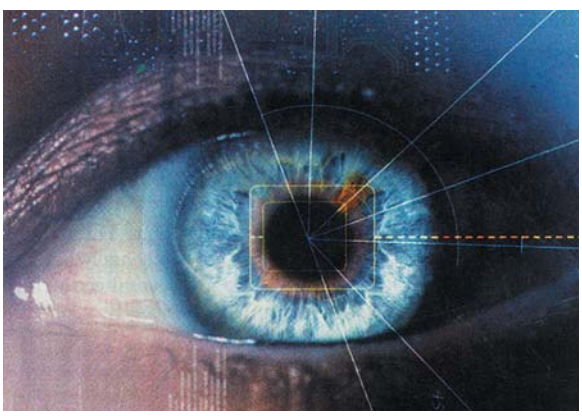
Future Outlook

The thrust is to make CERT-In the most trusted referral agency in the area of information security in the country. CERT-In will focus on cooperation with Chief Information Officers of Government and critical infrastructure organizations and their training on incident reporting and response; collaboration and sharing of information with industry on security incidents, problems and solutions; developing sectorwise CERTs and related expertise; cooperation worldwide with organizations engaged in similar activities; R&D in artifact and forensic and analysis and IT penetration; collaboration with ISPs for data analysis and security training and awareness.

IT Act /Certification

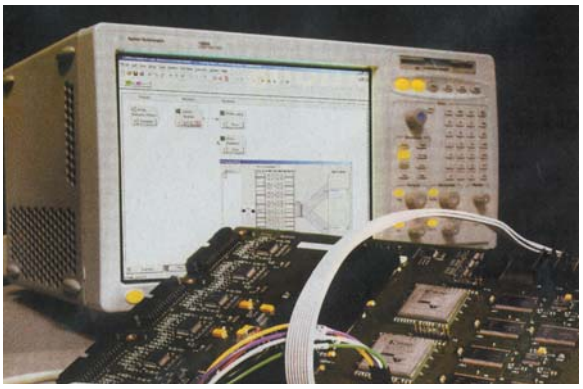
The Information Technology Act 2000 provides the legal framework for establishing trust in the electronic environment in the country. Both e-Commerce and e-Governance transactions are covered under the ambit of the IT Act, which facilitates acceptance of electronic records and Digital Signatures. So far seven Certifying Authorities (CA) have been licensed under the IT Act, 2000. These include Safescrypt, Institute for Development and Research in Banking Technology (IDRBT), National Informatics Centre (NIC), Tata Consultancy Services (TCS), Mahanagar Telephone Nigam Ltd (MTNL), Central Board of Excise and Customs (CBEC) and (n)Code Solutions – a division of Gujarat Narmada Fertilizers Corporation.

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 that has been established and is being operated by the CCA. The total number of Digital Signature Certificates issued in the country grew from around 30,000 in 2004-05 to almost 70,000 in 2005-06.

During the year, discussions were held with CAs and user groups to address their concerns and other implementation issues. Efforts to promote the use of Digital Signatures were continued. Special focus was given to the integration of digital signatures in the MCA'21 project of the Ministry of Company Affairs. Digital signature certificates are already being used in



a number of sectors such as stock broking community, banking, income tax and for a number of e-Governance applications.

The number of compliance audits required to be carried out by licensed CAs was reduced to one annual audit by an empanelled auditor and half-yearly internal audit in place of the annual, half-yearly and quarterly audits by empanelled auditors as stipulated earlier. Steps were initiated to increase the validity of CCA's Root Key by 25 years and that of the CAs by 10 years.

.IN Internet Domain Name

Internet Domain Names worldwide have assumed greater significance in recent times with the Internet increasingly being used as an effective medium for commerce, governance, education and communication. The system of registration of Internet Domain Names can facilitate the proliferation of Internet in a country. Many countries have, therefore, adopted liberal and market friendly policies to register large number of Domain Names under their country code, broadly consistent with globally accepted policy and procedures of Domain registration.

In order to bring about a substantially increased proliferation of .IN Domain Name, a new .IN Internet domain name policy framework was announced by the Government in October 2004. To remove the restrictions in the existing procedures impeding a liberal, expeditious and market friendly approach to register large number of .IN domain names. In January 2005 the Department and National Internet Exchange of India (NIXI) took an important step of setting up of the state-of-the art, hardware and software and relaunched the .IN Registry. The opening of the .IN Registry has significantly improved and broaden the availability of the domain names.

Presently, more than 35 Registrars have been accredited to offer .IN domain name registration worldwide to customers. Recently .IN Dispute Resolution Policy and rules of procedures has also been announced. Expression of Interest (EoI) for selection of Arbitrators has been advertised in newspapers and .IN Registry site and selection of Arbitrators are in progress. The registration of the .IN Internet Domain Names crossed 1,54,000 during the month of December 2005.

Internationalized Domain Names –Implementation for Indian Languages

The process of supporting multilingual script and other linguistic and cultural needs on the Internet is generally known as Internationalization. Internationalized Domain Names (IDNs) are domain names or web addresses represented in local language characters. Until recently, there was no standard method for domain names to use characters outside the ASCII. New technologies now provide the tools for registering and using Internationalized Domain Names. The local language domain name is followed by the .com/.net/.org/.in extensions. They utilize non-ASCII characters and are for use in markets where English is not the primary language. IDNs follow the global IDN standard published by the Internet Engineering Task Force (IETF). IDNs provide a convenient mechanism for users to access Web sites in local language.

To initiate IDN in Indian language, work has been initiated to bring IDN in Tamil and Malyalam. The C-DAC Thiruvananthapuram along with Linguists in Tamil and Malyalam have been entrusted with the task of drawing out the Language character Tables, Variant Tables and rule sets for the IDN implementation. C-DAC Kolkatta alongwith Bangla and Assamese linguists have been identified for the IDN implementation in Bangla and Assamese.

Proposal to initiate the process for IDN implementation in Hindi, Marathi and Urdu languages has been evolved in discussions held with C-DAC Pune and linguists is under consideration.

Government is also in the process of evolving a roadmap for implementation of multilingual Domain Names known as Internationalized Domain Names (IDN) under the Devnagari and Dravidian scripts. A two day training sessions on IDN and DNS was conducted on 3-4 October 2005. Participants were Registrars of .IN, Linguist and language technologists.

Migration to IPv6 from IPv4

Internet Protocol version 6 (IPv6) is the next generation protocol of Internet, to which migration is to take place from the currently used Internet Protocol version 4 (IPv4). IPv6 is essentially an

upgrade to the data networking protocol that powers the Internet. The primary motivation for the design and deployment of IPv6 is to expand the available address space of the Internet, thereby enabling billions of new devices, viz., personal digital assistants (PDAs), cellular phones, home appliances, apart from very fast growing number of computers and new always-on technologies-xDSL, Cable, Wireless, Ethernet-to-the-home, Fibre-to-the-home, etc., based devices to be connected to Internet. Globally major efforts are going on in Japan, Korea, Taiwan, China, Europe and USA to deploy the IPv6 across their networks and services.

As part of IPv6 implementation, ERNET backbone has been upgraded to support IPv6. Applications like Mail Relay, Domain Name Server has been installed and trial run of applications on E-mail and Multicasting on IPv6 has been carried out. A workshop was organized during June 2005 involving ISPs, Mobile service operators and Network managers.

Based on the inputs provided by the Department and other Internet Service Providers (ISPs), Telecom Regulatory authority of India (TRAI) has come out with final recommendations for migration to next generation Internet Protocol IPv6. These include setting up of national test bed, mandating equipment purchases compliant with IPv6, setting up of National Internet Registry, awareness programme for service providers and end users.

Establishment of Nationwide Quality of Service (QoS) Network Test Bed

The project envisages Establishment of a Nationwide Quality of Service (QoS) Network Test bed that will provide Quality of Service (Qos) assurances to various applications. It is expected that at the end of the project, the test bed will be an operational network that will be used by ERNET to provide IP based QoS services. This will also serve as a vehicle for collaborative R&D among the participants and for distance education. The participating institutions are IIT-Delhi, IIT-Madras, IIT-Bombay, IIT-Kharagpur, IISc Bangalore and C-DAC, Bangalore. The project also envisaged to study and demonstrate the advantage of statistical multiplexing, i.e., the flexible bandwidth paradigm.

In the first year of the project, the local network test beds at the participating institutions have been set up with 2 Mbps link provided by ERNet between each Participating Institutions. Study and Tests for appropriate Network architecture and its configuration to provide Quality of Service (QoS) for applications viz., Voice over Internet Protocol (VoIP), Distance Learning and Video Conferencing using different architectures (RSVP and Intserv, Diffserv, MPLS with corresponding traffic engineering principles) are underway.

Indo-EU Proposal: Connecting ERNET India with European Research Network GEANT

Under India EU Cooperation on Information Society Technologies (IST) Programme, a project has been evolved by ERNET, India for connecting with GEANT. This envisages to link the Educational and Research Network of India (ERNET) with the European Research Network GEANT and to produce a reliable and efficient connectivity between the two research communities so that the various network resources can be shared. Under this programme, it is proposed to pursue Indo – European collaborative research and training partnership in the area of Information Technology, Life sciences, geonomics, biotechnology, material science, environmental science, etc.

A Cooperation agreement has been signed for collaboration between Delivery of Advanced Network Technology to Europe Limited (DANTE) and ERNET in respect of 34 Mbps connectivity between GEANT Network in Europe with ERNET in India.

The tender process for procurement of bandwidth has been started. ERNET has provided names of the three Indian companies to DANTE who are owning the submarine cable and providing Internet bandwidth on bulk basis to the country to be included in the vendors list to participate in the tender.

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 the matters connected therewith or incidental thereto. As per the provisions under the Semiconductor Integrated Circuits Layout-Design Act 2000, a Registry known as the Semiconductor Integrated Circuits Layout-Design Registry (SICLDR) is being established to facilitate the registration of layout-designs. The office of Registry at Delhi is nearly completed in civil and electrical works. Procurement of basic infrastructure equipment for Registry office was also completed.

Technology and Application Development

Media Lab Asia

Media Lab Asia has been set up as a not-for-profit organization under Section 25 of Companies Act with a vision of leveraging the information and communication technologies and other advanced technologies for the benefit of the common man.

Media Lab Asia works on the paradigm of collaborative research in the task of developing relevant and sustainable technologies and bringing them to the daily lives of people. Media Lab Asia works with academic and R&D institutions, industry, NGOs and Governments in the endeavor. It has already established research hubs at five IITs at Delhi, Mumbai, Chennai, Kanpur and Kharagpur, IIIT Hyderabad and with more planned in the future. In addition, research, development and deployment projects have been taken up at other institutions. Media Lab Asia is also establishing field test sites near the research organizations and other locations and working with State and local governments, NGOs, and other organization's in this endeavor.

Media Lab Asia's application development is focused on use of ICT for healthcare, education, livelihood generation, empowerment of the disabled and providing rural connectivity. The Media Lab Asia projects are generally centred around these themes. The research themes of Media Lab Asia include technologies for broadband rural connectivity, affordable computing and access devices, and advanced interfaces.

Achievements during the year 2005-06

Media Lab Asia initiated several projects in the identified thrust areas at its research hubs at IITs, NGOs, IIIT and its lab at Delhi. Some of the projects have been taken for the field trial and pilot deployments. Highlights of some of the projects are as given under:

e-Sagu

The project aims to develop cost effective, cluster based, e-agri clinics for providing personalized expert advice to farmers for major crops including cotton, paddy, maize, etc. The pilot project is being tested in 5000 farms in Andhra Pradesh. The project is integrating the local NGOs and industry to extend the reach, provide other value added services, and to evaluate sustainability models. These organizations are also mobilizing additional financial resources for the project.

Project Ashwini

This project aims at providing virtual delivery of multiple services using broadband wireless connectivity. The services include Healthcare, education, banking, livelihood training, agricultural advice, etc. The network will cover 32 centres in 115 villages, benefiting over 5 lakh people. The service delivery through wireless connectivity is operational at six centres.

Ruralnet (Digital Gangetic Plains II)

The project aims development of a robust, cost-effective, high performance and spectrally efficient solution for point to multipoint and mesh networks based broadband wireless technology for rural internet connectivity.

Virtual Physics Lab

The objective of the project is to design and develop Virtual Physics Lab for the Rural School children, which do not have access to the Physics Lab infrastructure in their schools. The project includes training the teachers of rural schools in creating Multimedia content for Physics Lab. More than 100 teachers have been trained through this program.

VAANI

VAANI is a standalone, easy to operate portable device with a facility to store and replay a large number of audio messages, which can be partitioned in different contexts. The device has a graphic LCD Display, Message Navigation Buttons, Play Button and suitable indicators. The system has been developed at Media Lab Asia, and is being field tested at the Spastic Society of Northern India, Delhi.

Sehat Saathi

This project is developing a portable telemedicine platform for rural healthcare delivery. The components include-patient database management; interaction between the doctor and patient; medical data acquisition such as ECG, eye images, heart and lung sounds, etc. The system is under development and testing in collaboration with the local hospitals in and around IIT, Kanpur.

aAQUA

Almost all questions answered (aAQUA) is a discussion / advisory forum for the farmers on agriculture related issues. The agricultural experts in Krishi Vigyan Kendras provide expert advice to specific queries raised by the farmers. The system also provides facility to share information and knowledge among the farmer community with a facility to access the previously answered questions on the subject. The system is being field tested in collaboration with Vigyan Ashram, an NGO in Pabal, and at other places. The project has been well received and has won the Gold award in the innovative e-content category at the Manthan awards. The system can also be used in Hindi, Bengali, and Tamil languages.

Multimedia Content in Primary Healthcare on Handheld Devices

MLAsia ported multimedia content in primary healthcare on handheld devices. Media Lab Asia, together with All India Institute of Medical Sciences (AIIMS), will use this content to test the efficacy of using handheld devices for providing information on healthcare.

Multi Model Participatory Content Repository for the Education of Rural Children

The project has been undertaken jointly with IIT, Mumbai and IIT, Kharagpur for the development of a Multi Model Participatory Content Repository for the education of rural children.

It will be participatory in nature – as the system will provide the teachers and para-teachers to author the system in accordance to the needs of a locality. Existing repository systems are domain specific and do not render themselves to the flexibility and adaptability as envisaged in the present project.

ICT for Improving Quality of Teaching in Government Schools in Karnataka

A project is being undertaken with Government of Karnataka under their Sarva Shiksha Abhiyan to deploy ICT in classroom teaching on pilot basis in a few rural schools in Karnataka. Under this project, multimedia content be used to enhance the quality of teaching of the teachers for the subjects of physics, chemistry, biology and mathematics across the middle classes i.e. class 4 to class 7. The results of this pilot deployment will be used to identify suitable technologies for use of ICT for education for wider deployment.

Seminars/Conferences

Media Lab Asia, on invitation from the World Information Technology Forum (WITFOR) under UNESCO, participated in the WITFOR-2005 conference during August 31 to September 2, 2005 at Gaborone, Botswana. In the conference declaration, 'Gram Patra' was identified as a potential technology for providing communication infrastructure in such countries that do not have ICT infrastructure.

Media Lab Asia co-organised the two days National Seminar on 'e-Learning and e-Learning Technologies' with C-DAC at Hyderabad in August 2005.

Technology Development for Indian Languages Programme (TDIL)

India is a multi-lingual and multi-script country. 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 80 % 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 tools for information processing in local languages are developed and be 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.

In this context, a number of initiatives have been taken towards development of software, tools and human machine interface system in Indian languages.

Mission

Communicating without language barrier and moving up the knowledge chain.

Objectives

- To develop information processing tools to facilitate human machine interaction in Indian languages and to create and access multilingual knowledge resources/content.
- To promote the use of information processing tools for language studies and research.
- To promote use of Information Processing tools in Socio-economic sectors e.g. e-governance, e-rural prosperity and e-learning.
- To consolidate technologies thus developed for Indian languages and integrate these to develop innovative user products and services.

Focus Areas

- Knowledge Resources
- Knowledge Tools
- Translation Support System
- Human Machine Interface systems
- Localization
- Language Technology Human Resource Development
- Standardization
- Evaluation and Benchmarking

Achievements during 2005-06

Launch of Indian Language Fonts and Software Tools for free use

The developed tools and software such as Fonts, Key-Board Drivers, Text Editors, Spell Checkers, Morph Analyzers, Dictionaries and Messaging Systems for Hindi, Tamil and Telugu have been launched in public domain for free use by the masses. These tools are available on the Website www.ildc.gov.in and http://tdil.mit.gov.in. Similar release of fonts and software tools for other languages is also planned.

Development of Open Type Fonts

A project to develop open type fonts for 11 Indian languages was initiated. More than 225 open type fonts for various Indian languages have been developed under the project.

Information Technology Localization

The CoIL Net centres aim at IT localization in Hindi. Under this programme, content, websites, application and test beds in the domains of e-health, e-education, e-tourism, etc; have been developed in Hindi. The IT localization tools for Hindi such as Unicode compliant open type fonts, floating keyboard, ISCII/ Unicode based local Search Engine, Java components for Hindi, Java based Hindi editor

Launch of Indian Language Fonts and Software Tools for free use

and font converters for HTML documents have also been developed. All these software and content have been uploaded on the TDIL website http://tdil.mit.gov.in. IPRs have been filed by these centres for the developed software and e-content.

IndiX is an open source operating system (GNU Linux) with built in browser for Hindi and other languages, which can be freely downloaded from C-DAC, Mumabi website http://rohini.ncst.ernet.in/indix/. It is now possible on Linux to give file names, domain names in Hindi, Marathi, Kannada, Tamil, Malayalam and Sanskrit. A new project named Janabharati was initiated to promote development and deployment of Localized Open Source Software.

Gyanaudyog

The pilot Gyanudyog project was initiated at Banasthali Vidyapith for the State of Rajasthan to promote Small Office and Home Entrepreneurship for catalyzing IT enabled services specifically, content creation, content localization and application software localization, remote customer interaction services, computer Aided design with support for technology mentoring, financial support guidance and market information. The Gyanodhyog workshops not only provided awareness to the participants but also technological support and financial and marketing information. 369 women have been trained during 18 months under this project in the state of Rajasthan in the surrounding area of Jaipur and Banasthali.

Standardization

Standardization is the key to make interoperable technologies. The Department of Information Technology is a voting member of the Unicode Consortium and constantly provides inputs to Unicode Technical Committee on various issues to ensure adequate representation of Indian scripts in the Unicode Standards. Draft standards for Vedic characters and symbols and Lepcha script have been prepared and steps taken to include additional new languages/scripts Boro, Santhali, Dogri and Maithili in Unicode.

Web Internationalization Initiative

The Department also participates in the World Wide Web Consortium (W3C) activities, which is evolving the Web Technologies Standards. A project 'Web Internationalization Initiative' has been initiated with the objective of adequate representation of Indic scripts in the Web Technology Standards being evolved by W3C. The Department of Information Technology C-DAC and MAIT-CoILTech became Members of W3C. W3C office has been set up in India at C-DAC, Noida with support and guidance of the Department.

An 'International Conference and Workshop on Web Technologies' was organized during November 2005

at New Delhi to create awareness about the futuristic development in the web technologies amongst Indian IT community, researchers and institutions to leapfrog to products and services based on W3C Standards accepted internationally.

Human Resource Development in Language Technology

There is shortage of trained manpower in the area of multilingual computing. A project for introducing 'Master' level and 'Post Graduate Diploma' level courses in the domains of Knowledge Engineering, Computational Linguistics and Software Localization has been initiated at eight institutions in India. The project aims at developing trained manpower in the field of Language Technology to overcome the present shortage of manpower.

Indian Language Data Centre and TDIL Portal

To disseminate Indian language technology products and provide support to users, an Indian Language Data Centre was initiated (www.ildc.gov.in). This Centre enables users to download free of cost, the Language Technology Products. Presently the software tools and fonts for Hindi, Tamil and Telugu are available through this data Centre for free downloading.

Hits on the TDIL Website www.tdil.mit.gov.in

Bi-lingual (English and Hindi) TDIL website (http://www.tdil.mit.gov.in) provides downloadable software and tools in Indian Languages viz. Plug-in, Indian Language Word Processors, NLP tools, NLP Resource for Windows/Linux, Unicode Compliant Fonts, Font Converters and other language processing utilities. The website also provides information about all the initiatives taken under the TDIL programme.

Vishwabharat@tdil - Journal of Indian Language Technologies

The VishwaBharat@tdil is a quarterly journal which provides information on products, tools, services, activities, developments and achievements in the area of Indian Language Technologies. The journal serves as a means of sharing ideas among technology developers and creates awareness in the society about availability of language technology resources. The journal can also be accessed through TDIL website (http://tdil.mit.gov.in).

Industrial Electronics Promotion Programme (IEPP)

As a step towards possible tele-manufacturing technology, the Department has an important project on Internet Based Collaborative Design and Manufacturing System for Intelligent CNC Manufacturing at IIT-Bombay. This state-of-art software controlled system allows various users to utilize a centralised CNC facility remotely through the Internet. The project is nearing completion and the Department is taking suitable steps for propagating this technology among possible manufacturers.

Marine Robotics is a very challenging field for exploration of ocean-beds and in this regard the Department has two on-going projects at National Institute of Oceanography (NIO), Goa. to develop software tools for IT based techniques for Acoustic Seafloor Classification and Automatic Underwater Vehicle incorporating electronics controls which can be used for study of ocean-bed for various applications. Both the projects have progressed considerably demonstrating the first prototype units successfully.

The Department has also undertaken a project for development of a low-cost Supply Chain Management (SCM) system particularly for the SME sector. The project is in its final phase and is now being tried to apply modules as a part of IT solutions for the SME sector, for example, in textile industries.

During the year, an important project has been initiated on improving the detection technique of quality of Hot Rolled Products in Steel plants by application of image analysis techniques. The project is being executed jointly by Research and Development Centre for Iron and Steel, Ranchi and CEERI, Chennai Centre. The Department has played a crucial role in identifying the application area and making the collaborative arrangement between the above two organisations.

Transport and Power Electronics Programme

During the year, an important initiative of the Department, namely, National Mission on Power Electronics Technology (NaMPET) involving various academic institutes, industries and C-DAC (Thiruvananthapuram) as the Nodal Centre, progressed considerably. Infrastructure upgradation activities at the selected academic institutes and the nodal centre have progressed satisfactorily and nearing completion. One industry-academic interaction and two short-term courses for industries were successfully held at Bengal Engineering and Science University-Kolkata, IIT-Bombay and IISc-Bangalore. A website of the programme has also been launched and is continuously being updated. Four state-of-art technology development projects have been initiated under this programme. These include a Universal IGBT Gate Driver, Full Spectrum Power Electronics Simulator, Matrix Converter Topology and Ultra Capacitors. The Department has been receiving requests from various industries to join this programme.

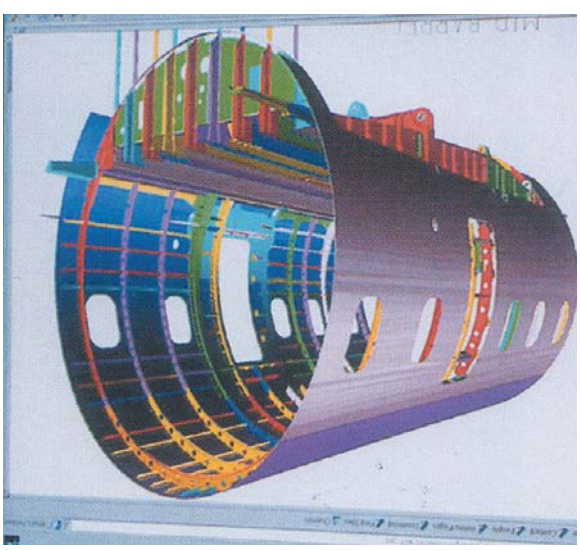
In the area of IT application in Transport sector, the project on Area Traffic Control System for Pune city is nearing completion. Designed and developed by C-DAC (Thiruvananthapuram), all field activities of erection and commissioning have been completed and steps for impact analysis have been initiated.

Pollution-free transportation is the need of the hour as also lessening our dependence on petroleum fuels. The Department's project on Development of suitable Hybrid Vehicle technology is a step in this regard. A pilot project for Three-wheelers in the first stage has progressed satisfactorily and has come out with the first prototype system, based on state-of-the-art power electronics/automation technologies. This is being currently field tested by the Kerala Automobiles Ltd.

Convergence Communication and Broadband Technologies

The convergence of computer, communication, consumer electronics, broadcasting and contents; voice, data, video and computing; fixed and mobile telephony; and telecom and IT networks is creating new businesses giving flexibility in doing business and taking collaborative processes to a new level. It makes it possible to communicate almost anything to anyone at any time. The growing communication needs and business processes demand for faster Internet access and innovative interactive content ushering in the broadband. At the same time, globally efforts are to ensure that the benefits of ICT reach the largest section of the population. R&D is the driving force in harnessing the technologies and facilitating cost effective deployment of ICT for the benefit of economy and society.

The programme is aimed to support R&D in convergence communications and broadband technologies. The indigenous efforts are aimed at facilitating developments in emerging, next generation wired/wireless broadband network and broadcast and strategic technologies leading to their cost effective deployment bringing not only economic benefits but also contribute to e-inclusion, provide safety, security and improve life. Other activities under the programme include promoting commercial exploitation of the technologies developed, promotional activities aimed towards developing cooperative programmes amongst industry, academia, user organizations and also networking with international bodies/organizations to showcase Indian capabilities in International exhibitions. A number of academic institutions, industries user organizations and research labs all over the country have been involved in the programme.



Achievements

A number of technology development projects supported at various institutions were successfully completed. Some of the product developed to

include - TETRA Based Digital Mobile Radio, Blue Tooth Adapters, Set Top Box for conditional access, Tele TV Conferencing System, Call Centre equipment and application software with multilingual capability, Voice over IP (VoIP) telephone. A number of other strategic applications products like Global Positioning System (GPS), Differential GPS, Non-linear Junction Detector, Multienergy Conveyorised Parcel Viewer were also developed. Wi-Fi campus wide networks with managed security services as test beds were established. Successful completion of the project on 'Web – Based Agricultural Expert Advice Dissemination System' has resulted in development of a cost effective and scaleable web based agricultural information dissemination system for delivery of personalized agricultural expert advices to improve agricultural productivity. The project has specifically addressed the needs of cotton farmers. The farmers have benefited in terms of saving in fertilizers, pesticides and enhanced yield.

As part of Indian Wireless initiative in wireless technology, a Centre for Excellence in Wireless Technology for developing Next Generation Mobile Wireless System was set up in collaboration with IIT, Chennai. Issues like standards, protocols, and spectrum requirement will be considered for indigenously designed system manufacture and deployment.

On-going R&D Activities

- TETRA Radio Network for Kerala Police
- Interoperable Open standard Set-Top Box
- RF shield for the mobile handset
- Decision Support System for District Planning
- Secure Decentralized Disaster management information network
- RF Bug Detector
- Broadband wireless access technologies and deployment of Wi-Fi protocol based campus network
- Digital Connectivity through Amateur Radio Centres for Disaster Management
- Wireless Communication for Underground Mines
- Secure Hybrid Network (wireline and wireless) and Managed Security System
- Web based Agricultural Expert Advice Dissemination system
- Virtual Space routing in Converged Networks.
- Assessment of Wi-Max Technology for Performance, Interoperability on Campus Area Test Bed.

Future Outlook

R&D projects are proposed to be undertaken during next year in the following areas:

- Next Generation Communication, Broadcast and Convergence technologies (e.g. 4G Wireless Communication, Software Defined Radio/Software Radio, Ultra Wide Band transceiver and antenna, Data Compression Technology, Smart antennas, Broadband on Power Line (BPL))
- Wireless sensor networks (e.g. Communication algorithms, protocols, RFID applications)
- Convergence of wired/wireless networks, consumer premises equipment (CPE) and converged access devices.
- Wireless Technology deployments for urban-rural connectivity (e.g. Wi-Fi, Wi-Max).
- Development of IP based products/ services (e.g. VoIP/IPTV, SIP based IP telephone) and net appliances
- ICT applications in strategic/ mission mode activities with focus on safety, security, and surveillance, communications during emergencies and customized strategic applications such as underwater surveillance, autonomous vehicle and telescopic systems for disposal of explosive devices.
- Establishment of CATR and MM Wave Test facilities at SAMEER.

Technology Development Council (TDC)

The aim of Technology Development Council (TDC) is to facilitate research and development in IT, promote Free and Open Source software and to promote applications of IT for indigenous, efficient and cost effective solutions for product and processes developments in the industrial sectors. Other areas considered and supported under TDC include Bioinformatics. Some of the key activities currently supported under TDC are: vehicle scanner - a vehicle identification; authorization and inspection system; multi application smart cards for transport

applications; smart cards for payment system; Ayusoft - a decision support system for disease diagnosis and treatment as well as diet and lifestyle advice. Other programs initiated under TDC are national ubiquitous computing research, innovation promotion in IT and virtual observatory.

Vehicle Underside Scanner

A project to develop vehicle authorization and inspection system has been developed at IIT Delhi and prototype tested at Cabinet Secretariat. The transfer of technology to BEL and ECIL is in progress.

AyuSoft

AyuSoft is a comprehensive, interactive and intelligent software system to assist medical practitioners and researchers in application of basic principles of Ayurveda. AyuSoft is a decision support system which offers prakriti and dhaatu saarataa assessment, disease diagnostics and treatment and diet and lifestyle advice. AyuSoft also includes Ayurveda patient information management system and multimedia based encyclopedia. The direct beneficiaries are researchers and practitioners. The system is under evaluation at few Ayurvedic hospitals.

Innovation Promotion in IT

Under this program, support has been provided to six IITs and IISc - Bangalore to promote start up companies with active partnership with these premium institutes. As a result, several start companies have been supported at these six institutes.

Virtual Observatory – India

The hardware and software infrastructure consisting of servers and RAID configurations have been created for Virtual Observatory – India, at Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune. The first phase of the project focused on development of software tools for parsing and translation of new data formats, the archiving of data and most importantly the two and three-dimensional visualization through graphical and imaging tools. Data archives and mirrors of various astronomical data bases including Himalayan Chandra Telescope, Sloan Digital Sky Survey have been created for users to download and use. Based on the encouraging results, another project has been initiated at IUCAA, Pune for developing enhanced set of software tools and infrastructure.

National Ubiquitous Computing Research Initiative

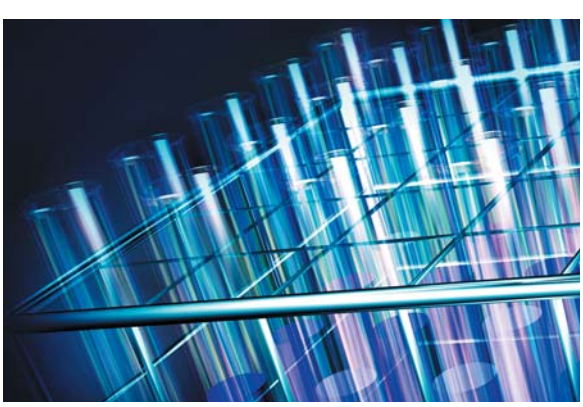
Ubiquitous computing research has been identified as a cutting edge research area. A national ubiquitous computing research initiative is being evolved in consultation with eminent scientist and technologies working in this area. Projects are expected to be initiated in the areas of mobile computing architecture, middleware, context-aware computing, wireless sensor network, RFID, smart spaces, etc.

Weather Forecast Applications

PARAMNet production and procurement of IBM systems have been completed for setting up of C-DAC system at National Centre for Medium Range Weather Forecasting (NCMRWF) to demonstrate the suitability of PARAM PADMA for weather and climatic applications. This project is executed jointly with funding support from Department of Science and Technology.

Multi Application Smart Cards

Further development of SCOSTA has been progressed at Semiconductor Complex Ltd., Mohali. The deliverables include enhanced specifications, design, reference implementation, and hardware ports for the enhanced operating system, reference implementations, compliance test kit and other associated tools, covering other applications such as national ID. Specific features include support for PKI and contactless operation. The project on multi application smart card based payment system, under implementation jointly by the Institute for Development and Research in Banking Technology (IDRBT), Hyderabad and IIT, Bombay has also progressed.



Medical Electronics Program

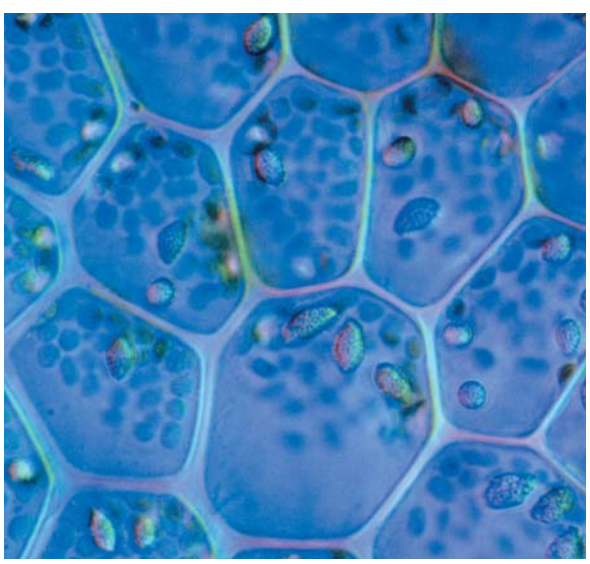
The Department of Information Technology has been promoting technology development in electronics and IT applications in the health and rehabilitation sector to make the medical electronics equipment and rehabilitation devices available at affordable prices through indigenous production.

The DIT in the past has supported a number of technology development activities for diagnosis, treatment and also rehabilitation. It has been the experience in the past that successful development of technology does not automatically lead to the commercial production of medical electronic equipment and rehabilitation devices. The commercial production of these devices depends largely on the confidence that the products have been able to generate among the medical community, which could be created only through deployment of reasonable number of these devices across the country and carrying out modifications and improvements based on the feedback from the field trials.

In order to promote the market of the indigenous medical electronic equipment and rehabilitation devices, the Department has initiated two major projects under Jai Vigyan Mission with the objectives to develop the-state-of-art equipment and win the confidence of the user by scientific R&D.

6 MV Medical Linac System for Cancer Treatment

The first linac machine under the first phase of the programme has been installed in Mahatma Gandhi Institute of Medical Science, Wardha. The extensive testing of the machine's parameters to comply with the procedure for obtaining the mandatory clearance of the Atomic Energy Regulatory Board (AERB) has been carried out to enable the machine to be used for patient treatment. The fabrication of the second machine is in the final stage and will be installed in RCC, Adyar, Chennai by August 2006.



Braille Literacy in Indian Languages

The project was initiated under the Jai Vigyan National S&T Mission. Under this project, a number of hardware and software products have been developed to enable the blind schools generate reading material for visually handicapped and also to enable visually handicapped to use computers for educational progress.

A tactile reader or Electronic Braille Display was also developed and deployed under the project. This is a very versatile device and is refreshable and displays 20 Braille characters at a time. This through the transcription software developed under the project enables blind persons to read any text file in a computer in any of the 13 Indian languages and English. These products have been deployed in 30 blind schools in the country and the feed back from these schools was highly rewarding.

In addition, the following major projects were in progress during the year:

Facility for Batch Fabrication of Linac Tube and Linear Accelerator Machines

A project has been initiated to establish facility for batch fabrication of linac tube and linear accelerator machines at SAMEER, Mumbai. The development and deployment of 6 MV linear accelerator machines have been initiated under Jai Vigyan programme. It is expected that after the deployment of the six machines in the hospitals of the country, there would be significant demand for these machines in the country. Linac tube is a critical component the fabrication expertise of which is available with the SAMEER in the country. To meet the demand for this critical component through SAMEER, after technology transfer for linac machine to the manufacturer, the Department initiated this project with an outlay of Rs. 24.88 crore for a period of three years.

Development of Portal Imaging Devices

Electronic portal imaging device is used in the imported linac machines to verify the position of the

patient during the treatment with high-energy radiation beam. A project has been initiated for the development and fabrication of electronic portal imaging devices at CSIO, Chandigarh with the involvement of a technical entrepreneur.

Development of Radiation Field Analyzer (RFA)

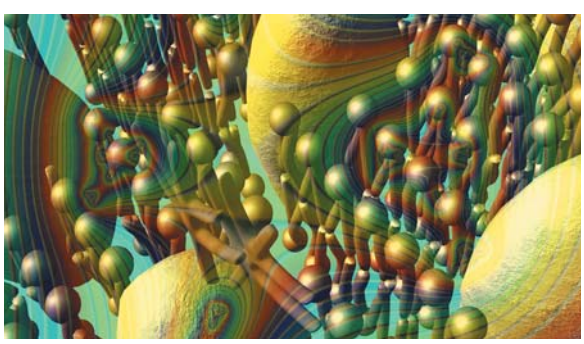
The RFA is an essential accessory for the treatment of cancer patients by linear accelerator. This system is required to be available with all the cancer hospitals treating the patients with linear accelerators as per AERB guidelines. Presently, the system is being imported. This project has been initiated in Variable Energy Cyclotron Centre (VECC), Kolkata. The prototype is under fabrication and would soon be installed in cancer hospitals for verification.

Hand Held Scanner Based Hindi and English Text Reading Machines for Visually Impaired Persons

A modified prototype using a twin lens combination has been fabricated and integration of this with the text reading software is in progress.

Internet Access and Rehabilitation for Visually Handicapped

Text to Speech system for Bangla has been integrated with Braille system and the field trial has been



conducted. Tactile reader with the screen reading software using the e-mail application developed under the project will be installed at National Association for Blind, Delhi for field trial.

Close Loop Anesthesia Delivery System

The close loop anesthesia delivery system has been developed and undergoing clinical trial at Post Graduate Institute of Medical Research (PGIMER), Chandigarh. The multicentric trial of the system at various hospitals in the country is being explored.

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 today has more than one billion population that is predominantly rural and distributed in distant geographical locations. Telemedicine facility helps patients in rural and distant areas to avail timely consultations of specialist doctors without going through the ordeal of traveling long distances.

The Department of Information Technology (DIT), as a facilitator, has taken initiatives for development of telemedicine technology, initiation of pilot schemes and standardization of telemedicine/e-health, health/hospital management systems in the country. The pilot schemes take into account the diverse issues related to currently available telecommunication infrastructure, specialist availability, geographical considerations, etc.

The following projects under the Telemedicine activity have been completed:

- **Development of Telemedicine Software Systems:** Under this project, telemedicine technology developed has been used for connecting three premier medical institutions - viz., Sanjay Gandhi Postgraduate Institute of Medical Sciences-Lucknow, All India Institute of Medical Sciences-New Delhi and Post Graduate Institute of Medical Education and Research-Chandigarh, using Integrated Services Digital Network connectivity. These premier institutions are in turn connected with medical colleges at Cuttack, Rohtak and Shimla respectively.

- **Development of Telemedicine for Diagnosis and Monitoring of Tropical Diseases in West Bengal over Low Speed WAN:** Under this project, telemedicine facility has been installed in School of Tropical Medicine Kolkata and two district hospitals. Telemedicine sessions are being conducted for the treatment of patients

- **Development and Application of Telemedicine for Radiology Cases using 64/128 kbps Leased Line and WBSWAN:** Telemedicine facilities established and

telemedicine sessions are being conducted for the treatment of patients

- **ONCONET Cancer Care for Rural Masses-** Development of Tele-Oncology System 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 completed at Regional Cancer Centre (RCC), Thiruvananthapuram and its five peripheral centres and are being effectively used by cancer patients from remote locations of Kerala. The telemedicine network utilizes Internet connectivity in addition to leased lines.

On-going projects

- **Telemedicine and Teleeducation Facilities in Kerala:** Under this project, three specialty hospitals and two remote centres have been provided telemedicine facility and trial run is in progress

- **Advanced Hospital Management system and its implementation at Mahatma Gandhi Institute of Medical Sciences, Sevagram, Maharashtra.** Installation of hardware, software, networking and testing of the system have been completed. The system is undergoing final trials. Training is also being imparted to the users of the hospital management system.

- **Telemedicine Facilities at Five Referral Hospitals and Nine District Hospitals of West Bengal:** Through projects funded in West Bengal three referral and six nodal centres have so far been provided with telemedicine facilities. In three referral centres and four nodal centres the Telemedicine facilities are under establishment

- **Human Resources Portal for Department of Health, Government of Kerala:** This project for development and implementation of Human Resource Portal for Department of Health, Government of Kerala is jointly funded by the Government of Kerala and the Department of Information Technology. Some of the Health portal applications under development include HR and payroll applications, medical college hospital enquiries for public information (OP days, bed availability, Patient search, etc.).

- **Telemedicine Application for Rural and Remote Areas of Himachal Pradesh:** The project was initiated during the year. Telemedicine facility is being provided at Indira Gandhi Medical College, Shimla. The telemedicine facility is under establishment in Mahatma Gandhi Referral Hospital, Rampur Khaneri, Shimla and Civil Hospital, Rohru, Shimla.

On-going Telemedicine projects in the North Eastern Region

- **Telemedicine Centres at Mizoram and Sikkim connecting Super Specialty Apollo Hospital, Delhi:** District-level telemedicine centres were set up connecting Apollo hospital Delhi with one hospital each in the State of Mizoram and Sikkim

- **Telemedicine Network in Tripura:** Telemedicine facilities have already been established in two referral centres at GB Pant referral hospital and IGM Hospital, Agartala and four nodal centres using the technology already developed by Webel, Kolkata. A large number of patients of distant nodal centres have been provided medical services under this project

- **Advanced Hospital Management System including PACS for Regional Institute of Medical sciences, Imphal:** The project was launched during the current year and procurement of hardware and software has been processed. Steps for Local Area Networking are underway.

The Department in consultation with health providers and other stakeholders has recommended Standards and Guidelines for the practice of Telemedicine and also recommended a Framework for IT Infrastructure for Health in India to cover standards, legal issues, Medical Informatics education, etc.

Future Outlook

The Mid Term Appraisal document for the Five Year Plan prepared by the Planning commission has suggested collaboration between Ministry of Health and Family Welfare and the Department of Information Technology for applications of IT in Health at various levels of healthcare delivery. Ministry of Health and Family Welfare has set up a Task Force for Telemedicine in India which is planning to suggest a National telemedicine network in collaboration with

DIT for taking applications of IT in Health to primary, secondary and tertiary levels of healthcare in the country. Steps for acceptance of the recommended guidelines and standards with necessary updations and modifications are also under consideration of the Task Force.

Bioinformatics

Bioinformatics has gained the status of an independent and indispensable discipline in Life Sciences due to the overwhelming progress in the fields of Bioinformatics and Biotechnology. Bio-informatics was identified as an emerging area in which the Indian brainpower could play a dominant role. Enhanced focus is being provided to this area from the current financial year. A separate division was created in the Department to enhance and to address research and development, and applications, human resource development, requisite IT infrastructure. Following institutions have been taken during the year:

- A project has been conceptualized to set up Centres of Excellence for Research and Training in Bioinformatics in four Institutes to undertake R&D and to develop human resource and faculty in Bioinformatics. Standing Finance Committee meeting for the project proposal has been held.

- A project proposal Bioinformatics Resource and Application Facility (BRAF Phase II) has been conceptualized to provide a grid-enabled Bioinformatics Resource (Computing Power, Databases and the Software) to industry, academia as well as Research Community with teraflop computing power, terabyte storage and 10 Mbps bandwidth. BRAF Phase-I already launched and popular in the Bioinformatics community.

- As part of the Bioinformatics initiative a Working Group has been set up with the objectives to identify thrust areas in the field of Bioinformatics and develop an R&D plan for the Bioinformatics sector and its Applications.

IPR Promotion Program

Information Technology is a big business and the technology is not always available off the Shelf. India needs to develop basic infrastructure for technology development from the concept to market exploitations in an integrated way. The infrastructure needs to be grown as per global developments since India is a party to the Trade Related Aspects of Intellectual Properties (TRIPs) Agreement of WTO. The culture of R&D, technology handling, writing research papers and patents, creating IPRs has to conform to the new global IPR regime so as not to fall in the IPR Pitmines of others. The widespread use of foreign technologies in the country is resulting into infringement here and there. There is a need for creating new entrepreneurship with new products and services to avoid this situation. Accordingly, in August 2005, the IPR Promotion Programme was restructured to render following services:

- Technology development inputs regarding Patents and creation of IPR's
- Patents searches and filing for grant of Patents
- Surveillance of on-going IPR activities in electronics, IT and Internet areas
- IPR awareness building
- Preparation of techno-legal reports related to IPR
- Guidance regarding Timely IPR Protections.
- Filing of applications for obtaining of Copyrights, Trademarks and Designs.
- Development of tools, databases and technology alert reports
- The Patents Bill related aspects.

IPR Awareness and Building

100 professionals from ICT sector were trained in IPR. Invited lectures on 'ICT-IPR importance and promotion strategy of DIT' were delivered at various public platforms including 13th International Conference ADCOM at Amrita University, Coimbatore, International Conference on software IPR's at Seoul Korea (10 November 2005), National Workshop on Role of Patent Literature in Technology Development, IIT Kanpur (1-2 November 2005), etc.

Development of Technologies, Tools and Databases on Iprs and Responding to the Needs of Digital Era

- 56 new IPR applications were filed in respect of creativities/inventions resulting from DIT funded projects.
- The earlier filed 200 IPRs were pursued and 7 IPRs were obtained.
- A F/OSS based indigenous Patent Mapping Tool developed and Patent Mapping Centre was set up at IIT Kanpur.

- A Prototype Software Tool to vet distinctiveness of Trademarks was developed which is being put for field-testing.
- A watermarking software for Digital Videos so as to evidence Copyright infringement is in stage of pilot development.
- An IPR Exchange Forum was set up at IISc. Bangalore to facilitate ICT SMEs gain from their F/OSS initiatives.
- An ICT Patent Watch Centre was initiated to provide surveillance on Patents being gazetted for opposition in India. A large number of Patents were found to be mundane/trivial or not in conformance to Indian Patent Act.
- A Plagiarism Detection Software Pilot model was developed.

Free Open Source Software

A National Resource Centre in Free / Open Source Software (F/OSS) with a budget outlay of Rs. 4.97 crore is being set up in Chennai as a 3 years project to focus on a) Human Resource Development at AU-KBC Research Centre, Chennai b) Product Development at C-DAC, Chennai. The Centre is in the process of creating 1000 F/OSS professionals, a F/OSS portal, Software - Open Architecture (SOA) based solutions, a series of device drivers and regional languages localization tools for public utility computerization systems with an aim to promote an appropriate eco System for F/OSS in the country and promote open standards and interoperability features between various systems.

In the first year necessary infrastructure including premises, manpower and equipment has been augmented and about 100 teachers from various Engineering Colleges of Tamil Nadu have been trained to start Elective papers on the Free / Open Source Software in their B.E. / B.Tech degree programme in Computer Science and Engineering / Information Technology.

Electronics Components and Materials Development Programme

Electronics materials is a special class of materials in terms of purity and characteristics used for IT hardware and electronic components manufacturing. Silicon is the essential foundation of all electronics based products and is the basic building block for digital innovation. However, even for fabricating silicon based semiconductor devices, more than 200 other materials are necessary and even these should conform to high purity levels. Nowhere is the ability to produce new materials more crucial than in the electronics industry. Modern industrial business has three principal goals, cost effectiveness, better designed products of higher performance and most importantly higher competitiveness. One of the most important aspects of achieving these goals is dependent on the development of advanced materials and technology. The rapid progress in the area of development of materials has entered an era of designer materials.

The unique properties of advanced materials are the result of the sophisticated microstructure that is designed and built into the materials. The costs involved in the development of advanced materials require and call for improved and more intelligent processing of such materials in the framework of product manufacturing in order to reduce the rejection rates which are connected to such manufacturing. Some of the important materials/technology includes the development of ultra thin semiconductor packaging for multimedia applications such as smart media and secure digital cards, a wide range of materials that is used in the fabrication of CRT's and various flat panel displays and advanced ceramic materials with a broad base of current and potential applications.

The electronics components industry uses a large variety of materials and there is continuous up-gradation required in technology for the development of these materials to meet the stringent quality requirement. This necessitates advanced materials development and processing technologies to be developed to keep pace with the advancement in the Electronics and IT hardware sector. The R&D on electronics components and materials has thus been focused mainly to consolidate and strengthen activities where capability and infrastructure have already been developed to bring the sub-optimal R&D efforts to pilot/commercial level. Beside this emphasis is also to carry out basic fundamental research on futuristic materials leading to technology up-gradation.

During the year two new projects have been recommended for funding by the Department. In addition, on-going projects are in different stages of implementation.

Environmental Management in Indian Electronics Industry

Environmental protection and pollution abatement towards sustainable development are the thrust areas throughout the developed world. The need to adopt more environmentally responsible manufacturing processes forcing industry to make changes in the conventional processes, product and services offered, for sustainable development. Sustainable development rests on three pillars: economic growth, social progress and protection of our environment and natural resources. Cleaner production is to minimize the environmental impacts of products and services. Cleaner production plays a critical role with respect to influencing changes in consumption and production patterns. To avoid jeopardizing future generation, all efforts should be made to ensure that services and products respond to basic needs and improve the quality of life while minimizing use of natural resources and toxic materials. The Department is helping industry in using cleaner production technologies by sponsoring such activities at R&D institutions for technology development.

Considering the importance of Environment, the Department of Information Technology implemented a UNDP sponsored programme on 'Environmental Management in Indian Electronics Industry'. Phase I of the programme was successfully completed and a technical guide was prepared for use by industry and creating awareness among stake holders. Based on the findings of phase I, a second phase programme was prepared and submitted to UNDP for funding. Interaction is also developed with Indo- German Environment programme (GTZ) for supporting the second phase.

Microelectronics and Nanotechnology Development Programme

Recognising microelectronics as the core area for development and growth of Information Technology industry in the country, the Microelectronics Development Programme was initiated in the late 1980s. The thrust of the programme has been to build a strong R&D, industrial and highly trained manpower base and encourage entrepreneurship. As a result, India has already emerged as a leading global destination for VLSI design and is at the threshold of attracting global foundries.

Nanotechnology, a nascent and disruptive interdisciplinary technology, is expected to impact everything man-made and usher a new industrial revolution in coming years and has been recognised as a thrust area world-over. The Nanotechnology Development Programme, with a plan to create infrastructure for research in nanoelectronics and nanometrology at national level and also to fund small and medium level research projects in specific areas such as nanomaterials, nanodevices, carbon nano tubes (CNT), nanosystems, etc., was started in 2004 and eight small and medium R&D projects were funded. These include: 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; development of quantum-well infrared photodetectors; investigations and development of nano silver oxide for optical memories; synthesis of nanoparticles of noble and transition metals for application in electronic packaging and optoelectronics; large-scale generation of nanosized metals/metal-oxides/metal-nitrides in a transferred arc plasma reactor; development of quantum-well infrared photodetectors in wavelength range 8-14 µm using Si/SiGe Nanotechnology; and investigation of alignment and characterization of carbon nanotubes for targeted drug delivery.

During the current year two major projects at national level i.e., Nanoelectronics Centres – a joint project at IISc-Bangalore and IIT-Bombay with an outlay of Rs. 99.80 crore and Nanometrology Centre at NPL, New Delhi with an outlay of Rs.11.308 crore have been initiated.

Photonics Development Programme

Photonics is an important enabling technology for development of communication and information sectors. In this 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. 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 expertise in this area, covering systems, devices and material aspects.

A national facility for pigtailing 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 and 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 successfully carried out on power splitters. Some of these devices (1 x 8 splitters) are also being evaluated by industry. Laser weld system, primarily needed for active device packaging is being set up in phase two of the project.

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/AlGa As and InGaAs would be tried on two-inch diameter Gallium Arsenide wafers towards developing diode lasers 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 GaIn 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 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-Thiruvanthapuram 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 T_i 0_2 and Z_r 0_2 with nano metal cores of gold have been prepared and optical limiting studies have been conducted. Some light absorbing dyes have been synchronized and characterized.

At IIT, Kanpur, Single Crystal Fibers (SCF) is being prepared using Laser Heated Pedestal Growth (LHPG) technique from single crystals of Nd:YAG and LiNb03. Process for preparation of the powder has been standardized. Efforts are being made to control the growth parameters.

National Institute of Design - R&D Centre

The Department of Information Technology supported a proposal from National Institute of Design to set up a R&D centre at Bangalore. The centre will address the issues of useful interfaces for bridging the digital divide as well as other interface design matters. The R&D centre will focus on innovative research activities in the areas of IT enabled systems, solutions and services for the benefit of common man. The centre will have the following four R&D units:

i) Research and Development Unit for e-Learning and New Media Design

ii) Research and Development unit for Product Design for Manufacturing and Product Innovation.

iii) Research and Development unit for Design Business Incubation and Design Management.

iv) Research and Development unit for Sensitive Design Projects including for Defence organization.

The building for the R&D centre is ready and the various laboratories are being equipped. The R&D centre is likely to be inaugurated in March 2006.

e-Commerce and Information Security

R&D in information security has been a priority area of promotion in view of its significance in national information security, in dealing with export restrictions as well as in building expertise and skill in advanced emerging areas of IT security. Projects at various R&D organizations are supported for this purpose under E-commerce and Information Security programme.

During the year 2005-06, three new projects have been initiated. These cover issues like security assessment of object oriented software, detection of a new class of Denial of Service attacks as well as privacy violation detection. One project has been completed resulting into the development of technology for secure printing of documents. Ongoing projects have progressed well in various areas like cryptanalysis, steganography, biometerics and cyberforensics.

During 2006-07, the programme would continue to promote R&D in the thrust areas of information security with emphasis on the development of surveillance, anti-spam and cryptographic techniques.

Human Resource Development

e-Learning

e-Learning is one of the thrust areas identified by the Department. The main thrust of the e-Learning programme is to effectively integrate e-Learning methodology and approach with the conventional classroom system to maximize the benefits flowing from the traditional education system, increase its reach to more and more learners and spread e-Learning from teaching of IT related subjects to other subjects.

Achievements made during the year in respect of the ongoing projects are as follows:

Multimodal Digital Distance Education for IT

First batch of PG courses in 6-semester M.Tech. IT (Courseware Engineering) and 4 semester PG Diploma course on 'Multimedia and Web Technology' in multimodal digital distance education format are progressing well and would complete their second semester Examination in January 2006 at Jadavpur Univeristy, Kolkata. The second batch for these courses would complete their first semester in January 2006. Six semesters of Master of Engineering course in 'Software Engineering' in multimodal digital distance education format has been designed. Significant portion of content development of 4 modules of Software Engineering has been completed and will be ready to put into the Learning Management System (LMS) of the University by March 2006. Four semesters M.Tech. IT (Courseware Engineering) course in face-to-face mode is in progress. Some students of first batch have been selected for the jobs by reputated IT organizations through campus interviews.

Based on the feedbacks received after first semester examination in June 2005, face-to-face workshops with students of distance education with interactions with teachers have been held in order to improve quality of education in distance format.

Training of Teachers in E-Learning

Teachers from schools, colleges and universities are being trained at DOEACC Centres at Aurangabad and Kolkata for 25 days (200 hrs) to propagate the knowledge and technology of e-learning amongst them. Centres are functioning as resource centers for training of teachers on e-learning for which detailed theory as well as practical contents have been designed. The trained teachers will implement e-learning in their schools/colleges/institutes in their respective areas for better educational methodolies. In all 240 teachers are to be trained by both DOEACC Centres (120 teachers by each centre) in six batches. So far 113 participants have been trained by these centres.

Development of Content Delivery Tools

A code for software on Learning Management System (LMS) was developed at IIT, Kanpur for use by faculty members and students was released on internet using high speed server. With a view to facilitate the faculty members, three Workshops were conducted to explain use of LMS. Based on feedback modifications were incorporated in the system. At present, 58 organizations/universities are using this open source LMS through internet websites.

Enhancing Competency of IT Teachers & Industrial Professionals

The main objective of the project is to enhance quality of service (QoS) in the remote/VSAT centres of the reception of live video/audio broadcast from central classroom studio in IIT's on-going Distance Education program. The courses taught are high end IT courses at PG level. Some more theoretical courses as well as courses in management area were added during the year. By improving the quality of reception at the remote centers, the effectiveness of the program has increased. At present more than five thousand IT teachers and industry professionals have benefited from this project.

The Working Group on e-learning R&D projects has recommended the following projects:

1. Data Compression Techniques and its Application to E-learning/ Education at IIT, Kanpur

2. Development of Interactive Learning material on Introduction to Animation and Multimedia at DOEACC Centre, Kolkata

3. Content based Streaming and Real-Time-Regional Language Captioning of E-Learning Video Data" at IIT, Roorkee

4. Development of a Quality Assurance Framework, Quality metrics, and prototype tool for evaluation and comparison of e-learning applications and training the teachers in e-Learning at C-DAC, Hyderabad

A vision paper containing following thrust areas in e-learning was presented for a panel discussion in a National Seminar on 'e-Learning and e-Learning Technologies' which was organized jointly by C-DAC Hyderabad and Jawaharlal Nehru Technological University, Hyderabad:

- Training of teachers in e-learning.
- Development of new & inexpensive technologies for design & delivery of content.
- Content Development independent of platform & environment (open source).
- Setting up of Quality assurance framework in e-learning.

Information Security Education And Awareness Project

Government has identified Information Security as one of the thrust areas. The Department of Information Technology had set up an Inter-Ministerial Working Group on Cyber Security Education and Awareness Programme. The aim of the Working Group was to 'Recommend an Action Plan and Strategy for Human Resource Development in the country in the area of Cyber Security / Information Security leading to development of indigenous hardware and software capabilities in the core area of Information Security.' On the recommendations of this Working Group the Information Security Education and Awareness (ISEA) Project for development of human resource in the area of Information Security has been initiated.

The manpower developed will consist of – students studying in B. Tech, M.Tech and Ph.D courses; and System Administrators who have completed their formal studies and have undergone training in Diploma / Certificate / 6-week / 2-week courses under this project. This activity is being implemented through 9 Resource Centres as mentoring institutions and 35 Participating Institutes.

The project also has a component of creating awareness of Cyber Security amongst industry/ educational institutes and the masses. This campaign will help them know about cyber attacks and how to protect their data and systems. The project also aims at imparting training to the Central and State Government Officers on issues related to Cyber/ Information Security.

Vidya Vahini

140 schools and 7 training centers covered under Vidya Vahini programme were provided Internet and Intranet connectivity and access to the portal hosting the educational content. Intranet and Internet links were heavily utilized. The utilization varies between 70 – 95 percent.

State-of-the-art fiber optic based campus area networks have been established at University of Kashmir, Srinagar and Annamalai University, Tamil Nadu. The project was also initiated for setting up campus network at Arunachal Univeristy, Itanagar.

Task Force on Human Resource Development on IT

Considering the strength of Indian ITES industry and its potential to place India as global R&D hub as well as most favoured destination for Business Process Outsourcing (BPO) and contract research, a Task Force on Human Resource development in IT was constituted with the objective to analyse the present manpower delivery mechanism in terms of quantity and quality as well as skill set vis-à-vis global ITES requirement during the Tenth and Eleventh Plan period. The Task Force in its recommendations suggested measures for skill generation and deployment for both IT and non-IT professionals along with fiscal policy measures required. The recommendations are basically on the following 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

The following actions have been taken during 2005-06 in this regard:

- The Department has initiated number of measures to generate manpower in key verticals like bioinformatics, VLSI Design and Information Security.
- NASSCOM has launched the pilot phase of NAC – NASSCOM's Assessment of Competence to help the ITeS/BPO industry.
- The DOEACC is implementing ITeS-BPO course to enhance skills of youth for employment/self-employment in ITeS/BPO sector in North East and in Srinagar/Jammu and have already trained more than 1500 students.
- As a result of discussions in various fora and with the Industry, the verticals viz. finance —banking and insurance, travel and hospitality, pharmaceuticals and retail marketing were identified as the promising areas which require immediate attention to be taken up for design of course structure, curriculum, certification scheme, etc To start with two sub-committees of the Standing Syllabus Committee of the DOEACC for the two selected verticals viz. banking and insurance have been set up.

Productivity and Employment Generation

Productivity and Employment Generation Division has been created with an objective to enhance productivity and generate employment in the manufacturing and service sectors with the deployment of Information and Communication Technology (ICT) tools. Investments in ICT spur job creation, foster innovation, and enhance the competitiveness and capabilities of industries, leading to improved economic performance. As an input technology, ICT can have large impact on downstream industries, enhancing the pace of innovation, providing competitive advantage for sustainable economic development and enhancing employment opportunities.

In India, small and medium enterprises contribute 40% of gross value of output in the manufacturing sector and 35% of the total exports from the country. The cluster of these industries in different sector of economies exists all over the country and it is estimated to have above 400 SME's and 3500 artisan clusters in India. This sector has significantly high share in employment generation too. There is a tremendous scope for the use of ICT in the SMEs, not only to increase the production but also efficiency and generate employment.

The process was initiated through advertisement in leading Newspaper for obtaining list of venders who have developed ICT based software packages / products which can substantially enhance

productivity in the government, small and medium industries and businesses. In response, the Department has received good response from vendors (around 85 proposals). The Department is now working on the methodology to implement the penetration of ICT tools in different sectors and also facilitating the dialogue between the users and manufacturers.

Special Manpower Development for VLSI Design and Related Software

The knowledge creation and its applications are primary features of today's network society. With a vision to make India high-end VLSI design destination, so as to access a larger share of the global market in this sector of knowledge-based industry, the Department has initiated a Special Manpower Development programme in the area of VLSI design and related software for generating the key-catalyst ingredient for this sector. This programme has being initiated at 7 Resource Centers (RCs) and 25 Participating Institutions (PIs) with a total outlay of Rs. 49.98 crore for a period of five years. The major element of the project are:

- Instruction Enhancement Programme (IEP) for the faculty of PIs
- Establishing VLSI design laboratory equipped with contemporary Electronic Design Automation (EDA) tools at all RCs and PIs.
- Creation of VLSI design resource website and mirror sites at RCs.
- India Chip Project for siliconization of design done by students of RCs and PIs.
- Introduce teaching of various courses on VLSI design and related software to generate various types of manpower as listed below:
  - Ph D in VLSI design and related software (Type-I Manpower)
  - ME/M.Tech in VLSI design/microelectronics (Type-II Manpower)
  - ME/M.Tech in Electronics, Computer Science with VLSI elective (Type-III Manpower)
  - BE/B.Tech Programme with VLSI electives (Type-IV Manpower)

The SMDP-II program envisages generation/training of about 2,500 students per year by the terminal year of the project from 25 PIs and 6 RCs.

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. During the 2005-06, a total of 1,006 SC/ST students have been registered with the DOEACC till January 2006. So far, 18,715 SC/ST students have been registered under the scheme.

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.

The Department has set-up Community Information Centres at 487 blocks in the seven North-Eastern States and Sikkim to reduce the digital divide by providing internet access and It enabled services to the community at large and to facilitatecitizen interface with the Government. Telemedicine facilities have also been created in Sikkim, Nagaland and Mizoram.

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 thereby reducing the gender bias. IT sector provides flexibility to its employees of operating from home and in working time, which enables women to carry on with jobs and family life.

Indian IT software and services industry is estimated to provide employment to 12.87 lakh IT professionals by March 2006. 74 per cent of software professionals in software companies were men, whereas 26 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. During the 2005-06, a total of 11,270 female students have been registered with the DOEACC till January 2006. The female students numbering over 1.72 lakh account for 32 per cent of total number of 5.33 lakh students registered with the DOEACC.

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

Initiatives taken for the 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.

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. 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 for setting up of Community Information Centres (CICs) in the hilly, far-flung rural areas of the country to bring the benefits of ICT to the people for socio-economic development of these regions and to alleviate the digital divide between urban and non-urban areas. The initiative was as a follow up to the special package announced by the Prime Minister to the North Eastern States for setting up 487 CICs at Block Level with projected outlay of Rs 242 crore and now additional 68 CICs at newly created Blocks with projected outlay of Rs 8.42 crore. CIC initiative has been extended to Jammu and Kashmir (135 CICs at Block Level with projected outlay of Rs 40.67 crore), Andaman and Nicobar Islands (41 CICs in Government Schools) and Lakshadweep Islands (30 CICs in Government Schools) with projected outlay of Rs 21.75 crore. The CIC project in North Eastern (NE) States and Jammu and Kashmir (J&K) has been implemented by NIC / NICSI while the project in Andaman and Nicobar and Lakshadweep Islands is being implemented by ERNET India. Based on the experiences of implementation of CIC projects in North Eastern States and Jammu and Kashmir, DIT is now proposing to set up 328 CICs (95 at Block level and 233 at village level) in an entrepreneurship mode in Uttaranchal. As per MOU, CICs of North Eastern States would be handed over to State Governments by February 2007.

These 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 and board examination results.

CICs in North-Eastern (NE) States

State Governments were pursued for operation and maintenance of CICs including providing citizen-centric services; development of local content, application development and customization to maximize the utilization of CICs for making them self-sustainable. The various service facilitation software's developed by NIC such as e-Suvidha (a one-stop service facilitation window application for G2C services), Block Community Portals (BCP) using Enrich framework, Rural Soft (web based monitoring system of community and rural development schemes), and Hospital Management Information System are being fully utilized by State Governments. ASHA agribusiness portal (http://www.assamagribusiness.nic.in) developed jointly by NIC and ASFAC (Assam Small Farmers Agri-business Consortium) using CICs was launched for facilitating agribusiness in the State of Assam. A new website http://www.sanwad.nic.in has also been developed and hosted by NIC for offering 15 e-governance services.

Education and training is a major source of earning of CICs. 6,854 candidates have been trained through CLP (Computer Literacy Program) of IGNOU (Indira Gandhi National Open University) using CICs. 1,368 candidates were trained for appearing in the DOEACC 'CCC' (Course on Computer Concepts) examination, out of which 983 have passed through 273 accredited CICs. In addition, a total of 174,669 persons have been trained on basic computer concepts. A total of 974 persons were employed under the project. Average data transfer per month is 522 GB. Revenue of Rs 54 Lakhs was generated during January to December 2005.

The National Council of Applied Economic and Research (NCAER) has been entrusted for evaluation of performance of CICs in October 2005. NCAER will study the sustainability issues of CICs and provide feasible solutions for national roll out in 6 months time-frame.

68 Additional Cics in Newly Created Blocks of North East

A project for setting up of additional CICs in newly created blocks of 6 North Eastern States has been initiated in August 2005. Setting up of CICs would be completed by 1 May 2006 by NIC/NICSI. These CICs would be made operational and handed over to State Governments along with 487 CICs of main project in February 2007.

135 CICs in Jammu and Kashmir (J&K)

60 CICs of 1ST Phase have been made operational and are providing IT-enabled e-government services and training as in North Eastern States. Internet services, computer education and training is provided to local community / government offices and school children. Web Portals of all 60 CICs have been developed and hosted. CIC Operators have been trained and positioned to load local content and e-governance packages for providing citizen-centric services. CICs have started generating revenue. A revenue of Rs 8 lakhs was generated up to September 2005. Average data transfer per month over CIC network is 79 GB.

The work on setting up of 75 CICs of 2nd Phase is progressing. These CICs are relatively at more remote places compared to 1st Phase and hence the process of setting up of these CICs is more challenging. Out of 75 CICs, 53 CICs have been made operational. Balance 22 CICs will be made operational by July 2006 by NIC/NICSI. 212 persons have been employed under the project.

71 CICs in Andaman and Nicobar (41 CICs) and Lakshadweep (30 CICs) Islands

These CICs would serve the dual purpose of imparting ICT based education and training as well as citizen-centric services to the people of the region as in NE and J&K States. 2 CICs have been established and made operational at Car Nicobar and Campbell Bay in Andaman and Nicobar Islands. His Excellency President of India, Dr. A.P.J. Abdul Kalam visited these CICs on 6 May 2005. Setting up of remaining 69 CICs is in progress and is likely to be completed by March 2006 by ERNET India.

328 CICs (95 at Blocks and 233 at Villages) in Uttaranchal

The Expenditure Finance Committee has recommended the proposal for setting up of CICs in an entrepreneurship mode using the VSAT technology option. The Planning Commission has been requested to grant the concurrence for initiating the project for implementation by nominated agency

of State Government i.e. ITDA (Information Technology Development Agency) of Uttaranchal Government.

Standardization, Testing and Quality Certification (STQC)

Standardization, Testing and Quality Certification (STQC) Directorate is a National Quality Assurance Infrastructure in Electronics and IT sector. STQC provides Quality Assurance Service to industry with a vision to be an independent and efficient provider of International level Quality Assurance Service both for products and services in technology intensive electronics and IT sector to help every organization to compete on global scale.

Infrastructure

STQC provides service to industry through a chain of laboratories / training institutes staggered nationwide. There are Electronics Regional Test Laboratories (Delhi, Kolkata, Mumbai and Thiruvananthapuram), Electronics Test and Development Centers (Agartala, Bangalore, Chennai, Goa, Guwahati, Hyderabad, Jaipur, Mohali, Pune and Solan), Center for Reliability at Chennai, Indian institute of Quality Management at Jaipur, Center for Electronic Test Engineering (Kolkata, Hyderabad, Bangalore, Pune and Noida), Center for IT Services (Kolkata, Delhi, Bangalore, Mumbai, Hyderabad and Chennai) and Certification Body at Delhi. Major services for Electronics sector are Testing, Calibration, Training and Certification and for the IT sector are Testing, Assessment and Training services in the areas of Software Testing, Information Security, IT Service Management, etc.

IT Services

Software Testing and Evaluation

Software testing and evaluation activity has received a big boost. Testing of e-Governance solutions was the main activity carried out during the year. Under this Land Records Information Systems of Karnataka, Orissa, Madhya Pradesh and Andhra Pradesh were tested and certified. Software Solutions (like birth / death certificate, property tax payment, etc.) from various vendors for Municipalities were also tested. Critical testing and verification of projects like Akshay, Sharang and Shakti (Artillery Command and Control System) for Ministry of Defence were undertaken.

Under the Department of Information Technology initiative of Ghana - India Kofi Annan Centre of Excellence in ICT, STQC provided training in Software Quality Engineering and Support Services for establishing a Software Test Laboratory.

Information Security

STQC is a pioneering organization in introducing Information Security Management System Certification concept in the country and is the first accredited Certification Body to introduce the certification in this area. Various Certified-training programmes have been designed and delivered for Information Security Professionals and Auditors. These courses are accredited by international agencies.

A programme for setting up a Common Criteria Test/ Evaluation Laboratory as well as a Certification scheme based on Common Criteria (ISO 15408) standard has been initiated recently. India has become signatory to Common Criteria Recognition Arrangements (CCRA). The project aims to meet the needs of Government and industries for security evaluation and certification of IT products.

Indo US Cyber Security Forum (IUSCSF)

Under Indo US Cyber Security Forum, a Working Group was set up on Information Security Assurance, STQC is working closely with National Institute of Standard Technology (NIST), USA for development and review of Security Standards and Guidelines. This will facilitate Indian Organisations to comply with US Information Security requirements for trade in network economy. Two International Seminars on Information Security Assurance were organized in Delhi and Mumbai. These seminars focused on the Information Security requirements of Indian Industry and Financial Institutions. Some new areas of STQC-NIST collaboration were identified are development of automated tool for security audits, guideline for development of Business continuity and Disaster Recovery Plan.

IT Services Management (ITSM)

With a view to improve the quality of IT services such as Web services, facility management, Internet, BPO services and telecom services, a certification scheme accredited by itSMF-UK and based on international standard BS 15000, has been introduced. A team of 15 engineers has been qualified as Lead Auditors. Accreditation from itSMF has been obtained for

conduct of accredited courses for consultants and auditors. As founder member with Carnegie Mellon University, USA in the development of e-Service Capability Maturity Model (e-SCM) for BPO industries, the qualified auditors of STQC have provided auditing services to various global industries in India and abroad in association with auditors from UL, Satyam, etc.

Quality Assurance Framework for e-Governance

Recognizing the importance and focus for e-Governance, an initiative has been taken to support Department of Information Technology for assessing conformity with standards on quality and security. A Quality Assurance framework covering the aspects of quality of application software, security of e-Governance system and ensuring quality of IT service delivery has been developed. The framework is based on the International Standards 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 has validated this model through testing of a number of e-Governance applications like Land Record Information System, Property Registration, and Treasuries Information System, etc.

e-Governance - MCA21 Project

STQC carried out Testing and audit of MCA 21 project of Ministry of Company Affairs for quality and security aspects. Based on the findings and recommendations of STQC, Empowered Committee of MCA21 project has given clearance for the project to go live.

Laboratory Services

Test and Calibration services are provided to SMEs, Government institutions, multinational industries and users in the areas of electronics and IT. To meet the growing demand of users, facilities have been upgraded in the area of EMI / EMC, safety, climatic, durability testing and high precision calibration. Special emphasis has been given to invest in the area of automation of test facilities to improve the customer satisfaction. Major achievements of some of the laboratories are as below:

ERTL (W), Mumbai has established the first NABL accredited facility in India for temperature calibration using fundamental principles of fixed-point cells. This facility offers uncertainties as low as 8mk to 3mk. Laboratory started providing highly accelerated life testing (HALT) evaluation services to improve product reliability at design stage to industries. Successful testing of patient monitoring system under medical category for European compliance of notified body NEMKO has resulted in export of medical product to Europe.

- ERTL (North), Delhi has established state of the art EMI / EMC test facilities which is fully functional. Industry has started utilizing this facility. The calibration facilities also has been enhanced. The lab has signed, on behalf of STQC, a service agreement with BHEL (PS-TS) for calibration of their standards at Corporate level for three years (at an estimated revenue of Rs 1 crore per year). The Lab has successfully participated in inter-laboratory proficiency testing program organized by NABL for AC power and energy measurements.

- ERTL (E), Kolkata has established facilities for testing of cable glands and self–ballasted lamps as per IS standards. A Test Report Format (TRF) for Single-Cap Fluorescent Lamp as per IEC/EN61199 was developed by the Laboratory, which was accepted under the international IEC EE-CB scheme. Laboratory has provided service to number of overseas clients and has generated revenue of Rs. 21 lakhs from overseas jobs. An on-site testing assignment (in USA) was successfully completed covering flameproof motors for a mine modernization project in India.

- ERTL (South), has started providing service to industry from its new premises at Akkulam, Thiruvananthapuram from January 2005. The building construction was completed with an operating area of 14,000 sq feet. Laboratory has established full-fledged facility for screening of surface mount devices and testing facility for medical electronics equipment. Laboratory has undertaken the testing and evaluation of power modules of launch vehicles of VSSC using the manual checkout system developed by the lab.

- ETDC, Chennai has acquired NABL accreditation in the area of electro-technical calibration, thermal calibration, mechanical calibration, electrical and electronics testing facility. The facility created for energy meter calibration and testing of dry cell batteries has also been utilized by the industries in Sri Lanka and Nepal. The lab has performed remarkably well during the year 2005-06.

- Center for Reliability (CFR), Chennai has been providing reliability and Failure analysis service to industry. Center is developing software package for reliability prediction, software testing and software reliability estimation for NPOL, Kochi. Center has also provided training support in this area to ISPAT industry, TVS Electronics, NIOT Chennai, etc.

- ETDC Hyderabad has tested Anti Collision Devices, Speed Control Systems, Ultrasonic Rail Tester, Unmanned Level Crossing ACDs developed for Indian Railways for their safety and EMI / EMC parameters.

- ETDC, Mohali has extended test facilities to cater to new requirements of DGS&D for UPS, projectors and ballasts. Medical electrical equipment (ECG machine, EEG machine and Treadmill) was tested as per IEC 601-1.

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. Clients served by STQC for certification services include Bharat Sanchar Nigam Ltd. (BSNL), ISRO, DRDO Laboratories, Telecom Training Centre, 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.

Training services

To upgrade the knowledge and skill of technical manpower in the country, a number of training courses have been designed and delivered. The body of knowledge of majority of course is aligned with international requirements and training courses are accredited internationally. During the year 2005, STQC through its training centers has conducted over 400 training courses covering over 1000 organizations and 8000 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 to provide trainings in the area of Quality Management, Quality Technology, Laboratory Management and Environmental Management. The International Registrar of Certified Auditors (IRCA), UK has recently accredited IIQM for conducting 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. With this accreditation STQC 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, and Test Engineering.

Centre for Reliability, Chennai has also conducted Certified Reliability Professional Training courses which have gained popularity.

STQC Overseas Services

STQC has also been providing overseas services in the areas of product safety inspection and certification, testing and calibration, training on quality

management system and IT services. These services have been provided to a number of organizations in various countries like Mauritius, Bangladesh, Sri Lanka USA, Germany, UAE, Qatar, etc.

Services in North East Region

In the North East region, STQC is providing the service to the industry through Electronic Test and Development Centres (ETDCs) established at Guwahati and Agartala. ETDC Guwahati is being developed as the main hub of STQC to serve the North-Eastern State. Following services are being provided by the center for the benefit of industries and organizations situated in all the seven states of North East Region

- State-of-the-art calibration and test facilities
- Clean energy testing
- Entrepreneurs development training courses for the benefit of young entrepreneurs in PC hardware maintenance and moving display manufacturing and others

ETDC Agartala is providing the following services

- Basic test and calibration services
- Electro-medical calibration
- Entrepreneurs development training programs for employment generation

Major customers include Oil and Natural Gas Corporation Ltd. (ONGC), Indian Oil Corporation Ltd. (IOCL), Numaligarh Refinery Ltd. (NRL), Bongaigaon Refinery and Petrochemicals Ltd. (BRPL), Oil India Ltd., North Eastern Electric Power Corporation Ltd. (NEEPCO), Airport Authority of India (AAI), Hindustan Lever Corporation, Maruti Services Stations, Coca Cola and other MSI, SSI units in the NE region.

Revenue Earning

STQC is a not aimed as a profit organization. STQC extends its services with the objective of providing international quality at affordable price. Special focus is on assisting small and medium enterprises. More than 10,000 organizations are utilizing the services. The customer base represents 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.

After the initial establishment and consolidation phase of STQC program, the revenue earning from STQC services has been growing steadily for past six years with an average annual growth of 30%. During 1999-2000 the revenue was 11 crore which has now grown to 35 crore during 2005-06. Presently, STQC has already reached cash point and is able to meet the revenue expenditure. The revenue generated by STQC is being deposited in Consolidated Fund of India.

For improvement in the revenue generation, strategies like achievement of professional excellence, customer focus and adoption of international norms and practices were adopted. Progress of the laboratories are benchmarked on monthly basis and intimated to all the officers and staff of STQC.

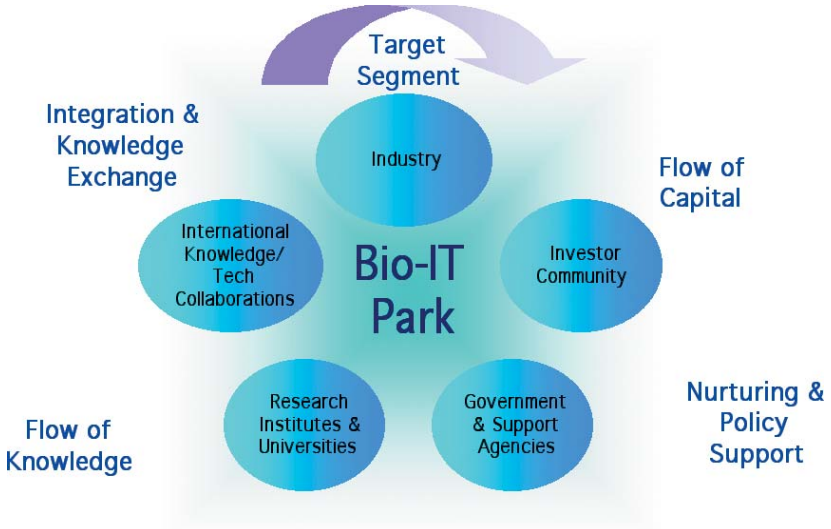
National Internet Exchange of India (NIXI)

National Internet Exchange of India has been set up 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 bandwidth cost and better security. Four Internet Exchange Nodes have been set up and operationalised 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 working out 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.

Setting up of Bio-IT Park

The 21st century has been acknowledged as the era of knowledge industries such as Information Technology (IT) and Life Sciences. Their momentousness is paving the way for the emergence of novel technologies and niche industry segments that would revolutionize the global business scenario. One such emerging industry is the 'Bio-IT' industry.

The Bio-IT sector, which represents application of IT in Life Sciences, is at a nascent stage in India. In an endeavor to promote the activities in this industry, the Department of Information Technology in conjunction with the Department of Bio Technology (DBT) intends to facilitate setting up of a state-of-the-art infrastructure in the form of a 'Bio-IT Park'. The



proposed park would address the IT related needs of the global life sciences industry and is expected to attract investments (both domestic and foreign) in the related areas.

With this objective, Indian Government has proposed for setting up Bio IT Parks at a total outlay of Rs. 95.82 crore over a period of five years to be implemented by Software Technology Parks of India (STPI) an autonomous body of under the aegis Department of Information Technology.

Bio-IT Park would be equipped with adequate infrastructure and facilities to provide the required/ desired services to its tenants.

It is proposed to provide the following facilities the tenants of the park

a. High end super computing facility
b. Wet lab facility
c. Data communications facility
d. Business Centre Services
e. National Resource Centre
   - Library (physical and virtual)
   - Connectivity with global bio-informatics/life sciences centre of excellence across the globe
   - Team of global knowledge stewards
   - IPR Facilitation cell
   - Networking and consulting services
f. Service apartments and recreational facility
g. Potential tenant group in the park
   - Global pharmaceutical companies
   - Drug discovery companies
   - Healthcare organizations
   - Contract Research companies (Pre clinical and clinical)
   - IT Software/tool companies
   - IT Hardware companies
   - Genomics and biotech companies

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Societies

Centre for Development of Advanced Computing (C-DAC)

The Centre for Development of Advanced Computing (C-DAC) has today emerged as the premier R&D organization in ICET (Information, Communication and Electronics Technologies) in the country working on strengthening national technological capabilities. C-DAC represents a unique facet working in close junction with Department of Information Technology to realize the nation's policy and programmatic interventions and initiatives in Information Technology. As an institution for high-end Research and Development (R&D), C-DAC has been at the forefront of the Information Technology (IT) revolution, constantly building capacities in emerging/enabling technologies and innovating and leveraging its expertise and skill sets to develop and deploy IT products and solutions for different sectors of the economy. Today, C-DAC has 14 R&D Labs in 10 locations in the nation, manned by a motivated workforce of about 2100 people.

Targets

During the year, C-DAC had focused on the following activities in its various R&D areas of operation:

- Developing competencies and deploying a Proof-of-Concept (PoC) grid computing facility across the country as a national initiative to aggregate distributed computing and data resources to support science and engineering research and solve national grand challenge problems in collaboration with over 40 premier national institutions; as also maintaining leadership in HPC.
- National roll-out of multilingual software tools and fonts through release of free CDs and undertaking R&D in emerging technologies as a national leader in multilingual computing technologies.

- Strengthening leadership in power electronics and associated areas.
- Developing Information security solutions with national leadership in selected areas of information security, such as Cyber Forensics.
- Establishing as a national expert in building GIS-enabled solutions and services.
- To undertake R&D in software technology and engineering with selective deployment.
- Developing advanced technologies in broadband and wireless communication.
- Developing products and solutions for better health care solutions in the nation.
- Building solutions and services for e-Governance and for bridging the Digital Divide.
- Training and building skilled human resources in advanced IT areas to serve the needs of the IT sector and also developing associated tools and technologies for IT enabled training and education.

These activities have been broadly classified and pursued under the following five areas :

- High Performance Computing and Grid Computing
- Multilingual Computing and Allied Areas
- Software Technologies
- Electronics
- Education and Training

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

High Performance Computing and Grid Computing

C-DAC, having been set up as India's National Initiative for the development of indigenous supercomputing technology, has played a pioneering role in the development and deployment of the PARAM series of supercomputers. PARAM Padma, with a peak performance of one teraflop, is the latest in this series and is housed at C-DAC's TeraScale Supercomputing Facility (CTSF) at C-DAC, Knowledge Park, Bangalore. The usage of PARAM Padma has been gradually increasing with more and more users from both industry and academia using it for their HPC applications. A configuration of PARAM Padma has also been installed at NCMRWF for their dedicated usage in atmospheric science applications. In furtherance of its activities in development of technologies and solutions for High Performance Computing, C-DAC has identified Grid Computing as a major thrust area. In line with the above mandate, it has now initiated the Garuda National Grid Computing Initiative.

In the area of Grid Computing, C-DAC is building and deploying a distributed computing capability, initially across selected centres in the country over a high capacity network. The capability will progressively aggregate terascale clusters, hundreds of terabytes of storage archives, a 10 Gbps network and data management software and Grid computing technologies. The connectivity will enable sharing of data, algorithms and research outputs in real time. The focus will be on developing application software through the establishment of a Grid Strategic User Group that will drive the usage of the Grid by multiple users across the country.

C-DAC proposes development of critical capabilities using technologies that are important to the socio-economic growth through a visionary role and proactive support from the Government and involvement of premier institutions at a national level.

Significant activities carried out during the year in the area of High Performance and Grid Computing include the following:

- Communication fabric is being rolled out to the 17 locations with 100/10 Mbps access network for 45 institutes, the implementation being executed in collaboration with ERNET.
- The first Garuda Partner's meet was held at Bangalore in December, 2005. Nearly 56 members participated in the meet and discussed on collaboration in Grid Computing covering technologies, resources and applications.
- The Garuda website www.garudaindia.in was formally launched at the Grid Partner's meet.
- Prototype model for the Genome Grid for Smith Waterman algorithm has been tested.
- Moab Scheduler from Cluster Resources is being deployed as the Grid Scheduler for the Garuda Test Bed. Storage Resource Broker (SRB) from Nirvana is being deployed for the Data Grid functionality of the Grid.
- The Grid Monitoring and Management Centre

(GMMC) at C-DAC, Bangalore is being set-up. State-of-the-art display wall and advanced software developed at C-DAC, Pune, like paryaveekshanam have been deployed at the operation centre.

- Implementation and Engineering of GRID tools, Middleware, Reconfigurable Computing Systems (RCS) and System Area Networks for clusters are under progress. 8 nodes testing of 5Gbps SAN has been completed. RCS for Bio-informatics and Cryptanalysis are under progress.
- Garuda Access portal has been released. Problem Solving Environments (PSE) for Bioinformatics, Community Atmosphere Model and Cryptanalysis are under progress.
- Simulation of the Garuda Communication fabric is under progress to understand the behavior of the network for various traffic profiles. Base model has been developed.
- Setting up of Grid Labs at Pune, Bangalore and Hyderabad centres of C-DAC is under progress. Linux clusters at Pune, Hyderabad and Chennai are being installed.
- Total 45 research and academic centres are participating in Garuda. In addition IGIB, Delhi, PEC, Chandigarh and TIFR have recently joined.
- Software Interfaces based on UDAPL is under progress.
- Design of SAN @ 10Gbps PCI Express 8x including C-DAC's Communication Coprocessor, CCP-IV (Gemini), is in progress.
- Design and Development of Bit Error Rate Tester (BERT) for 10 Gbps Link Evaluation with VirtexII Pro-X devices is under progress.

Multilingual Computing and Allied Areas

Computer technology in India has both a developmental as well as a social role. In its developmental role, it is concerned with the design and development of newer technologies for various applications. In its social role, it breaks the language barrier and bridges the gap between the various sections of the society through easier access to information using their respective mother tongues or local languages. Language here has a major role to play and, therefore, language computing becomes central to the exchange of information across speakers of various languages. India is a multilingual country with as many as 22 official languages and only 5% of the population is able to understand English. Therefore, any language computing solution provided for a language will have to be provided for all or most other languages too.

Language computing, therefore, faces two major challenges – first, the development of appropriate language tools and technologies for its total language computing needs and secondly the multiplicity of Indian languages with different scripts, dictions and styles, each vying for a place in the computing roadmap. The ultimate goal of multilingual computing is to ensure that the technology reaches the common man at his doorstep in his own native tongue so that he feels more at home working with the new technology. This in turn will facilitate his active involvement in the whole process of social and economic advancement that the new technology is expected to bring about.

In Multilingual Computing and Allied Areas, C-DAC continues to work towards the design, development and deployment of technologies/solutions for the following :

- Machine Assisted Translation (MAT) systems
- Automatic Speech Recognition (ASR) systems
- Text-to-Speech (TTS) systems
- Optical Character Recognition (OCR) systems
- Fonts (TTF and OTF) for Indian Languages
- Other Multilingual tools such as data processing tools, information extraction and retrieval tools, dictionaries, spell-checkers and grammar-checkers, etc.

Significant achievements during the year in multilingual computing and allied areas include the following :

- Tamil CD was released on April 15, 2005 at the hands of Dr. Kalaignar M. Karunanidhi.

- Hindi CD was released on June 20, 2005 at the hands of Smt. Sonia Gandhi, Chairperson, National Advisory Council (NAC).
- Telugu CD was released on October 28, 2005 by Dr. Y. S. Rajasekhara Reddy, Chief Minister of Andhra Pradesh.
- Punjabi and Urdu CDs are ready for release.
- Significant progress has been made towards making other Indian language CDs and are ready for release. They have typically included Open Type Fonts for various languages including Hindi, Marathi, Tamil, Telugu, Punjabi, Urdu and Nastaliq.
- OCR tools for Hindi and Marathi have been put in public domain by way of Hindi CD launch
- Urdu spellchecker prototype is ready and has been included in the Nashir product.
- Urdu dictionaries for the admin, technical and general domain is ready and integrated in the Nashir product.
- Hindi dictionary for general domain has been completed.
- TTS Version 1.0 has been completed.
- Local language BharaateeyaOO.o (Open Office) for all the languages progressively apart from Firefox browser and E-mail massager.

Electronics

Power Electronics, Agro-electronics, Real Time Systems, Embedded Systems, Broadband, Wireless and Internet Technologies and VLSI Design

Initiatives in the areas of Power Electronics, Agro-electronics, Real Time Systems, Embedded Systems and VLSI Design are targeted towards realizing the mission to make India a global player in the power electronics technology and to convert India's competitive advantage in agriculture and information technology to the prosperity of our farming community. In the area of power electronics, the technology development efforts are focused towards designing of tools and components for power distribution, troubleshooting, power supply modules, energy meters, remote inspection devices, etc. On the other hand, in the area of agro-electronics, the technology development efforts are focused towards development of tools for online, real-time quality estimation of food and agro products and automation of post-harvest processing of these products. Other initiatives in the areas of Real-time Systems, Embedded Systems and VLSI Design include sensors and sensor networks, embedded systems for multilingual and industrial applications and next-generation controllers.

Significant achievements made during the year in this area include the following:

- National Centre for Power Electronics and Systems was set up at C-DAC, Thiruvananthapuram.
- Hand portable TETRA Digital Mobile Radio with voice data and direct mode capabilities was developed.
- ASIC core was developed and delivered to BARC.
- Development of second prototype of liquid level sensor has been completed and tested.
- Device drivers for CAN based intelligent controller has been completed.
- Preliminary work on proof of concept of land mine detector has been initiated. Testpit has been made and possible detection methods are being validated.
- Power Consumption Monitoring System was implemented at Bhilai Steel Plant.
- Development of Universal Serial Bus IP Core has been completed.
- Development of Intelligent Solar Photovoltaic installations has been completed.
- A two Processors Board for Bio-Medical Instrumentation applications was developed.
- Prototype of a system for intercepting the Voice over IP traffic (VoIP) on the Internet has been developed. The interception system provides administrative control to capture, monitor and interpret voice data packet traffic over major carrier links of ISP / ITSP, and is compatible with H323 and SIP protocols and G723, G729 and G711 speech codecs.
- Under the New Millennium Initiative for Technology Leadership of India (NMITLI) scheme of the CSIR, C-DAC and DiviNet Access Technologies Ltd initiated a joint project for Development of a Globally Competitive Triple-Play Broadband Technology. This project is a unique example of Public-Private Partnership (PPP) and makes a compelling case for technology

development initiative to accomplish India's leadership in truly 'triple-play' broadband technology for providing video-voice-data based services.

Software Technologies

The focus of this R&D area is to nurture the skills of Indian software professionals. In this area, C-DAC not only plans to develop complex and successful software systems in its various domains of expertise, but also plans to develop technologies for building reliable software systems at faster pace. In particular, C-DAC plans to focus on the design, development and deployment of the following technologies / solutions in this area:

- Software localization
- Web services
- Open Source Software (OSS)
- Software engineering tools
- Cyber Security
- Geomatics
- Health Informatics
- e-Governance and allied ICT applications.

Significant achievements made during the year in this area include the following :

- National Resource Centre (NRC) for Free and Open Source Software (FOSS) has been set up in Chennai jointly with Anna University-K B Chandrashekhar (AU-KBC) centre.
- FOSS based tools and applications have been developed and put into initial use (e-learning, e-governance, SOA framework, open office, browser and mail agent for Indian Languages).
- Infrastructure for Linux standards base development, testing and certification and work on progressive aggregation of tools for various applications is in progress for Indian distribution.
- C-DAC served as consultant for the implementation of the DIAMOND project in Kerala and the entire infrastructure is being managed by C-DAC. This infrastructure was used by the Kerala State Election Commission for the online processing of the result of Kerala local bodies election.
- C-DAC's telemedicine product (Mercury) was deployed in North East, Himachal Pradesh, Orissa and Kerala. The Chief Minister of Mizoram, Shri Pu Zoramthanga, inaugurated the telemedicine Centre at Civil Hospital, Aizwal, Mizoram on October 7, 2005.
- C-DAC's Telemedicine product (Sanjeevani) was deployed in several locations in North India.
- C-DAC also launched the Kannur nodal centre of the Regional Cancer Centre (RCC), Thiruvananthapuram and cancer care for the rural masses.
- In Cyber Security, C-DAC designed, developed and deployed solutions and systems for Cyber Forensics, Adaptive Intrusion Detection, Event Tracking, Networks and Systems Security and Web Services security. The Network Security Concept Laboratory at C-DAC, Hyderabad has developed a transparent security solution integrated into the TCP/IP implementations of the Windows and Linux operating systems. This solution has been deployed at the National Informatics Centre (NIC) and Weapons and Electronics Systems Engineering Establishment (WESEE).
- The Hospital Information System (HIS) of C-DAC was customized and deployed at Mahatma Gandhi Hospital in Wardha. Its implementation at over 20 hospitals in Delhi has also commenced.
- Significant progress was made towards the development and testing of Ayusoft – a decision support system which backs up an ayurvedic physician by providing statistical probability of a certain disease when compared to other aliments. The software helps physicians make accurate decisions while identifying a disease and giving treatment; and enabling the physician to do a thorough analysis, taking into account multiple factors according to the ayurvedic principles that operate behind each ailment.
- Several software products for addressing digital divide (Vyapar, ECKO, Vartalaap, CMS4C, etc.) were developed and deployed.
- C-DAC also developed and deployed Portfolio Management System (Asset Analytics), Vehicle

Tracking and Information System (VTIS) in two Maharashtra State Road Transport Corporation (MSRTC) buses along the Pune-Nashik route.

- C-DAC has released Indix2 enabled with 12 languages and made available for free download. Also RaghuHindi was released in General Public License (GPL).
- C-DAC released a Janabhaaratii CD with mathematical packages in a Mathematics seminar during January 13-14, 2006 at Sathaye College, Mumbai. Also the first e-book in Marathi with contents written using indix2/janabhaaratii (Linux platform) was released on January 28, 2006.
- C-DAC, Pune received the first prize in the category of Human Resources Development for IT in the Maharashtra State IT Award 2005. C-DAC was also a recipient of the CSI Nihilent e-Governance Awards for the Best overall e-Governance Project in the country for its KAVERI (Karnataka Valuation and E-Registration) project.

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).

C-DAC also introduced new formal high-end training programmes including M.Tech in Information Technology, M.Tech in VLSI Design, M.Tech in Computer Science and Engineering. Several short-term courses were also conducted by C-DAC, Mohali for International students, in which members from several developing countries participated.

C-DAC launched its e-learning product "e-Sikshak" at ELITEX 2005 and subsequently used it for offering e-Learning training programmes on Cyber Security and Software Process Management.

Software Technology Parks of India (STPI)

Introduction

The Software Technology Parks of India objective has been to promote software exports from the country by providing 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.

STPI provides datacom services specifically to the software exports industry. Provisioning of this service has seen a gradual shift from onsite software development to offshore software development. At a time when the telecom connectivity in the country was not so good, STPI provided the necessary technical infrastructure for the software exports by installing satellite gateways for international connectivity. To overcome the last mile problem and to maximize uptime, STPI has provisioned radio connectivity for the last mile. Over the years, STPI's major revenue source has been its datacom services. STPI has one of the largest bases of satellite gateways. During the year, STPI has commissioned its new centres at Jammu (Jammu and Kashmir), Jodhpur (Rajasthan) and Siliguri (West Bengal). With the additional of these four new centres, STPI now has 47 centres across the country.

STPI also provides 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. 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

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 and

International Internet bandwidth Service providers. STPI provides worldwide connectivity for its software export units and is radiating more than 400 MBPS. Besides Satellite communication, STPI has 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 with attractive tariff. 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.

Performance of STP Units

STP Scheme, which is a 100% export oriented scheme, has attracted many entrepreneurs in the area of software and services. A total number of 6129 units are operational and 4088 units are exporting as on 31 December 2005.

Exports

The STP scheme has been widely successful and the exports made by STP units have grown manifold over the years. Today the exports by STPI registered units are more than 95% of the total software exports from the country.

Member units of STPI have exported software of over Rs 74,019 crore during the year 2004-05. The software exports is estimated to be around Rs 95,000* crore during the year 2005-06.

Activities in STPI Centres

STPI - Bangalore

STPI-Bangalore has been providing Consultancy and Project Management services to various national and international organizations in the areas of Communication Networks, Network Operations Centres, Network Management Systems, e-Governance networks, etc. The technology capability coupled with process strengths has enabled STPI-Bangalore to bag many projects on a continuous basis.

KhajaneNET - KhajaneNET is the project undertaken by Government of Karnataka aimed at electronically interconnecting all the Treasuries across the State of Karnataka. The Treasuries are interconnected over a VSAT Network with the hub at Bangalore. STPI-Bangalore provided consultancy services in design and implementation of the VSAT network and managing operations and maintenance services.

TerigeNET - TerigeNET project was undertaken to interconnect various offices of the Department of Commercial Taxes across the State of Karnataka for implementation of e-governance. STPI- Bangalore provided consultancy services in design and implementation of the VSAT network and operations and maintenance services.

BHOOMI Project : This project envisages networking of 203 offices of Revenue Department across the State of Karnataka and electronically processing the land records and revenue transactions. STPI-Bangalore provided consultancy and project management services in establishing VSAT network as well as operations and maintenance works.

Data Centre for Department of Municipal Administration: STPI-Bangalore has been chosen by the Department of Municipal Administration, Government of Karnataka for providing consultancy services in building a Data Centre and Wide Area Network for connecting Urban Local Bodies across the State of Karnataka.

NIC, New Delhi: STPI- Bangalore has been providing consultancy and project management service to National Informatics Centre, New Delhi for various projects. STPI- Bangalore has built an Integrated Network Management System and a state-of-the-art Network Operations Centre for NIC at New Delhi to monitor NIC's national network called NICNET, which has over 1700 nodes across the country. STPI-Bangalore has provided services in implementing infrastructure for the Data Centre, GIS Lab and various regional centres of NIC. STPI has also provided services in building a Storage Resources Management System for NIC's Storage Area Network.

Bangalore IT. In

STPI-Bangalore organized Asia's largest IT and Telecom event, Bangalore IT.Com 2005, an initiative of the Karnataka Government in partnership with Software Technology Parks of India, Bangalore. STPI has taken a major role in organizing this mega event. About 195 companies from 15 countries participated in the event; around 1,15,000 general visitors and 40,000 business visitors visited the event during the year.

STPI- Bangalore also played a very active role in the formation of Indian Semiconductors Industry Association (ISA).

STPI-Maharashtra

- STPI-Mumbai participated in Pravasi Bharti 2005, an important event specially conducted for Non Resident Indians. STPI highlighted the initiatives of the Department of Information Technology for development of the software and hardware sectors.
- STPI-Mumbai conducted a programme through a US-based organization to provide an overview of changes in the procedures for issue of Visas to United States. Nearly 75 STP units and a large number of students attended.
- STPI- Mumbai organized a seminar on Transfer Pricing. Various regulations and implications of Transfer Pricing were explained and discussed. More than 100 delegates participated in the seminar.
- STPI-Aurangabad participated in a conference on 'Opportunities in ITES' hosted by the Software Industries Association of Aurangabad.
- Open House meetings with the industry were conducted in Mumbai, Pune, Aurangabad, Nagpur and Nasik..

STPI-Chennai

- STPI-Chennai organised a Technology Trends seminar in association with a US-based firm on effectively tackling business and technology challenges with special focus on tools and technologies for VoIP contact centres solutions in ASP model. Around 55 companies participated.
- STPI- Chennai organized a seminar on Insurance Coverage for IT and ITES companies in association with Export Credit Guarantee Corporation of India Ltd (ECGC), which has brought out a separate policy for the IT sector providing credit insurance against billed payments. The programme was attended by 60 SMEs at Chennai.
- STPI- Chennai has encouraged/nurtured the following Consortia/Fora to help leverage business growth and enable companies to come together and inculcate good business practices and enhance manpower resources:
  - **'Camelot'**, a consortium of six SME Technology companies;
  - **`e-Mitraa IT Services P. Ltd.'**, a consortium of Medical Transcription companies in Chennai;
  - **`e-LiPi',** a Consortium /alliance of 10 e-publishing companies in Chennai;
  - **`Embeded Forum'**, a forum of IT companies in embedded technology to facilitate interface with the Technology Industry, Institutes, Professionals and Students and to build an embedded community to make India a leading embedded design hub.
- STPI- Chennai has enabled an MoU between the consortium companies and the educational institutions (Arts and Science) in Tier-II cities. Various programs have been organized in Trichy, Namakkal, Thiruchencode and Pudukotai for selection and training of students. STPI oversees the quality and delivery of the programme and acts as a bridge between industry and academia.
- STPI- Chennai has supported creation of a Women IT Professionals Forum to help enhance the career growth prospects of women in the IT industry.
- STPI- Chennai has fostered the growth of a cluster of 13 Engineering Colleges in backward areas of Tamil Nadu. The College Principals and Heads of Departments of Computer Science and IT have been networked for enhancing their skill levels and enabling project work.

STPI-Noida

- Initiative on Small and Medium Enterprises : STPI Noida has taken a lead role in promoting the Software Industry units that are tiny and SME. Following steps are taken in this regard:
  - IPR Cell for SMEs
  - Seminar on SMEs for new growth model
  - Trade Net Portal for SMEs

- STPI- Noida has pioneered the concept of Business Incubators in the country. Our Plug and Play Offices are targeted at SMEs that need startup assistance. These Incubation facilities offer excellent facilities at very attractive rates. STPI provide world-class infrastructure support to SMEs in the form of Plug and Play styled, ready to use Office space. Incubation facilities have been established at Jaipur, Mohali, Bhilai, Dehradun and Shimla.

STPI-Bhubaneswar

- STPI- Bhubaneswar conducted a Seminar on 'ISO awareness for IT Industries' in the association of DNV with the objective of enabling IT exporting units to raise quality on par with global standards. Forty STP units and senior officials of the State IT department participated.
- STPI- Bhubaneshwar has created a new Incubation facility at Fortune Towers comprising an area of 4000 sq. ft. built up space with state-of-the-art facilities for SMEs.

Project Management and Consultancy: International Projects

- Exploring Opportunities for the Cooperation in the IT Sector between India and Cyprus : The Director General of STPI made a presentation on "Exploring Opportunities for the Cooperation in the IT Sector between India and Cyprus" on 8 January 2004 in Cyprus. With the Government of Cyprus evincing keen interest in establishing a Software Technology Park, STPI prepared and submitted a pre-feasibility study on setting up a state-of-the-art Software Technology Park at Cyprus.
- Setting of up of an IT Park in Ivory Coast : Inspired by the STPI
- , the Government of Ivory Coast has expressed the desire to replicate the STPI model for promotion of IT export in that country. In order to provide the necessary guidance, STPI deputed a senior officer to the Government of Ivory Coast for a period of three months under the ITEC programme.

National Internet Exchange of India (NIXI)

National Internet Exchange of India has been set up 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 bandwidth cost and better security. Four Internet Exchange Nodes have been set up and operationalized 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 working out 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.

Society for Applied Microwave Electronics Engineering and Research (SAMEER)

SAMEER is engaged in growth of science and technology of microwave electronics and allied areas. It is aimed through a) Intensive research, design, development, training of manpower and setting up of facilities for national progress, b) Encouragement and promotion of the development and progress of microwave electronics for self-reliance in the country, c) research and development, education, industrial and commercial applications and d) working for wider utilization of microwave technology and products in the society. All three centres of SAMEER, located at Mumbai, Chennai and Kolkata, are constantly striving to fulfill the above objectives.

In a span of twenty years, SAMEER has established itself as one of the leading R&D institutions in microwave electronics in India. In its pursuit of excellence, SAMEER has successfully collaborated with national and international institutions, research laboratories, professional organizations and private industries. The thrust of SAMEER has been to develop technology and professional grade customized products using advanced technology that serve as import substitution leading to reduction of foreign dependence.

SAMEER has been involved in Research and Development of Medical Linear Accelerators, Communications, High Power RF and Microwave Systems, Photonics, EMI-EMC, Thermal engineering, Antenna and mm-wave technology. SAMEER's exposure to multi-disciplinary activities have led to the development of several state-of-the-art systems/products many of which are achieved for the first time in the country.

Achievements during the year 2005-06

- The CE marking project for the establishment and augmentation of EMI/EMC facilities has been successfully completed at all the three centres of

SAMEER in Chennai, Mumbai and Kolkata. SAMEER has thus expanded its reach from Southern India to the Western and Eastern parts of the country through its EMC Laboratory test and design consultancy facilities.

- Chennai centre has successfully completed establishment of a 10 meter ferrite tiled semi anechoic chamber for EMI measurements as per CE requirement. This is the first of its kind in India and third in South East Asia. The facility was dedicated to the nation on 26 July 2005 by Dr. Kalaingnar M. Karunanidhi, former Chief Minister of Tamilnadu. This facility will help electronic equipment manufacturers not only in India but also in South East Asia to qualify their products for European market.
- Application specific data communication transceiver for very reliable applications was developed and after satisfactory field trials, the product has been identified for large-scale manufacturing.
- A novel printed circuit reflect array antenna concept was developed which would find immediate application in realization of low weight and easy manufacturability of high performance antennas for line of sight communications.
- **IEC Standard Safely Compliance of 6 MV Medical Linac:** The 6 MV Medical Linac, Siddharth-1, has been certified for compliance with electrical safety standard IEC 60601-1-1 and 60601-1-4 by Electronics Regional Test Laboratory (South), Thiruvananthapuram. The process started by giving electrical block diagram, functional block diagram of the complete machine, details of the voltages and currents involved at various stages of machine operation, as well as non-electrical potential hazards of the machine. The testing involved stepwise investigation of the machine and insulation testing. In the second part, the computerized controls were assessed on the basis of the information provided by design team and certified for safety of programmable electrical medical systems.
- **Phased Array SODAR for ADE, Bangalore:** SAMEER developed a Phased Array Sodar system, which typically gives wind profiles up to 500 meters with height resolution of 25 meters for Aeronautical Development Establishment, Bangalore. The maximum wind speed it can measure is 30 m/s. This system was designed, developed and fabricated in SAMEER. It makes use of special antenna and acoustic enclosure design for clutter suppression as well as for protection from rain. The system was delivered and installed at ADE campus in September 2005.
- Frequency hopping and Time division multiplex communication system was developed and offered to two national agencies for use in their specific applications.
- **Software for Auto Computation System for Mark-IV Radiosonde:** SAMEER had earlier installed Auto-computation System for the computation for mark-IV radiosonde at 32 locations all over India. India Meteorological Department (IMD) takes these observations regularly for upper air monitoring. During this year, SAMEER has released final version of data computation software and trained IMD personnel for operation of the equipment. All the systems are in regular operation and the data is generated in internationally accepted format.
- **Digital Signature Security** (DSS) with Advanced Encryption Standard (AES) was developed and demonstrated to potential user agencies.
- **AMC of Windprofiler/ RASS:** SAMEER had earlier installed a UHF Wind Profiler and RASS system at IMD Pashan campus, Pune in 2002. This radar system, capable of measuring wind speeds up to a height of 10-12 km and temperatures up to about 3 km height, has been maintained for last three years by SAMEER under an AMC. In addition to providing routine preventive maintenance, SAMEER has supported special experiments conducted by IIT, Madras scientists during monsoon period by operating the system round-the-clock during the campaign period. Efforts were made to keep the 'system down time' to minimum. The data, collected daily, is being archived by Data Centre at Indian Institute of Tropical Meteorology, Pune.
- **Hand Held Data logger for Pilot Balloons:** Periodic wind profile measurements are carried out by IMD with the help of `Pilot Balloon'. This

balloon is tracked and the wind velocity is computed with this tracking information. SAMEER has developed `Hand held data loggers' for acquisitions and computation of pibal data. Three prototype units were developed and the performance was demonstrated to IMD and operational training was conducted for the user staff of IMD.

- **Delivery of L-band Sector Coverage Antenna:** A specially designed microstrip array antenna has been developed to provide sector pattern coverage at L- band. Engineering models of the antennas have been fabricated and tested meeting all specifications. Four numbers of antennas have been delivered to user agency.
- **Maintenance of Lighthouse Automation System:** SAMEER had earlier commissioned automation system in the 42 Lighthouses along the coastline of Saurashtra and Kuchachh. This system facilitates complete automation of Lighthouse operations. It also provides remote monitoring and control facility. The data and command transfer is done through UHF data communication network. This project was funded by the Department of Lighthouses and Lightships, Ministry of Shipping. During the year 2005-06, SAMEER has carried out maintenance of the system at site. Round the clock operation and monitoring of all the 42 Lighthouses was ensured by systematic checks and prompt technical support.
- **Synthesis of Laser Materials:** The first successful GaAs/AlGaAs double heterostructure laser diode structure was grown using molecular beam epitaxy system. The lasing wavelength measured is at ~ 885nm. The threshold current density is of the order of 3-4 kA/cm2. This work is a significant milestone in the MBE activity at SAMEER.
- A high power, broad beam width antenna consisting of crossed folded dipoles over wire ground plane fed by a 3 dB hybrid coupler at 53 MHz. has been successfully developed and installed for Space Domain Interferometer (SDI) programme of National Atmospheric Research Laboratory (NARL) ISRO at Gadanki, Tirupati.
- A microwave-processing unit with 3 kW output power has been successfully designed, developed and installed at Indian Agriculture Research Centre (IARI), New Delhi for the application of food processing.
- A 1.5 kW microwave heating system with cylindrical applicator was designed, developed and commissioned in research centre of Sterilite (Hindustan Zinc Ltd), Udaipur for experimentations on zinc ore.
- Three low capacity (~10 litres) microwave disinfection system MICROMAX-10 have been designed and built. Two units have already been installed in ITC hospitals, one each at Saharanpur and Mungher. Third unit has been at SAMEER for further experimentation.
- New configurations of semicircular micostrip antenna (MSA) with half U slot have been developed and tested for GSM/PCN band applications in mind. Another new multi layered circular micostrip antenna (CMSA) configuration has been designed and tested for broad/dual band applications. This work has been accepted by MOTL, John Wily Publications, Texas, USA.

Projects continued/initiated

- A 6 MeV Medical Linac Machine (JV-2), scheduled for installation at Adyar Hospital, Chennai in April 2006, is in its final stages of integration and testing.
- **Establishment of Linac Infrastructure Facility:** In the next few years, SAMEER is expected to build several new Linac machines for cancer therapy. Moreover, spare Linac tubes are also to be made available for continuous operation of the existing machines. To meet the above commitment in time, it has been decided to augment the infrastructure for processing of linac tubes, assembly and integration of linac subassemblies and testing the same at high energy levels inside radiation shielded rooms. The Department of Information Technology in November 2005 has sanctioned a project of three-year duration in which the infrastructure for the batch fabrication will be established and the first medical linac machine will be designed and tested at the Kharghar, Navi Mumbai campus of SAMEER. Activities on the project have already commenced and necessary steps for constructing the radiation-shielded building have been taken.
- Estimation of Precipitable Water Vapour with GPS: Precipitable water in the atmosphere induces delay in GPS signals. Accurate measurement of these delays lead to estimation of total precipitable water given geographical region.

SAMEER has taken up a sponsored project from the Department of Science and Technology (DST) for the software development. The computation of propagation delays is completed. The estimation of water will be completed by July 2006.

- Development of RF Dryer for Food Processing: Radio frequency drying is a novel technology for food processing. SAMEER has taken up a sponsored project from the Ministry of Food Process Industries (MFPI) to develop and install a 15 KW RF process drying unit at Laxminarayan Institute of Technology (LIT), Nagpur.
- Development of Radio Theodolite at 1680 MHz: The Radio Theodolite (RT) units are used for regular monitoring of the upper atmosphere. Anticipating requirement of such equipment in the country, SAMEER has taken up the development of a Radio Theodolite unit at 1680 MHz. This unit shall have all the advanced features like automatic balloon tracking and frequency tracking. The unit will also have state of art computing facilities and GUI.
- Automation of Lighthouses in Andaman-Nicobar Islands and Mumbai Region: With the experience of successful commissioning of automation system in Gujarat, SAMEER has configured an automation system for the Lighthouses in Andaman-Nicobar and Mumbai region. The proposed scheme uses satellite data network for communication and control.
- Microwave Disinfection System for Hospital Waste: Under the second phase of the MOU with Thermax Ltd., one unit fabricated by Thermax has been characterised and tested by SAMEER. Under this activity, Thermax Ltd. produces and markets microwave disinfection systems built with technical know-how from SAMEER.
- Microwave Heating/Drying Activities: Collaborative work with Hitech Engineers a new cylindrical applicator, fabricated and tested at SAMEER, will be taken to the ONGC platform in Bombay High, for the experimentation in oil separation from slurry. Preliminary results are encouraging and more experiments are being planned.
- Under an MOU with Sterilite Industries, one project is being implemented on the design and development of a 15 kW microwave system for use with the production unit for zinc extraction.
- Establishment of Compact Antenna Test Range (CATR): Accurate antenna performance evaluations during design and production stages are very important to ensure functional performance in the intended application. Compact Antenna Test Range (CATR) is a controlled environment antenna test range where characterization of antenna parameters like radiation pattern, antenna gain, polarization, detailed analysis of side-lobe level and front to back ratio, cross-polarization, cross-over details of tracking antenna, etc., can be carried out faithfully, without the perturbation effect of atmospheric variation, electromagnetic interference and all other man-made/natural disturbances, which might otherwise affect the measured characteristics of antenna under test.
- Project on Packaging of Photonic Devices: The project on Packaging of Photonic Devices is in progress. A laser weld system for pigtailing of laser diodes was ordered with Electronic Laser Systems (ELS), Germany. This equipment would be delivered in March 2006. JDS Uniphase Passive Optical Component Reliability and Environmental Test System and Vibration Test system from Saraswati Dynamics were commissioned. Integrated Optic 1x8 power splitters, fiber pigtailed and packaged in our laboratory were tested and found to meet Telcordia GR1209 test criteria of temperature cycling of the device (-40 to +85 0C, >100hrs). The variation in insertion loss and return loss is <0.1dB.
- Polymer Waveguides: This internal activity was initiated in April 2005. The scope of the work is to fabricate and characterize channel waveguides @ 1310 /1550nm and to develop a functional device. Polymer waveguides made using epoxy resins (NOA 68 or WR 509) as core layer and PMMA as cladding layer were found to be guiding at visible and near IR wavelengths with a propagation loss of 3.5dB/cm and waveguides with SU-8 as core layer was found to have propagation loss of 3dB/cm at 1310 nm.
- Establishment of Millimeter Wave Technology Centre: Millimeter wave technology is a fast emerging and highly promising technology area of immense importance for wide application. Presently, millimeter wave work is being carried out within the country in a very limited way. In order to facilitate indigenous design and development of critical mm-wave components

and subsystems, SAMEER will take up a project to establish a full fledged mm-wave design, test and measurement centre. This will help create a facility for design, test simulation, fabrication and measurement at mm-wave frequencies under one roof.

DOEACC

DOEACC Society has been established to carry out human resource development and related activities in the areas of Information, Electronics and Communication Technology to help maintain and further build up India's lead in these sectors.

Objectives of the Society include:

- To generate quality manpower and develop skilled professionals in the field of Information, Electronics and Communications Technology (IECT) and allied areas, by providing world-class education and training and accreditation services.
- To provide continuing support to learners and trainers through active design and development of innovative curricula and acquisition of content aligned with the dynamically changing IECT scenario.
- To establish a quality system of examination and certification that is globally recognized and provides a fair assessment of the competency of students.
- To continue to implement the DOEACC scheme for computer courses, jointly developed by AICTE and DIT in the Non-formal sector of IT education and training.
- To establish standards in the areas of IECT and to develop markets in the emerging areas.
- To develop entrepreneurs and provide IECT based services to users.
- To encourage and nurture industry academic interaction through inter-disciplinary cooperation amongst Scientists, Technocrats, Administrators and Entrepreneurs and thereby ensure the implementation of technological trends in Academic Institutions, Centre and State Government, Industrial, Commercial and Research and Development organizations.

e-Governance implementation in DOEACC

DOEACC Society has been practicing e-Governance for both its internal as well as external clients. The Society has already computerized its internal processes for data processing such as processing of students registration and examination application forms; processing of results; processing of application for accreditation, etc.

A new website of DOEACC (www.doeacc.org.in, www.doeacc.edu.in) was made operational in October 2005 based on open source JAVA. The website has made provisions for students and institutes to view the details of examination, time table, examination venues, admit card details, examination roll numbers and examination results. Besides, norms for DOEACC accreditation, the Rating status of the accredited institutes and the detailed list of accredited institutes are also available on the website with provisions for users to query the details of institutes on location basis. A facility for development of a database on the employment status of DOEACC qualifiers is also available at the DOEACC website.

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 up-dation 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 2005-06, 18757 candidates were registered for various level of courses bringing a total number of students registered for various levels of courses to 5,25,388 as on December 31, 2005.

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 2005-2006 (December, 2005) 103 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.

Self-sustainability - Efforts made vis-à-vis Performance Indicators

Erstwhile CEDTI Centres have been 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. Some 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.

DOEACC Centres (erstwhile RCCs) at Kolkata and Chandigarh have been engaged in activities relating to IT education and training, data processing, software development and consultancy projects. Courses affiliated to various Universities are also being offered.

The Society is making all the efforts to make all the centres financially self-sustainable for increasing the revenue generation with a view that each centre should become financially self-sustainable. These steps interalia include:

- Increasing the intake capacity of Long Term Courses.
- Launching of specialized courses in areas such as VLSI Design and Embedded Systems.
- Introducing courses in emerging areas i.e., Bio-Informatics, Computer Hardware and Networking, Information Security, Animation and Multimedia, etc.
- Upgradation of laboratory facilities in the emerging areas i.e., VLSI Design, Embedded Systems, Multimedia CAD/CAM, etc.
- Furnishing of laboratories of IT training at par with industry requirements.
- Effective utilization of existing staff by retraining in emerging areas wherever possible and increasing the productivity.
- To obtain financial support of IECT Projects from other sources.

The Society has developed, a set of Performance Indicators, for performance evaluation criteria for DOEACC Society and its Centres. Accordingly, the performance of its Centres and the Society as a whole is proposed to be evaluated on the basis of these various parameters on financial and physical performance.

DOEACC Scheme for SC/ST/OBC/Female/Physically Handicapped and other Economically Weaker Sections

The DOEACC Society is contributing towards upliftment of under privileged sections of the Society by encouraging women, SC/ST and other economically weaker sections candidates to undergo the Society's courses. The Society has got a large number of candidates belonging to the SC/ST/OBC and other weaker sections of the society including female candidates enrolled and qualified in the courses. Keeping in view the demand of the courses among the weaker sections of the society, DOEACC Society has implemented following schemes for the financial assistance to the Women/SC/ST/OBC and other weaker sections of the Society:

Scholarship Scheme to SC/ST/Physically Handicapped and Female Students

The Society has introduced a Scholarship Scheme for SC/ST/Physically Handicapped and Female Students who are pursuing O/A/B/C Level of courses of the DOEACC Society as a full time course through Accredited Institute authorized to conduct the DOEACC Courses. The candidates shall have to clear all the papers in the first attempt and the income of the parents of the students should not be more than Rs. 1 lakh per year from all sources.

Amount of Scholarship

The amount of scholarship shall be four times the examination fee paid per module paper i.e., Rs. 350/- as at present.

O Level: Total amount: Rs. 5600/- A candidate should have completed that course within next two consecutive examinations after registration. On successful clearance of first two papers, a candidate is reimbursed Rs. 2700/- and balance Rs. 2700/- is paid on successful completion of the balance papers in the subsequent examinations.

A Level: Total amount: Rs. 14000/- At A level or part one of B level, a candidate shall have to complete the entire course in three examinations commencing from the examinations stated in the registration allotment letter. Amount of scholarship is paid in three installments. First installment on clearing three papers, second installment on clearing next three papers and balance on successful completion of the course.

B Level: Total amount: Rs. 21000/- A candidate shall have to complete the balance 15 papers after clearing 10 papers of A level in four consecutive attempts and is paid scholarship in four installments. First, second and third installment on clearing five papers in each attempts and balance in the fourth installment on successful completion of the course.

C Level : Total amount: Rs. 21000/- At C level a candidate has to complete the entire course in three examinations and is paid scholarship in three installments. Each installment is paid on clearing five papers in each attempt.

Details of SC/ST and female candidates registered during April 2005 to January 2006 are as under:

No. of Female Students	=	11,270
No. of SC/ST Students	=	1,006

Projects in the North Eastern Region

Regional Institute of E-learning and Information Technology (RIELIT), Kohima

The Regional Institute of e-learning and Information Technology (RIELIT), Kohima has 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 programmes to improve employment opportunities and facilitate availability of quality IT manpower, which will lead to enhanced employability of the local youth pursuing the IT courses in NE Region. DOEACC has already taken possession of land and has initiated steps for building development.

The institute has been offering following courses from July, 2004 onwards through rented premises. The Centre conducts training of DOEACC Courses at O / A level, CCC, ITES-BPO, Programming languages and PC Assembly and Maintenance.

So far, about 177 students have been trained including 70 students for ITES-BPO. About 30 qualifiers have already been placed in ITES-BPO industry across the country.

Bioinformatics Courses

To meet the global demand for trained Bio-informatics professionals, DOEACC Society has

developed courses in Bio-informatics O and A level equivalent to Diploma and Post Graduate Diploma. The same has been launched on pilot basis initially at its own DOEACC Centres at 14 locations.

The applications of bio-informatics are in agriculture, medicine, environment protection and biodiversity conservations that offer opportunities for overall sustainable development, most desirable for the 21st century.

271 candidates were registered for 'O' level course in Bio-Informatics of which 82 have qualified. Similarly, 500 students were registered for 'A' level course in Bio-Informatics of which 161 have qualified. About 33 candidates have been facilitated for employment.

With the feedback from the industry for requirements of professionals at higher level, DOEACC has developed courses at B/C level equivalent to Master's and M. Tech level. DOEACC has also entered an MOU with WBUT (West Bengal University of Technology, Kolkata) for granting equivalence of B-level to M. Sc (Tech) in Bioinformatics. DOEACC Centre, Kolkata has been accredited for launching courses at B Level.

Hardware courses

A new scheme under DOEACC for computer hardware courses has been launched during 2005-06 by the DOEACC Society in line with existing DOEACC scheme in software and experience of CEDTI Franchising Scheme (CFS) of erstwhile CEDTI in hardware courses. The scheme has been launched during 2005-06 in association with Manufacturer's Association for Information Technology (MAIT). The objective of the scheme is to generate quality manpower for computer hardware maintenance and networking by utilizing the facilities and expertise available with training institutes/ organizations in the non-formal sector.

The DOEACC Centres will be offering Diploma in Computer Hardware Maintenance (CHM) – 'O' Level and Advance Diploma in Computer Hardware Maintenance and Networking (CHM) – 'A' level courses in addition to the private sector computer training institutes/ organizations. DOEACC Centre, Aurangabad is the Nodal Centre for implementation of the Scheme.

DOEACC Course in IT Enabled Services

DOEACC Society, in association with DONER 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. The objective of the project is to enhance the employability of educated youth of North Eastern State. It covers training on various Call Centre skills, such as communication skills, behavioral skills, personality development, customer relationship management, accent neutralization and problem solving approach apart from the basic computer operation skills and computer telephony integration (CTI).

DOEACC Centres in the North East region at 09 locations are targeted to train 2180 students in ITES-BPO courses out of which 1446 have been qualified and 735 have been employed.

Training of Nurses in Soft Skills and IT Skills

Training of Nurses in Soft Skills and IT Skills is being provided by DOEACC Centre, Aizawal in the State of Mizoram. The Department of Development of North Eastern Region (DONER) has provided financial assistance for training of 210 nurses in one year. Training of Nurses was launched in July 2004 at DOEACC Centre, Aizwal. 90 Nurses have been trained so far and 63 Nurses have been placed in different hospitals in India and abroad.

ITES / BPO Training at Jammu and Kashmir

Hon'ble Prime Minister of India under reconstruction plan of state of Jammu and Kashmir has envisaged to support the training in ITES / BPO in J&K on same lines as in North East region at DOEACC Centres, at Srinagar and Jammu. 2400 students would be trained in 3 years period (800 per year) covering all the 14 districts of J&K State. In the first year, 800 students, in batches of 25, will be imparted training through a training program of 160 hours duration, conducted two and a half hours a day, over a period of 3 months. The training programme has been launched since February 24, 2005 at Srinagar and February 28, 2005 at Jammu.

395 students have been trained under the scheme, so far and 106 are undergoing training. Out of 395 students trained, 112 have been suitably placed in ITES-BPO industry.

Project on Training of Trainers in e-Learning

Project on Training of Trainers in e-learning of Department of Information Technology is being implemented by DOEACC Centres at Aurangabad and Kolkata in Phase-I. The project aims to propogate the knowledge of e-learning and its applications amongst teachers to integrate e-learning methodology for improvement in educational methodologies. Under this project, 240 teachers have been trained, so far, completing the target.

Centre for Materials for Electronics Technology (C-MET)

Centre for Materials for Electronics Technology (C-MET) was reestablished for 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. In the Tenth Plan period, the main focus is on development of Ultrahigh Pure Materials, Electronic Packaging, Optoelectronic materials, Sensors and Actuators. In many of these programme, nanotechnology will be used to develop materials, devices or components.

The salient features of C-MET achievements during 2005-06 are:

Ultra-high Purity Materials

- Vacuum distilled cadmium has given 6N+ purity w.r.t. All major impurities Oxygen and carbon impurities are 660 ppb and 1200 ppb respectively. Analysis was carried out at NRC, Canada on GD-MS.
- Hydrochemical processing and vacuum refined experiments carried out on raw gallium (3N/4N purity) eliminated Zn, Ag, Hg, Pb, Fe and In impurities effectively from gallium.
- 5 Kg of 7N pure tellurium powder (30-60 mesh) has been produced and supplied to BRNS for radio-pharmaceutical applications. 8 Kg of 7N pure tellurium has been produced and delivered to SSPL for opto-electronic applications.
- 1 Kg of high purity Tellurium Oxide has been prepared and delivered to BRNS.
- Experiments on modified Sodium reduction system yielded Tantalum powder
- comparable to imported powder in terms of CV and DCL with good consistency.
- The design and fabrication of distillation system for Cd using graphite collector
- crucibles have been completed.
- A nozzle configuration system has been designed and fabricated which is
- expected to give spherical and fine solder powders due to its ability to deliver
- turbulent free super sonic atomization gas flows.
- Sodium reduction system automated successfully and very satisfactory reproducible results obtained.
- Low voltage capacitor grade tantalum powder prepared on repetitive basis with CV in the range of 14000 – 16000 µFV/gm and DCL in the range of 0.0005 – 0.0002 µA/µFV which is comparable to imported Ta powder
- High purity tantalum pentoxide prepared and the project successfully completed.
- 4 kg high purity tantalum pentoxide supplied to VSSC.
- Phase pure hafnium oxide prepared and converted to hafnium chloride.
- High purity niobium oxide containing Ta <10 ppm prepared and supplied to BRNS (BARC) Nb metal prepared by Aluminothermic reduction at 1 kg batch. The aluminium content is restricted to < 4%.
- Calcination experiments conducted to produce Tantalum Pentoxide (Ta2O5) with low sodium and fluoride contents meeting target specifications. Optimization of process parameters completed for a capacity of 75 kg/annum of Ta2O5.
- High purity Cadmium Oxide has been prepared through chemical route.
- Phase pure Tantalum Carbide and Niobium Carbide prepared though an oxalate route.

Electronic Packaging

- 50 micron line width and spacing was achieved for Photoimageable and photodefinable gold paste.
- 100-micron vias was achieved for Photoimageable dielectric paste.
- Large scale (10 Kg) solder paste was prepared for evaluation at user end.
- Commissioned class 10000 clean room of 150m2 area for electronic packaging.
- The laboratory is fully equipped for development of Low Temperature Co-fired
- Ceramic (LTCC) packages aimed at Micro Electro Mechanical (MEMS)
- Devices, Bio, optical and High Frequency (HF) circuits required for space and defence applications.
- Dispersion studies of cordierite in Progress (prepared at 500g scale) are in progress.
- Thermolamination process for low K substrates has been standardized with a temperature of 3600C and a pressure of 105Kg//cm2.
- Metallization over high K PTFE substrates done through lamination process using oxygen free copper foil.

Optoelectronics Materials

- The prototype samples prepared, polished and sent to LEOS (ISRO) for characterization..
- Preliminary samples for GG495 have been prepared. Slight fine-tuning in crystal growth process is in progress.
- Prepared m-Nitroaniline (0 to 30%) doped polymethylmethacrylate films by
- solvent cast method and studied Second Harmonic Generation (SHG) properties by Nd : YAG laser setup.
- CdS-PMMA has been optimized for various light emissions.
- Synthesis of organic capped CdSe quantum dots were continued by using organometallic precursor of selenium and various surfactants

Sensors and Actuators

- Chemical synthesis of Poly (3-Methyl thiophene) was done using FeCl3 under controlled N2 atmosphere.
- Prepared substrate adhered as well as Spin coated thin films of polyanlines for sensing applications.
- Stacked 150 layers of green tapes and standardized the lamination process

Electronics and Computer Software Export Promotion Council (ESC)

Electronics and Computer Software Export Promotion Council (ESC), is India's trade promotion organization mandated to promote India's electronics and information technology exports to global markets.

Headquartered at Delhi, the Council has regional offices at Bangalore, Chennai and Kolkata as well as a representative office in Dubai. Currently, it has a membership of around 2300, large, medium and small-scale IT companies, which are capable of providing total solutions across the world in consumer electronics, electronic components, instrumentation, telecommunication, computer hardware, computer software and information technology enabled services.

ESC has successfully steered the direction of India's Electronics and Software Exports to achieve the export volumes of US $ 19 billion during 2004-05 and to over 180 countries across the world. It is indeed a matter of pride that ESC's members together contribute around 15 per cent in India's total export earnings.

ESC's Initiatives for IT Small and Medium Enterprises

With a wide array of membership, primarily comprising of exporting SMEs, the Council, has been laying emphasis on facilitating the interaction of Indian SMEs with potential buyers in global market. The Councils delegation to global markets in various trade fairs, expositions, buyer seller meets, etc., have SME representation in large number.

During the year, the Council emphasized on market development for small and medium enterprises as a focused effort towards market diversification of IT exports.

ESC continues to actively support exports by small and medium enterprises in the electronics and IT sector in a big way. The Council creates awareness in foreign markets to highlight the capabilities of Indian SMEs, conduct market studies / surveys, participation

in exhibitions / conferences, organizing road shows, buyer-seller meets, etc. The ultimate goal is to assist Indian SMEs in the IT sector to graduate to being global players.

ESC's Participation at Global Expositions

Outsource World London

United Kingdom is the second largest destination of India's computer software and services export destination. Outsource World London was an event organized on 29-30 June, 2005 where the very best IT outsourcing companies worldwide demonstrated their skills, knowledge and abilities which had the cost-saving potential for companies. Europe's top decision makers were provided with an insight into outsourcing - or the opportunity to benchmark their current outsourcing programmes with contemporary standards and practices.

The Council organized participation of 12 Indian IT companies in this event.

Communic Asia, Singapore

Communic Asia has emerged Asia's premier event in the Information and Technology sector. It was the first time that the Council participated in the event during 14-17 June 2005. ESC's India pavilion spoke high volumes for the show in particular of the aggressive marketing drive to recruit Indian IT companies to showcase their numerous cutting edge products and services and create new market niches.

The Council organized participation of 11 Indian IT companies under its banner.

Gitex Dubai

Today in the international IT arena, Gitex Dubai, 2005, is conceived to be one of the premier international IT exhibition in Middle East. Billed as one of the largest premium IT fair, the Electronics and Computer Software Export Promotion Council (ESC) participated in a big way in the Gitex Dubai organized in Dubai during 25-29 October 2005, with the primary objective of providing Indian IT companies the opportunity of scouting for business prospects in the expanding Middle East market.

In total, 52 Indian companies participated in GITEX Dubai 2005 under the Council's banner.

Outsource World, New York

Encouraged with the success of Indian participation in earlier Outsource World events, the Council set up an INDIASOFT pavilion at the inaugural Outsource World event in USA, the largest IT Outsourcing market in the world. USA continues to be the top destination of India's electronics and computer software exports. There are much larger opportunities in the North American market in the IT enabled services sector, which have yet to be exploited to its inherent potentials.

By organizing Indian participation at Outsource World, New York, ESC's efforts were towards empowering the Indian software industry to strike meaningful deals with US partners and also to assist in identifying US companies who were keen to outsource to Indian IT companies in the near future.

The Indian ICT brigade at Outsource World New York included 16 Indian companies under the banner of ESC. The Council at this occasion also organized an exclusive Buyer Seller Meet, by hiring the services of a US based Consultant, to organize the meeting between the India and US based IT industry to provide strong foothold to the member companies.

INDIASOFT 2006

The Council will be organizing the sixth series of its annual INDIASOFT (IT event), INDIASOFT 2006 on 20-21 March 2006 at Convention Centre, Chennai Trade Centre in Chennai. INDIASOFT - an annual global IT event - has already become a benchmark for showcasing and seeking India's tremendous potentials in IT services and solutions. The Council has been organizing this event annually since 2001 with great success in enhancing business development of Indian IT companies and India's software and services exports.

INDIASOFT 2006 will have presence of IT professional from across the globe as well as a host of renowned Indian companies and provide an opportunity for interaction for domestic and overseas IT companies.

CeBIT IT 2006

The Council will be organizing India's National Pavilion at CeBIT 2006 during 9-15 March 2006 in Germany. A total space of 520 sq. mts. has been booked there.

CeBIT the world's leading international trade fair for Information and Communication Technology held every year in Hannover, Germany will be focusing on BPO sector too like last year. This will provide a platform to Indian IT companies to showcase their strengths at a wider perspective to over 5 lakh IT professionals and decision makers from all over the world and tap business in the BPO sector.

ESC along with Indo-German Chambers organized CeBIT Curtain Raisors in Delhi, Kolkata, Chennai and Mumbai.

Incoming Delegation Meetings

The council received several delegations from global markets, which include Korea, Argentina, China, USA, Bahrain and Japan. The council organized meetings with the member exporters to assist them to explore the possibilities of cooperation in the area of Information Technology.

ERNET India

ERNET India, over the years has developed a deep understanding of users need and evolving technologies to successfully address growing requirement of providing connectivity to educational and research institutions in the country. During the year, the infrastructure at ERNET was upgraded both in terms of technology and capacity. It is the first network in the country to provide services based on IPv6. The ERNET backbone was migrated into dual stack Internet Protocol Version 4 (IPv4) and Internet Protocol Version 6 (IPv6), thus offering the value added services to its users. The dual stack IPv6 and IPv4 protocol will enable the users to setup test bed, develop software solutions and hardware in the area of utilizing IPv6 Protocol. During the year, the reach of ERNET was further expanded.

The organization has gained both qualitatively and quantitatively and enjoyed the confidence of the users in all five areas of operation, namely, VSAT operation, Terrestrial Operation, Content Creation, Training and Consultancy. The traffic on the network has almost doubled. The services offered are guaranteed and QoS enabled.

ERNET established ICAR-Network, an Intranet and Internet connecting 274 agricultural universities and research institutions in the country. The network delivers valued added services to these institutions, which include IP Fax and Video Conferencing. Indian Council of Agricultural Research (ICAR) is now preparing to host digital library and e-journals on their network to be accessed by all its institutions on online basis. With the establishment of ICAR Network, ERNET has connected almost all the universities in the country on its backbone.

During the year ERNET has taken up a project together with Centre for Development of Advanced Computing (C-DAC) to setup proof-of-concept phase of National Grid Computing – 'GARUDA'. Under this project, initially 45 universities and research institutions would be connected on high-speed communication catering to 100 Mbps and 10 Mbps bandwidth. The Grid will support IPv4 and IPv6 applications. The high-speed communication backbone encompasses latest technologies and open architecture standards. It will facilitate user organizations to run computing intensive applications in the various areas on systems of organizations connected on the Grid. The communication fabric connecting 45 institutions in 17 cities is expected to be made operational by April 2006.

Under the Indo-EU program, ERNET is being connected to PAN European Research Network – GEANT on 34Mbps IPLC. The proposed connectivity is being financed to the extent of 50% by European Commission. The connectivity will help Indian educational institutions to log into the networks of their counterparts in Europe on a peer-to-peer basis and undertake collaborative research and share information.

During the year, a Network Operation Centre (NOC) was made functional at ERNET Headquarters. The Centre is equipped with state-of-the-art network monitoring hardware and software tools to monitor the connectivity to every user. The tools provide the bandwidth monitoring even at the level of individual personal computer in the organizations. A digital video wall has been installed to visualize the online monitoring of performance of the links on ERNET backbone across the country.

ERNET has initiated a project on the 'Provisions of Assistive Technology for Children with Disabilities'. The project aims to provide job oriented training to disabled children to enhance skills so as to obtain employment in IT and IT enabled services. In the pilot phase, 20 schools of visually impaired children in

Tamil Nadu, Delhi and Noida have been identified for setting up IT Vocational centres. Two types of disabilities, namely, visual impairment and deaf and dumb will be addressed. Each school will be provided specialized hardware tools to address each of these disabilities. Vocational centres have been opened at 10 schools in Tamilnadu and Noida.

A project has been initiated to set up Community Information Centres – Vidya Vahini at 71 centres located in Andaman and Nicobar and Lakshadweep Islands. The centres have dual purpose of imparting ICT based education and training as well as providing citizen-centric services to the people of the region. The centres will enable schools to access Internet applications, e-journals, distance education and video multi-casting. Two centres have already been set-up at Government Senior Secondary Schools at Cambell Bay and Car Nicobar. Centre at Car Nicobar was inaugurated by His Excellency the President Dr. A.P.J. Abdul Kalam.

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 endeavours to ensure that the latest technology in all areas of IT is available to its users. NIC has also undertaken projects at the international level in collaboration with other governments. A notable project in this area is the collaboration with the Peoples Democratic Republic of Laos.

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

There were a number of additions to the existing network, which included connecting all blocks in Jammu & Kashmir to the Skyblaster network. Presently, 70 Blocks in Phase I of the project and 54 blocks in Phase II are connected. 57 Treasuries and Sub-Treasury offices in Chhatisgarh State under e-Kosh project are also connected through the Skyblaster VSATs. The existing outbound of the Skyblaster network was expanded from 16MB to 20 MB to accommodate the increased traffic. 345 remote VSATs under GRAMSAT project were reoriented towards INSAT 3A Voice over IP, a new service was introduced in Nagaland.

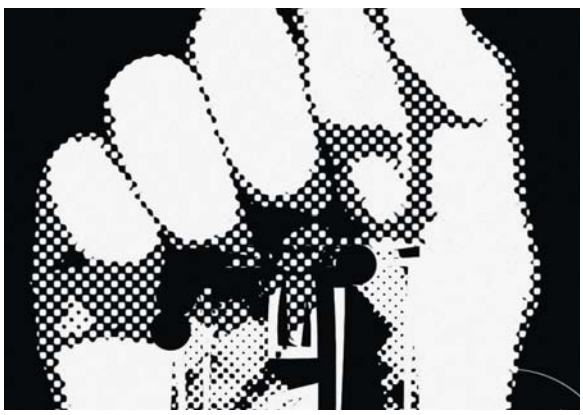
Video Conferencing services were also successfully tested over this data network. The existing bandwith was enhanced by procuring 9Mhz bandwidth.

The NIC- ICT infrastructure comprises:

- The satellite based Wide Area Network has over 2590 nodes
- Integrated Network Operations Centre (I-NOC) for round the clock monitoring of NICNET
- Internet Data Centre at NIC HQ. with storage capacity of 60 tera bytes for hosting websites and databases
- Data Centres at State capitals for their local storage needs
- National long distance high speed (8 Mbps/4Mbps/2Mbps) leased data circuits connecting all State capitals
- Connectivity from State Capitals to districts using 2Mbps lease circuits in 31 districts, which is being further extended to cover additional 85 districts
- Metropolitan network with high speed RF and leased lines
- About 24,000 nodes of Local Area Networks in all the Central Government offices and State Government Secretariats
- Video conferencing facilities in all State capitals and districts. Total number of locations is 427
- Internet Gateway bandwidth enhanced to 190 Mbps for incoming and 156 Mbps outgoing traffic with multiple alternate paths
- Certifying Authority for Digital Signature in G2G domain
- Training facilities at NIC Hq. and State Government Secretariats
- Network Security
- DR centre at Hyderabad.

NICNET International Gateway

The effective International bandwidth of NICNET has been increased by another 48 Mbps receive and 48 Mbps transmit, with majority of load shifted to fiber links to provide a better throughput. Hyderabad has been made as Recovery Centre for NICNET and hence the Gateway at Hyderabad has been upgraded and redesigned. The capacity of NIXI link has been increased to 10 Mbps. Cache Engines have been installed at Gateways to save bandwidth and increase access speed. The URL-filter is upgraded, so that Internet content filtering and management facility is extended to all Ministry LAN and few selected State Networks



Network Security

Network security auditing and monitoring has been implemented at network, server and application level for NICNET. Network of 22 States has been restructured by implementing Firewall, Antivirus Server, Patch Update Server, Segmentation of the LAN into Server Farm, Management Subnet and Intranet(s), Network Address Translation, etc. MRTG has been implemented for monitoring the health/activities of security hardware deployed at different states. Security auditing of hosted web sites has been done and to be hosted web sites are also being audited for possible penetration and vulnerabilities. Evaluation and testing of Digital Signature tools (server and client based) on cross platform has been done. Security trainings, awareness building and consultancy for security solutions for NIC and Central and States Government officials have been done in addition to handle security incidents through NIC-CIRT.

NIC Web Services and Data Centre Infrastructure

Hosted over 300 new websites on WWW infrastructure for government Ministries, Departments, States and UTs as well as District Administrations. The total number of Indian Government websites hosted on NIC's web servers has thus exceeded 2800. Design/ development/enhancement of important websites/portals such as Ministry of Health & Family Welfare, Central Vigilance Commission (CVC), Ministry of Finance, UNESCO World Heritage Portal, UNESCO New Delhi Website completed.

The project 'Indolanc - Indonesian Languages Portal' sponsored by UNESCO was completed and training on the usage of specially developed content management system for maintenance of the website was provided to the visiting delegation from RISTEK, Indonesia. An E-Governance toolkit for developing countries was prepared for UNESCO Asia Pacific Bureau for Communication and Information. The toolkit offers an action framework involving all stakeholders in developing nations to guide them through various phases in their e-governance initiatives.

Government Portal (http://policies.gov.in) for online publishing and maintenance of Government of India Policies has been developed. More than hundred examination results of various boards were published on NICNET Net through the Results portal: http://results.nic.in. The online applications forms are introduced by Institute of Chartered Accountant of India to facilitate the candidates to apply online for the Chartered Accountant exams. In addition to that the Institute of Chartered Account of India provides the Centre-wise results over the web site and also the online download of mark sheets.

Conducted Live Web cast of number of events like President's address to 6th Mizoram Legislative Assembly Session, Prime Minister's address to the High Level Plenary Meeting of 60th United Nations General Assembly, Prime Minister's address to the National Integration Council, International Conference on Physics Education 2005, Independence Day Celebration 2005, ELITEX 2005, Union Budget 2005-06.

GOV.IN Domain Registration Services

NIC has been made the exclusive authorized registrar for GOV.IN domain registration for government departments and organizations at all levels. An exclusive site http://registry.gov.in was set up to entertain the domain registration services over the Web as online services. The domain registration services are also successfully integrated with the .IN Registry through EPP interface for domain management operations. So far, about 1,300 domain names have been registered along with 100 fourth-level domain names.

India Portal Project

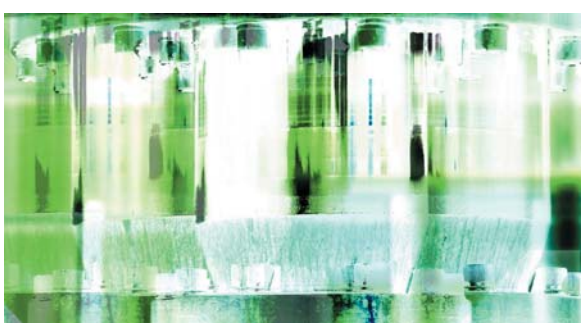
The development of India Portal – the National Portal of the Country was started as a Mission Mode Project under the National E-Gov Plan. The development of the first version of the Portal has been completed with the collaboration of several government departments at all levels. India Portal shall provide a single window access to Government information and services at the National level for the benefit of citizens and other stakeholders. The Portal has been hosted in the Internet Data Centre at http://india.gov.in

Right to Information Portal

In order to provide support to the Government for speedy and effective implementation of the Right to Information Act 2005, NIC has created a portal for all Central and State government agencies to post their data on public related information regarding details of Public Information Officers, proactive disclosures, important news items as well as to provide links to related websites. The portal at http://rti.nic.in/ acts as a gateway for citizens. NIC is also assisting the Central Information Commission as well as Information Commissions at States.

NIC Certifying Authority (NICCA)

NIC has been licensed to function as Certifying Authority (CA) for in G2G domain. More than 1,000-signatures were issued since April 2005 and is expected to be 2,000 by March 2006. CA software was upgraded and now NIC is ready to set up Registration Authority offices on turnkey basis. As



part of Disaster Recovery Services for NICCA, the directory services have been made operational at NIC's DR site. NICCA Certificate Practice Statement has been modified and approval has been taken to incorporate issuance of Digital Signatures to authorized representatives of Government registered companies, and added multiple classes of certificates under flexible Key Usage/Enhanced Key Usage category. Integration of Smart Card Reader under Linux environment for Delhi High Court for availability of 'Digitally Signed Certified Copies of Judgments' has been completed and archival of encryption certificates for internal usage has been initiated.

Government Informatics Training Programme

Training activities were focused on technology upgradation of NIC professionals, training of Government officials, and participants of national level development project and enhancement of training resources at NIC, HQ and State Centres.

For NIC senior officers, management development programme was organized at Indian Institute of Management (IIM), Bangalore and series of such programmes have been lined up. Technology update programmes were organized on Portal development using Zope/Plone, .net, Linux, Network, Internet Security, QMS, etc., for NIC professionals. Nation wide NIC professionals capacity building plan has been made, to ensure that every NIC official gets atleast one weeks training.

Under the sponsorship of Department of Personnel and Training (DoP&T), a course on Management of e-Governance Services and Applications was conducted for IAS Officers. Two workshops on e-Governance were organized. Skill development programmes on ICT tools for e-Readiness in Government (DOP&T sponsored), Hindi courses (Department of Language sponsored), sectoral programmes in Biomedical Information Retrieval, application of IT in Library Sciences, e-Granthalaya, workshops on composite payroll system for various Ministries were also conducted.

Training infrastructure has been enhanced in State Training Centres and International Training setup has been built at NIC, Hq.

In addition, the NIC Training Unit at LBS National Academy Mussoorie provides communication and information technology related training to the officers of All India Services during training programmes conducted at the Academy.

NIC has conceptualized and formulated Integrated Enterprise Learning Solution on NICNET.

Video Conferencing (VC) Services

NIC's aim is to create high quality videoconferencing facility in the country using cost effective solutions. Keeping this as objective, NIC has established videoconferencing facility at District levels in 18 States (Uttar Pradesh, Maharashtra, Rajasthan, Jharkhand, Uttaranchal, Chhatisgarh, Madhya Pradesh, Punjab,

Nagaland, Tripura, Orissa, Himachal Pradesh, Assam, Arunachal Pradesh, Meghalaya, Mizoram, Manipur, Sikkim) and selected districts of Bihar, Jammu and Kashmir, Orissa, Himachal Pradesh, Lakshadweep, Andaman and Nicobar, Daman & Diu and Dadara & Nagar Haveli at 427 locations using high speed SCPC DAMA VSAT solutions. This is the largest videoconferencing network in India, spread across length and breadth of the country. Various State and Central government departments are using this facility for various activities. Honourable President of India has utilized NIC videoconferencing services for conducting remote interactions, inaugurations and for delivering speeches on 30 occasions. NIC has also invested in commissioning of 3 Multipoint Control Units to facilitate multi party conferences.

Bibliographic Informatics Services

NIC continued to cater to the information needs of medical professionals from resources available over the Net. A new service, OpenMED@NIC was launched in May 2005; this is an open access archive for Medical and Allied Sciences. Here authors / owners can self-archive their scientific and technical documents. For this they need to register once in order to obtain a user id in OpenMED system. However no registration is required for searching the archive or viewing the documents. More journals were added in the medIND (fulltext) database and at present this has 38 journals. Two training programmes were conducted in Biomedical Information Retrieval at NIC Hqrs.

Intellectual Property and Know-How Services

NIC provides global patent information to Indian industries, R&D organizations, consultants, patent attorneys, scientists, researchers and public. NIC provides three kinds of patent services i.e., bibliographic service, abstract service and full text

service. NIC also provides on-line patent bibliographic service for patents of 1968 onwards. It contains the data of 72 countries containing 43.3 million records. The database is available on-line 24 hours a day by browsing the website http://patinfo.nic.in. All the forms required for an inventor for filing an application at Indian Patent Office have been digitized and hosted on our web site as filable. The procedure to get a Copyright on the software developed by NIC Staff has been put on the web site.

Computer Aided Design Activities

CollabCAD has been implemented at Bhabha Atomic Research Centre, Nuclear Power Corporation, Vikram Sarabhai Space Centre, Liquid Propulsion Systems Centre, and Indira Gandhi Centre for Atomic Research, Kalpakkam, Defence Research and Development Laboratory Hyderabad and Gas Turbine Research Centre Bangalore. A series of training sessions were conducted. Two CollabCAD Development Cells were established, at Vikram Sarabhai Space Centre, Thiruvananthapuram and Bhabha Atomic Research Centre, Mumbai. CollabCAD license was sold to Godrej & Boyce Ltd., Mumbai, SESAM Project Seismic Analysis of 2-D and 3-D models of overflow and non-overflow blocks of Bargi Dam on river Narmada had been carried out and reports submitted to the Narmada Valley Development Authority, Bhopal.

Seismic Analysis of Spillway Radial Gates of Overflow section of Bargi Dam has been taken up. An agreement had been signed with NICSI for the distribution of SESAM software to technical institutes in India in January 2005. SESAM software has been installed at the Civil Engg. Departments of Punjab Engg. College, Chandigarh, National Institute of Technology, Kurukshetra and Mechanical Engineering Deptt. of NIT, Rourkela.

GIS and Remote Sensing Services

Continuous efforts were made during the year towards development of Spatial Data Infrastructure over NICNET to facilitate development of national level spatial databases with different thematic layers and delivery of spatial data services and applications for various user groups. Administrative district boundary database has been created which has successfully set the national framework and data development up to villages. NIC focused on further enhancements of National Spatial Database (NSDB) in terms various socio-economic, demographic and natural resources layers around GIS core and further delivery of GIS applications services. NIC to this effect will be a nodal point for dissemination of credible database down to the district level. Workshop on Open Source GIS and projects for Ministry of Environment and Forest has been done. Multi-layered GIS for Sectoral Planning for Planning Commission is being created. Initial version of NSDB was made available to NIC users through secured authentication mechanism. Cartosat data (2.5 m resolution) for urban planning/District Hq is being procured. Video-Wall facility is available for detailed analysis with various users' groups/planners.

Courts Information Systems-COURTIS

Delhi High Court is the first High Court to implement 'Issuance of Digitally Signed Certified Copies' to the litigant public. 17 Benches of Central Administrative Tribunal have been taken up for their computerization and successfully implemented in about 5 Benches. 29 capital city courts computerization project has been taken up and 10 city courts have been successfully computerized. IVRS based 'Case Status Information' has been implemented at Madhya Pradesh High Court. 18 High Courts/Benches have been connected on V-SAT based network.

Land Records Computerization Project

The project has been successfully implemented in several States. The project is operational in more than 2,700 tehsils of the county with provision of online mutations. Land records data of a few States such as Delhi, Uttar Pradesh, Madhya Pradesh, Rajasthan, Orissa, Andhra Pradesh, Assam and Chhatisgarh have been hosted on the web.

NIC has already received ISO-9126 certification for Common Language Runtime application software for 11 States and 6 more States are being tested for ISO certification. For the establishment of uniform coding, NIC has proposed and worked out a uniform coding scheme for entire land records domain across India. The same has been completed for Madhya Pradesh, Rajasthan and Maharashtra. System has been extended to use Simputer (handheld device) for capturing field level information and speed transmission.

Information Technology for Micro-Level Planning

The Standing Finance Committee of the Department has given its approval for the scheme of DISNIC-PLAN

Project: IT for Micro-level Planning. As approved by the Planning Commission, implementation of this scheme in pilot districts of the State of Haryana (Jhajjar District) and Goa (North and South Goa Districts) were initiated. Through the National level consultation process and State level workshop, the draft dataset on Village Level Information System has been published on Internet. The draft dataset has been circulated to Sectoral Department at the State and district level for localization of their input requirements.

Utility Mapping Project

NIC has been implementing various projects in the area of utility mapping. Mapping and verification of sewage network for Delhi City having 6,000 km line length has been surveyed and digitized. Further, Gecoding of Delhi address data and development of address locating application is in progress. Control centre has been set up in VIII level, I.P. Estate, Delhi Sahivalaya with base map of scale 1:10,000. Workshop on 'Computer Aided Utility Mapping Project for Six Cities' was conducted at NIC Hqrs. New Delhi and Chennai, Hyderabad, Ahmedabad and Mumbai.

General Information Service Terminal of National Informatics Centre

GISTNIC is value added service on NICNET to provide information related to various sectors/areas e.g. Indian economy, health and education for the knowledge of research workers, government officials. This system facilitates public services and empowers the citizens by harnessing the ICT, which is efficient, speedy and cost effective. Moreover, in the light of enhanced scope and content of the GISTNIC project, several new areas of information services were planned and executed. The system has modules for Education Information Services (EINFO), Citizen Information Services (CINFO) and Government Information Services (GINFO).

Community Information Centres (CICs)

CICs continued to provide all basic services like Internet access, email and training to the local populace. Several citizen centric services and e-Governance services were also provided. Some of these include - 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; ASHA a service based on a comprehensive Agribusiness portal; Computer Literacy Programme (CLP) of IGNOU and Course on Computer Concepts (CCC) of DOEACC. Block Community Portals or individual CIC websites were populated with local content. 60 CICs in J&K under Phase I are fully operational and in 57 sites out of a total of 75 in Phase II equipment has been installed. CIC operators for these sites have also been trained.

North East Informatics Services

MIS software development has been completed and the application has been launched. Training units of all 8 North Eastern States have been augmented. Data centres have been set up in these States at NIC State unit. Video vonference facility has been installed at most of the NIC district units. The website of Ministry of Development of North Eastern Region (DONER) has been refurbished and is ready for launch. Secretariat LANs in all 8 States have been set up/augmented. Training of senior state government officials was conducted by NIC in all States

Smart Card Services

Smart card based Driving License/Vehicle Card System has been implemented in States of Delhi, Maharashtra, West Bengal, and Jharkhand. Work is in progress for finalization of technical specification and software development for Multi Purpose National Identity Card (MNIC) project, Application Security System through Smart Card, Bio-Metrics, PKI and SKI, SCOSTA specification enhancement and certification for smart card manufacturers.

International Cooperation

NIC, as the nodal agency, is implementing various projects with funding from Ministry of External Affairs (MEA). For ICT cooperation under Lao PDR Bi-lateral Cooperation between India and Lao PDR, nine areas of cooperation have been taken up which include establishment of an ICT training lab with 25 computers, software, networking and training facilities at Vientiane; training on office productivity tools and database design and analysis to 150 Government officials of Lao PDR at Vientiane in 9 batches; for preparation of e-Governance action plan for Government of Lao PDR, a workshop on e-Governance organized and need assessment survey and study done for about 85 Ministry/ Departments

at Vientiane. NIC has also taken up the establishment of National Data Centre at Lao PDR.

NIC implemented setting up of five additional Community Information Centres in Mongolia. Programme for Training of Trainers was conducted at Atal Bihari Vajpayee Centre for Excellence.

Library Services

NIC Library (http://library.nic.in) provides Current Awareness and SDI services to users through IntraNIC portal, email, document lending, Inter Library Loan, and reference services. Online services like Research Reports from GARTNER, Science Direct from Elsevier Science, Newspaper Clippings Service-NEWSNIC, Web browser access to Books' Catalogue, Articles database, Journals holdings, etc, are provided to NIC officials up to district level. Under the Consortium of Libraries of the Ministry of Communications and Information Technology, Digital Information Resources and packages like IEEE/IEE Electronic Library (IEL), ACM Digital Library; ISO Standards on ICT, JCCC@MCIT for Across Library Journals Access have been subscribed for S&T professionals across India. These resources are available at Consortium site (http://mcitconsortium.nic.in). To increase the usage of world-class digital resources and making the library users aware about the services, various workshops have been conducted throughout the nation in NIC, C-DAC, C-DOT, DOEACC and STQC centres. A training programme for working librarians in India on 'Library Technology Solutions and Services from NIC' was organized at NIC, New Delhi.

Analytics and Modelling Services

A Data Warehouse on socio-economic details of UP Planning Department has been developed and demonstrated to Secretaries of UP Government. A data warehouse on export-import of major commodities from various countries along with export-import indexes has also been developed. All India fertilizer demand projection analysis for the Eleventh Plan period has been completed. This includes Zone-wise and All India monthly projections. The fifth round of micro level forecasting analysis on India's export-import for major commodities to major countries has been completed.

Property Registration

The Process of Property Registration is governed as per Registration Act, 1908 and plays unique role in the eye of law serving multiple benefits to citizens. This flagship project was successfully implemented in the States of Andhra Pradesh (CARD) and Punjab (PRISM), which were further quality evaluated and certified as per ISO 9126 for product certification.

The project was further extended to the States of Tamil Nadu (STAR), Haryana (HARIS), Kerala (PEARL), West Bengal (CORD), Orissa (ORIS), Delhi (DORIS), Gujarat (ReD), Madhya Pradesh (ERA), Uttaranchal (CROUN), Himachal Pradesh (HIMRIS). The standardize software is now being customised for Sikkim, Manipur, Chhatisgarh, Tripura and Assam.

The process of Property Registration which provide majority of inputs for land records mutation process was integrated with land records in the States of Haryana, Madhya Pradesh, Maharashtra, Karnataka and Andhra Pradesh. The integrated process will help in making genuine transactions and keeping land records updated.

Office Procedure Automation

Office Procedure Automation (OPA) is a comprehensive and integrated web enabled package to monitor pendency of cases and tracking of letters and files. It is designed to meet the requirements of Government offices as defined in the Manual of Office Procedure of the Department of Administrative Reforms and Public Grievances (DAR&PG). During the year 2005, it has been implemented in 18 Ministries/ Departments/ States including Department of Information Technology, Ministry Petroleum & Natural Gas, Department of Chemical & Petrochemicals, MMTC, Cabinet Secretariat, Ministry of Mines, Ministry of Coal, Ministry of Civil Aviation, Ministry of Textiles, Planning Commission, AIIMS, Department of Commerce, Ministry of Home Affairs, Department of Language, Ministry of I&B, Ministry of Health & Family Welfare, Tripura.

Other Services

10,000 candidates utilized in-house developed CAPES (Computer Aided Paperless Examination System). Both online NICNET based and client server versions used for DOEACC CCC certification exam held three times in 2005 at 120 centres including 35 CICs in North East. 35 State's Election Commission websites were hosted at the NIC Data Centre at HQ over VPN Network. IVRS was commissioned for CBSE and HP School Board as well as for Court cases for Supreme Court and Delhi High Court and AG Nagpur Pension. Computerization of Commercial Billing and

Accounts Procedures for Doordarshan and its Kendras was done. Live streaming video of Doordarshan news on http://www.ddindia.com and http://www.ddinews.com was made available. Studio has been set up at NIC Headquarters for Video Broadcast Services.

NIC Services to Central Government Ministries and Departments

Agriculture

The DACNET (http://dacnet.nic.in) project and Intranet solution (http://intradac.nic.in) has been strengthened in the Attached/Subordinate offices/Directorates and Field Units (172 offices) of the Department of Agriculture and Cooperation (DAC) to improve productivity, efficiency and the delivery of services. Various workshops were organized at Nagpur, Kochi, Hyderabad, Kolkata, Chennai and Budni (Bhopal) for effective implantation of additional modules of various applications that include Plant Quarantine Information System, Integrated Pest Management Information System, Computerized Registration of Pesticides, Crop Weather Watch, Market Prices Analysis - Market Intelligence Units Reporting System, Organic Farming, Farm Machinery Informatics on-line. e-Granthalaya, File Tracking System, Budget Information System, Release Monitoring System and Photo and Film Library Management Information System are being implemented.

NIC is further strengthening AGMARKNET project which include implementation at 1153

more markets across the country, preparation of GIS based National Atlas on agricultural marketing, dissemination of daily commodity prices and arrivals information in regional languages. Prices and arrivals Information for about 300 commodities and 2000 varieties is accessible through the portal. Dissemination of commodity prices and arrivals information has been enabled in eight Indian languages viz. Hindi, Gurumukhi, Assamese, Bangla, Tamil, Telugu, Marathi, and Oriya besides English.

Seed Informatics and Communication (SeedNet), Knowledge Portal on Rainfed Farming and Watershed Development, Development of Datawarehouse, Digitization of Soil Mapping of AISLUS, ICT for Mass Media, Digitization of Soil Mapping activities have been initiated under Development of Agricultural Informatics and Communication (DAIC). Component Content Scheduling and Management System (CSMS) is being developed for online capturing and dissemination of contents of agriculture programmes produced under Mass Media Support Scheme of DAC by National, Regional & Narrowcasting Centres of Doordarsan Kendras and All India Radio.

Agricultural Resource Information System (AgRIS), as step towards establishing a location-specific e-government modal has been initiated. Resources application and agronomic practices are to match with soil attributes and crop requirements; the Agricultural Resources Information System (AgRIS) is a 'way-forward' to improve agricultural productivity in rural areas, and a domestic strategy for sustainable rural livelihoods. To begin with, the project has been taken up for implementation in two districts namely Rohtak district of Haryana for Dairy Typology and Banaskantha district of Gujarat for Arid Zone typology.

ARISNET has been strengthened through extension of LAN at Indian Veterinary Institute (IVRI) and Central Agricultural University (CAU). Proposal for establishment of video conferencing facility at 6 campuses of CAU spread all over the North Eastern States to facilitate the distance learning and lay the foundation of e-learning; proposal for VC facility at ICAR Hqrs. Krishi Bhavan and Krishi Anusandhan Bhavan for improved collaboration with national and international Institutes; website of the Department of Agricultural Research and Education (DARE); APCESS project monitoring system and NICNET services at ICAR Hqrs have been taken up.

Computerisation of Agricultural Census 2000-01 and Input Survey 2001-02 is being executed by NIC on turn key basis with a cost estimate of Rs. 8.69 crore in phases. Phase-I includes Data Entry, Validation, Processing and Tables generation of Table 1 data has been completed in many States/UTs. Phase–II which includes Data Entry, Validation, Processing and Tables generation of Schedule-H data for the generation of Tables 2-7 is in progress in many States/UTs. Computerisation of Input Survey 2001-02, Phase-III, has been initiated. The comprehensive database created at National, State, District and Tehsil levels will be made available through web for wider dissemination.

Accounts

Under computerisation project for the various Pay and Accounts Offices of the Government of India (COMPACT), three major version upgrades have been carried out and several training programmes and workshops conducted. e-Lekha, a web enabled solution for the middle and top tier management to facilitate prudent fiscal governance has been developed. PAO offices located at various locations across the country will upload the monthly/daily accounting and administrative data to a central database server to facilitate controllers of accounts analysis of the fiscal and revenue data available. A new version of Contributory Pension Fund Management System was released. Reconciliation software for the appropriation accounts section was developed. A new website www.agaoa.org for Association of Government Accounting Organisation of Asia was developed and hosted in the NIC domain. NIC has developed CPS (Composite Payroll System) for the computerisation of major functions of DDOs like Salary preparation and disbursement, DA arrears calculation and disbursement, Income Tax, GPF accounts maintenance and other payments like Honorarium, OTA, Bonus, Tuition Fee.

Art and Culture

NIC has taken major initiatives under its project 'Dharohar' for electronic preservation of rich Indian cultural heritage. Digitisation of millions of folios of persian manuscripts of Khuda Baksh Oriental Public Library, Patna; illusrative manuscripts of Orissa and Vaishanvaite Manuscripts of Majuli Island, Assam has begun and about 2.5 lakhs pages have been digitized, so far. A website containing electronic searchable catalogue of Jain Manuscripts (about 2.65 lakhs) has been launched at the url http://jainmanuscripts.nic.in/. Dharohar Rajasthan project has been completed covering photo documentation work of 5,000 selected artifacts of 22 State Museums, Videography of 10 ancient temples, and microfilming of 4,000 folios of manuscripts. A new software has been implemented at Ministry of Culture providing unified viewed and monitoring of grant-in-aid scheme. New web site of the Ministry of Culture is launched providing access to on line information relating to release of grants.

Audit

This division developed and implemented 'Online submission of application of CA Firms for PSU Audit' to enable CA firms from all over India to feed their details online through Internet. Software 'Online submission of application of CA firms for PSU Audit' was demonstrated to the CAG and implemented. NIC has also assisted in IT Audit Plan and Technology.

Central Vigilance Commission

NIC continued implementation of applications for Vigilance Cases Monitoring System, Departmental Inquiry Database Information System, and Database for Chief Vigilance Officers, and Online database for viewing status of complaints. NIC has also implemented file tracking system, for monitoring of files and receipts in the commission, composite payroll system and distribution of monthly salary to employees, calculation of income tax, etc.

A comprehensive website for the Commission http://cvc.nic.in has been developed and hosted by NIC. It provides details on host of subjects relating to organisational set up, power and functions, CVC personal, policy and circulars and press releases. The Commissions website in Hindi has also been redesigned and hosted. A training on usage of website and email was organised for the Chief Vigilance Officers of various Government, public sector undertakings and banks during the year.

Central Record Keeping and Accounting Agency

Design and development of web based software to create and maintain central database of New Pension Scheme (NPS) entrants joining Government of India on or after January 1, 2004. Design of dynamic website for Interim Central Record of Accounting for viewing and printing the reports at Government Ministries accounting units.

Civil Aviation

Integrated computerisation of DGCA implemented with installation of servers, LAN along with WAN upgradation to 2 Mbps with RF. The software applications are being designed and ported to the integrated development of PORTAL for DGCA. In the Computerised Flight Crew Licensing System(FCLS), the medical database of Pilots was web enabled at http://meddgca.nic.in and has been implemented for all the centres of Air Force. Another web enabled module of CARIS (Civil Aircraft Register) was developed at http://carisdgca.nic.in with the provision of capturing the data of Certificate of Airworthiness (Cofa) details from the regional centres of DGCA.

Commerce

The major systems designed, developed and operationalised by NIC in this area. are-System for monitoring the applications received under Right to Information (RTI) Act, System for Pre-Budget proposals and System for trade analysis to facilitate Indian delegation in WTO's Inter-Ministerial Conference at Hong Kong. The website of the Department of Commerce has been strengthened and augmented for accessing International Trade data, on-line submission and processing of application for Grievance redressal. Electronic interfaces have been established between community partners like Ports, Airports, Customs, Directorate General of Foreign Trade (DGFT), CONCOR and Banks for facilitating electronic delivery of services by these organizations in international trade sector. In DGFT, on line filing/processing are integrated with digital signature and electronic payment resulting into paperless licenses for trading community. In Directorate General of Supplies and Disposal (DGS&D), web based e-Procurement system covering Tendering/Bidding, Rate Contract, Registration, Supply Order and Inspection has been operationalised

Cooperatives

The software modules developed and installed for all processes for grant of loans by National Cooperative Development Corporation(NCDC) viz., Application Details, Sanction, Releases, De-sanctions, Advance Releases have been validated in all respects. Cross verification of some of the reports for sanction and release has been done. The software has been implemented for the current year Releases data. Upgradation of VSATs at IFFCO's four existing fertilizer-manufacturing plants and newly acquired fertilizer plant at Paradeep to Digital Video Broadcast based Skyblaster VSATs done. After the pilot testing of branch level commodity sales operations software for NAFED, the software was finalized for implementation in other branches. The web based Marketing Information System for NAFED implemented at various branches of NAFED was further strengthened by providing more MIS reports related to commodity purchases, sales, exports, imports, etc. A concept paper on the need for development of COOPNET (e-Cooperatives: networking of about 1 lakh Primary Agriculture Credit Societies) to facilitate a 'new deal for rural India': governance and operational efficiency to revitalize the cooperative credit structure of India, prepared and submitted to apex cooperatives like NCDC and National Cooperative Union of India for further deliberations.

Customs and Excise and EDI Services

Indian Custom EDI System is operational at 31 customs location and the application has been augmented with additional functionalities such as – automation of trans shipment process; implementation of risk management module and its integration with ICES; automation of license release advices etc. The application will be accessed by the Customs Stations from the centralized infrastructure using web interface in a secured mode. The pilot implementation of the application is scheduled at Inland Container Depot, Dadri by the end of 2005-06. Nearly 98% of export documents and 90% of the import declarations are getting processed under the EDI system. Around 60% of the documents are being filed over Internet. ICES is enabled for central updation of directories such as monthly exchange rate, drawback schedule, DEPB schedule, IE code, etc.

NIC has developed and distributed a package – Remote EDI System (RES) to enable Customs House Agents/Importers/ and Freight Forwarders to prepare the customs declarations and file over Internet. The package is freely downloadable and is being used by over four thousand remote users. Help desk facility is also provided to the users.

Defence

Websites of Director General Married Accommodation Project, Army Welfare Housing Organisation, President's Fleet review of Navy, National Defence College, Military Engineering Services, Army Ordnance Corps, Army-in-Kashmir are hosted and maintained on NIC servers. Work on Intra Defence Production Portal development has been initiated. RTI Document/Tenders/Policies of various Defence establishments are hosted on NIC portals. OPA implemented consultancy services were provided to CGDA, CDS, Air Force, Army and Navy in their major IT projects, E-Mail services to IDS, DGDE, DGQA, OSCC and other Defence establishments. Digital certificates to DRDO officers and Major Generals were issued. VPN support services to CGDA for network management was implemented.

Energy

NIC continued providing IT support to Ministry of Petroleum, Coal, Petroleum & Natural Gas, DOF,C&PC, MNES, CEA and associated PSUs. RTI Act 2005 was made available on websites, Intra-Ministry web portals, implemented CPS, On-Line PGRAMS, FTS, E-Granthalaya, PAO 2000, Telephone Bill Monitoring System, QPR, PIS, Hydro-powernet, OPA, PMS, Coal Linkages monitoring system, MIS on Power sector, Hydro Performance Review, Bharat Nirman web portal, Thermo-powernet and Trans-powernet. Extension of SECL projects at 3 locations and Video Conferencing facility to project offices located at Noida, Rishikesh, Tehri and Koteshwar and MOP. Accounts created for GAIL, CPCL, DGH, EIL and IBP for uploading tenders. Training provided on GIS and office procedure automation.

External Affairs

NIC provided support to the Ministry of External Affairs (MEA) including all the 30 Passport offices and 6 Indian Missions abroad. Computerized Visa Issuance System was implemented at New York, Dubai, Dhaka, Colombo and Islamabad. Passport printing and file scanning project was implemented in the Passport offices and electronic transmission of Police Verification Reports is now operational in most of the Passport offices. A central system with over 50 million Passport applicant details is being maintained which is released to all Regional Passport offices, Indian Missions and Immigration Check Posts. Mission Accounting Package has been implemented in the some Missions. The process for implementation of Hague Apostille Convention (HAC) for attestation of any certificate issued in India by MEA for using at abroad has been initiated. A web enabled application for the issuance of OCI card and Universal Visa has been implemented with online registration facility. The development of on line Passport Application Registration System is in progress along with networking of Passport offices.

Environment and Forests

The pilot project on GIS for Indian State level basic environment information database has been successfully implemented for the states of Madhya Pradesh and Orissa on six broad environmental areas namely ecology, climate, demography, agriculture, hazardous waste and land utilization. IntraMEF portal has been developed by using open source technologies that are cost effective with an aim to provide comprehensive, accurate, reliable and one stop source of information to the Staff and Officers of the Ministry of Environment and Forests, India's Virtual Herbarium, Type Specimens of Botanical Survey of India. More than 3 million sheets are housed in various Herbarium across India and some of them are 200 years old. The project 'Online Accident Information System' is being conceptualized with the objective to integrate accident reporting formats under various regulations and covering important implementation authorities to create a centralized data base.

Fertilisers

'Fertilizer Management Online' has been developed and implemented to cover various fields of fertilizer sector viz., production, imports, distribution, movement, sales, stocks, subsidies and concessions for online monitoring and decision support to the Department of Fertilizers and information exchange with the stake holders i.e. G2G, G2B and G2C levels.

Finance

Web enabled system was developed to disseminate information related to Loans, Grants and Investments sanctioned by Ministry of Finance to various State governments. Using the system States can see latest releases, repayments made, outstanding balances and defaults. Enhancements were carried out in the software for History of Posting of Group A Officers of CBEC. This enabled generation of reports based on flexible criteria defined by users in terms of number of years spent by the officer in any region and any category of station. Off-line software was developed to enable the companies to prepare the data for quarterly financial statement, shareholding pattern, segment report and annual results. The software is presently under testing.

Intranet of Ministry of Finance was enhanced by adding modules for telephone directory, pay slips for officers of DEA, online application for E-mail account creation and problem reporting.

Food, Public Distribution and Consumer Affairs

Integrated information system for foodgrains management is running at 891 FCI locations. NIC has developed a workflow application addressing the

diverse requirements at various levels in organizational hierarchy. The application is standardized across all States. ICT infrastructure is provided alongwith training and professional support to ensure smooth transition from manual to automated system. CONFONET for 'Computerization and Computer Networking of Consumer Forums in the country' has been taken up as a plan scheme of Department of Consumer Affairs. The scheme envisages IT infrastructure and deployment of network based application software at consumer forums across India. Certification Marks Management System was deployed across 33 branch offices of Bureau of Indian Standards. A workflow system at branch level and the data replication is done daily at HQ over VPN. Around 20,000 operative license details are made online in Buyers Guide, 22,500 computerized receipts generated, 33,000 inspection details, 9,000 renewals of license, 2,300 applications recorded through CMMS and the status is shown online. A workflow system was deployed to serve their core Standards formulation activity for formulation of new Indian Standards, their revision and adoption of International Standards. All published Indian Standards as on date have been migrated to the system.

Health and Family Welfare

Training programmes were conducted for the officials of Ministry and DGHS. A system for computerized seat allotment for all India allotment of Under-graduate and Post-graduate Medical/Dental seats is being supported and multi city counseling was conducted during 2005 between Delhi and Jaipur on a pilot basis. The software was modified to run the counseling from both the centres. The video conferencing facility was used for the first time during the counseling. Software for survey of eligible woman by NGOs for the NGO Division of Department of Health & Family Welfare (DHFW) was developed. MIS on Government Health facilities was implemented. NIC had initiated the development of a portal for the Ministry of Health and Family Welfare, on the lines of Intra-NIC. The services like pay slips, user profile, birthday greetings, file movement, project monitoring, News, Events, Notices and Circulars, Photo of the week, etc., have been incorporated. Subsequently, more and more services are planned to be integrated with this portal service. Pilot for MIS for National Leprosy Eradication Programme (NLEP) was implemented. A system for monitoring of Grant-in-Aid and Utilization Certificates was developed and implemented.

Home Affairs

A new web based Immigration Control System (ICS) application software has been successfully commissioned at Mumbai after upgrading the complete hardware set up. Passport Reading Machines (PRMs) have been installed at Mumbai, Chennai and Thiruvananthapuram airports. A web based system for monitoring of physical and financial performance on expenditure for construction and upgradation of prisons at all India level has been implemented. Web enabled OPA-CRU module has been successfully implemented in Central Registry Unit of Ministry of Home Affairs (MHA) for diarising all Letters, Daks and Files, received in MHA. IntraMHA portal has been launched to provide access to pay-slip, GPF details, online request for visitor pass and forms, etc. Personal Information System (PIS) has been implemented. Service book data has been made available for view through INTRAMHA portal. Web enabled IPS officer's executive proforma prepared for detail data collection of all IPS officers. Upgradation of LAN in North Block has been upgraded. Narcotics Control Bureau IT project proposal has been submitted and LAN established. Daily Crime reporting system introduced upto district level, wherein data of serious crimes committed would be fed into a web based system and consolidated report would be available at MHA.

A major project implemented during this period is Common Integrated Police Application. The software development was completed and pilot implementation was launched by the Lt. Governor, NCT Delhi and Union Minister for Communications and IT in December 2005. The rollout at all 128 Police stations in Delhi has started.

Human Resource Development

Online counselling for AIEEE 2005 has been hosted at http://www.ccb.nic.in for public and on http://intraccb.nic.in for restricted access to Counselling Centres and Central Counselling Board during the Counselling period. Development and updation of Uttar Pradesh Technical University website and porting of all relevant information was carried out. Submission of online applications for grant of external scholarships has been developed

and implemented for various scholarships. Hindi version of the website of the National Bal Bhavan (http://nationalbalbhavan.nic.in) has been developed and launched in November 2005 by the Prime Minister of India. Data formats and report formats for various components of Establishment and performance on teacher education have been designed and feasibility report submitted. Windows based software has been re-designed and developed for annual publication for the Department of Education. NCERT website has been launched on NIC server URL http://ncert.nic.in Digitization of NCERT text books for classes 9 to 12 (English Medium) has been completed and made available online.

Industry

Total IT Solution and technical consultancy support has been provided to the computerization project of Indian Patent and Trade Marks Registry Offices for improving citizen centric services. New websites are developed and launched for State Trading Corp. of India Ltd. (http://stc.gov.in), Investing in India (http://investinginindia.gov.in) and National Manufacturing Competitiveness Council (http://nmcc.nic.in) for Department of Industrial Policy and Planning. CD-ROMs were released for Company Directory Series 7.0 containing registration details for about 6.91 lakh companies in India and also for PSE survey. Web based systems are implemented for e-submission and approval of documents using Digital Signature in Ministry of Steel and File Tracking System for small scale industries. IT support is also provided for revision of existing 'WPI series' and development of 'Service Price Index' for office of Economic Adviser.

Information Technology

Software for GIOs/ PIO for collection/ collation of RTI Act related information was developed. Gantt based Project Monitoring System was designed and developed. eAMS.Net - An Asset Management System for stores demonstrated and is under implementation at DIT. Maintenance and support for 'LIPS Information System' containing information on Electronics and IT Industry.

Information and Broadcasting

In a major e-Governance initiative, web enabled Intranet applications were developed for the Secretariat of Ministry of Information and Broadcasting and Media units such as Press Information Bureau(PIB), Directorate of Field Publicity, etc. Significant new services were provided to applicants of titles by Registrar of Newspapers, Government of India (e.g. Online title selection based on preset criteria, status of title application online and publication of recently registered titles, etc.) (http://rni.nic.in). A new section of archives of Prime Minister's speeches was created on the website of PIB (http://pib.nic.in). An exercise has been initiated in the Ministry to rationalize the available application forms and digitize them for online submission and processing.

Labour

For the national project 'Common Application System for Employment Exchanges', four out of six modules have been completed and demonstrated to Director General of Employment and Training(DGET). Four training courses were conducted for officials of DGET Hq and its field institutes on using the DGET Intranet portal for on-line submission of monthly progress returns, maintaining training calendars, managing their post and personnel database on-line. Based on the feedback received during these courses, the web-based application is being enhanced. Development of application software fot 'Child Labour Management Information System' under the INDUS Child Labour Project was completed by the LISD in collaboration with NICSI and the software has been accepted by ILO. The project is under implementation in twenty pilot districts. Automation of Protectorates of Emigrants was implemented in Kolkata during the year, before handing over the project. The comprehensive computerization work for Employees' State Insurance Corporation was undertaken.

National Human Rights Commission

Complaint Management System was implemented at the Jordan National Centre for Human Rights, Amman in Arabic fonts. It was implemented at the Maharashtra State Human Rights Commission. File Management System was implemented for Faridkot and Jaisalmer House; LAN at Faridkot and Jaisalmer House were operationalised and integrated with NIC using leased line; and at Tihar Prisons: Prison Management System(PMS) was implemented at a Prison at Trivandrum, Kerala. Biometrics tool was

integrated with PMS for identification of prisoner; Visitor Management System was deployed at Central Public Relation Office; Operationalise video conferencing at Tihar with 3 District Courts at Delhi.

Natural Hazards Management Information System

A prototype system 'Relief and Donations' for tsunami relief operations was developed and demonstrated. Past disaster events database development is in progress. Both these modules have been integrated to the website http://nhmis.nic.in as a part of 'Natural Disaster Knowledge Management Programme' development.

Official Languages

NIC implemented web-based Hindi enabled Office Procedure Automation (OPA) package in the Department. Technical support was continued provided to the Department for its Bilingual portal and computerized systems relating to examination result processing for Hindi Prabodh, Praveen, Pragya, Hindi typing, Hindi Stenography, monitoring of Quarterly Progress Report, Seniority lists of Central Official Language Service, Hindi books lists, Hindi Salahkar Samitis, etc.

Parliament

Technical Support was provided for development and implementation of Rajya Sabha Debate Publishing/Search System, Rajya Sabha Printed Index preparation system, Feedback System for Rajya Sabha Website, Web Based Computers Complaints and Inventory Management System, Simple Web Reporting Control to generate word document on website, Speaker Office Letter/File Monitoring System, Paper Laid on Table MIS, Store Inventory System-RS, Joint Recruitment Cell-Applications/Result Processing System, Statistical Reports-Parliament Question Processing System, Hindi Website of Lok Sabha, New Website of Speaker-Lok Sabha, Website of APLAP 2005. Daily Business Search.

Pension and Pensioners Welfare

NIC supported Central Pension Accounting Office through maintenance of Central Pensioner database and its web site http://cpao.nic.in, development of modules of compilation, Databank, and AG Pensioner system. Pilot project for 100% electronic exchange of data between banks and CPAO initiated for 18 nodal branches.

Personnel and Administrative Reforms

The support to the Department included development of Centralised Public Grievance and Redress Monitoring Systems (PGRAMS) with local language interface. RTI-Request/Appeal Monitoring and Information System was developed. The system was also implemented at Central Information Commission. Centralized Pension grievance Redress and monitoring system was also developed. A 'Web-enabled centralized Personnel Information System for IAS officers', across all State governments facilitating online and timely updating of personnel information was implemented along with INTRA-IAS portal across all the cadres.

Planning Commission

Multi-layered GIS as part of SDI at Planning Commission has been implemented and is now operational. A web-based application Planning Commission Outcome Monitoring System -PCOMS has been designed and developed for sector-wise physical/financial outcomes of schemes. IntraYojana portal and web-based retrieval system for State-wise information of 'Financial Resource Briefs' have been made operational. A web-enabled system has been uploaded on RTI Portal; extended the implementation of OPA and migrated to web-based version. Training Programmes for the IT based tools, OPA; support in preparing GIS maps; data analysis through statistical package were also carried out. Infrastructural support for the maintenance and upgrading of existing LAN with fibre LAN; establishing VPN connectivity; Proxy Server upgradation with ISA2004 were accomplished.

Posts

The iMO software was designed and development for sending instant Money Orders across the network. This was launched in January 2006. Web based mail route-monitoring system has been developed and implemented in four postal circles. Patram software has been implemented across the country. Cash certificate (Negative list) is implemented in 845 Head Post Offices of the country.

Programme Implementation and Statistics

An integrated system comprising funds sanction/ release, expenditure and works monitoring system has been implemented for MPLADS. A web-based works monitoring system for distributed data entry

(http://mplads.nic.in) for MPLADS has been operational. Training was imparted at district/state level to transfer data entry from the stand-alone system to web based system. More than eighty per cent districts/constituencies have started sending data through web.

Continued providing support for development / modification of Central Project Monitoring system costing more than 20 Crore as well as Twenty Point Programme including generation of monthly bilingual report was provided. The system generates regular QSR, Flash, Exception and PMO reports. An infrastructure monitoring system has been operational for monitoring the production / generation in selected infrastructure sectors. All the published reports are now available on web.

NIC strengthened network / Internet access by providing lease line based connectivity to the Ministry.

Road Transport and Highways

E-governance guidelines have been completely implemented in the Department. Applications developed include File Tracking software covering all movement of files from office of the Secretary to all the sections. No file is accepted manually. Systems implemented include Composite Payroll, Inventory Management System, leave management has been developed. RTI Software covering all the stages of applications, starting from receiving the applications at the counter, monitoring and final redressal is complete. PGRAMS is operational. Intranet of the department has been made operational for accessing File Tracking, Payroll, Leave applications, RTI, PGRAMS and Inventory Control.

Rural Development

Open eNRICH v4.0, a community software solution was developed in response to request from UNESCO and OneWorld International Foundation (OWIF), an International NGO based in London. The software is being deployed worldwide across countries in South Asia, Africa and Latin America. The Minister for Communications & Information Technology, Shri. Dayanidhi Maran launched Open eNRICH in the World Summit on Information Society (WSIS) held in Tunisia on 16-18 November 2005. Collaborated with Stanford University, USA on a research project entitled 'Enabling ICT for Rural India' to carry out study in nine rural ICT project sites in India for better adoption of ICTs. Support was provided to Ministry of Panchayati Raj in design and development/ customization of software solutions like Fund Transfer Software; File Tracking Software and National Panchayat Portal (NPP, http://Panchayat.nic.in).

NIC has extended full technical support in the preparation and approval of project proposals for State level computerization of PHEDs / Jal Nigams / Water Boards. Another major project is Integrated Management Information System for the office of Department of Drinking Water Supply which includes online updation of coverage status of rural water supply in 14 lakh habitations of the country, online updation of progress reports for all the water supply and sanitation programmes of the department from all states and the source wise water quality status. For the first time the data of BPL census got computerized across the country in the predefined format. Software has been developed for online monitoring of schemes of Department of Rural Development and data 515 schemes has already been entered on the system. Web based application software package to strengthen the online entry and monitoring of progress reports has been prepared.

Science and Technology, Biotechnology and Ocean Development

Software for 'Participation of youth in Real-time Observation to Benefit the Education'(PROBE), which targets the students, Meteorological Department and research institutions in Uttaranchal and NCR, was implemented. Intranet for Department of Science and Technology and Department of Scientific and Industrial Research was made operational. Web based software for Partial Finance Assistance scheme was completed.

Shipping

Intraship, the Intranet site of the Department of Shipping has been designed and implemented in consultation with the users. Store inventory management system has been implemented to monitor issue and stock position in General and Technical Stores of the Department. Existing LAN has

been extended to all dealing Assistants of the Department for extensive use of web based File Tracking System (DMIS) by all sections.

Textile

A File Tracking system with enhanced graphical user interface was operationalised in the Ministry along with various Attached / Subordinate Offices. A web based system for monitoring Grant-and-Aid proposals for handicrafts sector is being implemented in the Office of Development Commissioner (Handicrafts).

Telecommunications

Software was designed and developed for various activities of Universal Subsidy Obligation Funds including operational expenses for village public telephones and rural community phone. Presently, software for monitoring of 250 million telephone lines which are going to be provided by various service providers is being developed. Development of Intra DOT portal has been completed. GIS based mapping of telecom infrastructure is in progress.

Tourism

Administrative website of the Ministry of Tourism was launched in December 2005 at http://tourism.nic.in/. NIC continued to provide support to the existing applications at the Indian Tourist offices.

Urban Development and Poverty Alleviation

The computerization of the Land and Development Office was carried out. Layout maps have been scanned and are available on CDROM. eAwas - Government Accommodation Management System in Directorate of Estates was successfully implemented and is now being implemented in 8 Regional Offices of the Directorate. The project has been short listed for Oracle Excellence in e-Governance award . Websites of the Ministry and NBO have been designed and launched.

Water Resources

NIC has completed the computerization of 3rd Minor Irrigation Census. The National Level Report with CD of this census was released by the Prime Minister. The census has covered about 20 million minor Irrigation structures spread over 33 States/UT's. A Decision Support System has been inbuilt to facilitate the management and planning of water resources. A Business Intelligence Solution has been introduced by creation of 'Data Warehouse' on sample data. A website for Central Ground Water Board has been designed and hosted at http://cgwb.gov.in. Reservoir Level and Capacity Monitoring System for monitoring the level and storage position of 70 reservoirs in the country has been implemented at Central Water Commission. The system generates the daily bulletin which contains the full reservoir level, live capacity, latest reservoir level and capacity and data of the same day of previous year and average of last 10 years. The website of the National Water Development Agency was designed and hosted at http://nwda.gov.in. As per the Information Technology Strategic Plan, system study reports were prepared by NIC. A system for monitoring the projects is under development.

Women and Child Development

A portal on National Resource Centre for Women (NRCW) has been designed and developed and hosted at NIC server as a warehouse of information on women development and progress achieved over the years. NIC has developed a web-based software to monitor the quarterly progress report of 33 States/UT on Swayamsidha scheme and implemented in all States. Online complaint registration system for National Commission for Women has been developed and implemented. The system provides a help line to women who are in problems related to domestic violence, harassment, dowry, etc., and want to register a complaint in NCW through Internet. 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.

Youth Affairs and Sports

NIC continued to provide MIS support to the Ministry. MoU was signed between Sports Authority of India (SAI) and NIC for computerization of major activities and for this an IT Plan was prepared. A multimedia CD on Sports was prepared by NIC and made available for release to the public by SAI. IT Plan was also prepared for computerization of Nehru Yuva Kendra Sangathan.

NIC Support to State Governments

Andhra Pradesh

ePanchayat implementation taken up in 475 panchayats. Funds have been received from the Department of Panchayat Raj; Government of Andhra Pradesh for training, hardware and systems software and the execution of the work is in progress in all the districts. eHospital project was formally launched and is being implemented in various government hospitals. Hyderabad Urban Utility Mapping project was taken up. Site preparation at the control centre and various user departments in progress and hardware procurement initiated. District Court computerization was taken up for courts in Hyderabad. AGMARKNET project has been implemented in all the districts. Integration of Registration and Land Records taken up on pilot basis for CMLR (Comprehensive Modernization of Land Records) project. IISFM (Integrated Information System for Food Grains Management) package for Food Corporation of India is in progress. Pilot implementation of integrated management system for Pay & Accounts and Treasury has been taken up. NIC network in Medak District is being commissioned.

Arunachal Pradesh

Software development of web based MIS package for PHED has been completed. Implementation of SARATHI software, done at RTO Yupia, is in progress at Tezu. Testing of VAHAN Software is in progress. Website for Governor has been developed and hosted. GPF accounting software has been developed and implemented at the Directorate. Payroll software ver3.0 is being used in the State Civil Sectt. and various offices. Data entry of Land Records in 12 districts has been done using the LISA Software. Back log data entry for EEMS software is in progress at pilot site. A website for Tax and Excise Department t has been developed.

Assam

Systems developed cover Pragati-Umbrella for e-Governance applications; Arogya–Patient Registration; Path reports; Hospital payroll and diagnosis history; UdyogRatna at District Industry Department; Safal Jyoti - Performance enhancement and evaluation system for CM; Dharitee-web based land records system; ASHA - agribusiness portal related to agriculture; animal husbandry and Fisheries for dissemination of information through 219 CICs; Network operation and data centre; Manuscript Resource Centre - Implementation of Manuscript software at Gauwahati University Centre and data Entry of 16,000 records are over; Nibandhan Integrated Registration software implemented at Tinsukia/Sonitpur; Web-based GIS solutions for village level attributes; and Land records.

Bihar

VICTORY (VAT Information Computerisation To Optimise Revenue Yield) application was developed and implemented at Commercial Tax Head Quarter, 7 Divisions and 36 Circles of the Finance (Commercial Tax) Department of Bihar. VICTORY application has been awarded Oracle e-Governance Award - 2006. The Total Branch Automation (TBA) was implemented in 4 additional branches of the Bihar State Co-operative Bank taking the number of computerised branches to 15. The Bhavisyanidhi software was implemented at 7 districts level GPF offices. A new treasury accounts management software, e-KHAZANA, was developed with new features like randomized DDO-code for all DDOs, details of no. of employees under each DDO, facility of capturing signature and photograph of DDOs, etc. It has been implemented at Patna Treasury on pilot basis. Computerisation work of 7th All India Education Survey was completed which resulted in creation of a large database on school infrastructure in the State which will help in planning expansion of school infrastructure. Websites were developed for Commercial Tax Department, Bihar Vidhan Parishad, Food and Civil Supply Department, Jai Prakash University, etc. Several district websites were also developed.. Software Requirement Study (SRS) was completed for an enterprise wide application for the Public Health Engineering Department, Bihar School Examination Board, Bihar State Food Corporation.

Bihar State Centre of NIC, provided support during the Parliament and Assembly Elections in Bihar. Web based Complaint Monitoring System was developed to facilitate redressal of voters' complaints. An e-Counting application software was also developed and implemented to provide minute-to-minute counting information through the web. ELECON V 6.0 was developed with facility to form election parties with photographs.

Chhatisgarh

E-Kosh treasury system has been made fully operational statewide with online budget checking and centralized database SAN at Raipur and DRC at Bilaspur. Statewide employee database and pensioners database are being created. VSAT based network has been established up to block level for Rural Department. Web based software has been implemented for effective monitoring of rural schemes. AISES data processing has been completed for Chhatisgarh State. Open source technologies have been implemented successfully for developing GIS connecting various external databases. 20 new APMCs(Mandis) have been covered under AGMARKNET project. 28 more APMCs have been taken year for which order has been placed, to cover 100 % APMCs of the State. Computerisation of District Courts of Raipur and Bilaspur has been initiated. Registration, fees, fitness and learning license module modules have been implemented at pilot site in the Regional Transport Office, Raipur under transport office computerisation. Data entry module for guideline and index has been implemented in Property Registration Office.

Delhi

As part of support to the Government of Delhi, Wide Area Network was implemented and 31 locations connected. Computerised record of Rights is being issued in all the Districts,. Social Welfare Department - Software for Financial Assistance Schemes of Delhi Government is under implementation in 4 Districts, PFA Department - Court Cases monitoring system, Warning module, nomination module developed, centralised pay software developed and training given to about 1500 DDO's for implementation, Intra-Delhi software developed for Delhi Government, Website hosting of about 10 Departments done, support provided for Pulse Polio Immunisation Programme, Seventh All India School Educational Survey project of NCERT, new version of File and Letter monitoring released.

Goa

INFOGRAM is being implemented for Ministry of Panchayat Raj in all village panchayats. . Common personnel information system has been implemented in the State. The web-based application has good feature of attaching a post with person and other facilities. Common payroll is being implemented for Goa State and will be integrated with accounts department for online submission of bills by the DDOs. File tracking system is implemented in the Goa Secretariat. The land records system is being integrated with the land maps. All the municipal councils are to be connected for information sharing with the Urban Development Department.

Gujarat

An intranet portal for Forests and Environment, Agriculture covering Animal Husbandry and Horticulture Departments has been made operational. 25 Sub-registrar offices of 7 Municipal Corporation areas were computerized with registration fee collection, evaluation, photo capturing, document scanning, etc. Land records software is operational in all 225 taluka. People can get ROR at taluka level. One Day e-Governance package covering different types of certificates and affidavits replicated in over 210 talukas. Ration Card system made operational in over 220 talukas. Live stock census and BPL survey data of around 65 lakh families was made available. Passport Police Verification application software was made operational in the DSP offices. Data of passport applications collected at district office are made available to RPO. Birth and Death registration and Integrated Child Development Scheme reporting system has been implemented. Property Card (urban land records) implemented at pilot sites. All treasury and PAO offices bill, voucher, expenditure details made available on SWAN. Software has been provided for automation of Sub-Divisional Magistrate office processes. Registrar of Companies website has been developed. Vidhansabha debate, MLA information modules implemented during the year. Panchayati Raj institutions accounts maintenance (e-PRIMA) system was introduced. e-Gram application replicated in over 600 villages. Pharmacist registration system software implemented. Gujarat Intranet services covering rainfall, commodity prices, pension status, stamp duty calculation, etc., on SWAN made available.

Haryana

Major projects completed during the year are - Integrated Value Added Tax System (VATMACS) which received 'Gold Icon' award; Integration of Property Registration and Land Records (HARIS

HALRIS Bridge) which received 'Silver Icon' award, e-Health. Net - Health care system received 'Silver Icon' award, BOSE (Board of School Education) Haryana - Administarative Re-engineering, publishing of admit cards, results and provisional certificates on web received 'Gold Icon' award.

HALRIS implementation was taken up at all the Districts and more than 3,000 Jamabandies finalized. Driving License and Vehicle Registration system was implemented at 30 Sub Divisional Magistrate offices. Issuing of various computerized certificates to citizens has been made operational at 15 sites. Nai DISHA Ekal Kendra G2C started at Gurgaon. Workflow based Subordinate Courts Judicial System implemented at Panchkula, Ambala, and Patiala. Workflow based State Annual Budget 2005-06 implemented. Assembly Elections 2005, Panchayat and Municipalities elections were conducted. Employees Transfers Processing and MIS at offices of Ministers and Chief Minister Secretariat. AGMARKNET project at 106 Mandis implemented. Workshops organised on DISNIC Plan Phase-II project, AgRIS project, Cyber Crimes and Security. More than 2,000 government employees have been trained. Web enabled PWD works monitoring system, Passport services project at all districts and Regional Passport Offices, Customs and Excise import/export system, AG Office G2G portal with 1.25 crore records, State level MMPs under NeGP (like HARIS, HALRIS, OTIS, VATMaCS, Municipalities, Agriculture, Panchayats, Police, Employment Exchanges, SWAN, E-DISHA, State Portal, Capacity Building) were further strengthened and implemented. Technical guidance was provided to State on formulating projects for NeGP funding. The projects - Results through Binocular, Labour Courts computerization, Public Demands and Complaints Acceptance system, Manning operations of SAN based data centre, RTI Act, updation and maintenance of Websites of Districts and Departments were implemented.

Himachal Pradesh

Software packages implemented and operationalized include - HimBhoomi (land records computerization) in all the districts of Himachal Pradesh(HP) and making 80 tehsils online; of HimRis (Himachal Registration Information System) in all the districts covering around 30 tehsils; Pehal (E-Governance Centres) in 23 new sub-divisions; REFNIC (Reference Monitoring) in remaining branches of HP Secretariat and departments like HP State Electricity Board; Online Treasury System (OTIS) in remaining 7 districts; E-Granthalaya in HP Secretariat; Vidhan Sabha Library and HIPA Library; ePraman (Certificate Issuance System) in 40 tehsils and sub-divisions.

Jammu and Kashmir

Database of Urdu and Hindi electoral rolls including web hosting for entire State has been carried out. Court Cases Monitoring software implemented at 10 places. Computerisation of Municipal Council along with issuances of Birth and Death certificate from Jammu carried was out. Pilot implementation of Scanning of Old Land Record Software initiated at one Patwar circle. Websites developed for Principal Controller of Defence Accounts, HPMC, Excise Department, and Report generation of BPL families, City Civil Court project under implementation at Jammu. Implemented IISFM at 5 locations in J&K, LAN at Food Corporation of India - Jammu. Computerised beneficiaries details of various schemes run by the Social Welfare Department at one location. Computerisation done for provisional as well as permanent registration certificate of Small Scale Industries at Jammu.

Jharkhand

For computerization of Treasuries in the State, a client server system was developed with enhanced security features, role based users activities, authentication at different level, online bank connectivity to mark the payment, integration with GPF schedule. Web interface was developed to enable treasuries to upload data at central server and generate MIS. VAHAN/SARTHI has been implemented at all DTOs. Smart card based registration certificate and driving license was introduced at six locations. Implemented web enabled GPF information for State government employees and Prisons Management Information System at Central Jail, Ranchi. Video conferencing facilitiy was set up between Jail and District Court. e-Personnel software implemented to maintain the records of government employees. Annual Budget 2005-06 prepared and published on web and CD released. Chief Minister appointment and public grievances package developed and implemented. Land Records software is being implemented at Jamshedpur on pilot basis. IT support provided to central projects like DACNET, AGMARKNET, Passport, Central Excise, FCI,

Consumer Forum and Police Modernization project on regular basis.

Karnataka

Under the Rural Digital Services 15 new services were developed and deployed in Mandya and Maddur taluk; Electricity bill payment service deployed in Anekal taluk. BHOOMI Version 4 has been implemented in all 177 talukas and pilot integration of Bhoomi-Kaveri at 2 talukas. Crop updation module of Bhoomi at Telecenters is now available.

Municipality profile, Swarna Jayanthi Shahari Rozgar Yojana and Personnel information system modules were implemented for Directorate of Municipal Administration. e-Granthalaya was implemented at 20 additional locations. AASTHI: Gram Panchayat (GP) property tax software has been deployed in 60 GPs; GP accounting software developed; and implemented MIS for self help groups for all districts.

A number of systems were developed and implemented for the Secretariat including Online Complaint Management System, Document Management System and Court Case Management System. MIS for colleges was also developed. Online immigration service developed at International Airport, Bangalore. Health information system and 'Raitha Samparka Kendra' information system implemented.

Kerala

DC*Suite project Phase-I has been completed successfully. DC*Suite in e-district solutions will be replicated in all districts of Kerala and in pilot locations in other States. Various IT Services in the area of education, training, video conferencing, health, web services, transport etc., were provided to State and Central departments. Uniform school portals provided for Kendriya Vidyalaya schools in certain zones. MESSAGE – the e-secretariate solution is being implemented.

Madhya Pradesh

MIS was developed and implemented for Chief Minister's and Chief Secretary's Offices. Applications were developed for Jails, Sainik Welfare and M. P. Home Guards, Consumer Court Redressal Commission, SC Development, Schools and PIS, Public Distribution for Food Department, Seed Certification Management and Registration Index Records. Computerization carried out of Public Health Engineering Department, M. P. Vidhan Sabha, NSS 61st Round Survey, 7th AISES, CAPES for DOEACC, Registrar, Firms and Societies, Ration Cards Survey for Vidisha, Implementation of Panchayati Raj Institution Accounting Software (Panch Lekha), AGMARKNET, Bank Recovery Incentive Scheme, PATRAM, CIPA and Payroll, Works Monitoring System for Collectorate-Rewa, design and development of websites for 12 departments of M. P. Government, BHU-ABHILEKH data on web for 48 districts, Bagged CSI-Nihilent e-Governance Award for e-Gram Suvidha, Geomatics-based Application for Rural Road Development Authority, GIS-based system for Omkareshwar and Indira Sagar projects, GIS system for planning power distribution network, Thematic maps showing rainfall distribution for agriculture department.

Maharashtra

NIC provided support to the State for design and hosting of websites for all districts and government departments. Commissioning of Land Record, computerization in all 357 tehsils for BPL Survey and Habitation software at districts was completed. Kerosene allotment system was developed. Content creation was done for Panchayat portal. Implementation carried out for CIPA, CONFONET, NREP, Utility mapping.

Manipur

Land records computerization was carried out in the State. Other projects include - implementation of VAHAN and Sarathi, data entry of 7AISES Central project, Treasury computerisation, Payroll software, Employee database, implementation of E-Suvidha. The NIC unit conducted a number of training for the State Government employees as well as on-line CCC examinations. Support was provided for design and development of websites, PMGSY, ICDS, 20 Point Programme, BPL Data Entry, and Online Hosting of Assembly Proceedings.

Meghalaya

NIC State Unit carried out the computerization of the Taxation Department, Transport Department and State Transport Authority, Library, PHE Department, RTI, Civil Hospitals, Board Results on the NET, Health Department, Budget and Finance. Major projects

included - computerization of the Meghalaya Public Service Commission and Shillong Municipal Board. VAT computerisation was implemented for the Taxation Department. A web based MIS was designed and developed for PHED department. TreasuryNET was implemented in all treasuries and sub-treasuries.

Mizoram

Driving License (SARATHI) and Vehicle Registration (VAHAN 2.0) was implemented at DTO Lunglei, Saiha and Champhai. Storage Area Network (SAN) was installed at Aizawl. NIC Training Centre with 20-seat capacity was established. 50 government offices connected with NICNET using RF. MoU for development of PHED MIS was signed between NIC, NICSI and Government of Mizoram. Systems study and Gap analysis was done for the project which would be completed during 2006.

Orissa

Bhulekh, land record application has been rolled out in 158 Tehsils. e-Sahayata, a web-enabled Citizen-centric Information Dissemination Interface, has been implemented. Citizens are accessing information through Touch Screen KIOSK. The information is displayed in Oriya. It is hosted at bhulekh.ori.nic.in/esahayata. The system also provided Citizen-centric single-window based services such as driving license, gun/explosive license, issue of encumbrance certificate, registration of society, etc. JANAVANI on Internet based public grievance redressal and monitoring application has been developed and is under test run for the district of Khurda. Statewide integration and rollout is under progress. Central projects implemented cover Saarthi VAHAN, AGMARKNET and National Panchayat Portal. Web enabled Assembly Questions and Assembly Bill Information System has been implemented.

Punjab

PRISM 4.1 was implemented at 17 locations. SUWIDHA 2.0 software was implemented in the districts and SDM offices. Other systems implemented include - Affidavit Information System and Office Automation Suite. A dynamic website for AG Office was developed. Pilot implementation of DIETS for Treasury data was carried out and dynamic website of Treasury Department was developed. Pilot implementation of SARATHI, VAHAN and PERMIT software was carried out. Central projects for Passport Offices, DACNET, Immigration project, RoC, Central Excise and Custom, PATRAM were implemented. Other projects include payroll and website for Punjab Planning Board, MPLADS project, Pilot implementation of Sub-Ordinate Court Judicial Information System, preparation of Budget; Arms License Information System, Payroll and GPF software.

Rajasthan

Indian citizenship certificates were prepared in the border districts using software developed by NIC and distributed to the migrants from Pakistan. Multi purpose National ID card project has been taken up at the pilot site of Jaisalmer. As part of Dharohar project 5000 art objects have been digitized and videography of selected historical temples was completed. VAHAN and SARTHI projects have been implemented at pilot RTO site in Alwar. The first phase of employment exchange project has been completed. A comprehensive health MIS named HEALING (Health Information System for government) has been developed and implemented for Medical and Health departments. NIC district centres extended their services in management of elections of local bodies including Panchayats and Municipalities. VC based remand facilities have been established at Central Jail, Jodhpur and District Court, Jodhpur. AIEEE counseling was held with technical support from NIC State unit. The project for BPL census has been completed. Websites of High Court, PHED, State Election Commission, Employment Department and few districts were developed and launched. Customization of Employment Exchange software was taken up for implementation at 22 Exchanges.

Sikkim

The VAT project implementation for Government of Sikkim is successfully operational in all check post, circle offices. Land record computerization has been extended to sub-divisions made completely on-line in 3 sub-divisions. VC installation completed in all the districts including Chief Minister's residence and Raj Bhawan.

Tamilnadu

The new systems developed by NIC for the State include - Contributory Pension Scheme Management System for the Office of Accountant General; web

based system for Civil Supplies Department; integrated workflow based system for Tamil Nadu Water and Drainage Board; system for Hill Area Development Programme; Land management system for Defence Estates. The Central projects implemented were - Vahan and Sarathi in 40 Regional Transport Offices; Postal Accounts Transactions Maintenance Software (PATRAM) at 15 Postal Accounts Offices; CollabLand Software for Field Maps generation in two taluks. Property Tax collection and related systems were implemented at ten Zonal Offices of Corporation of Chennai. Personnel Information System has been implemented in all departments at Tamil Nadu Secretariat. More than 90 training programs were conducted at Chennai. NIC Centre designed and hosted more than 25 new websites. New projects commenced include - implementation of STAR project at 150 more Sub Registrar Offices; workflow based Treasury System for four more District Treasuries and their Sub Treasuries; Adangal module in Tamil Nilam System in 201 rural taluks.

Tripura

During the year, State wide rollout of e-Suvidha solution has been completed. Energy Billing System rollout for Electrical Division (No. III) has also been completed. Jami-Land Records Management System has been deployed in 9 revenue circles. Processing of 7th All India Educational Survey has been completed.

Uttaranchal

The State unit carried out computerization for Energy Department, Planning Department, Land Records, Trade Tax, Sub-Registrar, Treasuries, Transport. MIS was developed for Transport and Revenue. Other applications developed include – Chief Minister Office Letter Monitoring, Pension Management, Sarv Shiksha Abhiyan, Lokayukta, Societies, High Court, Sankhiki Patrika, BPL Survey, Group Insurance Management System, Budget Directorate, 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. NIC provided maintenance support for websites of the Districts and various Departments like Finance, Chief Electoral Officer, Transport, Arhkumbh, Rajbhawan, Lokayuk, Uttaranchal High Court and Registrar of Societies.

West Bengal

During the year, all the pilot locations in Hooghly district under the Banglar Bhumi (Land Records Computerisation project) are operational. Map embedded Record of Rights are now distributed in all locations where digitized maps are available. CORD (Registration of Documents) has been implemented in Srirampur, Chandrenagar, Janai and Singur in the Hoogly District as pilot. AGRI PORTAL has been hosted. Gram Panchayat Management System has been successfully developed under Open Source in Bangla and is being tested. VAHAN/SARATHI (Transport) have been rolled out in Birbhum and 24 Paraganas (North) Purulia and Howrah.

Andaman and Nicobar Islands

NIC unit implemented Dweep Bhommi the Land Records system on pilot basis. Support was provided in relief operations through the Tsunami website. Software support was provided for computerization of Transport Office, District Court, Common Integrated Police Application, NICNET-ISRONET linking and Citizen service centres.

Chandigarh

Citizen centric services are being provided through eight eSampark centres portal with online payment facility and on Mobiles. Computerisation in District Court and Consumer Court has been undertaken on turnkey basis. Backend integration of databases of various departments in order to provide information for Jan Sampark project and also provide a centralized solution is being undertaken. Property Registration Information System has been implemented in Chandigarh District. Regular training courses for administration employees are being organized through out year. Support to make National level projects successful is also being rendered. 35 website are being maintained for day to day updations and enhancements. NIC has also been entrusted to undertake Chandigarh Wide Area Network (CWAN). The Network and Data Center (NDC) is working as Regional Network Centre providing services to Punjab, Haryana, Himachal Pradesh and J&K. Chandigarh has been awarded CSI-Nihilent Award 2004 for the Best e-Governed State. Earlier, eSmapark project was awarded Golden Icon by DAR&PG.

Lakshadweep

The PORTNET project interconnecting 13 ports in Lakshadweep islands using VSAT network and development and implementation of ship ticketing system for 'anywhere to anywhere from anywhere' was completed. E-governance infrastructure was set up for all Sub-Divisional Offices. Development of SDO suite completed. A web-enabled package for issue of various certificates, E-Certificate, is being implemented. The Intranet portal for the Lakshadweep Administration, INTRALAK, is being implemented. Creation of resident database for the issue of resident ID cards from the electoral roll database has been completed. Web-enabled inventory management information system has been developed and implemented, Web-enabled software for e-registration of export entities, subsidy management, financial management and National Residue Control Programme monitoring developed for Marine Products Export Development Authority. The development and implementation of web-enabled Permit Management System, Personnel Resource Management Information System was completed. Websites were developed for all the departments in Lakshadweep with gov.in domain names. A Medical Inventory management software has been developed and implemented in Miniocy hospital and is being replicated in hospitals of Lakshadweep.

Pondichery

As part of the NeGAP, the 'NilaMagal' software for process automation of Land Records information was launched by the Chief Minister. "e-Pathiram" software has been designed developed and tested for Registration Department. The 'SPICE' software for 'Issue of Permanent Caste Certificate' was launched with photo and finger print capturing. The national level packages of SARATHI and VAHAN for the Transport sector were implemented. Process re-engineering of Employment Exchange with web portal was completed. Computerization of District Courts and RTI was carried out. System is in progress for providing delivery of services to citizens through Citizen Service Centres of the Government of Pondicherry.

Software Development Unit, Pune

Computerization of activities of Department of Explosives including enhancements in software was undertaken as a National level project. Certification was received for software products MCC-eGovernance, MCC e-Office Version 2.0, Mahabhulek. At the State level, a project for development of web-enabled software for Department of Agriculture to create beneficiaries database for all schemes and component and online admissions to Agriculture Colleges was carried out. The computerization of the Department of Employment and Self- Employment including bi-lingual portal was completed. The treasury software, Koshwahini, was enhanced and PAS (Pension Automation System) at 33 Treasuries and PAO, Mumbai was developed and implemented. Web based software TreasuryNet was implemented in 2 pilot treasuries and PAO, Mumbai. The new payroll software integrated with web based Personnel Information system was successfully implemented for all departments of Mantralaya, Mumbai. As part of computerization of the Municipal Corporations, 9 application packages namely Annual Budget; Estate; Licenses; Library; Cashbook, Property Assessment, Stores Workshop, HRMS have been released and implemented at 5 Municipal Corporations. The unit also conducted a number of training programmes.

Court Information System has been developed using the LAMP Model (Free and Open Source Solution Suite) and deployed at all the District Courts and about 150 Taluka Courts in Maharashtra State. Recently this has been implemented by NIC-Kerala by making certain value additions in all the Taluka Courts and District Courts of Kerala.

National Informatics Centre Services Incorporated (NICSI)

National Informatics Centre Services Incorporated (NICSI) provides one-stop complete IT solutions catering to Government of India and State bodies, Public Sector Enterprises/Undertakings. NICSI is a Section 25 company under NIC. NICSI specializes in procurement, installation, commissioning and maintenance of state-of-the-art videoconferencing Equipment and services, KU-band VSATs, hardware, software along with consultancy services and other IT related services like systems integration, application software development, network installations,

operations management support, etc. at the most competitive prices. NICSI sponsors specialized technology seminars, workshops and develops training methodology for the users to enhance and update their existing skills in the rapidly advancing Information Technology field. NICSI has a reseller agreement for various Software products like Microsoft products, Novel products, IBM products, C-DAC products, Red Hat products, SAP, SESAM and Oracle products. Supported by the comprehensive and technologically advanced networking and infrastructure set-up of NIC, NICSI has ventured successfully into the areas of providing Turnkey Solutions for projects like Employees Provident Fund Organization, Computerization of High Courts, State and Regional Transport Authorities of various States, etc. NICSI has also provided consultancy services to World Bank project for the Ministry of Finance, LAN project of Gujarat Government, Rajiv Gandhi National Drinking Water Mission, GRAMSAT pilot project and Haldia Port project and the setting up of Community Information Centres in Mangolia. NICSI has executed national projects namely e-governance and SWAN and setting up of Community Information Centres in North Eastern States and Jammu & Kashmir.

Awards

- The following Awards were won by National Informatics Centre in different Forums:

- The NIC stall set up at ELITEX-2005 organized by DIT was awarded first prize in the best Exhibit Category.

- The National Identity Card Software (NISANI) developed by NIC District Centre-Mirzapur, has been awarded the MAN THAN GOLD AWARD-2005 in e-Governance category. This software has also been nominated for the 'World Summit Award Global Contest-2005' as the best e-content example in e-Gov from India.

- 'DACNET' an 'e-Governance' projects implemented by NIC for Department of Agriculture and Cooperation, were conferred the 'Bronze Award' in the e-Government category by MANTHAN AWARD-2005.

- The Madhya Pradesh State Unit of NIC was awarded CSI-Nihilent e-Governance Award for e-Gram Suvidha (Geometics Based Facility Management System) under best sustainable product category.

- Koshwahini software was developed by NIC-Software Development Unit, Pune was awarded, 'Best Practices in e-Governance' and 'Silver-Icon Award' by Government of India.

- Oracle excellence in e-governnance awards at Oracle Open World in Mumbai for the following Projects :-

  – LRMIS-Land Records Management Information System
  – CARD- Computer Aided Administration of registration Department
  – ePanchayat
  – Rural e-Seva
  – Computerization of Directorate of Pension, PF and Group Insurance- NIC-WB

IMPACT- Information Management and Promotion of Administration in Commercial Taxes- NIC-WB

  – ASHA- providing services of Agriculture, Horticulture, Sericulture, Fishery, Animal Husbandary sectors in Assam through 219 CICs of Assam
  – VICTORY- VAT Information Computerization To Optimize Revenue Yields- NIC-Bihar
  – Treasury Computerization System- NIC Rajasthan
  – ITSANIC- Integrated Treasury System Application by NIC- NIC UP
  – e-Kosh (Online Treasury Computerisation, Chhattisgarh)
  – Computerisation of PAY & ACCOUNTS OFFICE- NIC-Gujrat
  – FAIS- Integrated Financial Accounting System-NIC-Kochi
  – Immigration Control System (ICS)
  – Vahan and Sarathi
  – eAWAS- Government Accommodation Management System (GAMS)
  – Indian Customs EDI System
  – District Courts Case Management System (DC-CMS)
  – Passport Control and Issuance System [PCIS]
  – Postal Life Insurance (PLI), Department of Posts, Rural Postal Life Insurance (RPLI), Department of Posts

Promotional Matters

International Co-operation and Bilateral Trade

WTO-GATS Services negotiations

India has made very proactive and forward looking offers to the WTO members matching with the autonomous liberalization and have fulfilled the transparency requirements of the General Agreement on Trade in Services. In modes 1, 2 and 3 of services delivery India has taken binding commitments under the sectoral and horizontal category. Only in the mode 4, there are specified limitations but with lot of liberal conditions.

Likewise India has made similar requests on nearly 70 WTO member countries to make similar offers and the same are being negotiated. Now after the Hong Kong Ministerial Plurilateral offers are being made to achieve tangible results.

Cooperation with ASEAN

An ASEAN-India Exploratory Study Mission visited India in April 2004 and had interacted with Indian ICT industry, various institutions and Government officials. Based on these interactions following proposals have been initiated: Cyber Security - 3 days training program for Systems Administrators of ASEAN member countries in Delhi by CERT.In; ICT HR Development - Seminars on e-learning and e-learning Technologies by C-DAC Hyderabad; Project for visually impaired - a project for visually impaired persons titled, 'SHRUTI DRISHTI' developed by C-DAC was offered to ASEAN Secretariat; and ICT for Poverty Alleviation - Media Lab Asia offered various citizen centric projects to ASEAN Secretariat.

Cooperation with Asian Development Bank

The South Asian Sub-regional Economic Cooperation (SASEC) ICT Working Group reached an understanding on the SASEC ICT Development Master Plan based on the following pillars

- Interconnectivity based on convergence comprising both network (wire/wireless, fiber, etc.) and service (ICT applications, e-health, etc.);
- Capacity building and human resource development by sharing information and by establishing ICT regional training institute/scholarship program;
- Regional ICT sector regulatory framework; and
- Regional ICT sector development strategies.

These pillars are aimed at fostering regional cooperation in ICT among SASEC countries through preparation of an ICT Development Master Plan.

India, Brazil and South Africa (IBSA)

A Trilateral Commission of three countries of India, Brazil and South Africa (IBSA) Dialogue Forum was build up by the Foreign Ministers of these countries. The identification of joint projects was agreed upon and Plan of Action established.

International Institutions

World Summit on Information Society

The World Summit on the Information Society (WSIS) was held in Tunis on 16-18 November 2005 which was attended by more than 170 nations. WSIS focused on the following issues of – i) Financial mechanisms for meeting the challenges for ICT for Developments, ii) Internet Governance and related issues, iii) Implementation and follow-up actions. India contributed in hammering out a consensus on providing affordable access to ICT by the following measures: i) Reducing international Internet costs charged by backbone providers, supporting, inter alia, the creation and development of regional ICT backbones and Internet Exchange Points to reduce interconnection cost and broaden network access; ii) Encouraging ITU to continue the study of the question of the International Internet Connectivity (IIC) as an urgent matter to develop appropriate Recommendations. India also contributed on Internet Governance issues which were incorporated in the relevant paragraphs.

The WSIS also organized an exhibition with the theme of 'ICT 4 All' wherein India also participated and focused on the theme 'ICT 4 Development and Solidarity'. Eight companies from India namely, TCS, ITC, Infosys, NIIT, HCL, Midas Communication, Tejas Network and C-DAC participated in the Summit. 'e-Chaupal' which provides rural e-biz solution showcased by ITC was selected for award in the exhibition. 'Hole in the Wall' experiment of NIIT to teach computer usage to children attracted many visitors. C-DAC's live telemedicine link was a big draw, showcasing the telemedicine application 'Onconet' in real time by demonstrating medical consultation between the Regional Cancer Centre at Thiruvananthapuram and a Nodal centre located in a remote village. As a fall out of this event, DIT has received requests from African and Arabian Nations Associations for replicating telemedicine projects in their countries.

United Nations and its bodies - UN ICT Task Force

The ICT Task Force of the United Nations was set up to find new and creative means to spread the benefits of the digital revolution for development of all and reduction of poverty. Capacity building, critical infrastructure in difficult areas, affordable and community relevant e-solutions, tele-medicine applications for rural areas, tools for visually impaired persons, technology development in local languages and thrust to make citizen - centric services are some of the areas where this Department has taken initiatives.

Development Gateway Foundation

The Development Gateway Foundation (DGF) is an

independent public foundation originally started by the World Bank. The Government of India contributed $ 5 million to the foundation. DGF has awarded a project to setup an ICT Research & Training (R&T) Center in India, which is being developed at C-DAC, Bangalore along with IIT, Mumbai. The following projects have been developed at R&T centre:

– BharateeyaOO - Indian language open office has been developed for eight languages of which three have been launched.

– Matrubhasha - A text to speech tool set has been developed and available on web for downloading.

– An application on Indian languages Gnopernicus exclusively developed for visually challenged persons. This has been used at National Association for Blind.

– Cross Lingual Information Retrieval (CLIR) - A web based tool to help users submit query in Hindi language and search contents in English and get the results in Hindi.

– Empowering Communities with Knowledge (ECKO) - A locally managed and an local language content management system has been deployed in six locations with the help of partner NGOs on pilot basis.

– Vyapar: An application for e-market place, which provides very easy and user-friendly means for rural mass both in product transaction and services.

– eForms: It is an electronic form which is useful to collect and analyze the data through handheld devices like Simputer.

– Aid Management Platform (AMP - a web-based application for monitoring and managing aid effectiveness by both the donors and users. This is being deployed in Ethiopia.

– aAQUA: A web based application developed by IIT-Mumbai, where farmers can put their questions on the portal and replied back by agriculture specialists.

Bilateral

The 1st India - US ICT Working group meeting held on 7 - 8 December 2005 in Washington. It was decided that immediate actions are required to initiate collaboration in the areas of Cyber Security and Trust, e-Governance, Universal Access and networking between centers of excellence in ICT in India (e.g. IITs / IISc, CDAC, C-DOT) and US universities.

Memorandum of Understanding (MoU) was renewed with Australia on 21st October 2005 at New Delhi in ICT sector. The areas of common interest identified in the MoU are software and multimedia content development, advanced communication technologies, electronic commerce, e-learning, IT security, Internet application and e-government. It was decided to set up a Joint Team consisting of 3 members from each side to study the Australian model of broadband connectivity and its usage in extending broadband connectivity to far-flung areas in our country.

In order to facilitate easy movement of professionals for exchange of expertise, R&D, etc., India and Australia has proposed to set up a Joint Team on Mutual Recognition Agreement (MRA) for recognition of each other's educational qualifications.

The fourth India-EU Joint Working Group meeting on Information Society was held in Brussels on 7th October 2005, when both sides, inter alia, agreed to work on various areas in ICT such as information society frameworks, e-Government, e-health, 4G, RFID, Internet governance and broadband rollout, etc. Both sides also explored the possibility of cooperation in the EU IST Research programme in FP6 and FP7 in the areas such as next Generation Mobile Wireless, migration from IPV4 to IPV6, Language Technologies and India-EU research networks connectivity.

India and Japan have constituted an 'ICT Forum' as a part of the 'Eight-fold Initiatives'" announced in the programme of cooperation during the visit of Prime Minister of Japan to India in April 2005. The first meeting of the ICT Forum was held on August 24, 2005 wherein a joint statement was signed which included setting up of six Working Groups to explore policy initiatives, joint ventures and R&D collaborations in the areas of Broadband, Mobile Communications, e-Governance, Information Security, Research and Development and Ubiquitous Computing.

Under India-Bhutan Development Cooperation Plan Talks, India has released an amount of Rs. 6.825 crore to Bhutan for implementation of the following

projects in collaboration with India - Dzongkhag LAN and Internet Connections, Multipurpose Telecentres in 10 Dzongkhags, Government Intranet, IT Education at 100 Primary Schools, e-Governance projects and IT development programme. A six day Workshop was organized by National Informatics Centre (NIC) for a 12 member delegation from Bhutan on E-Governance in order to give them first hand experience to enable them to plan their e-Governance initiatives.

An IT Centre at Tashkent in Uzbekistan is being set up under the bilateral cooperation with technical and financial assistance of Rs. 3 crore from India. The land and building are being made available by the government of Uzbekistan and the technical infrastructure and the expertise is being provided by India.

An IT Centre at Dushanbe in Tajikistan is also being set up under the bilateral cooperation with technical and financial assistance of Rs. 3 crore from India. The land and building are being made available by the government of Tajikistan and the technical infrastructure and the expertise is being provided by India.

Five additional Community Information Centres have been set up, which are connected to the earlier created Kofi Annan Centre of Excellence for Information Technology (KACE IT).

A project on 'Supporting the Human Resource Development for Software Industry in Vietnam' has been implemented with Rs.12.207 croe aid-in-grant. The first batch of the specialized program on 'Software Design & Development and Database' was successfully completed with 20 candidates.

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 2005, the lectures were arranged on : Introduction to OSDL (Open Source Development Labs.) by Shri Sean Madian, Director HR and Economic Development, OSDL; Cable Modems Technology and Last Mile Access Solutions by Dr.Amitava Dutta-Roy, Fellow IEEE, Fellow Consultant, Writer and Instructor on Data Communication.

ELITEX

To disseminate information about indigenous R&D among potential users and industry, to promote interaction between them and identify new state-of-the-art technologies, the Department of Information Technology has been organizing Electronics and IT Exposition (ELITEX) a Seminar-cum-Exhibition. The Electronics and Information Technology Exposition-2005 (ELITEX'2005) was held on 25-26April, 2005 at India Habitat Centre, Lodi Road, New Delhi.

The theme of ELITEX'2005 was - 'Grassroot applications using ICT'. Various sessions were held on the theme of the ELITEX including grassroots applications, Next Generation Broadband Communication Technologies and Systems, ICT for Medical and Disability Applications, Grassroot Deployment, e-Governance Applications, Trends in Internet Technologies and Application, Human Computer Interface, Tele-medicine and its Applications, Emerging Technologies and e-Education. In addition to create awareness about the technologies developed through the Department support, ELITEX'2005 promoted R&D industry linkages which is essential for the absorption of indigenous technology by the industry and for stimulating innovations. The 13 new products and technologies were released during the Exposition.

The Seminar deliberations were available online via direct webcasting on www.elitexlive.nic.in, www.elitexindia.com and www.elitex.in and also at all the video-conferencing centres of NIC. Some of the Seminar sessions were also held through video conferencing.

Computer Literacy Excellence Awards

The Computer Literacy Excellence Awards for Schools scheme was instituted in 2002 with the aim to increase IT penetration at school level as also to encourage appropriate intervention of Information Technology in the school environment. Schools from all over India are eligible to compete for the awards. The awards are given at two levels – State and National. From the top two State awardees the national winning schools are selected. The awards have increased IT awareness amongst schools and greater participation from schools from far-flung areas.

This year 51 schools from States and Union Territories were felicitated as State Award winners in two

categories e.g. Category A - Private / Government Aided Schools and Category B - Government / Municipal Schools. There were seven National Award winners. All India National Winner was Bhartiya Vidya Bhavan's Public School, Hyderabad. The Computer Literacy Excellence Award for 2004 were distributed by Hon'ble Dr. A.P.J. Abdul Kalam, President of India on 7th December 2005.

Exhibition

Internationale Funkausstellung (IFA Berlin fair) is world's leading International trade fair having focus on Consumer electronics, IT and Communication industries. This year the fair was held during 2-7 September 2005 at Berlin. The fair was identified by Department of Information Technology as a platform for showcasing Indian strengths in electronics and IT hardware sector and to present India as a potential business partner and positioning Indian Electronics/IT industry as a supplier of high quality, cost competitive and technologically contemporary products to the global markets. The Indian hardware industry was represented by ten leading firms. The slogan of the participation was 'Made in India – For the World".

The Indian companies displayed a wide range of electronics/IT hardware products. Over 300 business visitors from all over the world visited the Indian stand. Details of all the participating Indian companies were also listed on 'Virtual Market place' on the Internet; which is on line show-case and will remain open upto 2 years after the fair. Participation has helped in generating awareness on Indian hardware manufacturing capability as well as promotion of 'India' brand image, which will go a long way in boosting this sector.

Support to Conferences / Seminars

The Department provides support to academia, research and development institutes, registered professional bodies and NGOs registered under the Societies Registration Act of 1860 to receive grant-in-aid for organizing conferences / seminars / workshops/ symposia, etc. at regional / national / international level to provide a platform for bringing together experts from industry/academia/R&D and other user community to discuss and share their expertise about technology trends in electronics and ICT sector.

About forty proposals from various R&D institutions were approved during the year. Through these events, the latest trends in high tech areas like e-security, Nano technology, VLSI and embedded systems, RFID, Advanced Computing, Robotics, etc., were shared by the experts and papers presented about the latest work being carried out in the related areas by International/National experts. The information related to the scheme and events supported by the Department, have been listed on DIT's website (www.mit.gov.in/giaconference.asp).

Office Automation

Office Automation Cell of the Department continued to provide annual maintenance of computers, printers, LAN, servers, databases, attendance recording system and laptop; installation of systems; network support for lotus notes, Internet, and providing advice on specifications with regard to purchase of technical stores.

Public / Staff Grievances Redress

A total of 77 cases relating to public / staff grievances were received during the year, out of which 67 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 33nd 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, World Scenario on Broadcasting Technology Trends, Business Balanced Score Card Approach to ISO 9001, Opportunity for Indian ICT Industry in European Market, Knowledge Management, 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.

Shri 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 2004, 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.

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 nominations for 'Awards for Excellence 2004' were called for. The sectorwise award committee evaluated the nominations received and recommended deserving units for the award. The Award for the year 2004 are likely to be announced by March 2006.

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 2005, a number of Parliament Questions on various issues in Information Technology and Electronic sectors like software / hardware production and export, IT Parks, IT enabled services, promotion of it software and hardware, cyber crime, hacking of internet websites, software piracy, computer education, computer penetration, international and bilateral trade, Media Lab Asia, business process outsourcing, e-governance, etc., were answered in both the House of Parliament. The Parliamentary Standing Committee on Information Technology took evidence of the representatives of Department of Information Technology on Demands for Grants for 2005-06. The committee discussed in detail 'e-governance' subject in its various meeting and took evidence of representatives of IT industry, CRIS, Central Board of Direct Taxes (CBDT), and Banking Division, etc. The Committee presented its 15th Report on Demands for Grants 2005-06 and 22nd Reports on e-governance in the Parliament. The Committee also undertook on the spot study tour to the Centre for Development Advanced Computing (C-DAC), Pune.

Use of Hindi and Requisite Technology Development

The Second Sub-Committee of the Committee of Parliament on Official Language visited the State Centre of the National Informatics Center at Gangtok, ERNET India-New Delhi, DOEACC Center-Gorakhpur, STPI Headquarters-New Delhi and DOEACC Society-New Delhi to review the progressive use of Hindi and implementation of OL Act, Rules, etc. The Drafting and Evidence Sub-Committee of the above Committee also visited C-DAC, Noida and STPI, Noida during the year. The suggestions given by the Sub-Committees are being complied with by the respective offices.

In order to encourage original writing and ensure availability of books on Electronics and Information Technology in Hindi, the Department has instituted incentive schemes like financial assistance for writing original books and translation of books and national awards for the best original books. Entries are invited every year and evaluated through eminent experts in concerned areas. During the year, one book was selected for the National Awards for 2004. As for financial assistance, two proposals were accepted during the year.

MOUs for bilateral cooperation in the field of Information Technology were signed in bilingual form during the year with various countries including Japan.

The officials of Hindi division of the Department visited sub-ordinate offices of the Department to review the progressive use of Hindi and held discussions to guide them on implementation of various provisions of OL Act and Rules.

A test bed for Machine Aided Translation System from English to Hindi developed by C-DAC, Noida and IIT, Kanpur is being evaluated.

Hindi fortnight was organised and messages from the Hon'ble Home Minister and Cabinet Secretary together with an appeal from the Secretary, Department of Information Technology were circulated to all officers and staff on Hindi Day i.e. 14th September 2005. Various competitions were also held during the period and prizes awarded.

Appendix -I

Electronics Production (Calendar Year)

(Rs. Crore)

Item	2000	2001	2002	2003	2004	2005*
1. Consumer Electronics	11,880	12,300	13,580	14,850	16,500	18,000
2. Industrial Electronics	3,970	4,480	5,400	5,980	8,300	9,000
3. Computers	3,350	3,520	4,180	6,600	8,680	10,000
4. Communication & Broadcast Equipment	4,450	4,450	4,800	5,150	4,770	5,200
5. Strategic Electronics	1,730	1,750	2,330	2,670	2,850	3,000
6. Components	5,500	5,650	6,510	7,450	8,700	8,800
Sub-Total	**30,880**	**32,150**	**36,800**	**42,700**	**49,800**	**54,000**
7. Software for Exports	27,000	34,000	44,000	55,000	75,000	96,000
8. Domestic Software	8,800	10,600	12,000	15,500	20,500	25,000
Total	66,680	76,750	92,800	113,200	145,300	175,000

* Estimated

Appendix -II

Electronics Production (Financial Year)

(Rs. Crore)

Item	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06*
1. Consumer Electronics	11,950	12,700	13,800	15,200	16,800	18,500
2. Industrial Electronics	4,000	4,500	5,550	6,100	8,300	9,300
3. Computers	3,400	3,550	4,250	6,800	8,800	10,500
4. Communication & Broadcast Equipment	4,500	4,500	4,800	5,350	4,800	5,400
5. Strategic Electronics	1,750	1,800	2,500	2,750	3,000	3,200
6. Components	5,500	5,700	6,600	7,600	8,800	9,100
Sub-Total	**31,100**	**32,750**	**37,500**	**43,800**	**50,500**	**56,000**
7. Software for Exports	28,350	36,500	46,100	58,240	80,180	103,200
8. Domestic Software	9,400	10,874	13,400	16,250	21,740	26,460
Total	68,850	80,124	97,000	118,290	152,420	185,660

* Estimated

Appendix -III

Electronics Exports (Financial Year)

(Rs. Crore)

Item	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06*
1. Consumer Electronics	648	700	750	825	1,150	
2. Industrial Electronics	500	950	1,400	1,515	1,500	
3. Computers	1,250	1,800	550	1,440	1,200	
4. Communication & Broadcast Equipment	550	150	500	165	350	
5. Components	1,840	2,200	2,400	3,755	3,800	
Sub-Total	**4,788**	**5,800**	**5,600**	**7,700**	**8,000**	**8,500**
6. Computer Software	28,350	36,500	46,100	58,240	80,180	103,200
Total	**33,138**	**42,300**	**51,700**	**65,940**	**88,180**	**111,700**

* Estimated

Summary of Audit Observations

(Department of Information Technology)

(Para 4.1 of Report No.5 of 2005) Scientific Departments

Recovery at the instance of audit – NIC Jammu : National Informatics Centre, Jammu made inadmissible payment of Rs.17.68 lakh to its employees towards messing allowance and expenses on transportation, though only the Central Government employees working in Kashmir valley were entitled for this as per the special concessions/facilities extended by the Department of Personnel and Training. On being pointed out by Audit, NIC stopped further payment and started recovery from its employees in monthly installments.

Action Taken : Action Taken Note duly vetted from Office of the Principal Director of Audit (C&AG).has been sent to Monitoring Cell.

(Para 13.1.1 of Report No. 3 of 2005) Commercial

Loss due to poor inventory management - National Informatics Centre Services Inc. (NICSI) :The Company procured networking equipment without assessing the demand in a fast changing technological environment. Consequently, stock valuing Rs.3.04 crore became obsolete as there was no demand in the market.

Action Taken : Action Taken Note has been sent to Office of the Principal Director of Audit (C&AG) for vettingl.

(Para 2.6.25 of Report No.2 of 2005) Commercial

National Informatics Centre Services Inc. (NICSI)

The scope, coverage and quality of internal audit was not adequate to be commensurate with the size an nature of business of the Company.

It was observed that entire work of finance/accounts and interalia book keeping was handled by a firm of Chartered Accountants since 1997 under the overall supervision of Assistant Manager (Accounts), Director (Finance) and Managing Director. The original appointment was with the approval of Board of Directors. Thereafter the agreement was extended on year to year basis and the remuneration had been revised from time to time with the approval of Chairman only. During the year 2003-04, the Company continued to avail the services of CA firm who deputed their staff and they did entire work. The handling of entire finance and accounts by staff of CA firm instead of by regular employees over whom the Company/Government of India had administrative control was a situation, which warrants suitable remedial measures to strengthen internal control.

Action Taken : Action Taken Note has been sent to NICSI for further comments after obtaining vetting comments from Office of the Principal Director of Audit (C&AG).

Appendix -V

EMPLOYEES STRUCTURE (TOTAL AND SC/ST) *As on 01.01.2006*

(Department of Information Technology including its Attached & Subordinate Offices)

Group/ Class	Permanent / Temporary	Total No. of Employees	SC	%age of Total Employees	ST	%age of Total Employees
GROUP A	Permanent					
	(i) Other than lowest rung of Class – I	2243	156	6.95%	49	2.18%
	(ii) Lowest rung of Class - I	708	42	5.93%	32	4.51%
	Temporary					
	(i) Other than lowest rung of Class – I	-	-	-	-	-
	(ii) Lowest rung of Class I	-	-	-	-	-
GROUP B Gazetted	Permanent	503	32	6.36%	21	4.17%
	Temporary	-	-	-	-	-
GROUP B (Non Gazetted)	Permanent	482	78	16.18%	23	4.77%
	Temporary	53	4	7.54%	22	41.50%
GROUP C	Permanent	624	155	24.83%	38	6.08%
	Temporary	19	4	21.03%	1	5.26%
GROUP D (Excl. Sweeper & Farash)	Permanent	335	138	41.19%	21	6.26%
	Temporary	24	8	33.33%	1	4.16%
Sweeper	Permanent	52	43	82.6%	4	7.69%
	Temporary	4	4	100%	-	-
Farash	Permanent	10	3	30%	-	-
	Temporary	15	4	20%	1	6.6%
TOTAL		5072	670	13.20%	213	4.19%

Appendix -VI

	SCHEME	Budgetary Support
	I. R&D PROGRAMMES	
1	SAMEER	22.00
2	Microelctronics & Nanotech Development Programme	40.00
3	Technology Development Council	21.00
4	Convergence, Communications & Strategic Electronics	6.00
5	Components & Material Development Programme	9.00
6	C-DAC	64.50
7	Electronics in Health	15.00
8	Technology Development for Indian Languages	9.00
9	E-Commerce & Info-Security	4.00
10	"IT for Masses (Telemedicine, Gender, SC/ST)"	18.00
11	Media Lab Asia	10.00
	R&D Sub-Total	**218.50**
	II. INFRASTRUCTURE DEVELOPMENT	
12	STQC	46.00
13	STPI & Export Promotion	4.00
14	Digital DNA Park	0.10
15	Electronic Governance	440.00
16	IT Act / Certification & Network Security	7.00
17	Community Information Centres (CIC)	28.00
18	Promotion of Electronics/IT Hardware Manufacturing	5.00
	Infrastructure Sub-Total	**530.10**
	III. HUMAN RESOURCE DEVELOPMENT	
19	DOEACC	12.00
20	Manpower Development	38.40
	HRD Sub-Total	**50.40**
	IV. OTHERS	
21	Headquarter (Secretariat & Bldg.)	11.00
22	NIC	280.00
	Grand Total	1090.00

Government of India
Ministry of Communications & Information Technology
Department of Information Technology

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