Information Technology

Annual Report

2007-08

सत्यमेव जयते

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

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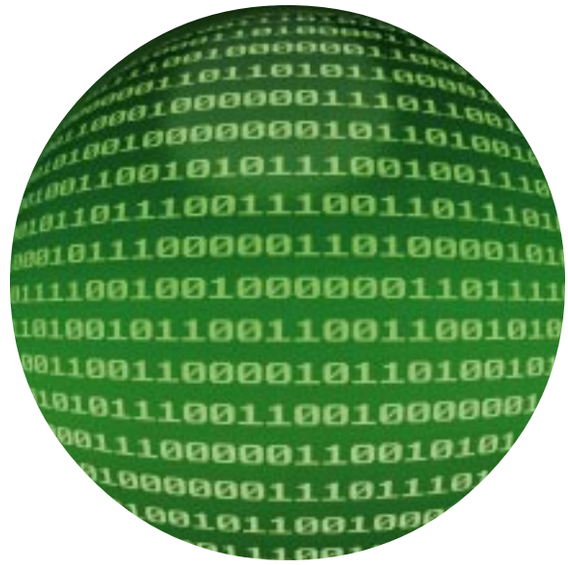
ELECTRONICS &
INFORMATION TECHNOLOGY



Overview

The Indian Information Technology sector has shown remarkable resilience in the year 2007. Continuing on its established track record, the overall Indian IT-BPO revenue aggregate is expected to grow by over 33 per cent and reach US$ 64 billion by the end of the current fiscal year 2007-08 as compared to US$ 48.1 billion in fiscal year 2006-07. Industry performance was marked by sustained double-digit revenue growth, steady expansion into newer service-lines and increased geographic penetration, and an unprecedented rise in investments by Multinational Corporations (MNCs) - in spite of lingering concerns about gaps in talent and infrastructure impacting India's cost competitiveness.

The Indian software and services exports including ITES-BPO is estimated at US$ 40.3 billion in 2007-08, as compared to US$ 31.4 billion in 2006-07, an increase of 28.3 per cent. The IT services exports is estimated to be US$ 23.1 billion in 2007-08 as compared to US$ 18.0 billion in 2006-07, showing a growth of 28.7 per cent in 2007-08.

Export revenues from ITES-BPO are estimated to grow from US$ 8.4 billion in 2006-07 to US$ 10.9 billion in 2007-08, a year-on-year growth of over 29.8 per cent.

Underlying the sustained export growth is a combination of large untapped demand potential, rapidly growing adoption and widening scope of the global delivery model (in terms of geographies, vertical markets served as well as services offered), and India continuing to leverage its fundamental advantages of talent, cost, quality and early mover advantage/experience to garner a large share of the growth in global sourcing of IT-BPO.

The Indian IT-BPO sector has built a strong reputation for its high standards of service quality and information security - which has been acknowledged globally and has helped enhance buyer confidence. The industry continues its drive to set global benchmarks in quality and information security through a combination of provider and industry-level initiatives and at strengthening the overall frameworks, creating greater awareness and facilitating wider adoption of standards and best practices. The Data Security Council of India (DSCI) was launched in 2007 to institutionalize efforts to further enhance the information security environment in India.

High offshore component of delivery and superior execution in multi-location delivery continue to be key differentiators. Broad-based industry structure; IT led by large Indian firms, BPO by a mix of Indian and MNC third-party providers and captives, reflects the depth of the supply-base. While the larger players continue to lead growth, gradually increasing their share in the industry aggregate; several high-performing Small and Medium Enterprises (SMEs) also stand out. Today, India leads the world in terms of the number of quality certifications achieved by centres in any single country. As of December 2007, over 498 India-based centres (both Indian firms as well as MNC-owned captives) had acquired quality certifications with 85 companies certified at Software Engineering Institute (SEI), Carnegie Mellon Capability Maturity Model (CMM) Level 5 - higher than any other country.

The US and the UK remain the key markets for Indian IT-BPO exports (excluding hardware), accounting for nearly 80 per cent of the total exports. This comes as no surprise as these two

markets account for the largest share of worldwide technology spends. The high market share of the US and the UK, in Indian IT-BPO exports, eclipses the growth achieved in other markets - across Continental Europe and the Asia Pacific, some of which are also witnessing significant year-on-year growth. This trend towards a broader geographic market exposure is positive for the industry, not only as de-risking measure but also as a means of accelerating growth by tapping new markets.

With the BPO going strong for the past few years, the Knowledge Process Outsourcing (KPO) - which may be called the highest level of the BPO - is still at a nascent stage of development in the country. This evolution of the market to the KPO will drive trends that will ensure very high-value services, in off shoring. These opportunities in the KPO will help the Indian market climb the global value and knowledge chain.

With a large pool of skilled manpower - chartered accountants, doctors, MBAs, lawyers, research analysts - India would be able to add value to the global KPO business and its high-end processes like valuation research, investment research, patent filing, legal and insurance claims processing, online teaching, media content supply, among others. Skilled manpower and multi lingual capabilities combined with the advantages of lower costs can help the country to emerge as a front-runner in KPO, globally.

Increasing adoption of technology in the domestic industries is already beginning to reflect in their enhanced performance and competitiveness. As already demonstrated in some measure by the IT-BPO sector, technology can play a key role in addressing important issues of gender and economic disparities by promoting greater participation of women in the workforce and creating widespread employment opportunities. A continued emphasis on leveraging technology to induce greater inclusiveness will contribute to long term payoffs, and will structurally strengthen India as a more technology-enabled society.

Though the IT-BPO sector is export driven, the domestic market is also significant. The revenue from the domestic market (IT Services and ITES-BPO) is also expected to grow to about US$ 11.7 billion in the year 2007-08 as compared to US$ 8.2 billion in 2006-07 an anticipated growth of about 42.7 per cent. The total (IT Industry including Hardware) size of the domestic market is expected to cross US$ 23.2 billion in 2007-08, as against US$ 16.2 billion in 2006-07, a growth of 43 per cent year-on-year (YoY). BPO demand in the domestic market has witnessed noticeable growth over the past few years.

The phenomenal growth of the Indian IT Software & Services and ITES-BPO sector has had a perceptible multiplier effect on the Indian economy as a whole. In addition to the direct positive impact on National Income, the sector has grown to become the biggest employment generator, and has spawned the mushrooming of several ancillary industries such as transportation, real estate and catering, and has created a rising class of young consumers with high disposable incomes, triggered a rise in direct-tax collections and propelled an increase in consumer spending.

The total IT Software and Services employment is expected to reach 2.0 million mark in 2007-08 (excluding employment in Hardware sector), as against 1.63 million in 2006-07, a growth of 22.7 per cent YoY. This represents a net addition of 375,000 professionals to the industry employee base, this year. The indirect employment attributed by the sector is estimated to about 8.0 million in year 2007-08. This translates to the creation of about 10 million job opportunities attributed to the growth of this sector.

As a proportion of national GDP, the IT-BPO sector revenues have grown from 5.2 per cent in 2006-07 to an estimated 5.5 per cent in 2007-08.

The outlook for Indian IT-BPO remains bright, and the sector is well on track to achieve its aspired target of US$ 60 billion in export revenues and US$ 73 - 75 billion in overall software and services revenues by 2010. Key factors underlying this optimism include sufficient demand, strong fundamentals and a favourable policy environment.

National e-Governance Plan (NeGP)

The Government of India accords high priority to improve the quality of the citizens by providing basic services at their doorsteps and has formulated a National e-Governance Plan (NeGP) covering 27 Mission Mode Projects and eight support components to be implemented at Central, State and Local Government levels, at an estimated cost of Rs. 23,000 crore over five years. At the State level, the Mission Mode Projects (MMP) would include services like road transport, land records, commercial taxes, employment exchanges, agriculture, civil supplies, treasuries, land registration, policy and education, while at Central level, it will cover areas such as insurance, central excise, National ID, pensions, e-Posts, banking, passport, visa and income tax.

State Wide Area Networks (SWANs)

The Government has approved a Scheme for establishing State Wide Area Networks (SWANs) across the country in 29 States/ 6 UTs with a total

outlay of Rs.3,334 crore over a period of five years. The Scheme envisages to provide technical and financial assistance to States for establishing SWANs from State Headquarters upto the Block level with a minimum bandwidth capacity of 2 Mbps. 32 SWAN proposals from States and UTs have been approved, so far, and are in various stages of implementation.

State Data Centres (SDCs)

State Data Centre has been identified as one of the important elements of the core infrastructure for supporting e-Governance initiatives under NEGP. It is proposed to create data repositories/ data centres in various States/UTs so that common secured data storage could be maintained to serve host of e-Governance applications. The policy guidelines for technical and financial assistance to the States for setting up of State Data Centres have been circulated to the States. The Government has approved the Scheme in January 2008 at an estimated cost of Rs. 1623.20 crore to cover 28 States/6 UTs across the country. Around 20 State Data Centres are expected to be set up and operationalized during 2008-09.

Common Service Centres (CSCs)

A Scheme to facilitate establishment of 1,00,000 broadband internet enabled Common Service Centres (CSCs) in rural areas of the country has been approved by the Government. The Scheme has been approved with an estimated cost of Rs 5,742 crore and is being implemented in Public Private Partnership mode. The CSCs are one of the three infrastructure pillars of the National e-Governance Plan and would serve as the physical front end for delivering government and private services at the doorstep of the citizen. The Empowered Committee has sanctioned proposals from 26 States with a cost of Rs.1,585.63 crore.

Capacity Building Scheme

States and UTs are the prime stakeholders for implementation of the Mission Mode Projects under National e-Governance Plan (NeGP). States are inadequately equipped in terms of personnel and the skill-sets needed to handle the challenges that are likely to be faced. Hence, it is considered essential to provide support of experts in the areas of Change Management, Technology Management, Financial Management and Programme Management to States/UTs to face the challenges. In pursuance of this, Capacity Building Scheme under NeGP, with an outlay of Rs. 313 crore over three years, has been approved to provide technical and professional support to the decision makers in the States/UTs including NE States.

Horizontal Transfer of Successful e-Governance Initiatives

For spreading the benefits of e-Governance across the country, this Department has taken initiative to identify and replicate major successful projects that have achieved citizen centric objectives in some States. In the first phase, projects on Land Records, Transport and Properties Registration were taken as these have potential for improving significantly Government-to-Citizen services.

e-Readiness

The Department of Information Technology regularly takes stock of e-Readiness at the country level and States/ UTs level to ascertain the status of underlying infrastructure, human resources, policy regime, etc. It also provides various steps needed to optimise environment and to reach full potential. The e-Readiness Assessment reports of States/UTs was released in 2008 by NCAER. One of the key features of the report is the use of Social Accounting Matrix to assess impact of ICT on social dimensions such as poverty.

Electronics / IT Hardware Manufacturing

The Government of India has identified electronics and IT hardware manufacturing as the thrust area for development. A Special Incentive Package Scheme (SIPS) was announced in March 2007 to attract investments for setting up semiconductor fabrication and other micro and nanotechnology manufacturing industries in India. The Department has constituted a project Appraisal Committee. A set of guidelines for implementation of SIPS has also been formulated and issued on 14 September 2007.

Information Technology Investment Regions (ITIR)

There is a need to develop infrastructure facilities in tier 2 and tier 3 cities, as there is little scope of building additional commercial space in the five tier 1 cities, New Delhi, Bangalore, Hyderabad, Mumbai and Chennai. An important initiative in this direction has been taken in order to encourage setting up of IT Investment Regions, which could include new integrated townships. The challenge is to add commercial office space at the estimated rate of 25 million square feet and obtain commensurate expansion of business infrastructure, residential space and other amenities and facilities every year to keep pace with the demands.

Review of Information Technology Act

The Information Technology Act 2000, a legal framework for transactions carried out

electronically, was enacted to facilitate e-Commerce, e-Governance and to take care of computer related offences. Over the years, with several new forms of computer crime, misuse and fraud taking place, a need was felt to strengthen legislation pertaining to information security.

The Information Technology Amendment Bill was introduced in the Parliament on 15th December 2006. It was referred to the Parliament Standing Committee, which has presented its report to the Parliament.

National Knowledge Network

National Knowledge Commission has recommended setting up of high-speed digital broadband network with adequate capabilities and access speed to encourage sharing of resources and collaborative research. The primary objective of the proposed integrated National Knowledge Network is to provide gigabit broadband connectivity to all institutions of higher learning and research in the country. An allocation of Rs. 100 crore has been made in the year 2008-09 for implementing the scheme.

Indian Language Technologies

Language technology development in India has today reached a stage, where it has a potential to generate utility applications, benefiting the masses, which will enable people to access and use IT solutions in their common language. Software tools and fonts for 10 Indian languages namely Hindi, Tamil, Telugu, Assamese, Kannada, Malayalam, Marathi, Oriya, Punjabi and Urdu languages have been released in public domain. These software and tools are also free downloadable from the website http://www.ildc.gov.in.

ELITEX 2008

Electronics & Information Technology Exposition-2008 (ELITEX'2008), an exhibition and seminar to showcase technologies, products and services developed under the aegis of the Department of Information Technology, was held during January 2008 at India Habitat Centre, New Delhi. The theme of the ELITEX'2008 was - 'Securing Indian Cyber Space'. This event provided an opportunity for close interaction between academia, R&D institutions and industries. Twenty six new products/technologies were released during the Exposition for commercialization. A compilation of 562 'Technologies/Products developed through DIT funding' was circulated to the participants.

National Informatics Centre (NIC)

National Informatics Centre (NIC) is an attached office of the Department providing network backbone and e-Governance support to the Central Government departments, States, UTs and District Administrations in the country. NIC has been playing a pioneering role in propagating IT-led development facilitating rapid economic growth and social transformation in India, by setting up a countrywide satellite based VSAT network (NICNET), first of its kind among the developing countries, linking about 602 districts, 28 State Governments, 7 UT Administrations and Central Government departments.

NIC is constantly in the pursuit of developing state-of-the-art application software related to various sectors, which is customized to the users needs. NIC has also provided IT support to neighboring countries by undertaking various projects related to capacity building, framing e-Governance action plan and setting up of data Centre.

Industry Profile

The Department of Information Technology (DIT) in the Ministry of Communications and Information Technology is inter-alia responsible for formulation, implementation and review of national policies in the field of Information Technology. All policy matters relating to silicon facility, computer based information technology and processing including hardware and software, standardization of procedures and matters relating to international bodies, promotion of knowledge based enterprises, internet, e-Commerce and information technology education and development of electronics and coordination amongst its various users are also addressed by the Department.

Policy Measures

The Department of Information Technology has taken various policy initiatives to accelerate growth of production in hardware and software industry. The Indian software and services industry has given India a formidable position in the global market. It is now the turn of hardware industry to achieve its potential and gain higher global share.

Major Policy Initiatives

There is a big opportunity for production of electronics hardware in the country. The Government has identified growth of Electronics and IT Hardware manufacturing sector as a thrust area. The National Manufacturing Competitiveness Council (NMCC) has been set up by the Government to provide a continuing forum for policy dialogue to energize and sustain the growth of manufacturing industries in India, including IT Hardware.

To tap the full potential for growth of the hardware industry, the Government has taken certain major initiatives. They are as under:

Department of Information Technology had prepared "A Discussion Paper on the Conceptual Policy Framework to Promote Growth of Electronics/IT Hardware Manufacturing Industry" in consultation with the stakeholders. The main objectives of this discussion paper for the Electronics/IT Hardware Manufacturing Sector are to make the industry globally competitive, to attract more Foreign Direct Investment (FDI) into the industry, to bring down the prices of the end products (by bringing down the production cost and increasing volumes to take advantage of economies 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 12 - 15 per cent over a period of 3 years.

In order to examine the proposals/ suggestions contained in the above Discussion Paper and the existing Government policies/ procedures and recommend suitable amendments/ measures/ incentives so as to make India a Hub for Electronics/IT Hardware manufacturing, a Task Force to promote growth of Electronics/IT hardware manufacturing industry was set up. The Task Force constituted a small group to look into all relevant aspects of the matter and give its recommendations regarding appropriate fiscal as well as other benefits for the Electronics/IT Hardware Industry for consideration of the Task Force. The Task Force considered the report of

the Group. The recommendations pertained to Infrastructure development, Incentives for R&D (Support to encourage filing of international patents, Promotion of technology and innovation focused start ups, Multiplier grants for industry sponsored research programs with premier Academic and Government R&D institutions), Environmental considerations (Management of E-Waste, EMC / EMI & safety standards), Tariff issues & fiscal incentives, Special incentives to encourage investments for setting up semiconductor fabrication & other high tech Electronics/IT products, Demand creation measures, Promotional measures, Role of State Governments and Skill development. Based on the recommendations of the Task Force, action has been initiated by the concerned Ministries/ Departments to implement the same.

The Special Incentive Package Scheme (SIPS) to encourage Investments for setting up Semiconductor Fabrication and other micro and nano technology manufacturing industries in India, has been announced by the Government in March, 2007. An Appraisal Committee has been constituted by the Department of Information Technology. A set of guidelines has also been issued on 14th September, 2007. The SIPS Notification as well as Guidelines for the Appraisal Committee are available on the website of DIT (www.mit.gov.in).

It is expected that the Electronics Industry will utilize the incentive package available under SIPS to plan investments for setting up manufacturing facilities in the country for high-tech products.

The salient features of the existing tariff Scheme/ policy applicable to Electronics and IT Industry are as under.

Customs

- Peak rate of basic customs duty is 10%.
- India is a signatory to the Information Technology Agreement (ITA-1) of the World Trade Organization and w.e.f. 1st March 2005, the basic 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.
- Information Technology (IT) Software is exempted from customs duty.
- Customs duty on specified raw materials and inputs used for manufacture of electronic components or optical fibers / cables is 0%.
- Customs duty on specified capital goods used for manufacture of electronic goods is 0%.
- Customs duty on MP3 / MP4 / MPEG4 players is 5%.
- Set top box and their major parts are exempted from basic customs duty.
- Basic customs duty on project imports is 5%.

Central Excise

- The general rate of excise duty (CENVAT) is 14%.
- Excise duty on computers is 12%.
- Microprocessors, Hard Disc Drives, Floppy Disc Drives, CD ROM Drives, DVD Drives/ DVD Writers, Flash Memory and Combo-Drives are exempted from excise duty.
- Parts, components and accessories of mobile handsets including cellular phones are exempted from excise duty.
- Excise duty on MP3 / MP4 / MPEG4 players is 8%.
- Wireless data modem cards are exempted from excise duty.

Central Sales Tax

- Central Sales Tax (CST) has been reduced from 3% to 2%.

Other Policy Measures

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 Domestic Tariff Area (DTA) to SEZs are being treated as physical export. This entitles domestic suppliers to Drawback/ Duty Entitlement Pass Book (DEPB) benefits, CST exemption and Service Tax exemption. 100% Income Tax exemption on export profits is available to Special Economic Zone (SEZ)

Units for 5 years, 50% for next 5 years and 50% of ploughed back profits for 5 years thereafter.

Production Profile

The export driven software and services industry continues to be the dominating factor in the overall growth of the Indian Electronics and IT industry. In 2006-07, the Indian software and services industry exports witnessed a healthy growth, its total exports reaching Rs. 141,000 crore (US$ 31.4 billion), an increase of 34.8 per cent in rupee terms and 33.0 per cent in dollar terms over the previous financial year. In 2007-08, the total value of software and services export is estimated at Rs. 1,63,000 crore (US$ 40.3 billion), an increase of 15.6 per cent in rupee terms and 28.3 per cent in dollar terms. The production and growth trend of the Indian Electronics and IT/ITeS industry since 2002-03 has been as follows:

Year	Production Rs. crore	Growth (%)
2002-03	97,000	21.1
2003-04	118,290	21.9
2004-05	152,420	28.9
2005-06	190,300	24.9
2006-07	244,000	28.3
2007-08*	291,100	19.3

*Estimated

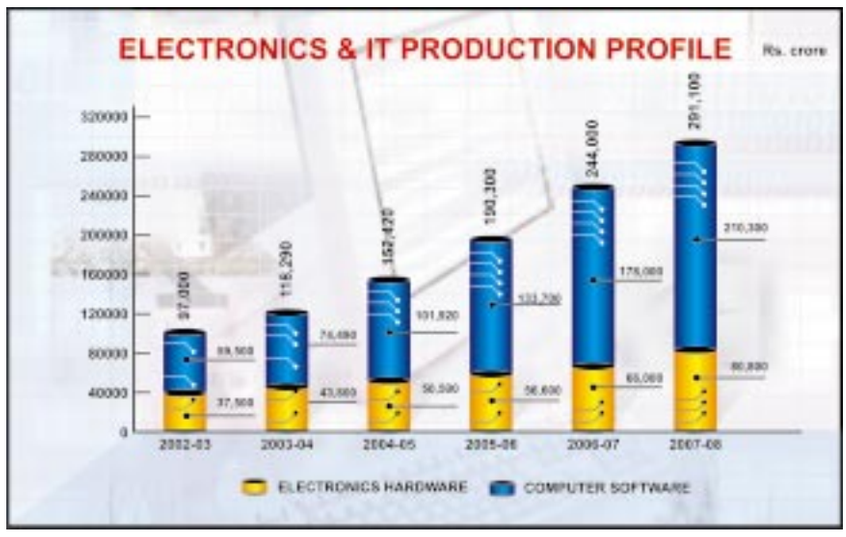
The performance of electronics & IT industry in 2007-08 in Rupee terms has shown a deceleration. This is due to impact of Rupee Appreciation in 2007-08. This does not reflect on the fundamentals of the IT-ITeS Sectors, which continued to be strong as indicated by increase in the employment in the sector.

The production performance of various industry groups in the hardware sector in 2007-08 is given below:

Consumer Electronics

During the financial year 2007-08, the consumer electronics industry continued its growth path. The total production of consumer electronics was Rs.20,000 crore during the year 2006-07, registering a growth of about 11.1 per cent, compared to the previous year. The estimated production of consumer electronics for the fiscal year 2007-08 is Rs.22,500 crore, indicating a growth of 12.5 per cent over previous year. Consumer electronics continues to be a major sector and its contribution to the total electronic hardware production in the country is 28 per cent.

The Colour TV is the largest contributor in this segment. During the current financial year, the domestic market of CTV is estimated to cross 15 million units. This includes about 2.5 million sets of 14" CTV supplied to Government of Tamil Nadu for distribution amongst the masses. The high-end products, particularly Liquid Crystal Display (LCD) TVs continues to register a growth of more than 100% and is expected to cross 3 million by 2010-11. The phenomenon of falling prices in the LCD TV continued over the year and there is a marked tendency amongst the consumers to go in for bigger size LCD TVs. Manufacturing of LCD TV has started in the country and it is expected that it would increase, as the demand increases.



DVD Player market has shown a growth of over 20% and is estimated at over 7 million this year.

There has been a good growth in the Home Theatre segment. It is expected to increase as DTH subscribers increase due to more operators entering into this platform. The Set Top Box (STB) market is growing rapidly due to the expansion of DTH and introduction of CAS in the metros. About 25-30% of the total requirement of STBs is being met by indigenous sources. Production of B&W TV continues to decline. Some of the medium scale units have moved to the tax exempted regions and these units are doing OEM work for reputed brands.

Control, Instrumentation and Industrial Sector

During the year 2007-08, the production in this sector is estimated to be Rs. 11,950 crore, as against Rs. 10,400 crore in the fiscal year 2006-07, registering a growth of 15.0 per cent in 2007-08 as against 18.2 per cent in 2006-07. This sector of the Indian industry continues to play a very important role towards the economic growth. State-of-art industrial electronics equipment and systems, automation technologies, networking systems and various other stand-alone instrumentations are increasingly applied in manufacturing industries like Steel, Textiles, Cement, Power, Chemical and Refineries, etc. Transportation industries, particularly the Indian Railways are increasingly adopting latest power electronics equipment for their mainline electric/ diesel locomotives and sub-urban train systems.

While the dependence on imported hardware and software continues to be exhibited by the manufacturers of this equipment, there seems to be some tendency in increasing the level of manufacturing by importing the needed components and modules.

Realizing the need for creation of knowledge in the design of such systems, the Department continues to support state-of-art development and application projects in this area and during the year a major project on Automation Systems Technology as a national collaborative programme has been initiated. After successfully completing an Advanced Traffic Control System through field demonstration and transfer of technology, the Department has now conceptualized a larger Intelligent Transportation System (ITS) involving leading academic and research institutes.

Computer Industry

The Desktop PC market (including Notebooks) grossed 3.28 million units in the first half of 2007-08 (April-September' 07), registering a growth of 11 per cent over the same period last fiscal. The buoyant mood in IT consumption was led by significant growth in notebook sales which grew by 59 per cent, while consumption of desktops grew by 3 per cent. PC sales are projected to cross 7.25 million units in fiscal 2007-08, given the strong macroeconomic conditions and buoyant buying sentiment in the market, led by demand from various industry verticals.

The high growth in PC sales was attributed to increased consumption by Industry verticals such as Telecom, Banking & Financial Services, Manufacturing, Education, Retail and BPO/IT-enabled services as well as major e-Governance initiatives of the Central and State Governments.

The southward trend in pricing continued during the year due to technology reasons. Further, significant consumption in the small and medium enterprises contributed to the industry growth and consumption in the home market remained buoyant.

The estimated production figures for this sector are Rs. 16,400 crore in the year 2007-08, a growth of 28.1 per cent.

Communication and Broadcasting Sector

The Communication Technology has taken a big leap forward and received the national recognition as the key driver for development and growth. The gross telephone subscribers in the country reached about 272.88 million as of December 2007 (mobile telephone subscribes about 233.63 million). The over all teledensity reached 23.89 per cent in December 2007. India is now one of the largest in the world in terms of gross telephone subscribers, and second largest in Asia. At the end of December 2007, total broadband connections in the country have reached 3.13 million. The broadband subscribers are expected to be around 20 million by 2010.

India has taken a leading position in the mobile handsets market. Some of the world renowned mobile set manufacturers have set up production

base for mobile hand sets in the country and many others are planning to set up their manufacturing base in India to meet local demands and service international markets.

DTH (Direct to Home) broadcast service has shown some growth. It is available through National Broadcaster and private DTH service providers/TV broadcasters. For better quality of TV reception (Digital Video Broadcasting - DVB) is available to the people of India on their TV sets just by adding a small dish antenna and a DTH Set Top Box (STB) and through cable network.

India has currently achieved a distinction of having the world's lowest call rates (2-3 US cents), the fastest growth in number of subscribers (15.31 million in 4 months), the fastest sales of a million mobile phones (1 week), the world's cheapest mobile handset (US$ 17.2) and the world's most affordable colour phone (US$ 27.42). India also has an installed base of over 22 million PCs, 100 million TVs, 65 million cable television connections, 2.5 million STBs, 38 million Internet users including wireless mobile Internet users.

The estimated production figures for this segment for the year 2007-08 is estimated to be Rs. 14,350 crore, a robust growth of 51.4 per cent as against a growth rate of 35.7 per cent in the previous fiscal 2006-07.

Strategic Electronics

It has become one of the important areas today because of the criticality of the technology development targeting two aspects, the technology applicable to the strategic sector for Defence purposes and the emerging state-of-the-art technology, which is not available off-the-shelf, and which is denied due to its critical applications. The technology which is denied has both civilian as well as Defence applications. Henceforth, it is desirable to develop technology in this sector catering to the critical applications as well as it is important to productionize the technology. The technology can payback much faster because of its critical nature and needs to be commercialized after appropriately safeguarding in terms of patents/IPR. At the national level, various research institutions are developing strategic systems and the public sector undertaking and some of the private agencies are mainly contributing the production. There has been consistent growth in production annually. However, it is difficult to make an estimation but during the year 2007-08, production is expected to be about Rs.6,100 crore, showing a dip in the growth rate, from 40.6 per cent (Rs. 4,500 crore) in 2006-07 to 35.6 per cent now.

Electronic Components

The total production of electronic components was Rs.8,800 crore during 2006-07, which is expected to grow to Rs.9,500 crore during 2007-08, a growth of 8.0 per cent. The components with major share in production were CD-R, Colour Picture Tubes (CPT), PCBs, DVD-R, connectors, semiconductor devices, ferrites, and resistors.

The developments in components industry have been driven mainly by growth in consumer electronics sector. The share of 14" CPT has increased due to procurement of 2.5 million 14"CTV sets by the Government of Tamil Nadu. The share of 20" & 21" conventional CPTs has been declining whereas the share of full flat 21" tubes has been on the rise. Further, 15" flat, 21" & 29" slim CPTs have been introduced by the domestic manufacturers. In view of introduction of Flat Panel colour TVs, the market for LCD/PDP panels has been rising fast. The prices of CPTs are on the decline. Following the trends in CPTs, the colour glass parts manufacturer has taken steps to keep pace with the market requirements.

One of the manufacturers has introduced new range of Single Mode Optical Fibers that meet and exceed the newly introduced ITU-T G.655 D & E International Standards. The manufacturer has announced plans to double its optical fibre manufacturing capacity.

The serviceable market for professional grade components such as PCBs, semiconductor devices, connectors, wound components, antennas, etc. is likely to go up due to indigenous manufacture of mobile phones, set top boxes, DVD players, etc.

Most of the top global semiconductor companies have set up their chip design centres in India. With the introduction of SIPS, it is expected that chip manufacturing may start in the near future. This would lead to the establishment of complete eco system in this area in the country.

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 centres around the world, and reassemble it, in near -real time, at another location. India has already registered its mark on the globe in IT-BPO sector.

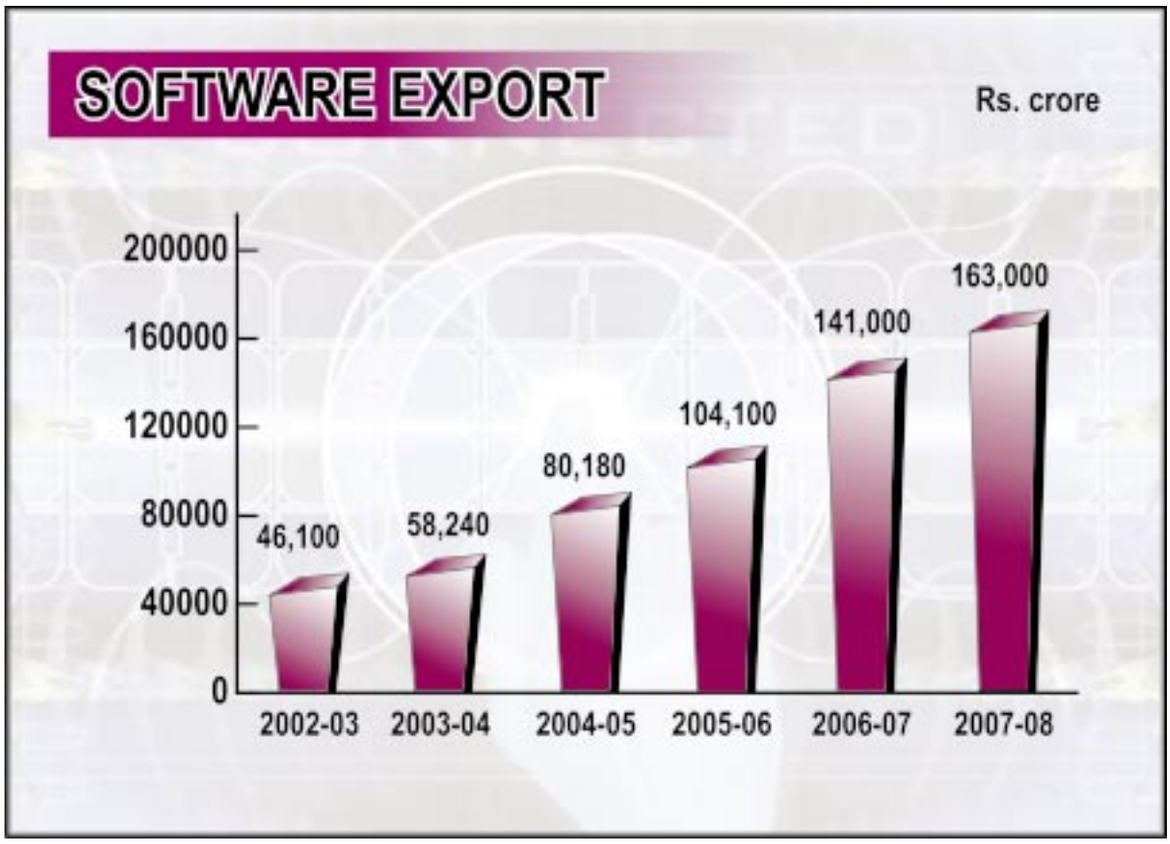
The Indian software and services exports including ITES-BPO are estimated at US$ 40.3 billion (Rs. 163,000 crore) in 2007-08, as compared to US$ 31.4 billion (Rs. 141,000 crore) in fiscal year 2006-07, an increase of 28.3 per cent in dollar terms and 15.6 per cent in rupee terms. Though the growth rate is numerically lower than that in the past few years, it is worth highlighting that this comes on the back of strong headwinds including

an impending slowdown and a severe financial sector crisis in the US and a sharp appreciation in the value of the Indian Rupee (INR). Further, the absolute value of incremental growth (US$ 8.9 billion) in exports are expected to be achieved by the industry this year is the highest ever achieved in a single year, in its history. This segment will continue to show robust growth in future also.

Underlying the sustained export growth is a combination of large untapped demand potential, rapidly growing adoption and widening scope of the global delivery model (in terms of geographies, vertical markets served as well as services offered), and India continuing to leverage its fundamental advantages of talent, cost, quality and early mover advantage/experience to garner a disproportionately large share of the growth in global sourcing of IT-BPO.

Growing at a CAGR of nearly 37% over the past four years, BPO is the fastest growing segment of the Indian IT-BPO sector. BPO exports from India grew from US$ 3.1 billion in FY 2003-04 to over US$ 8.4 billion in FY 2006-07. Over the same period, direct employment in Indian BPO grew from 216,000 in FY 2003-04 to 553,000 in FY 2006-07. The segment is currently growing at about 30 per cent, and is expected to reach US$ 10.9 billion FY 2007-08, employing over 704,000 professionals.

Indian BPO has undergone significant transformation since its inception over a decade ago. Starting out with basic data entry tasks, the industry rapidly acquired a reputation as the primary low-cost destination for voice-based customer contact/support services, finance and accounting, and a range of back-office processing activities.



The past few years have seen the scope of these services expanding to include increasingly more complex processes involving rule-based decision making and research/analytic services requiring informed individual judgment and domain/vertical knowledge.

The Indian ITES-BPO sector also continues to grow from strength to strength, witnessing high levels of activity - both onshore as well as offshore. Export revenues from ITES-BPO are estimated to grow from US$ 8.4 billion (Rs. 37,700 crore) in year 2006-07 to US$ 10.9 billion (Rs. 44,600 crore) in year 2007-08, a year-on-year growth of over 30% (in dollar terms), 18.3 per cent (in Rupees terms).

While USA & UK remained the largest export markets (accounting for about 61 per cent and 18 per cent respectively, in FY 2006-07), the industry is steadily increasing its exposure to other geographies. Exports to Continental Europe in particular have witnessed notable gains, growing at a CAGR of more than 55 per cent over FY 2004-2007. Over 600 Multinational companies are known to be sourcing product development and engineering services from their centres in India. The growing nature of responsibilities and ownership assumed by these India -based resources are helping India evolve into a strategic hub for R & D.

The Indian IT-BPO sector is not just about exports. The domestic market holds significant potential. The revenue from the domestic market (IT Services and ITES-BPO) is expected to grow to about US$ 11.7 billion (Rs. 47,300 crore) in the year 2007-08 as compared to US$ 8.2 billion (Rs. 37,000 crore) in 2006-07 an anticipated growth of about 42.7 per cent in dollar terms and 27.8 per cent in rupee terms. The Total (IT Industry including computer hardware) size of the Domestic market is estimated to be US$ 23.2 billion in 2007-08, a growth of 43 per cent over 2006-07.

The overall Indian IT success story has also highlighted India's attractiveness as an investment destination. Another key impact of the global sourcing model popularized by the growth of IT-ITES has been the reversal of the brain drain - as people of Indian origin, as well as young expatriates, now feel motivated to work in India itself.

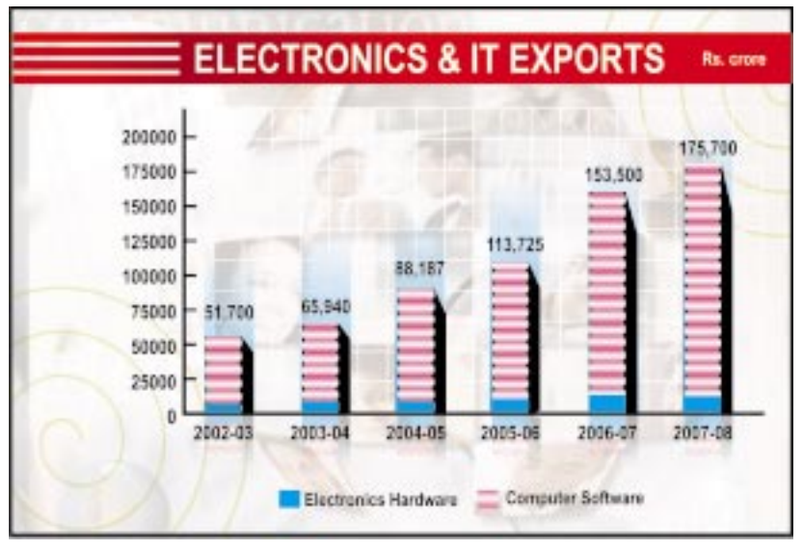
The phenomenal growth of the Indian IT Software & Services and ITES-BPO sector has had a perceptible multiplier effect on the Indian economy as a whole. In addition to the direct positive impact on national income and employment generation, the sector has spawned the mushrooming of several ancillary industries, triggered a rise in direct-tax collections and propelled an increase in consumer spending, thanks to the significantly higher disposable incomes.

The total number of IT and ITES-BPO professionals employed in India had grown from 284,000 in 1999-2000 to over 1.63 million in 2006-07. In 2007-08, the IT-BPO industry is estimated to provide direct employment to 2 million people. Every one job directly created by the sector generates four additional indirect jobs related to it. Another 8 million people are estimated to be indirectly employed by this sector in the year 2007-08. The industries direct employment has grown at a compounded annual growth rate (CAGR) of 26 per cent in the last decade, making it the largest employer in the organized private sector of the country.

The industry's contribution to the national GDP is estimated to increase from 5.2 per cent in 2006-07 to 5.5 per cent in 2007-08.

Electronics & IT Exports

During the year 2007-08, electronics and IT exports are estimated to be Rs. 175,700 crore, as compared to Rs. 153,500 crore in 2006-07, showing a growth of 14.5 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. 163,000 crore (US$ 40.3 billion) in 2007-08, as compared to Rs. 141,000 crore (US$ 31.4 billion) in the year 2006-07, an increase of 15.6 per cent in rupee terms and 28.3 per cent in dollar terms.



Initiatives in Information Technology Sector

E-Governance

Background

The e-Governance Scenario in India has evolved from computerization of Government Departments to initiatives which encapsulate the finer points of governance like citizen centricity, service orientation, and transparency. The Approach, Implementation Methodology and Management Structure for National e-Governance Plan (NeGP) has been approved by the Government in year 2006. Broadly, the plan consists of 27 Mission Mode Projects encompassing nine central Mission Mode Projects (MMPs), eleven state MMPs and seven integrated MMPs that span multiple backend Ministries/ Departments. It also includes eight program support components aimed at creating the right governance and institutional mechanisms, core infrastructure, polices & Standards and the necessary legal framework for adoption of e-Governance. It is being implemented at the Central, State and Local Government levels.

NeGP

For the implementation of NeGP, Department has been tasked with creating the common core and Support Infrastructure (National/State Wide Area Networks, National/State Data Centres, Common Services Centres & Electronic Service Delivery Gateways). It is also evolving/ laying down Standards and Policy Guidelines, providing technical and handholding Support, undertaking Capacity Building, R&D, etc., which is critical for successful implementation of various e-Governance Projects. Department has also to play the role of facilitator and catalyst for the implementation of NeGP by various Ministries and State Governments and is providing assistance to Ministries/ Departments requesting assistance, either directly or in collaboration with external professional consultants. Further, considering the complexity of the programme and the need to look at issues such as overall technology architecture, framework, standards, security policy, funding strategy, service delivery mechanism, sharing of common infrastructure etc., at a program level, the technical appraisal of all NeGP projects is being undertaken by Department.

The Department is also serving as the Secretariat to the Apex Committee, which is headed by the Cabinet Secretary, and is assisting the Committee in managing and monitoring the programme. This enables the Department to effectively play its role as the Secretariat to the Apex Committee. Department has set up a Programme Management Unit comprising of personnel from the Government and professional from the private sector which supports the Department in performing this task.

State Wide Area Networks (SWAN)

The Government 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 Department, GIA component of Rs.2, 005 crore over a period of five years. Under this Scheme, it is envisaged to provide technical and financial assistance to States

for establishing SWANs from State Headquarters upto the Block level with a minimum bandwidth capacity of 2 Mbps. SWAN proposals from 32 States/ UTs have been approved so far, with a sanctioned total outlay of Rs.1787.58 crore from the Department. States/UTs are in the various stages of implementation and 27 States/UTs have already initiated the action for identifying Network Operator by floating Request for Proposal (RFP) on SWAN. Feasibility study and preparation of SWAN proposals for remaining States/UTs are in progress.

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/UTs 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 State Data Centres were finalized and circulated to the States including scheme of implementation and financial outlays.

The Government has approved the scheme in January, 2008 at an estimated outlay of Rs. 1623.20 crore to cover 28 States/6 UTs across the country. Around 20 State Data Centres are expected to be set up and operationlised during 2008-09.

Common Service Centres (CSCs)

The Government has approved a Scheme for facilitating establishment of 100,000 broadband internet enabled CSCs in rural areas of the country. This Scheme has been approved at a total cost of Rs 5742 crore, and is being implemented as a Public Private Partnership. The CSCs are one of the three infrastructure pillars of the National e-Governance Plan and would serve as the physical front end for delivering government and private services at the doorstep of the citizen. Proposals for 26 States have been sanctioned by the Empowered Committee at a total cost of Rs.1585.63 crore. Currently three states (Jharkhand, West Bengal & Haryana) have awarded the work and implementation of CSCs in these States is underway. Another three States (Bihar, Tripura & Gujarat) have also awarded the work and the implementation in these States is expected to begin shortly. In additional seven States, the work relating to bid evaluation of SCAs has been completed and it is expected to award the work shortly. Further, RFP for setting up of 100,000 CSCs is expected to be issued shortly.

Capacity Building Scheme

States and UTs are the prime stakeholder for implementation of the Mission Mode Projects under National e-Governance Plan (NeGP). States are inadequately equipped in terms of personnel and the skill-sets needed to handle the challenges that are likely to face. A team of experts in the area like Change Management, Technology Management, Financial Management and Programme Management are considered to be essential to face the challenges.

In view of this, Capacity Building Scheme under NeGP, with an outlay of Rs. 313 crore with a duration of three years has been approved to provide technical and professional support to the decision makers in the States/UTs including NE states. The scheme envisages creation of internal capacity in terms of SeMT (State e-Governance Mission Teams), imparting specialized trainings, initial handholding of State Mission Mode Project (MMP) departments, strengthening State training institutions, curriculum & content development, knowledge management & sharing, etc.

Horizontal Transfer of Successful e-Governance Initiatives

For spreading the benefits of e-Governance across the country, this Department has taken initiative to identify and replicate major successful projects that have been achieved citizen centric objective in some States. In the first phase, projects on Land Records, Transport and Properties Registration were taken as they have potential for improving significantly Government-to-Citizen services. Following objectives were kept while implementing these projects:

- Significant improvement in the quality of Government services to citizens;
- Manual system to be completely replaced; and
- Project to be made sustainable commercially within a reasonable time.

Land Records Computerization Projects: Pilot Project implementations have been completed in the state of Uttrakhand, Orissa, Haryana, Sikkim, Assam, Kerala, and Rajasthan. Rollout in entire state on PPP model has been completed in West Bengal and is being carried

out in Assam, Punjab & Pondicherry. Implementation of computerization process has been progressing well in the States of Mizoram, Madhya Pradesh and Jharkhand. New pilot project has been initiated in Meghalaya

Computerization of Property Registration: Pilot Project implementations have been completed in the state of Sikkim. Assam Orissa and Rajasthan. Rollout in entire state on PPP model has been completed in West Bengal and is being carried out in Pondicherry & Punjab. Implementation of computerization process has been progressing well in the States of Goa & Rajasthan. New pilot projects have been initiated in Meghalaya and Uttarakhand.

Computerization of Transport System at Regional Transport Office (RTO): Pilot Project implementations have been completed in the state of Punjab. Rollout in entire state on PPP model has been completed in Kerala and being carried out in Punjab.

India Portal

India Portal is a Mission Mode Project in the integrated service category under the NeGP. This Portal is envisaged to be a unified portal that will provide 'single window access' to information and Government to Consumer services to be electronically delivered from all state sector institutions and organizations.

The content in this Portal is the result of a collaborative effort of various Indian Government Ministries and Departments, at the Central/State/ District level. National Portal Coordinators (NPCs) have been identified from States/UTs and Central Ministries/Departments who would be providing contents pertaining to their departments.

The National Portal of India is a Citizen Centric portal catering to all the citizens of India hence the information and services provided through the portal also caters to the Women, SC/ST, Weaker sections and North-East Region.

The specific achievements made under this project during the year are summarized as:

- National Portal Coordinators (NPCs) – Till date there are 66 NPCs for the Central Ministries and Departments and 36 NPCs for the States/ UTs.
- All the State have been advised to initiate the process of hiring a State level agency to facilitate the content contribution to the National Portal of India.
- On the request of the Ministry of Tourism, a Special Communiqué, "Vote for Taj" has been sent to include the Taj Mahal as one of the Seven Wonders of the World.
    - Live Webcast of
    - 61st Independence Day Celebrations
    - Hon'ble President Smt. Pratibha Devisingh Patil's first address to the nation delivered on the eve of Independence Day.
- State Workshop – In order to promote the National Portal of India and to strengthen content contribution to the Portal, State level workshops have been organized in Delhi & Manipur for having active participation from the heads of the departments.
- India Portal would be providing Multilingual content. Currently Hindi version of the India Portal is functional and the other language would follow subsequently.
- Sectors: This year, four new sections have been added to the section, making the total to fourteen. The new sectors which have been included are:
    - Food and Public Distribution
    - Science and Technology
    - Health & Family Welfare
    - Environment & Forests
- Business: The Business module of India has been revised and enhanced in terms of coverage and scope and the content and design of every sub-section has been revamped.
- Preparation of Guidelines/Framework: The Framework for the National Portal of India has been developed highlighting about the Portal, the classification of content, it's generation, compilation and packaging, the contribution strategy and the workflow of the entire content life cycle. The Policies of Content approval and review, moderation and archival have been well defined in the National Portal Framework.
- The Guidelines for Government Web sites has been prepared by NIC furnishing the Website

design standards.

- The Content Framework for the National Portal has been formulated.
- Generic Public Information Framework (GPIF) has been prepared and has Metadata for Web Resources.
- Content Contribution
  - On-line Services - 303 new services offered by different State Governments have been added in 2007-08.
  - Documents –1771 new documents have been contributed.
  - Forms – 1654 forms published on the portal.
  - Schemes – 517 schemes have been added by the Ministries/States.
  - Rules/ACTS - About 372 new rules and 767 Acts of different States have been contrib uted to the National Portal.
  - Government Contacts – The Government Contact Directory on the portal has been enriched with 227 new contacts of various officials of different state and central ministries and departments.
  - Announcements– With 336 new Announce ments, the section gives vital updates by the various government ministries and de partments.
  - Directory of Important Web Links – 967 new websites have been added to the portal in the year 2007.
- Accolades
  - National Portal bagged the 'Best e Content' award at the Manthan Awards 2007 organized by the Digital Empowerment Foundation in September '07.

Standards in e-Governance

Standards in e-Governance is a high priority activity, which will ensure sharing of information and seamless interoperability of data and e-Governance applications under NeGP.

A Portal has been set up by NIC on e-Governance Standards http://egovstandards.gov.in.

An Apex body has been constituted with a mandate to approve, notify and enforce the Standards/ Guidelines formulated by various Working Groups (WG) and to oversee that they are in accordance with international practices in this regard.

Six Working Groups have been constituted, Working Group meetings, e-Governance Workshop and National summits have been organized and the details are made available at at the website. Draft standards on Interoperability have been prepared.

The specific achievements made under this project during 2007-08 are summarized as:

- Government of India constituted a "Specialist committee on Open Standards".
- During review strategic decisions were taken to streamline the activities, process and roles and responsibilities to expedite standards of e-Governance.
- Process for selection of agency for detailing the Enterprise Architecture (EA) framework initiated.
- The following Draft Standards/guidelines & Policies have been prepared
  - Draft Interoperability Framework for E-Governance (Technical & EA WG)
  - Draft Enterprise Architecture framework (Technical & EA WG)
  - Draft e-Governance ISMS Plus document (Network & Information Security WG)
  - Generic Metadata elements (Meta data and Data Standards WG)
  - Standards Procedure document (Quality and Documentation)
  - Identity and Access Management (Draft Policy)
  - Recommendations/ Guidelines for the Localization and Language Technology Standards.

National e-Governance Service Delivery Gateway (NSDG)

NSDG, a middleware infrastructure, would act as standards based routing and a message switch de-linking the back end departments from the

Front-end service access providers. This would facilitate standards based interoperability and integration to existing and new e-Governance applications. Various software life cycle documents such as architecture and design, coding, testing, etc., have been prepared A pilot implementation has been successful developed and tested. The National Gateway is implemented by C-DAC and is expected to go live shortly.

e-Readiness

The Department as part of its annual plan regularly takes stock of e- Readiness at the country level and state/ UTs level to ascertain the status of underlying infrastructure, human resources, policy regime, etc., and provides inputs into the steps needed to be taken to optimise environment and reach full potential.

The Department has been publishing annual e-Readiness Assessment reports of States/UTs since 2003. The highlights of the 2006 Report prepared by NCAER include Input-Output Multipliers for ICT for States and UTs and Assessment of e-Readiness of select central ministries that are implementing projects under NeGP. One of the key features of the report is the use of Social Accounting Matrix to assess impact of ICTs on social dimensions such as poverty.

Assessment

Assessment is one of the important components of NeGP. It is planned to undertake summary/ detailed assessment of e-Governance projects in respect of their effectiveness and sustainability. Process for creation of impact assessment of e-Government projects at State and national level was initiated through the empanelled research agencies. In all 11 market research agencies have been empanelled for a period of two years and given order for carrying out the study across different States in the Country for State and National Level projects. The study is expected to be completed shortly.

Awareness & Communication

NeGP is multi-stakeholder by virtue of its design. A massive awareness & communication strategy is therefore required to be launched to educate people about what ICT can do to improve their lives as well as empower them.

The DIT has been at the forefront for creating awareness regarding the various e Governance initiatives being undertaken across the country. Towards this end, over the last few years, it has been partnering and providing institutional support to various organisations for activities such as conferences, seminars and workshops in this area.

As part of the strategy, the proposed NeGP umbrella campaign will be designed and run by the DIT, to convey the over-arching picture and a sense of continuity between the various MMPs and Components. A media agency has been empanelled that will create and implement 'brand NeGP'.

Unique ID Project for BPL Families

The UID Project is a Planning Commission initiative which is being currently being implemented by the NIC under the overall supervision of the Department. The objective of the first phase of the project is to create a core database of all residents of the country and assign a unique ID number to all such residents over 18 years, in order to facilitate better targeting of government social welfare schemes and poverty alleviation initiatives. Under the Project, the Electoral Roll database is being used as the initial database which would be used to form the core database. Recommendations relating to the generic processes for administration of UID as well as the institutional framework needed to run and maintain the UID database have also been made. It is has been approved that the implementation of the UID Project would be entrusted to UIS authority, under the Planning Commission.

e-District

In the budget of 2006-07, it was announced that "It is Government's intention to bring a number of services online, in a web-based mode, including applications under the Right to Information Act, applications for house sites, ration cards, transfers of teachers, inclusion in the electoral roll, filing of police complaint, and issue of birth/death certificates and copies of land records". Most of these services are provided at the district level and they serve as the primary interface between citizens and the Government. The objective is to computerize the backend workflows at the District level with appropriate Business Process Re-engineering (BPR). Accordingly, the draft guidelines for implementation of Pilot e-Districts across the country have been approved and circulated to States. The Department has approved 4 pilot e-District Projects covering 6 Districts in Uttar Pradesh, 2 Districts in Assam, 4 Districts in Tamil Nadu and three districts in Bihar.

Proposal for pilots in 10 more States (16 Districts) is presently under consideration. The last two have been approved during this financial year. The projects are being implemented in Uttar Pradesh and Assam while the implementation in Tamil Nadu and Bihar is expected to begin shortly.

E-Bharat Project

To support NeGP, Government has been carrying out a dialogue with World Bank for possible programme management and financial support (called "e-Bharat project"). It will be a Sector Investment Loan (SIL) to support:

- Broad buildup of capacity necessary to manage NeGP across the country,
- Implementation of selected MMPs closely aligned with Bank's Country Assistance Strategy in India, and
- Additional financing operation is anticipated when e-Bharat implementation has proved successful and majority of its funds have been committed.

The Bank has as part of its preparatory activities, undertaken several missions. Good progress in advancing project preparation activities has been made during the year.

While considerable progress has been achieved with regard to project preparation activities as indicated above, significant work needs to be done with regard to detailing of various components likely to be involved in the first phase of project funding e.g., Capacity Building, Monitoring and Evaluation, R&D, Communication and Awareness, and Program Management, to meet Bank's requirements.

Community Information Centres (CIC)

Department of Information Technology (DIT) had taken up an initiative for the setting up of Community Information Centres (CICs) in the hilly and far-flung rural areas of the country with an objective 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 CIC projects taken up in North East were for the setting up of 487 and subsequently 68 CICs, at block level, in the 8 North-Eastern States i.e., Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim. This initiative was extended to Jammu & Kashmir, Andaman & Nicobar Islands and Lakshadweep Islands.

CICs in 8 North Eastern States (NE)

CIC project in the North East was completed in March 2007. In order that existing CICs of North East continue to provide services for socio-economic development of the region, the project 'Gap bridging arrangement to facilitate the merger of CICs of North East into CSCs (Common Service Centres) being established throughout the country under National E-Governance Plan (NeGP) was initiated in April 2007, for a period of 2 years.

Established CICs in the North Eastern States are a citizen interface for IT-enabled e-government services and are providing service delivery and training. The CICs are providing e-mail and internet access, information dissemination, entertainment and news, tender and e-employment notification, citizen centric services through CIC portal (http://www.cic.nic.in) and web based services including agri-market information, hospital bookings, board examination results, and access to socio-economic databases.

135 CICs in Jammu & Kashmir (J&K)

Established CICs in J&K are providing IT-enabled e-government services and training as in North Eastern States.

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

Established CICs are serving the dual purpose of imparting ICT based education and training as well as citizen-centric services to the people of the region as in North East and J&K States.

UNDP

Under the UNDP sponsored project ICT for Development (ICTD), four themes for ICT applications in development sector were identified, namely, integrated citizen services, enhancing rural livelihoods, transforming governance and women's empowerment. In line with these themes, 12 pilot projects were approved and provided initial financial support. Most of these projects are at advanced stages and a few of them are in operational stage. One of the projects has already been commissioned and is providing 26 different G2C and B2C services to local citizens using single window through a network of 17 centres spread across Bangalore and is to be replicated in other towns. Similarly more than 25 G2C services are being provided through I-CoSC kiosks in Shimla. Through DRISTI pilot initiative improved transparency and accountability of the (Panchayathi Raj Institutions) PRIs has been achieved in Burdwan district of West Bengal and the State Government is replicating the same in 17 districts. Also in East and West Godawari district of Andhra Pradesh livelihoods opportunities including adoption of better agricultural practices

and education and health services are being augmented in rural areas through video-conferencing with experts. In Mysore district through another pilot initiative the project has empowered rural women through capacity building on use of ICTs for creation of audio and video content on women's issues and using community broadcasts and listener's clubs. The remaining pilot initiatives are scheduled to be completed by June 2008.

India Development Gateway (InDG)

India Development Gateway (InDG) project being implemented by C-DAC Hyderabad aims to provide responsive and credible information products and services in local languages catering to the needs of rural communities. As part of the project, a multilingual portal (www.indg.in) has been developed which hosts information related to agriculture, health, primary education, rural energy and e-governance and provides information in four languages -Hindi, Tamil, Telugu and English. Further, InDG has established partnerships with over 60 stakeholders from Government, civil society, academia and private sector for content sharing, validation, and translation and outreach activities. Also events such as consultative workshops, community level ICT awareness meetings and capacity building of village kiosk operators were organized as part of InDG's outreach activities. Over 1100 development professionals and village knowledge centre operators participated in about 15 events, held in the states of Andhra Pradesh, Tamil Nadu and Jharkhand.

Conformance Assessment Centres

Department under this project is creating 7 IT centres (region-wise) in terms of skills, knowledge and experience with technical in the areas of Information Security, Software Quality, IT Service Quality etc. These centres will provide Audit, Compliance and Certification Services to various e-Governance applications. The project is being executed by STQC

The specific achievements made under this project during 2007-08 are summarized as:

- Draft Conformance Assessment Framework (CAF) has been prepared and published on the Standards for e-Governance Portal.
- A workshop on Quality in e-Governance was held in Hyderabad for the awareness promotion of the Competence Centres created under the project

Open Technology Centre (OTC)

Government has initiated the setting up of an Open Technology Centre through NIC aimed at giving effective direction to the country on Open Technology in the areas of Open Source Solutions, Open Standard, Open Processes, Open Hardware specifications and Open Course-ware.

The OTC will provide the requisite support to the Standardization activity for e-Governance.

The Specific achievements made under OTC project during 2007-08 are

- Training on Subversion Source Code Management System was organized at Chennai.
- Report on "Land Area Coding Standard" prepared for the Committee on Flagship programs.

Establishment of BOSS Support Centres and Business Development Centre

The Establishment of BOSS Support Centres and Business Development Centre being executed by C-DAC, Chennai has been initiated for duration of three years.

Achievements during year 2007-08 are as follows:

- Ten BOSS support centres have been established at Department Delhi and C-DAC centres at Chennai, Bangalore, Mumbai, Thiruvanathapuram, Noida, Mohali, Pune, Kolkatta and Hyderabad.
- BOSS Linux has been installed in 180 computer systems at Department. Training of around 300 employees was held and suggestions have been incorporated in the current version.
- BOSS Linux Desktop version 2.0, fully localized in Tamil and Hindi has been released in Chennai during CONNECT 2007 and BOSS Server version 1.0 is undergoing Beta testing.
- MOU has been signed with Chhattisgarh, Infotech and Biotech Information Promotion Society (CHips – the nodal agency for IT development in Chhattisgarh) for adoption of BOSS in their e-Governance projects throughout the state.
- Training on Boss has been organized for Navy officers at Delhi, Mumbai, Kochi and Vishakhapatnam.
- Around 5000 BOSS CDs have been distributed in various FOSS workshops, conferences and various Engineering colleges.
- As part of BOSS Linux vendor development, the Group is working closely with HCL Info systems. BOSS Linux is being tested on various models of HCL desktop / laptop systems in their Uttrakhand plant.

Other Projects

Setting up of LAN & Biometric Identification System at Ahmedabad & Vadodara Central Jails

This has been completed to make entry and outgoing foolproof in the jail and bring transparency/ efficiency in prison inmate information handling system.

Land Resources Information System (LRIS) in Mysore district, Karnataka

The project is being implemented by Karnataka State Remote Sensing Application Centre, Bangalore in collaboration with Department of IT & Biotechnology, Government of Karnataka for demonstration at Mysore district. Up-to-date comprehensive land information system and digital cadastral map will be prepared for developmental and managerial requirements.

eG- Swaraj

This is an e-Governance initiative for creation of digital database of multiple thematic layers and development of decision support system for various natural resources management.

e-Kalyan

This is an e-Governance initiative for welfare Department in Jharkhand State for development of web based Management Information System (MIS) and Budget Creation System.

File Tracker

A pilot project to monitor the movement of files/ papers in Government Offices in the State of Jharkhand under progress.

Computerization of Finance, Revenue and Expenditure Department of Government of Sikkim

This has been initiated to computerize the Finance, Revenue and Expenditure Department with an aim to have centralized processing for the final accounts of the State and preparation of consolidated monthly report.

Remote Sensing and GIS Project on Integrated Land Management and Administrative Planning (ILMAP) in Manipur State on Pilot basis.

This has been initiated to develop and implement Integrated Land Management and Administrative Planning in a district of Manipur state for improving land resource management and delivery system.

Cyber Security

Information security R&D is one of the major initiatives identified to pursue the strategic activities for securing country's cyber space. Under this initiative, promotion of research and development of indigenous cyber security solutions, proof of concepts and prototypes and skilled manpower in areas of cyber security is carried out through sponsored projects at recognized R&D organisations. Broad research thrust categories identified include a) Cryptography and Crypt analysis, b) Network and Systems Security, c) Security Architectures, d) Vulnerability and

Assurance and e) Monitoring, Surveillance and Forensics.

During the year 2007-08, thirteen proposals covering cryptography and cryptanalysis, cyber forensics, development of malware prevention system, secure environment for sensitive information transaction in mobile adhoc networks, development of intrusion prevention system, web service based security management framework for critical sector information infrastructure protection, multi camera algorithms for security and design of Iris recognition system for personal authentication have been considered by the Working Group and seven of these proposals have been initiated.

Indian Computer Emergency Response Team (CERT-In)

CERT-In is a functional organisation of Department with the objective of securing Indian cyber space. CERT-In provides Incident Prevention and Response services as well as Security Quality Management Services. CERT-In provides:

- Proactive services in the nature of Advisories, Security Alerts, Vulnerability Notes, and Security Guidelines to help organisations secure their systems and networks.
- Reactive services when security incidents occur so as to minimize damage.

The activities carried out by CERT-In comprises:

Activities	2007
Security Incidents handled	1237
Security Alerts issued	44
Advisories Published	66
Vulnerability Notes Published	163
Security Guidelines Published	1
White papers Published	2
Trainings Organised	6
Indian Website Defacements tracked	5863
Open Proxy Servers tracked	1805
Bot Infected Systems tracked	25915

CERT-In creates awareness on security issues through dissemination of information on its website (http://www.cert-in.org.in) and operates 24X7 Incident Response Help Desk. CERT-In has effectively responded to various critical cyber security incidents affecting public and private sector organisations and provided timely advice and support to resolve the incidents and minimise the damage.

CERT-In is establishing the National Cyber Security Assurance Framework for protection of Critical Information Infrastructure. As part of this CERT-In has empanelled 76 'Security Auditors' for auditing, including vulnerability assessment & penetration testing of computer systems and networks of various organisations of the Government, critical infrastructure organisations and those in other sectors of the Indian economy. Implementation of security measures as per ISO 27001 has been mandated for all government organisations. A comprehensive database of Chief Information Security Officers (CISO) of Critical Infrastructure organisations is being maintained and training programs have been conducted to form a network of CISOs and encourage them to implement best practices to secure their systems. CERT-In is providing early warning on emerging threats to CISOs so as to enable them to take suitable actions to mitigate the risk.

CERT-In plays the role of mother CERT in the country and helping formulation of sectoral CERTs in various sectors such as Defense, Transportation, Finance. CERT-In is regularly interacting with the cyber security officers of sectoral CERTs to advise them in the matter related to cyber security.

To facilitate its tasks, CERT-In has initiated steps to collaborate with IT product vendors and security vendors in the country. Security Cooperation agreements and MoUs have been signed with Microsoft, Redhat, Cisco, EMC^2, eBay, Trendmicro, Symantec, Quickheal, Radware & McAfee. This collaboration facilitates exchange of information on vulnerabilities in relevant products, developing suitable countermeasures to protect these systems and providing training on latest products and technologies.

CERT-In is collaborating with international security organisations and CERTs to facilitate exchange of information related to latest cyber security threats and international best practices. CERT-In became member of Asia Pacific CERT (APCERT) and Forum of Incident Response and Security Teams (FIRST) and is a part of the international CERT community. As part of this collaboration, CERT-In participated in the ASEAN CERTs Incident Handling Drill (ACID 2007) held during July 2007 and APCERT International Incident Handling Drill 2007 held during November, 2007 involving CERTs from Asia Pacific region, Europe

and North America. CERT-In is interacting with other international CERTs to exchange advance information regarding vulnerabilities and malicious code, responding to incidents involving attackers and victims of international jurisdiction. Functional relations are being established with international CERTs from USA, Japan, Korea, Australia, Brazil, etc., CERT-In has signed MoUs with National Cyber Security Centre, Republic of Korea, JPCERT/CC and National Computer Board, Mauritius for mutual cooperation in the area of cyber security.

To create awareness and to enable them to implement best practices, CERT-In is organising workshops and training programmes on focused topics for targeted audience such as CISOs, financial and banking sector officers, ISPs etc. Experts from industry are delivering lectures in these workshops apart from CERT-In. CERT-In has conducted training programs for CIOs on Security Readiness in partnership with Microsoft. CERT-In and Confederation of Indian Industry (CII) has formed forums facilitaing information exchange and joint programmes to combat Phishing attacks and Spam.

The thrust is to make CERT-In the most trusted referral agency in the area of information security in the country. CERT-In is focusing on building a network of CISOs of Critical Infrastructure Organisations and interacting with them to ensure security of the critical systems, collaboration with IT product and security vendors to mitigate the vulnerabilities in various systems, providing guidance for developing and augmenting sectoral CERTs, cooperation with international CERTs and security organizations on information sharing and incident response, promote R&D activities in the areas of Artifact analysis and Cyber Forensics and security training and awareness. CERT-In is developing a mechanism to issue advance warnings and alerts on cyber attacks and provide countermeasures by analyzing Internet traffic patterns.

IT Act /Certification

The Information Technology Act was enacted in the year 2000, primarily to boost e-Commerce and also to create an enabling environment for e-Governance in the country. The Information Technology Act. 2000 provided a legal framework for transactions carried out using computers and the internet technologies. As the technology is an ever-evolving process for providing efficient and cost effective options, it was felt that a fresh look to the technology-driven law needs to be given. A need was also felt to strengthen the legislation pertaining to data protection and privacy.

Further new forms of computer misuse like video voyeurism, identity theft, e-commerce frauds like phishing, frauds on online auction sites, sending offensive emails and multimedia offences have also emerged.

There was also an emerging view that IT laws should be technologically neutral in line with the recommendations made by UNCITRAL Model Law on Electronic Signature.

Keeping in view the above, the Information Technology (Amendment) Bill, 2006 was introduced in the Lok Sabha on 15th December, 2006 to amend the Act. The Bill was referred to the Parliamentary Standing Committee on Communications & Information Technology for examination. The Parliamentary Standing Committee has submitted its report on 7th September 2007.

The Information Technology Act 2000 facilitates acceptance of electronic records and Digital Signatures through a legal framework for establishing trust in e-Commerce and e-Governance. Seven Certifying Authorities (CA) licensed under the IT Act, 2000 issue Digital Signature Certificates, which are used for authenticating Digitally signed electronic records.

The Root Certifying Authority of India (RCAI) set up by the Controller of Certifying Authorities (CCA) is the root of trust for authentication of 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 are other components of the technical infrastructure that has been established. The Disaster Recovery Site of CCA has been made fully operational.

The CAs supported a number of new applications by integrating Digital Signatures and the total number of Digital Signature Certificates issued in the country grew to around 7,00,000 by February 2008. A study was conducted on the level of usage of digital signatures in the country to identify the issues that are needed to be addressed for increasing growth of usage.

Training programmes continued to be held for different user segments. A proposal was prepared for conducting nation-wide PKI & digital signature awareness programmes. Action was also taken

on preparing material & tools for wide dissemination.

To promote international linkages in respect of Digital Signatures, steps were initiated for India to become a principal member of the Asia Public Key Infrastructure Forum. Efforts are on to incorporate CCA's Root Certificate in Microsoft Internet Explorer browser for ease of establishment of trust.

Establishment of an .IN Internet Domain Name

The registration of the .IN domains has reached 3.50 Lakh registrations till December 2007.

Internationalized Domain Names – Implementation for Indian Languages

India has also placed on record its demand for Country Code Top Level Domain in IDN for all its 22 languages supported by its 11 scripts. The tasks of drawing out the language character table and variant table along with language rules has been developed for Devanagari Script for the domain name registration in the languages of Hindi-Marathi, Sanskrit and Konkani and the next step of coding for IDN implementation is to be undertaken. The Department is also in the process of initiating similar activities for implementation of Multilingual Domain Names known as Internationalized Domain Names (IDN) for all other Indian Languages (Scripts) at the earliest.

Migration to IPv6 from IPv4

The Department of Information Technology, Government of India has initiated several steps towards IPv6 readiness among the network and service providers and related IT industry experts, technologists and users. As part of demonstrating the IPv6 implementation benefits, the Education Research Network (ERNET) backbone connecting premier academia 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. The ERNET network and a project for examining IPv6 for mobility, security and Quality of Service as well as for interoperability aspects is underway.

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

The network topology of the ERNET backbone has been upgraded and configured to Multi Protocol Level Switching (MPLS) and DiffServ based for the Quality of Service (QoS) Test bed run QoS enabled applications and services to users. The architecture and traffic engineering principles are being arrived at by the seven institution joint team through experimentations on the network testbed established by ERNET on its backbone. Network measurement, monitoring and management tools have been developed for the ERNET backbone to demonstrate the advantage of statistical multiplexing or MPLS traffic Engineering for demonstrating Quality of Service (QoS) for applications viz., Voice over Internet Protocol (VoIP), Distance Learning and Video Conferencing are underway. The test bed will be used by ERNET to provide IP based QoS services and will also serve as a vehicle for collaborative R&D among the academia and for distance education.

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

A Cooperation agreement has been signed under India EU Cooperation on Information Society Technologies (IST) Programme, for 34 Mbps connectivity between India and GEANT Network in Europe for collaboration between ERNET and Delivery of Advanced Network Technology to Europe Limited (DANTE) 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, genomic, biotechnology, material science, environmental science, etc.

India's active participation and visibility in International forums and its related agencies

Globally, Internet is managed by Internet Corporation of Assigned Names & Numbers (ICANN). As a Public-Private partnership, ICANN is dedicated to preserving the operational a stability and security of the Internet promoting competition and achieving broad representation of Global Internet Communities. The Department hosted the meeting of ICANN during February 2008 in New Delhi.

Internet Governance Forum (IGF): Internet Governance is emerging as a major discussion forum in the international scenario on issues related to Internet proliferation and its public policy aspects.

An Indian delegation under the leadership of Secretary, DIT participated in Internet Governance Forum meeting at Rio de Janerio, Brazil, during November 2007. IGF had fruitful discussions on a very broad range of issues across the five themes of Internet viz., Critical Internet Resources, Access, Diversity, Openness and Security.

The next IGF is scheduled to be held in Hyderabad during December 2008. India is looking forward to have an inclusive and development-oriented dialogue with the stakeholders during the IGF in Hyderabad

Establishment of Governmental Advisory Committee (GAC) Secretariat in Department, New Delhi and ICANN

The Governmental Advisory Committee (GAC) of ICANN is an Advisory Committee comprising representatives of national governments, multinational governmental organizations and treaty organizations, and distinct economies as recognized in international fora. The Internet Corporation for Assigned Names and Numbers (ICANN) is an internationally organized non-profit corporation, has responsibility for coordinating Internet Protocol (IP) address space allocation, protocol parameter assignment, domain name system management, and root server system management. The Governmental Advisory Committee considers and provides advice on the activities of ICANN as they relate to concerns of governments, particularly matters where there may be an interaction between ICANN's policies and laws and international agreements or where they may affect public policy issues. The GAC is a forum for the discussion of government interests and concerns, including consumer interests.

The Semiconductor Integrated Circuits Layout-Design Act 2000

The Semiconductor Integrated Circuits Layout-Design Act (SICLDA) 2000 provides for protection of Semiconductor Integrated Circuits Layout-Designs and for the matters connected therewith or incidental thereto. As per the provisions made under SICLDA, a Registry known as the Semiconductor Integrated Circuits Layout-Design Registry (SICLDR) has to be established to facilitate examining the received chip layout-design IPR applications and issuing the registration to the qualifying layout-designs.

During the year, the works on establishing SICLDR were continued in terms of hardware installation and procurement and development of software utilities.

Technology and Application Development

Media Lab Asia

The Media Lab Asia has been set up by Government of India, Ministry of Communications and Information Technology as a not- profit organization under section 25 of companies Act with an aim to bring the benefits of the most advanced information and communication technologies to the common man and the needy people.

Media Lab Asia is working on the paradigm of collaborative research in the task of developing relevant and sustainable technologies and bringing them to the daily lives of people. It is operating through national network of Research laboratories (Technical, Medical, Managment, NGO. Domain Experts etc., 58 numbers at present). Its objectives include Multi-disciplinary R&D, Proof of Concept, Pilot Testing and Deployment through Public Private Partnership (PPP) model.

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 centered around these themes. Media Lab Asia is identifying technologies that can be taken to the land for deployment and it is implementing deployment projects.

Achievements during the year 2007-08

- Currently handling 75 projects in 1500 villages, in 12 States with 58 Collaborators where 200 researchers are working.
- Large number of persons have been trained in ICT under the projects & 125 papers have been published. 3 persons have received their Ph.Ds and 5 patents filed.
- Nine technologies are being transferred to more than 10 interested parties for large scale deployment.
- Work is going on for 4 National Deployment initiatives.

Awards

- Sanyog has received National Award as best adaptation to cost effective technology for persons with disabilities.
- Media Lab Asia (Project: Sanyog) has received NASSCOM Innovation Award 2007, for "Market Facing Innovation - Emerging Companies" category.
- Media Lab Asia has been listed in NASSCOM's top 100 IT innovators.
- e-Sagu has been awarded "The Manthan Award 2007 - India's Best e-Content for Development category.

ICT for Healthcare

Sehat Saathi- Portable Model of Primary Healthcare Delivery: Sehat Saathi is a rural telemedicine system that can be used to extend medical care to patients in the remote parts of the country. The model provides for front-end contact through a suitably trained non-medical person; back end support from doctors, pathologists and other health professionals for diagnosis and

treatment.

The pilot deployment of Sehat Saathi (ophthalmology module) telemedicine software has been done at Primary Health Centre (PHC) Chaubepur (Kanpur) in collaboration with Ministry of Health and Family Welfare. An expert eye treatment provided to more than 700 patients over a period of 6 months. The transfer of technology of Sehat Saathi (Ophthalmology module) system is in progress.

Development of wireless integrated biomedical devices for rural healthcare: The objective of the project is to develop affordable wireless integrated biomedical devices for rural healthcare. These wireless integrated biomedical devices are useful in the mobile telemedicine system for providing treatment to the patients in the rural areas. The biomedical equipments are integrated using wireless technology. The field trial of wireless network and telemedicine system has been taken up at Ettimadai Campus.

Adaptive & Automatic Insulin Pump: The objective of the project is to develop affordable automatic insulin pump based on MEMS (micro-electro-mechanical systems) mechanism and a biosensor for estimating blood glucose level. It is useful for development of affordable drug delivery system. The software logic of the pump is useful for computing drug dosage for automated injection through coupling of the biosensor to MEMS (micro-electro-mechanical systems). The design of insulin pump and biosensor for blood glucose measurement has been done and the development of the same is in progress.

Resource shared healthcare delivery system using telemedicine at Tirur taluk Mallapuram, Kerala: The objective of the project is to develop a test model for taking telemedicine for addressing primary healthcare in a sustainable way. The telemedicine centres of the project are identified as suggested by Department of Health and Family Welfare, Government of Kerala. The overall architecture consists of 4 Telemedicine Specialty Centres (Medical College Hospital-Thiruvananthapuram, Medical College Hospital-Kozhikode, Sree Chitra Tirunal Institute of Medical Sciences and Technology-Thiruvananthapuram, Regional Cancer Centre-Thiruvananthapuram), 8 Telemedicine remote Centres and Data centre at Thiruvananthapuram.

The specialty centres and remote hospitals are connected to the KSWAN with Wi-Fi technology. The doctors at Specialty Hospitals and patient at the PHCs can communicate using the video-conferencing facility supported by this network. The specialty hospitals and the PHCs are accessing the data centre resource using Wi-Fi connectivity. The web based telemedicine software is developed on open source frameworks.

Low Cost Mobile Telemedicine Facility at Cherthala - Alappuzha district of Kerala: The objective of the project is to develop a model for affordable mobile telemedicine system for primary healthcare. A Mobile tele-clinical van with necessary medical equipments goes in a predefined schedule to the rural areas (20 villages in Cherthala taluk). The mobile telemedicine van will have a basic set of medical diagnostic equipments, a Doctor, Nurses, Lab technicians and driver cum attendant.

The wireless connectivity is provisioned between the van at specified locations and the Specially Hospital for connecting the patents to the doctor at the hospitals. The design of the Mobile van has been completed and the development and deployment of the system is in progress.

Development of low cost feature rich telemedicine terminal: There is a nationwide public healthcare infrastructure already established in India. This infrastructure can be fortified by augmenting them with ICT technologies and services to address primary healthcare more effectively.

A project has been taken up to development an affordable and appropriate terminal for telemedicine solutions for primary healthcare. The telemedicine terminal would have provision for high quality video-conferencing, interfaces for selective medical diagnostic equipments, local storage, LAN/WAN connectivity and Ethernet functionality. The equipments will be locally maintainable and portable. The telemedicine system will be robust and user friendly for the patients-doctors and affordable for primary healthcare. The design of telemedicine terminal is completed. Development of the telemedicine terminal is in progress.

Rural Health Management Information System: A project has been taken up for developing a model for IT based health services at grass root level by strengthening the health data collection and synthesizing relevant information for healthcare management at 20 PHCs/CHCs/BPHCs of Tirur Taluk of Mallapuram, Kerala. Handheld devices are used by health workers for capturing data from the field. The data collected by the health worker will be uploaded in the network. This will from a health database for Health Management

Information System. This data can be used for timely reports, alerts, work plan and other purposes like research, census etc. A pilot deployment of handheld devices has been done by Media Lab Asia for health data collection by health worker at Ballabhgarh, Haryana with AIIMS, New Delhi.

ICT for Education

Content in Schools - Portal GYANPEDIA.IN

Content in School (CIS) initiative is aimed at enabling school education in India through content creation, aggregation and dissemination using ICT tools and a bottom up approach.

The objective of the project is to provide a Virtual Platform for country wide content exchange programme for School Community - children as well as teachers. The target is to cover 300 schools in seven districts of 3 states through the project.

ICT in Classrooms in Rural Schools

The teachers (more than 250 teachers) of the Government Schools including Kendriya Vidyalaya and Navodaya Vidyalaya in rural areas of the state of Andhra Pradesh have been trained on Content creation using open source tool and about 150 content modules (polished + unpolished) on five subjects (Maths, Physics, Chemistry, Biology and General Science) have been developed. The authoring tool "SQUEAK" has also been localized in the regional language. 15 workshops have been conducted.

The project at Mizoram & Karnataka is covering the subjects of Science for classes IV-VII using teacher centric software models. Teachers in 15 rural schools in Karnataka are using these modules for more than one year. Installation of software & teachers training in 40 rural schools in the State of Mizoram have been completed and the schools have started teaching by using the specific software content.

In another project, out of the 8 districts in Mizoram, IT training is being carried out in 5 districts. Over 300 students have been trained for CCCA (Certificate Course in Computer Applications) for School children and DOEACC 'O' Level courses.

Development of Virtual Labs: 40 Virtual Demo Experiments in Physics for class V-VIII have been developed in collaboration with IIIT, Hyderabad.

The project on "Development of Virtual Lab for Life Science Experiments for Higher Secondary Education" has been taken up. The work on portal has also started with sample experiments uploaded.

The project on "Design, Development & Deployment of Mobile & Internet based Math Prep-Guide Application" has been taken up. Sample content uploaded on the portal and mobile device.

The project on "Development on Multimedia based Pre-Primary Teachers Resource kit for English & Hindi" has been taken up Sample content sourced from various agencies has been put on the portal.

Use of ICT in Vocational Education and Training

Media Lab Asia has initiated a project to evolve a National program for application of ICT for Vocational Education & Training. This is in continuation of work to evolve a plan for application of ICT for Vocational Education & Training where more than 2500 vocations have been identified.

The final reports on Agriculture and School Education sector are available. The recommendations and reports are under finalization for the Tourism & Hospitality and Media & IT sectors.

The background papers on Technical/Engineering, Artisans/Craftsmen/Cottage Industries, Healthcare and Retail are ready.

Four National level workshops have already been conducted in collaboration with Top National Level Agencies, GOI, Universities, Medical Colleges etc., to identify the vocations which need immediate attention and highlighting various possible vocations in each of the sectors and the vocations which immediately require ICT interventions.

Transfer of Technology (ToT) in ICT for Education Sector

The following technologies are being deployed on large scale through different organization.

Samvidha: An offline Internet access system for personalized content access & presentation for education & literacy for illiterate adults & rural children. Transfer of Technology in progress.

Sahayika (The knowledge network): It deals with Ontology building tool, with an interface to create new ontology for any subject. It is available in

Bengali & English. It provides concept based as well as topic based navigation of content. Transfer of Technology in progress.

Content Authoring Tool: This is a Tool in local language based on 'Squeak' and to train teachers to use / to develop content, about 12 virtual lab experiments in physics are also available. Transfer of Technology in progress.

Life Skill Training Tools for Nomadic Tribes: It deals with ICT based Primary Education/Life skill training to children of Nomadic tribes & Under-developed communities with flexibility of development of course content as per user need in local languages & local context. Transfer of Technology in progress.

Rural Connectivity

Ashwini

This project has established a broadband wireless network based on 802.11 b/g Wi-Fi technologies, connecting 32 village centres in East and West Godavari Districts of Andhra Pradesh with hub at Bhimavaram town. This facilitates access to broadband connectivity in more than 115 villages benefiting a population of more than 5 lakhs spread in approximately 4,000 sq kms. This project delivers high quality services like e-Learning, e-Governance, e-Medicine, e-Health and e-Education to rural areas. It also provides connectivity backbone for rural BPO's in "GramIT" project and "e-Sagu" (for personalized agro-advice) project in the region. Services/training presently delivered are Mathematics and Spoken English classes for 8th to 10th standards, Telemedicine, Computer Literacy Classes, Livelihood services like embroidery and saree painting, and crop advise services. Multi-site video-conferencing is effectively used on this network to provide interactions between domain experts and the people in the villages. A revenue model has been devised which has started generating revenue from the field towards achieving sustainability.

ICT for Empowerment of Disabled

National Interactive Disability Portal: MLAsia in collaboration with Rehabilitation Council of India (RCI) - (a statutory body of Ministry of Social Justice and Empowerment), New Delhi has developed a comprehensive Interactive portal. The portal will contain the following information:

- National Disability Register
- Online courses through LMS run by RCI.
- Repository of Braille ready-Text, Audio files, etc.
- List of MSJE offices, Special Schools, NGO's Special Educators.
- All Government policies, Schemes & circulars related to disabled people.
- Availability of Assistive Devices & its details.
- Programmes of RCI.

Satellite & Internet based national network for education, training and empowerment of the Disabled: Satellite uplink and studio has been set up at RCI premises. The DRS facility at 220 centres has been installed and the regular live interactive tele-conferencing program has started from October 2007.

ICT enabled Integrated Assessment Tool, for Mentally Retarded Children: This is a project to develop "ICT enabled Integrated Assessment Tool, for Mentally Retarded Children" which has been taken up in collaboration with C-DAC, Thiruvananthapuram.

Shruti-Drishti project is to enable visually impaired to access the electronic documents from the conference website in speech and Braille form.

Deployment work of "Shruti-Drishti" - system developed under DIT grant has been taken up in collaboration with C-DAC Pune and Webel Mediatronics Limited.

Large Scale Deployment under ICT for Empowerment of Disabled : A number of organizations have shown their interest for large scale deployment and commercialization of Sanyog, Shruti and Vaani under Public-Private Partnership (PPP) model including requirement enhancement.

ICT for Livelihood Generation

Development of cost-effective solution for Community Radio Station (CRS) and its deployment for livelihood generation: The project envisages development of a low cost solution for Community Radio Station, to be deployed at five Agricultural Universities in India and assessment of its impact for improved methods of agriculture, education and social development. The five agriculture universities identified are Narendra Dev University of Agriculture & Technology, Faizabad; Birsa Agriculture University, Ranchi; Indra Gandhi Krishi Vishwavidhalaya, Raipur; Tamil Nadu Agriculture University, Coimbatore and Chaudhary Charan Singh Agricultural University, Hisar.

Community Radio & TV System for community development: In another project with Byrraju Foundation, 3 community radio stations and 8 community TV centres will be designed, developed and commissioned in Guntur, East & West

Godavari districts of Andhra Pradesh. This will be used as a medium to disseminate content. People from more than 80 villages in these districts will participate to develop content on women & child empowerment and other relevant areas.

Digital Ecosystem for Agriculture and Rural Livelihood: A system has been developed for providing a multimedia platform for creation, sharing and dissemination of agricultural information among farmers and experts. It has created an ontology based agricultural vocabulary database in Hindi with more than 28,000 agricultural terms. This Agricultural vocabulary is based on Agrovoc in English developed by Food & Agriculture Organization (FAO).

Discussions have been held with Indian Council of Agricultural Research (ICAR) for large scale deployment and implementation of Agrovoc in other Indian languages. A Kisan Blog for accessing of farming information by farmers including an Audio blog and digital agronomy portal for decision support has been developed. This project is being incorporated with the project entitled 'Integrated Agricultural Services Programme' (IASP) of Media Lab Asia for large scale deployment.

Polysensors: This project aims at providing a low-cost and easy method of testing water for impurities, with rugged and tropicalized sensors. Polysensor instrument can advise whether water is suitable for human consumption. Currently, it can measure seven types of impurities in water viz. pH, Chloride ion, Nitrate ion, Electrical Conductance (EC), Total Dissolved Solids (TDS), Fluoride and Salinity (amount of NaCl).

for field use. The lower limit of sensitivity of the instrument is as low as specified by WHO. The Technology has been transferred on non-exclusive basis to an industry.

aAQUA: An archived multilingual multimedia Question Answer based communication system

aAQUA (almost All Question Answered) is a multilingual online question and answer forum which provides online answers to questions asked by farmers and agri - professionals over the Internet. The portal receives questions from all over the country and abroad. It allows users to create, view and manage content in their native language. Using this, a farmer can ask a question on aAqua from a kiosk (cyber-café); experts view the question and answer back, providing solution to the problem. It is available in English, Hindi and Marathi. Being Unicode compliant system, it can support other languages also. aAqua also allows users to register from mobile phone and queries may also be posted through SMS. This technology is being transferred to an Industry.

Agro-Sense: This project is aimed to investigate, design, develop and implement a sensor-based wireless mesh network in a pilot scale to monitor the parameters like temperature, humidity, rainfall and wetness of soil etc., in real time for better management and maintenance of agricultural production. This project is using Zigbee technology to implement wireless adhoc mess network. The project focuses on development of low cost device. It will be a part of agro service plan for providing personalized agri advices like localized measurement of agri and environmental parameters and connect to weather insurance, crop insurances, etc.

e-Sagu: e-Sagu is an IT-based personalized agricultural advisory system. The advice by the experts is provided at the farmers door step on regular basis from sowing to harvesting. This helps to reduce the cost of cultivation and increases the farm productivity as well as quality of agro - commodities. At present the system is covering crops such as cotton, chillies, rice, groundnut, castor, red gram and fish. Content development for other crops for other regions is under progress. A revenue model with collection of subscription from farmers has been implemented for testing sustainability. Experiment is going on to deliver the agri advices through SMS. An application has been filed for patenting the technology. e-Sagu has been awarded "The Manthan Award 2007 - India's Best e-Content for Development".

Integrated Agri Services Programme (IASP): The Integrated Agricultural Services Programme (IASP) aims to apply information and communication technology (ICT) as an enabler to provide a bouquet of value-added and need based services to farmers through a network of village level kiosks. The IASP aims to integrate the Media Lab Asia projects on agriculture viz. e-Sagu, DEAL, aAqua, Polysensors and Agrosense for large scale

deployment including services such as finance, insurance, input retail and agricultural procurement so as to make the kiosk a one-stop-shop for the farmer.Detailed Project Report is under preparation.

Gramin Gyan Kendra: A project has been taken up to develop models for use of ICT to improve social infrastructure and public interaction. Multimedia programs would be developed for applications in agriculture, carpet industry, local art and craft, horticulture, chunar ceramic works, cultural heritage, Banarasi saree, embroidery, primary healthcare, stone sculpture, ayurvedic and traditional medicines, folk literature/music and local culture, looms and weaving. Gramin Gyan Kendra's (GGK) would be established using self help groups in rural areas of Vindhya region around Mirzapur district for creating access to information. Identification of NGOs for being associated with GGK has been done and development of multimedia contents in specified areas is in progress. The linkages with external agencies are being established.

Project Chetna

The project aims to build enabling ICT platforms for empowering women and children in rural communities. Deliverables of the project include multimedia content on 10 development themes i.e., Life Skills, Compulsory Education, Health, nutrition, child care, age care & HIV/AIDS, SHG / VO capacity building, content for women entrepreneurs, Legal rights & duties, financial literacy and livelihood skills. As a part of its strategy and attempt to serve the communities better and empower them, 3 Community Radio Stations & 8 Community TV Centres being established.

e-Galla - A Low Cost Retail Management System: The purpose of this project is to develop a low cost retail management system for small & medium retailers. 'Galla' will be a scaled down version of Enterprise Resource Planning (ERP) tool for small shops. Initial survey of existing systems used by traders, requirements analysis of traders across different domains, feasibility study of using existing hardware for Galla device and study of existing open source automation software has been completed and initial Galla device prototype has been developed.

Digital Craft Revival: CHIC is a Computer Aided Design (CAD) tool for enhancing the productivity of the Chikankari designers. CHIC allows capturing of Chickankari motifs in digital form, use of these motifs to create new designs with fast turnaround time, engrave the designs directly on to the blocks. This allows creating library of traditional Indian & Persian designs for use. CHIC is 'cost-effective' and less 'time-consuming' as compared to the existing traditional methods and can help in creation of better designs. This system is being field tested in Uttar Pradesh. Now plans are being made for large scale deployment in a sustainable way. Private companies are also showing their interest in deployment of the software. This is ready for commercialization. Now this CAD system has been extended to Carpet design.

Technology Development for Indian Languages Programme (TDIL)

Language technology development in India has today reached a stage, where it has a potential to generate utility applications, benefiting the masses, which will enable people to access and use IT solutions in their common language. Department of Information Technology (DIT) has further encouraged users and developers of Language Technology solutions by providing certain basic information processing tools like fonts, open office, e-Mail client, internet browser, dictionary, conversion utilities, etc., free of cost, which will motivate users to use them to solve their basic problems and help developers to build advanced solutions. This will definitely boost up and leapfrog Indian language technology development and their deployment in a very fast way. Software tools and fonts for 10 Indian languages namely Hindi, Tamil, Telugu, Assamese, Kannada, Malayalam, Marathi, Oriya, Punjabi and Urdu languages have been released in public domain. These software and tools are tools are also free-downloadable from the website http://www.ildc.gov.in. Similar software tools and fonts for other Indian languages are being developed /consolidated.

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. India is multilingual country with 22 official languages and 10 scripts. It is therefore essential that tools for information processing in local languages are developed and be made available 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.

TDIL Programme

The major objectives of the programme are:

- 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 & e-Learning
- To consolidate the developed Indian languages technologies into innovative user products and services
- To promote collaborative development of futuristic technologies leading to innovative products and services.

Focus Areas

Development of technologies in multilingual computing areas involves intensive indigenous R&D efforts due to variety of Indian languages.

The focus areas of the TDIL programme may be divided into following domains:

- Translation Systems
- Cross Lingual Information Access and Retrieval
- Linguistic Resources
- Human Machine Interface systems
- Language processing and Web tools
- Localization and content creation
- Standardization.

Achievements of the TDIL Programme During 2007-08

Technology Development through Mission Mode Projects

Six Mission mode projects in consortium approach are being continued for the development of:

1. English to Indian Language Machine Translation System (Consortium Leader : C-DAC Pune; Domains: Tourism and Health). The language pairs involved are English-Hindi, English-Marathi, English-Bengali, English-Oriya, English-Tamil and English-Urdu.

2. English-to Indian Language Machine Translation System based on Angla-Bharti Technology (Consortium Leader : IIT Kanpur; Domains: Tourism and Health) The language pairs involved are English-Urdu, English-Punjabi, English-Bengali and English-Malayalam.

3. Indian Language to Indian Language Machine Translation System (Consortium Leader : IIIT Hyderabad ; Domains: Tourism and Health) The bi-directional language pairs involved are Tamil-Hindi, Telugu-Hindi, Marathi-Hindi, Bengali-Hindi, Tamil-Telugu, Urdu-Hindi, Kannada-Hindi, Punjabi-Hindi, and Malayalam -Tamil.

4. Cross-Lingual Information Access (Consortium Leader : IIT Bombay; Domains: Tourism and Health), The languages involved are Bengali, Hindi, Marathi, Punjabi, Tamil, Telugu and English.

5. Robust Document Analysis and Recognition System - Printed Text OCR (Consortium Leader : IIT Delhi) for Indian languages for Indian scripts namely Bengali, Devanagari, Malayalam, Gujarati, Telugu, Tamil, Oriya, Gurumukhi, Kannada, Nepali and Tibetan.

6. On-line Handwriting recognition systems (Consortium Leader : IISc Bangalore): For Devanagari, Bengali, Tamil, Telugu, Kannada and Malayalam scripts.

National Roll-Out Plan

Under National Roll-out Plan, software tools and fonts for 10 Indian languages have been released in public domain for free use by the masses. These software and tools are tools are also free-downloadable from the website http://www.ildc.gov.in. Similar fonts and software tools for other Indian languages are being developed / consolidated.

Development of Linguistic Resources and Basic Information Processing Kit for Northeastern Languages:

Projects to develop linguistic resources and basic information processing tool for Northeastern languages namely Assamese, Bodo and Manipuri have been initiated.

Human Machine Interface System

- **Speech Corpora:** Speech Corpora are the essential database for development of speech processing technologies such as text-to-speech, speech to text and speech to speech systems. So far, about 50 hours of annotated speech corpora for Hindi , Marathi, Punjabi, Bengali, Assamese and Manipuri languages have been developed by C-DAC Noida and C-DAC Kolkata. These speech corpora with sample sounds are available for research purpose in public domain at http://ildc.gov.in. In addition, annotation tools for speech corpora has also been developed. Speech Corpora for 4 South Indian Languages namely Tamil, Malayalam, Telugu and Kannada languages are under development.

- **International Phonetic Alphabet (IPA) :** Since phonetic representation of symbols is required for present-day speech mark-up language like W3C Speech synthesis mark-up language (SSML), standardization of IPA symbols is necessary. Standardization of International Phonetic Alphabet (IPA) for Hindi , Bengali and Assamese has been initiated.

- **Text-to-Speech system :** Development of Annotated Text-to-speech for Nepali language has been initiated.

- **Phonetic Engine :** Research work on Phonetic Engine which devises a new method for development of continuous speech recognition has been initiated for Hindi and Telugu languages.

Development of Open-Type fonts

A project to develop open type fonts for 11 Indian languages was initiated. So-far 286 open type fonts for various Indian languages have been developed under the project. Under this project, unique font entitled 'sakal-bharati' has been developed which maintains font-size and shape in Indian languages.

Human Resource Development in Language Technology

Under this programme, Masters level Programme in the domain of Knowledge Engineering / Computational Linguistics has been introduced and being conducted at four national level institutions namely , IIIT Hyderabad, Anna University , Utkal University and C-DAC Noida and Post Graduate Diploma programme in Language Technology are being conducted at three institutions namely BIT Mesra , C-DAC Noida, C-DAC , Kolkata.

Standardization

a) **W3C:** The Project "Web Internationalization Initiative" has been initiated with the objective of adequate representation of Indic scripts in the Web Technology Standards being evolved by World Wide Web Consortium (W3C). DIT, C-DAC & MAIT-CoILTech became Members of W3C. With DIT support and guidance W3C Office has been setup in India at CDAC-Noida. Efforts have been taken to incorporate adequate representation of Indic scripts in the emerging web technology standards.

b) **UNICODE:** Unicode Standard is a 16-bit encoding standard, which is widely being used internationally by the Industry for the development of Multilingual Software. Department of Information Technology is the voting member of the Unicode Consortium to ensure the adequate representation of Indic scripts in the Unicode Standards. DIT finalized the changes in the Unicode Standard and majority of changes have been accepted and incorporated in Unicode Standards version 4.0. Initiatives have been taken to incorporate additional languages/ scripts such as Lepcha and additional characters and symbols of Vedic Sanskrit.

Information Dissemination

a) **TDIL Web-site:** The TDIL website (http://tdil.mit.gov.in) is bi-lingual UNICODE compliant (English and Hindi) and contains information about the TDIL Programme, it's initiatives and achievements. It provides access to Indian scriptures, standards (Indian scripts, keyboard layout, font layout, etc), articles and reviews. The website also provides downloadable software and tools in Indian Languages.

b) **Technical Journal of Indian Language Technologies:** The VishwaBharat@tdil is a technical journal of Indian Language Technologies, which consolidates in one-place information about products, tools, services, activities, developments, achievements in the area of Indian Language software. It serves as a means of sharing ideas among technology developers. This creates awareness in the society regarding the availability of language technology resources. All the issues are accessible through TDIL Web site.

Convergence Communication and Broadband Technologies

The programme supports a number of academic institutions, industries, user organizations and research laboratories to undertake R&D in the form of time bound projects with specific targets in the area of Convergence, Communication and Broadband Technologies. The aim is to facilitate development in emerging, next generation wired/ wireless communication and broadband network as well as broadcast technologies.

During the year two new projects were supported to address the areas of software defined radio (SDR) and Smart Antennas. Five projects were completed during the year which have resulted in development of TETRA based secure communication system, communication system for coal mine environment, set-top box for IPTV as well as study of radio wave propagation condition in coastal areas and Development of Ultra Wide Band transceiver with antenna. Eleven on-going

projects are addressing the areas of Wireless Sensor Network, Next Generation Wireless Communication Systems, GPRS Mobile Phone, Wireless LAN Manager, RF Shield for Mobile Handset, Storm Water Management using GIS and Tracking Mine Workers with active RFID tags, Pilot Implementation of Broadband on Power line, etc.

Strategic Electronics Technology Development

Under this programme, development of integrated ICT technologies are pursued catering to Strategic applications as well as impetus is made to achieve excellence in development of ICT enabled strategic technologies for civilian as well as defence sector. Major area of focus are as follows : -

- Secure communication and networking
- Navigational aides (air/land/underwater)
- Surveillance (air/land/underwater)
- Medical Linac
- Application of Electro-magnetics
- Advanced robotics
- Development of Intelligence systems for surveillance
- Development of Intelligent sensors using bio-metrics lasers etc.
- Development of underwater data collection which has application in naval communication systems, validation of satellite mapping system as well as pollution monitoring, etc.
- Development of fibre-optic sensors for safety and security application
- Strategic application of RFID
- State-of-the-art technology development for modern warfare systems.

Keeping in view the aforesaid thrust areas, some of the specific projects undertaken are as follows : -

Safety and Security Gadgets: Development of RF Bug Detector for taking any active device in a particular enclosed space by CSIO - New Delhi

Underwater Surveillance/Data Collection: Development of Autonomous Vertical Profiler for Water Columns in Coastal Waters by NIO-Goa, Development of Autonomous Buy's System for Radio Acoustic Positioning and Tracking by CUSAT - Cochin

Surveillance/Safety over land: Development of Autonomous Mobile Vehicle for handling hazardous objects by C-DAC, Thiruvananthapuram

Development of Critical Technologies: Establishment of Electronics Design Centre for the technology related to System on Package (SoP) at SAMEER - Chennai The technology is being acquired from Packing Research Centre, GeorgiaTech Institute of Technology, USA. This facility is likely to give impetus to the development of electronics circuits with better reliability and economy.

New Projects initiated are as follows : -

- Development of Low Cost Wireless Network for SCADA Application ; SAMEER Chennai
- Deployment of Hybrid Dryer in NE States by SAMEER Mumbai
- Deployment of Microwave Dis-infection System for treating Hospital Waste in NE Sates by SAMEER Mumbai
- Establishment of Millimeter wave Facility at SAMEER - Kolkata
- Establishment of Compact Antenna Test Range Facility at SAMEER - Kolkata

Reference Evolving ICT Programme in the NE States

- Deployment of Hybrid Dryer in the NE States by SAMEER
- Deployment of Microwave Dis-infection Unit in the NE States by SAMEER.

Technology Development Council (TDC)

The TDC programme supports technology development in the emerging areas of Information Technology, Free / Open Source Software, e-Commerce, IT applications in the Industrial sectors, Bio-informatics, and IPR promotion. The main emphasis of the programme is i) to facilitate proliferation and absorption of emerging technologies in IT by supporting research and development, ii) Promote the use of Free and Open Source Software, iii) develop and apply state-of-art cost effective indigenous solutions for the important industrial sectors, iv) technology development in Bio-Informatics, v) technology development in e-Commerce, and vi) IPR promotion.

Major achievements in various areas are summarised below :

Technology Development in the Emerging Areas of IT

Innovation Promotion

With a view to enhance innovations and encourage development of products/packages in the area of Electronics and IT, Department initiated two new schemes.

- The "Multiplier Grants Scheme" to encourage industry to collaborate with premier Academic and Government R&D institutions for development of innovative and commercially

viable products/ packages has been put in place. Under this scheme, the government would provide grants up to the maximum of twice the amount invested by the industry/ industry consortium/ association towards the innovation at academic/ R&D institution. The Government shall thus absorb risk of R&D for new/innovative product/ package development.

- Technological Incubation and Development of Entrepreneurs (TIDE) aims to assist Institutions of Higher learning to strengthen their Technology Incubation Centres and enable young entrepreneurs to initiate technology start up companies for commercial exploitation of technologies.

Ubiquitous Computing

The following new projects were initiated in the area of Ubiquitous Computing:

- "Pollution Monitoring and Evaluation using Sensor based Wireless Mesh Network for the protection of Public spaces" was initiated at IIM Kolkata. The project aims at development of Wireless Sensor Network using ubiquitous computing devices for pollution monitoring in Industrial environment. Different technology options for wireless mesh networks have been explored. The target mesh architecture with GSM routers has been designed. A proof of concept system for the temperature and humidity measurements using lab scale wireless sensor networks has been developed.

- A project on Design and Development of Ubiquitous Computing Test Bed was initiated at IISc Bangalore. The project aims to develop an efficient test-bed architecture for ubiquitous applications. An application for visitor guidance system is being designed.

- DIT established Ubiquitous Computing Research Centres at three centres of C-DAC at Hyderabad, Chennai and Bangalore. The objectives of these centers is to carry out research in multi-diciplinary areas of Ubiquitous Computing such as hardware devices, sensor networks, middle-ware, context-awre-computing and proof-of-concept applications in the areas of Dry-land Agriculture, e-learning, Intelligent rooms, etc.

Technology Incubation Promotion Programme

A Project on "Framework for National Entrepreneurs Support Programme for IT at Premier Institutes" was launched by DIT at 6 institutions in December 2003. Under this project, about 30 start up companies have been supported in IITs at Mumbai, Kanpur, Delhi, Kharagpur, Chennai and IISc Bangalore. The thrust areas of these start-ups include Next Generation Wireless Technologies, Structural Analysis Simulation, RFID, Inertial Navigation Systems, etc. Some of the companies have been able to get next stage funding from VCs and financial institutions.

Multi Application Smart Cards

SCOSTA has been adopted as national standard for transport and ID related applications. As a result, the demand for portable SCOSTA compliant Smart Card devices, which can read the Smart cards and carry out application specific operations, is increasing. A project has been initiated at IIT, Kanpur for development of standards along with reference implementation of associated hardware and software for smart card readers and terminals.

The ongoing project on development of Next Generation Operating System for Smart Cards based on SCOSTA has been progressed.

Scientific Computing & Nurturing New R&D Areas

Grid computing and pervasive computing are amongst the cutting edge technologies in the area of advanced computing. In Grid environment, resources are generally owned by different people, communities or organizations with varied administration policies and capabilities. Obtaining and managing these resources in this environment is a complex task. There are many other research issues to be addressed such as Grid Virtualization, Semantic/ knowledge Grid, Grid Scheduling, Grid resource monitoring, and Trusted Grid Computing. Further, there is an urgent requirement for producing high quality trained R&D manpower for academia and research institutions in these areas. In view of this, a project on "Advanced Computing Research and Education" has been initiated in the Madras Institute of Technology, Anna University, Chennai.

Climate System consists of four inter-connected subcomponents, namely the atmosphere, ocean, land surface, and sea-ice. The climate system study is highly computation intensive and inherently suited for Grid Environment. A project on "Coupled Climate Models on Grids" has been initiated at IISc. Bangalore to build techniques for the efficient executions of various model components of a coupled climate model on different sets of resources in a Grid Environment; and compare the various advantages of Grid executions with the execution of all the model components in the resources available in one site.

RFID

A project to undertake research and development in the areas of RFID technologies, train manpower,

and take-up application development and pilot deployment was initiated at IIT, Kanpur, C-DAC, Noida and SAMEER, Mumbai. The project will cover hardware/ software development, middleware integration and development of end-to-end solutions.

"Parcel Tracking System" for Department of Posts has been taken up for application development and pilot deployment. Initial testing between Speed Post Centre (SPC) - Delhi, TMO Palam and, SPC - Mumbai is in progress.

Industrial Electronics Promotion Programme (IEPP)

Next generation Automation Technologies: A national collaborative development initiative on next generation Automation Technologies for the benefit of the Indian industry, particularly the SME sector, has been started during the year through the project on Automation Systems Technology Centre (ASTeC). C-DAC, Thiruvananthapuram acts as the nodal agency for the project whereas various academic institutes and related industries are participating in the development and demonstration of the new technologies. Bringing out an Open Standards based Flexible Control System in a holistic manner and benchmarking the same against the available international technologies is the primary objective.

National Mission on Power Electronics Technology (NaMPET): The on-going activities on infrastructure upgradation under the project have been completed through creation of state-of-art Power Electronics Laboratories at the identified institutes and a few more educational institutes have been awarded such facilities during the year. The third industry-academic meet was held at IIT Bombay with an overwhelming participation by students from various engineering colleges of the country. During the year, substantial financial participation has been obtained in this project from large users like Railways and Power establishments. Besides, some of the SME companies have also come forward with financial contribution to participate in the power electronics development at C-DAC(T).

Area Traffic Control System (ATCS): After successful completion and demonstration of the project in Pune city, the technology has been formally transferred to Webel Mediatronics Ltd., Keltron and BEL. These companies have started procuring commercial orders. A new system through this mechanism has already been replicated in Jaipur city. Following the success of this project, the Department has conceptualized a larger activity involving IIT Madras, IIT Bombay and C-DAC(T) to launch an Intelligent Transportation System (ITS) project which is expected to be started shortly.

Bioinformatics

Due to the overwhelming progress that has been made in the fields of Bioinformatics and Biotechnology, various sub disciplines like genomics, proteomics, pharmacogenomics, and cellinomics have developed.

A project Bioinformatics Resource and Application Facility (BRAF phase II) is being implemented at C-DAC, Pune wherein Bioinformatics applications is being developed to utilize the Garuda grid infrastructure and a grid-enabled Bioinformatics Resources (Computing Power, Databases and the Software)will be provided to industry, academia as well as Research Community with teraflop computing power, terabyte storage and 10 Mbps bandwidth The entire hardware for the 1 teraflops (TF) machine has been delivered and the commissioning of the 1TF machine is in progress.. Commercial softwares such as Accelrys, GCG Wisconsin, Schrodinger, GOLD, MAT Inspector database from Genomatics, TRANSFAC and TRANSCompel databases from Biobase, GeneSpring and MDL database have been procured and is being ported.

Four Centres of excellence for research and training in the field of Bioinformatics have been initiated. These centres will carry out research in Bioinformatics as well as generate relevant skill sets to serve the needs of Bioinformatics industry.

Development of Computational Workflow for High throughput Genome based Drug Discovery - A mega project has been launched wherein by integrating various bioinformatics tools a graphical user interface (GUI) will be built where dragging the required components and linking them can generate customized workflows. This can also be used as a generic workflow in studying any disease-causing organism of interest.

A project for development of a Web-enabled Protein Structure Prediction Software has been launched at IIT Delhi. Since most of the drug targets for clinically important diseases are protein molecules, protein folding problem occupies the centre stage in the field of therapeutic medicine. The project provides for creation of a 128 processor Bhageerath web server for protein folding.

Intellectual Property Rights (IPR) Promotion Program

In view of the increasing trend in globalization of R&D, especially in the field of ICT, protection of IPR both National and International is gaining lot of importance. Accordingly, DIT has been actively promoting ICT-IPR through creating awareness,

providing facilitation services and conducting IPR clinics, seminars etc., to enable the innovators benefit from their inventions. Also, recognizing the importance of technologies in handling various issues and problems related to IPR, a lot of emphasis is also given to the development of tools and technologies as required to meet the challenges of the IPR domain.

Awareness Creation and Facilitation

During the year, 4 IPR clinics were conducted and about 10 lectures were delivered. 6 ICT patent applications were filed making the total patents filed by DIT so far as 86. One patent was granted in the year , making the total patents granted as 12.

17 software Copyrights have been filed during the year, making the total filed so far as 177. 86 Copyrights were obtained during this year. Further, during the current year, 5 Trademarks and 4 Design application were filed making the total to 32, out of which 19 Trademark/design patents have been obtained including 2 during this year.

Tools and Technologies for IPR

Various technology development projects which can augment IPR infrastructure, add efficiency to the IPR process, reduce piracy and help the IPR implementing agencies have been initiated. These ongoing projects include, tools for plagiarism detection, watermarking digital video, Software protection tools, IPR management, etc.

During the year, three projects were completed. These are 1) IPR Technical Support and Solutions and Text and Image based tools for mapping from patent literature; IIT Kanpur, 2) Software for e-Verifiifcation of Trademarks- Dayalbag Engineering College; Agra, and 3) IPR Technical Support and Solutions-IISc Bangalore. Further, commercialization and deployment of some of these will be explored.

New Initiative SIP-EIT

A Scheme to Support International Patent Protection in Electronics & IT by SMEs and Technology Start-Up companies, so as to encourage indigenous innovation and to recognize the value and capabilities of global IP and capture growth opportunities in the area of information technology and electronics has been initiated. Under this scheme, 50% of the total costs towards filing international patent by SMEs / Start Ups will be reimbursed by DIT. Details of this scheme are available at the Department website.

Free Open Source Software

Major Initiatives in FOSS

Project "Setting up of National Resource Centre for Free & Open Source Software":

A National Resource Centre for Free & Open Source Software (NRCFOSS) has been set up in Chennai jointly with C-DAC and Anna University (KBC Research Centre) with an objective to contribute to the growth of Free/Open Source Software in India through research and development, human resource development, networking and entrepreneurship development, as well as to serve as the reference point for all FOSS related activities in the country. www.nrcfoss.org.in.

Project "Establishment of BOSS Linux Support Centres and Business Development":

In an effort to aid the promotion of BOSS GNU/ Linux across the country, a project has been initiated for establishment of support centres across the country. The project has the objective of setting up support centres for BOSS throughout India, further enhancements in BOSS, certification programs, BOSS GNU/Linux repository, OSS mirror sites and evolving models for business and vendor development. www.bosslinux.in

Achievements during 2007-08

GNU/ Linux localised desktop distribution Bharat Operating System Solutions (BOSS): Indian languages support brought out by the centre has been enhanced to BOSS version 2.0 which is fully localised to 10 Indian languages - Assamese, Hindi, Kannada, Malayalam, Marathi, Oriya, Punjabi, Tamil, Telugu and Urdu. BOSS has been certified by the Free Standards Group (FSG), USA, and is expected to meet the various needs of e-Governance and e-Education. NRCFOSS has made extensive efforts for adoption of BOSS in the country by way of creating awareness through training and workshops and providing handholding support. BOSS can be downloaded for installation from http:// www.bosslinux.in.

The Centre has brought out BOSS Linux Server version 1.0 which has been released during ELITEX 2008. BOSS Server has a user-friendly GUI front end and is mainly targeted towards Government departments / SME's and also towards Linux distro (distribution) developers for further development on Linux. It can also be used in the Government departments as an Intranet Server. The Server supports Intel and AMD x86/ x86-64 architecture and is being tested on other architectures.

The Centre has undertaken a detailed study of the Service Oriented Architecture (SOA) framework using open source tools for e-Governance applications. An application for Personnel Information System has been developed as proof of concept.

FOSS Lab Server: A 200 GB searchable FOSS repository to provide a virtual internet environment to access FOSS packages, documentation, code, etc., to be installed in 15 engineering colleges.

Arichuvadi: An on-line spoken language learning system is being developed starting with a set of lessons to learn Tamil. Tamil Tagset and Tamil Wordnet 1.0 have been released. Large number of GNU documents and writings of Richard Stallman have been translated into Tamil.

Koha: An open source library management software has been implemented in AU-KBC Library.

NRCFOSS participated in OpenMoko project - to create a smartphone platform using FOSS components.

Human Resource Development

Around 1500 students and 235 teachers from engineering colleges have been trained so far. Two FOSS elective courses have been introduced in various engineering colleges and two textbooks under NRCFOSS series, i) Introduction to LINUX: Installation and Programming ii) Enterprise Solutions Using FOSS Tools, have come out.

NRCFOSS has made active participation in various national and international FOSS events like Linux Asia, FOSS.IN, Linux User Group events, Freed.IN etc.

Establishment of BOSS Linux Support Centres and Business Development

BOSS Support groups have been established across C-DAC Centres. Training on BOSS Linux has been organized for all members of Support groups. Around 40 technical members from various C-DAC Centres, DIT and ELCOT participated in the programme. The training program covered installation/ configuring BOSS Linux components, Linux internals, PHP, Python, contribution to Business development and Support.

Medical Electronics Programme

6 MV Integrated Medical Linac Systems for Cancer Treatment

In the Phase I of Project for the development and deployment two 6 MV integrated medical linac for cancer treatment, two machines have been developed. The first machine has been deployed in Mahatma Gandhi Institute of Medical Sciences (MGIMS), Wardha. Till now, 7200 times various cancer patients have been exposed to radiation treatment on this linac machine. The second machine has been installed in Cancer Institute, Adyar, Chennai. The treatment of the cancer patients with this machine will start soon. Fabrication and deployment of four linac machines are planned in Phase II.

Personal use respiratory devices

There has been rapid increase in incidents of chronic respiratory diseases over the last decade. Many of these patients will require devices for adequate ventilation and oxygenation.

In order to make these devices available at an affordable cost, a project has been initiated for the development of non-invasive positive pressure ventilators viz. Continuous Positive Airway Pressure (CPAP) and bi-level ventilator (BIPAP). CPAP is undergoing trial for use by patients at home. Preliminary trail of BIPAP has been conducted at AIIMS, New Delhi.

Multicentric trial of integrated software for quantification of autonomic tone

Cardio vascular control is a direct reflection of autonomic activity. The damage to central nervous system can markedly affect cardio vascular function. A software has been developed for quantification of autonomic tone by quantification of beat-to-beat variability by measuring heart rate variability. The software is now being tested in various hospitals for clinical validation.

Redesign and fabrication of motor-wheel chair

The electronically controlled motor-wheel chair is being developed by C-DAC, Thiruvananthapuram in collaboration with Webel Mediatronics Ltd. (WML), Kolkata. The motor wheel chair has been put to extensive field trials at National Institute for Orthopaedically Handicapped (NIOH), Kolkata. WML, Kolkata would be fabricating eight numbers of these wheel chairs under the project for field trials at various places in the country and subsequent production.

Telemedicine Pilot Projects

A number of telemedicine pilot projects have been supported for delivery of specialty care to the patients at remote hospitals in West Bengal, Kerala, Tripura, Tamil Nadu, Himachal Pradesh, and Punjab. The pilot projects after completion have been taken over by the users for regular delivery of specialty care to remote patients.

Ministry of Health and Family Welfare is in the process of replicating the telemedicine software

and practices developed for cancer patients under the telemedicine pilot projects of the Department across the country.

The report on Telemedicine Standards has been submitted to the Ministry of Health & Family Welfare (MoH&FW).

Electronics Components and Materials Development Programme

Components and Materials Sector is the backbone of Electronic Hardware Sector and critical components of Information Technology Sector. The new technologies used for miniaturization of electronic hardware are driven by innovations in advanced materials and associated process technologies.

Electronic Materials Development Programme (EMDP) is aimed at sponsoring R&D programmes at leading institutions such as IITs, IISc, CSIR labs, etc. The major components of the programme are development of new materials, process methodologies/technologies leading to manufacturing of modern and miniaturized components/equipments. Environmental impact during manufacturing, energy saving aspects of equipment operations and e-Waste (end of product life) management are kept in prime consideration.

Some of the important materials / technology includes the development of ultra fine semiconductor and wide range of materials with a broad base of current and potential applications, printed technology for realization of high density interconnection using photo imageable polymers and photo-definable thick film conductor, dielectric and resistor pastes etc. Technology developed in the area of tantalum powder and lead free solder paste was transferred for commercial exploitation to industry. Four new projects were funded to consolidate and strengthen R&D activities in areas where capability and infrastructure have been developed to bring the technology to a demonstration level which include OLED display, ITO coatings for EMI suppression, Magnesium oxide coating for PDP, high density optical storage discs, tunable microwave dielectric and high density media for hard discs. Four new projects were also initiated in the area of X-ray absorbing materials, low cost alternative for compact Disc substrate, Restriction of Hazardous Substances (RoHS) and Recycling of electronics waste. During the year, following new projects have been initiated:

- Magnetic Materials for High-Permeability GHz-Frequency Inductors - IIT, Delhi
- Studies on synthesis and characterization of p- type ZnO thin films for electronic paper and spintronix applications - IIT, Chennai
- Studies on Silver Oxide nano materials for Optical Memories - University of Madurai
- Synthesis of Nano NTC material and development of chip in glass fast response thermal sensors C-MET, Thrissur.

The on going projects are in different stages of implementation.

Microelectronics and Nanotechnology Development Programme

Microelectronics has been key enabler of the current ongoing Information Technology (IT) revolution. Nanotechnology, an emerging disruptive and interdisciplinary technology is expected to impact everything manmade. Therefore, major thrust has been given to research and development in these areas. In addition to the ongoing R&D projects, during the year, four new projects have been initiated in the area of microelectronics and eight new projects in the nanotechnology area. Further, eight projects with total outlay of Rs. 37.88 crore in the area of microelectronics and eight projects with total outlay of Rs. 146 crore in the area on nanotechnology have been recommended for initiation.

Projects on microelectronics initiated are:

(i) A study of Microscale transport processes leading to the development of a cooling strategy for electronics components

(ii) Design of an Embedded Processor for Smart Camera Systems

(iii) Investigations of CMOS device Technologies for Strain Engineered MOSFETs using TCAD

(iv) Reconfigurable computational structures for CMPs/MPs-SoCs Platforms

(v) Design and Development of System Level Reconfiguration Techniques for Reconfigurable Computing Systems.

The ongoing projects have been progressing well. An FPGA based Digital Programmable Hearing Aid(DPHA) has been designed and successfully field tried at leading medical institutes and hospitals. A general purpose FPGA based 8 bit micro controller with 32 KB flash memory has been successfully designed for Electronic Voting Machine. The MEMS based Gas sensor alongwith control circuitry for sensing LPG has been designed and developed and its evaluation and testing is in progress. An Indian copyright application "Solving Crossing Distribution Problem for Nets within two Regions" has been filed for the work carried out under the project "Cost Effective Tools for Routing of High-performance Circuit Interconnects in Nanometric Technology Regime" being implemented at IIM, Kolkata.

Projects on nanotechnology initiated are:

i) Synthesis of Aligned Nanotubes of Carbon and related materials and study of their Electron Emission Characteristics.

ii) Modeling and Simulation of Nanoscale MOSFETs at Room Temperature(RT) and of Classical MOSFETs at Liquid Nitrogen Temperature(LNT).

iii) Nano-sized SiC based quantum structures on Si by Spin-on techniques.

iv) Q-semiconductor-glass-nanocomposites for optical and energy(using solar light) application.

v) Raman & Photoluminescence Investigation of Nanostructured Porous silicon for sensing the presence of Chemical and Biological Species.

vi) Characterization and Simulation of Nanodevices.

vii) Oxide Based Functional Thin Film Nanostructures for Spintronics and quantum Informatics.

viii) Novel Nano-structured Ceramics for Gas Sensing Applications.

ix) Synthesis and Characterisation of functional Nanostructures for MEMS and Optoelectronic Application.

Out of eleven ongoing projects, two Projects " Molecular Electronics: Fabrication of new Photolithography-less vertical Organic Thin Film Transistors (OTFTs)" at IIT Kanpur and " Investigations and development of Nano Silver oxide for Optical Memories" at IIT Madras have been completed successfully. In the first project a working OTFT has been demonstrated which would be useful for the development of flexible displays and 9 Scientists associated with this project have gained expertise/experience. In the other project at IIT Madras, an International patent "Multiwavelength Fluorescence emission phenomenon in DC Magnetron sputtered and oxidized nano silver metal thin films for read/write optical memories" has been filed and 9 scientists have been trained.

Photonics Development Programme

Photonics/Optoelectronics which includes Fibre Optics Systems and Devices is a key enabling technology.The well known applications have been to Optical Communication and Networking. However, photonics has much broader technology and application domains which are increasingly becoming very important. These include Biophotonics, Nanophotonics, Polymer for Photonic, Photonic Crystal Fibers, etc. The long term aim of the programme is to ensure that India has a presence as a technology developer in the broader application domains of Photonics.

Biophotonics and Photonics for Health Care

Under the project, Development of Elastographic Imaging System for early detection of cancers in human breast at IISc Bangalore work is going on towards developing an industrial prototype using reflected light which can lead to a compact system.

The project Construction and Multi-site Commissioning of Multiple Fluorescence Correlation Spectrometers (FCS) aimed at spreading the base of Biophotonics in the country has been initiated at TIFR, Mumbai. Under this, ten groups from different parts of the country will participate to build FCS systems.

Nanophotonics and Photonic Crystal Fibre

Under the project, development of Index Guided Photonic Crystal Fibre (PCF) at CGCRI Kolkata, several PCFs have been drawn and characterized. Feedback from characterization is being used to modify the drawing conditions & improve the specifications. Samples with good transmissions at 1550 nm were achieved.

Fibre Lasers

Under the project, Fabrication of Rare-Earth (RE) Doped Fibers needed for Fiber Lasers at CGCRI, Kolkata' fabrication of optical perform/fibers doped with high concentration (~5000 ppm) of rare-earth (Er/Yb) by solution doping is being carried out. Fibers were drawn from the preforms & characterized. Two more projects in the area have been recommended for initiation.

Polymers for Photonics

Under the project, Doped Polymer Materials for NLO Applications at NITK (Surathkal) Mangalore, several new organic compounds have been synthesized. Out of these 4-(p-nitrophenyl-Azo)-resorcinol, bis-Chalcone, Poly-oxadiazole containing thiophene and 3,4-dye substituted thiophene monomer were found promising. The films showed good non-linearity at power levels of about 200µJ. Some of the Doped Polymer samples prepared show good optical switching properties at Femto-second time scales as compared to well-known inorganic samples. They are being evaluated for device applications. Under the project, Polymer Waveguide based Optical Power Splitters at BITs Pilani, design and initial fabrication of 1 x 4 power splitters has been carried out.

Optoelectronic Packaging

SAMEER has completed the setting up of the facility for packaging of passive integrated optic devices. Linkages with institutions in device work have been established. Work will continue towards obtaining ISO certification and operationalizingly

the laser welding system.

Material Growth and Component Development Technology

Using the TIFR MOVPE System, InGaAs strained quantum well structure were grown and laser action obtained. Lasing has been seen at 991 nanometer (nm) and Photoluminescence (PL) peaks are obtained upto 974 nm.

To develop the area of "Dilute Nitride" III-V materials, two projects have been recommended for initiation.

Optical Amplifier

The phenomenal growth of Optical Communication & Networking based on Wave Division Multiplayer (WDM) is mainly due to the use of Erbium Doped Fiber Amplifier (EDFA). Based on the results obtained under the project Design and Development of EDFA Module, the optical gain module was built and characterized at IIT and with the help of industry four units of the EDFA were completed. A project on Design and Development of Mid-stage Access EDFA & Optiwave Photonics has been initiated recently at IIT Delhi.

Fibre Bragg Grating (FBG)

FBG are All-Optical Components where a Grating is written in special optical fibres to create a versatile component for routing, multiplexing, gain flattening etc. for Optical Communication. It is also extremely important as sensors. Under the project, development of a unified approach for realizing Fiber Bragg Grating with long term stability at IIT Madras & IISc Bangalore, methods for achieving thermally stable FBGs are expected to be realized. A novel accelerated aging method has been devised combining ITA (iso-Thermal annealing) within ICA (Iso-Chronal annealing).

LPWG (Long Period Waveguide Grating)

Under the project, Long Period Waveguide Grating based Integrated Optic Wideband Tunable Notch Filter using silica-on-silicon at CEERI Pilani the design, optimization and fabrication of LPWG based wideband Tunable Notch Filter on silica-on-silicon for WDM applications is being done. Design of device layout & fabrication of masks completed. Most of the Fabrication steps have been carried out. Design iteration after fabrication and characterization of the device is being done. Some of the devices fabricated have been packaged at SAMEER.

e-Commerce

As part of promotion of e-Commerce, the Department has taken up an initiative to promote mobile e-Commerce (m-commerce) keeping in view the penetration of mobile phones in the country and its potential to benefit masses particularly in rural India.

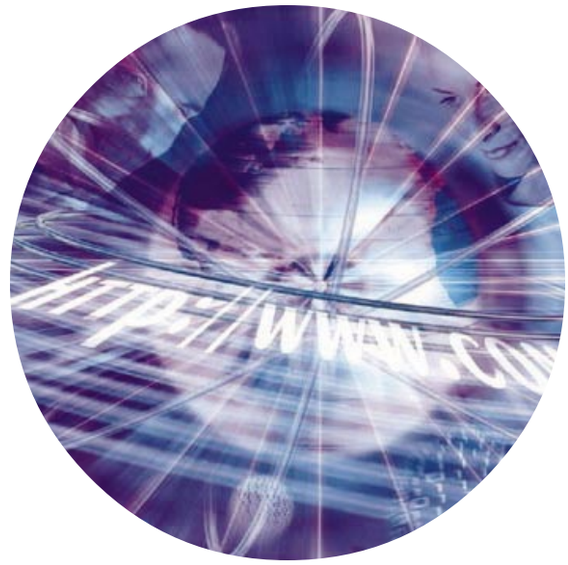
Digital Library

Libraries are the storehouse of knowledge as they maintain the book and other knowledge resource available - mostly in printed form. However, with the advent of digital technology and Internet connectivity, data available in physical form can be preserved digitally in Digital Library and can be accessed through Internet connectivity.

Under Digital Library project copyright free books, manuscripts, and theses etc., have been digitized. Most of the digitized data has been web enabled on Digital Library of India web site -http://www.new.dli.ernet.in. Hyper-link of this site has been provided on DIT web site http://www.mit.gov.in . Ongoing Scanning projects at 13 centres have been completed.

Two ongoing projects namely Scanning centres at University of Hyderabad and Goa University, Goa will be completed soon. One project namely Digitizing and Preserving of folios and manuscripts available with Namgyal Institute of Tbetology, Sikkim is being continued. Four new projects have been initiated.

i) Development of National Databank on Indian Art and Culture a Pilot project at IGNCA.
ii) Digital Library of India - Creating a large collection of Wide National Interest at IIIT, Hyderabad.
iii) Coordination, Web Hosting & Maintenance of Digital Library of India at IISc., Bangalore.
iv) Creation of Model Electronic Library System at the University of Delhi.



Human Resource Development

The fast growing IT Sector has created a huge career opportunity in its wake. The profiles of the career opportunities keep dynamically changing as newer and newer technologies emerge and the global market requirements change.

The spectacular growth has been possible only because of India's large pool of trained manpower, including engineers. ITES-BPO services, and the IT industry as a whole, has had a profound impact on the socio-economic dynamics of the country. Further, it is seen that the industry is metamorphosing from BPO to KPO with enhanced need for knowledge professionals.

The growth of the IT/ITES exports primarily depends upon availability of knowledge professionals. The feedback from the industry indicates the need for improving the supply of suitable talents; and also making the existing engineering graduates employable.

To retain our position as a major player in the IT arena over a period of time, there is a need to address the human resource requirement of the industry on a continuous basis.

Various aspects that require attention include curriculum development, content development and course material development, faculty training, training of mentors, deployment of e-learning methodologies, educational testing system - online examination systems, institutional mechanism for implementing various activities, etc.

Projects in the area of e-Learning, human resource development for certain key verticals like Information security, VLSI design and a scheme for manpower development for Software export are being implemented.

E-Learning

E-Learning is learning facilitated and supported by Information Communication technologies. e-Learning is an effective tool for imparting quality and life long education to learners. These digital tools can be effectively used to enrich the courseware with multimedia features - Audio, video, graphics, 3D-animation etc.

Realizing the need, Department has been financially supporting R&D projects in the area of e-Learning at various Academic Educational Institutes, R&D Labs etc., in the areas of e-Learning like training of teachers in e-Learning, development of new and inexpensive technologies for design and delivery of content, content development independent of platform and environment (open Source), setting up of the quality assurance framework in e-Learning, etc.

The objectives and the achievements made during the year for the ongoing projects in the area of e-Learning are as follows:

Development of Quality Assurance Framework, quality metrics and prototype tools for evaluation and comparison of e-learning applications and training of teachers in e-Learning , C-DAC, Hyderabad

The scope of the project involves a) Identification of Quality Indicators b) Transformation of indicators into quantifiable parameters with appropriate metrics to the extent possible c) Evaluation of e-Learning tools and content using appropriate metrics and framing of guidelines d) Development of tools and checklist. The metrics are being developed for Performance (response time,

reliability), security, portability, usability, navigation flexibility, sequencing flexibility & standards compliance.

Methods/Metrics for the quality indicators have also been identified. The various relevant aspects like i) Definition & Derivation of Metrics ii) Determining the relevance of metrics in e-Learning environment iii) Verification of approach to evaluate the metrics have also been chalked out.

Data Compression Techniques and its Application to E-Learning/ Education, IIT, Kanpur

The objective of the project is to develop a group of data compression techniques that can be applied to images, scan documents and videos; and hence creating a system that adapts itself to the quality of services (QoS) offered by the Internet (Network) connection instead of expecting a specific QoS on the Network. The targets achieved in the direction of development of image compression tool and GUI are i) Development of preprocessing modules for images ii) Post-processing techniques for image quality improvement iii) Development of different image compression algorithms iv) Development and testing of algorithms for color image compression v) GUI development for Image compression. The video coding and decoding modules have been developed considering e-Class room learning environment. The deliverables from the project are i) Matlab based Image compression Module and GUI ii) SVM Active X Image compression open source tool (compatible with applications) iii) Video coder/decoder tool in the form of open source programming language (java) along with inclusion of object based coding framework and capable to be compressed at several video rates iv) A tool to capture any video camera and route to the video coder for online coding in source programming language

Content Based Streaming and Real Time Regional Language Captioning of E-Learning Video Data at IIT, Roorkee

The project is to design a framework for an end to end E-Learning solution capable of dynamic video compression and transmission over scarce resource network and also to ensure quality of service in terms of perceptual importance of video data. The tasks completed under 'Multilingual Captioning System' are a) Splitting, combining and displaying videos b) Generating own Codec c) Synchronizing captioning with frames d) Development of small sized Subtitling software which can be easily installed and downloaded, etc., The development of 'Content - based Compression Algorithm' is progressing. The tasks completed under 'Multilingual Metadata' are (i) Development of metadata structure for multimedia data. The metadata contains information about the educational video and allows search and retrieval from the Video Database. (ii) Annotation of the video data and annotation of the audio data through captions and notes.

Design & Development of e-Learning Contents for e-Security Solutions Developers, C-DAC, Noida

The e-Learning content on e-Security would be useful for those learners who want to become e-Security solution developers and in the background have general software application development knowledge. The goal is to provide overall in-depth knowledge of all security concepts involved at different security levels viz. Desktop security, Network security and Server end security. The training under the project would be offered in the e-Learning mode and will be useful to students/ working professionals who are unable to attend full time programmes. The project scope of designing the e-Learning content for e-security solution developers includes i) In-depth coverage of Cryptographic techniques ii) Number theory & Mathematical models iii) Description of e-Security solutions using tools and technologies. The curriculum for the 1st category i.e., students has been developed in consultation with identified experts.

Development of Interactive Learning Material on Introduction to Animation and Multimedia, DOEACC Centre, Kolkata

The objective of the project is to develop interactive digital multimedia content on introduction to animation and multimedia. The activities pertaining to finalization of specifications, installation of software and hardware Infrastructure and training have already been completed. The other sub-activities like resource mobilization & storyboard preparation, identification of AV material, authoring, multimedia integration, transcription etc., are progressing.

Brihaspati phase-2: Development of Open source content delivery tools with advanced features, IIT, Kanpur

The main objectives include improvement in existing Brihaspati architecture in terms of i) Multilingual support ii) Content authoring module and content repository management interface iii) Multiple interactive servers iv) Question bank v) Testing of learners vi) SCORM compliance vii) GUI improvements, etc. The activities, so far, carried out include a) Course expiry if course not accessed for a configurable period b) French, Marathi, Bangla, Urdu, Hindi user interface c) Assignment submission module d) Backup and restoration - improved interface and mechanism e) Academic calendar - admin input module f) Documentation update g) Multilingual configuration file - dynamic generated; h) Template Generation etc., A short term 2 days training programme on installation,

management and effective usage of Brihaspati-2 was also conducted by IIT, Kanpur during June 2007.

Training of Teachers in E-Learning - DOEACC Centres at Imphal, Calicut and Gorakhpur

This project recently initiated at three different centres of DOEACC located at Imphal, Calicut and Gorakhpur. The main aim of this project is to propagate the knowledge on e- Learning and its applications among teachers to integrate e-Learning methodology and approach with teaching and learning for improvement in educational methodologies (pedagogies). DOEACC Centres will train teachers for implementing e-Learning in schools / colleges / institutes / organizations of their respective areas for better educational methodologies (pedagogies).

Information Security Education And Awareness Project

The Information Security Education and Awareness Project is aimed towards development of human resource in the area of Information Security at various levels. The academic activities are being implemented through 5 Resource Centres (RC) as mentoring institutions and 34 Participating Institutes (PI). Also an awareness programme for the industry, educational institutes and the masses is being implemented through C-DAC Hyderabad. Further, the activity of imparting training to Government Officers on issues related to Cyber/ Information Security is being implemented through six implementing agencies (C-DAC, ERNET India, DOEACC Society, CERT-In, STQC Dte., & NIC).

So far three Faculty Training Programmes for the PIs have been conducted. The RCs/PIs have launched the academic courses at the levels of B. Tech., M. Tech., Ph.D, etc. New courses in M. Tech. in Information Security and M.Tech. in Computer Science with specialization in Information Security have been launched by some of the RCs/PIs. The Labs for Information Security have been set up at the respective RCs/PIs. Three batches of 20 candidates each have also undergone Master Trainers Programme. Short-term training programmes for Government officers are being organized. C-DAC Hyderabad has organized sample workshops for creating information security awareness among school children.

Scheme for Manpower Development for the Software Export Industry

The scheme is aimed to create course contents, generate mentors & quality faculties and skilled graduates in the Information Technology sector at various locations across India with a view to increasing the employability of the students. The Scheme covers Training of the Trainer's Program, Enhancement of quality of IT education in colleges, Virtualization of Technical Education, conducting specialized short term courses in IT/ITES sector, Setting up of National On-line Test System for Graduate Engineers in Information Technology, etc

Productivity and Employment Generation

Department has sponsored a project titled "Deployment of ICT based software products/tools as demonstration packages" which is implemented by STPI, Delhi. The aim and objective of the project is to enhance productivity and generate employment in the manufacturing and service sectors with the Deployment of Information and Communication Technology (ICT) tools.

Special Manpower Development for VLSI Design and Related Software

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 been initiated at 7 Resource Centres (RCs) and 25 Participating Institutions (PIs) with a total outlay of Rs.49.98 crore for a period of five years. The major elements of the project are:

a) Instruction Enhancement Programme (IEP) for the faculty of PIs.

b) Establishing VLSI Design Laboratory equipped with contemporary Electronic Design Automation (EDA) Tools at all RCs and PIs.

c) Creation of VLSI Design Resource website and Mirror sites at RCs.

d) India Chip Project for siliconization of design done by students of RCs and PIs.

e) To Introduce teaching of various courses on VLSI design and related software leading to Ph. D., M.Tech. and B.Tech. degrees.

During the year 2007-08 about 3000 students at various levels (B.Tech,/M.Tech& PhD.) were trained through this programme. The Project Implementation Matrix is being continuously updated through conduction of ZOPP Workshop.

Development of Weaker Section

The Government is committed to the development of weaker section for their growth. Department accordingly has supported ICT projects for development of SC/ST.

The list of such Projects are as under :

1. Capacity Building fund for Upliftment of SCs/ STs - Kerala.
2. ICT tools for the education of SC Children in 15 Schools - West Bengal.

3. Career oriented training facility in Multimedia & DTP Training to the SCs/STs and Women - Sikkim.
4. Professional IT & Electronics Courses for Upliftment Of ST Youth and Women - Mizoram
5. Empowerment of Women and SC/ST using ICT tool - Karnataka.
6. Empowering of Women & SCs/STs using ICT tools in Information Technology, Gorakhpur - Uttar Pradesh.

Gender Issues

Gender Empowerment through ICT has been one of the major initiatives of the Government. The objective of the initiatives is to empower women through capacity building in ICT, entrepreneurship development, IT awareness so as to enhance their employability in IT-BPO sector where the employment opportunities are growing. Department has supported ICT projects relating to empowerment of women. The list of 13 such ongoing projects is as under:

1. Capacity Building of Development of Girls - Chattisgarh.
2. Tribal Women as the Change Agent using ICT - Rajasthan
3. Empowerment of Women rural youth through ICT for Sustainable self Employment- Mizoram
4. Infrastructure creation in 10 girls Senior Secondary Schools - Rajasthan
5. Career oriented training facility in Multimedia & DTP Training to the SCs/STs and Women - Sikkim
6. Creation of Infrastructure in Girls Schools - Tripura
7. Professional IT & Electronics Courses for Upliftment Of ST Youth and Women - Mizoram
8. Empowerment of Women and SC/ST using ICT tool - Karnataka
9. ICT for the Empowerment of Rural Women in Kancheepuram District - Tamil Nadu
10. Empowering of Women & SCs/STs using ICT tools in Information Technology, Gorakhpur - Uttar Pradesh
11. Training of Graduate & Under-Graduate Women in DOEACC-IT (Software) O/A Level Courses - All India
12. Visual Impaired Women Empowerment through Shruti Drishti - All India
13. IT for Empowerment of Women & Child Development (Project Chetna) - All India

Initiative taken for the welfare of Disabled Persons

Setting up of ICT Vocational Centers for physically challenged children

As a result of the setting up of 10 ICT centres in Tamil Nadu, 10 in NCR region, the less privileged children in the proximity of these centres have learnt ICT skills enabling them to seek employment and earn livelihood. The infrastructure at schools is connected to LAN and Internet to explore the world wide web (www). Possibility to expand the scheme on all India basis to 100 more centres is being explored.

National Interactive Disability Portal

MLAsia in collaboration with Rehabilitation Council of India (RCI) - (a statutory body of Ministry of Social Justice and Empowerment), New Delhi has developed comprehensive Interactive portal. The portal will contain the following information.

- National Disability Register.
- Online courses through LMS run by RCI.
- Repository of Braille ready-Text, Audio files etc.
- List of MSJE offices, Special Schools, NGOs Special Educators.
- All Government policies, Schemes & Circulars related to Disabled People.
- Availability of Assistive Devices & its details.
- Programmes of RCI.

Satellite & Internet based national network for education, training and empowerment of the Disabled

Satellite uplink and studio has been setup at RCI premises. The DRS facility at 220 centers has been installed and the regular live interactive tele-conferencing program has started from 5th October 2007.

ICT enabled Integrated Assessment Tool, for Mentally Retarded Children

Project to develop "ICT enabled Integrated Assessment Tool, for Mentally Retarded Children" has been taken up in collaboration with C-DAC, Thiruvananthapuram.

Shruti-Drishti project is to enable visually impaired to access the electronic documents from the conference website in speech and Braille form.

Deployment work of "Shruti-Drishti" - system developed under DIT grant has been taken up in collaboration with C-DAC Pune and Webel Mediatronics Limited.

Large Scale Deployment under ICT for Empowerment of Disabled

A number of organizations have shown their interest for large scale deployment and commercialization of Sanyog, Shruti and Vaani under Public-Private Partnership (PPP) model including requirement enhancement.

Infrastructure

Standardization, Testing and Quality Certification (STQC)

Introduction

Standardization, Testing and Quality Certification (STQC) Directorate, attached office of the Department is a major Infrastructure Programme of National importance. The organization, which traditionally started as Testing and Calibration services provider through its network of Electronic Test and Development Centres (ETDCs) and Electronic Regional Test Laboratories (ERTLs) spread all over the country responded to the needs of changing Industrial Scenario.

Presently, STQC is providing a wide range of services besides testing and calibration. These services include certification for QMS, EMS, Safety and EMC and training in the areas of Quality Assurance, Reliability, Manufacturing technology, Industrial Automation, Test Engineering and Metrology. STQC Directorate has also introduced following range of IT related services in alignment with Department's Policies and Programmes: -

- Information Security Management System (ISMS) Certification and training as well as IT security product Testing.
- Penetration Testing and vulnerability analysis of IT Networks and Systems.
- Software Testing Evaluation and Certification as well as certified training courses in software test engineering.
- Certification of IT Service Management.
- Quality Assurance and Conformity Assessment Support for e-Governance products and services.

STQC Directorate also supports Government policies, national initiatives and programs concerning standardization and quality assurance. A number of projects sponsored by the department in the field of software quality assurance, Information Security Management, Indian Language Technology Products and Quality certification have been successfully executed. The Directorate has also developed quality assurance and conformity assessment framework for the National e-Governance programme and is setting up National Infrastructure to implement this framework. All the above services of STQC are being executed based on International Standards and practices with the required accreditations, which has made STQC organization an unique one and its services at par with International level.

STQC Infrastructure

STQC Network at present has six IT service centres at Kolkata, Delhi, Bangalore, Hyderabad, Pune and Chennai 14 testing & calibration laboratories (four Electronics Regional Test Laboratory and 10 Electronics Test & Development Centre), 5 Centres for Electronics Test Engineering (CETE), 4 Regional Certification Centres, Indian Institute of Quality Management (IIQM) at Jaipur, Centre for Reliability (CFR) at Chennai All the laboratories / centres are rendering specialized services in their respective areas.

Indo-German Technical Co-operation Programme has made significant contribution for last 25 years for development of STQC infrastructure by providing technical & financial support to STQC. Based on the effective implementation of earlier projects, Government of Germany is presently contributing STQC in 'e-Governance for Business

Development' project. The objective of this project is to promote SMEs through the use of e-Governance opportunities. The project will complement the large investment of Government of India and strategic decision to make intensive use of e-Governance

Achievements During Financial Year 2007-08

Growth in Revenue Earning

One of the major initiatives taken during the current financial year was to accelerate growth in STQC IT services keeping the Policies & Programs of the Department of IT. These services included certification & training in the area of Information Security Management System, Software Quality Assurance & IT Service Management. At the same time conventional STQC services like testing, calibration, certification & training were consolidated and expanded. Due to these initiatives, the growth in revenue earning was continued. This was possible due to increased productivity, introduction of additional services and up gradation of infrastructure and facilities.

Infrastructure development

To give the distinct identity to CETEs, permanent buildings for Kolkata and Noida centres were planned and Construction work was initiated. Construction activities for the building of CETE Kolkata is under final stage of completion.

Contract for construction of building for the Noida center was awarded in July 2006. It is expected that the work for the first phase will be completed by July 2008. Work related to finishing, development of office and setting up of laboratory infrastructure is expected to be completed during 2008-09.

STQC IT Services

STQC IT services, which were conceptualized and initiated four years back have been fully operationalized and a number of new projects & schemes have been initiated and executed. Some of the major achievements are as follows:

Development of Infrastructure for STQC IT Services

Established IT Centres at Delhi, Kolkata, Bangalore, Hyderabad and Chennai are providing services in the area of IT Security, Software Testing, Software Quality Assurance Training and IT Service Management (Training and Certification).

Centre of Excellence for Information Security with state-of-the-art infrastructure and facilities has been established at Kolkata. Two centres for Software Testing, Training and Quality Evaluation of Indian Language Technology Products have been established at Delhi and Bangalore.

Software Testing and Evaluation

Software testing and evaluation activities have progressed significantly. Testing of e-Governance solutions and defense applications were the main achievements. Land Records Information Systems of Uttar Pradesh, Himachal Pradesh and Assam were tested and certified. Software Solutions from various vendors for Municipalities were also tested. Critical testing and verification of projects like Sanjay and Nishant for Ministry of Defence were undertaken.

Testing and audit of MCA 21 Project of Ministry of Company Affairs (e-Governance - MCA21 Project) for Quality and Security aspects has been completed. This is the first e-Governance service project where end-to-end assurance service was provided by STQC. Support to Naval Physical & oceanographic Laboratory, DRDO, Kochi for software verification and validation activities was provided in respect of Design & Development of a SONAR.

Department initiative of Indo-Asean Cooperation program for ASEAN countries, STQC provided inputs to develop training modules in Software Quality Engineering. Scope of smart card testing is expanded from transport sector applications to National ID Card testing.

Information Security

STQC is a pioneering organization in introducing Information Security Management System (ISMS) Certification concept in the country and is the first accredited Certification Body in India to introduce ISMS certification and has certified many organizations in India and abroad. Various certified / training programmes have been designed and delivered for Information Security Professionals and Auditors. These courses are accredited by international agencies. The activities of application security audit, IT infrastructure audit, vulnerability assessment and penetration testing are being carried out for both Government and private sector.

STQC is a permanent member representing India, in the Security Audit Team (SAT) and is periodically conducting Information Security Audits of the Technical Secretariat of Organization for the Prohibition of Chemical Weapons (OPCW) located at Hague thus significantly contributing to the overall confidentiality regime of the organization.

Common Criteria Security Test/ Evaluation Laboratory as well as a National Certification

scheme based on Common Criteria (ISO 15408) standard has been established. India has become a signatory to Common Criteria Recognition Arrangements (CCRA) as consuming country. The project aims to meet the needs of the Government and industries for evaluation and certification of IT security products.

Indo US Cyber Security Forum (IUSCSF)

Under Indo US Cyber Security Forum, the Working Group on Information Security Assurance was co-chaired by the Director General, STQC along with Program Director, NIST, USA. STQC is working closely with 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. Two STQC Scientists participated as guest researchers at NIST , USA for 4 weeks duration, for development and review of NIST standards and Guidelines for the security control, auditing and risk assessment.

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, based on international standard ISO / IEC 20000-1 has been introduced. Additionally, ITSMF accredited training programs for ISO 20000 auditors have also been conducted by STQC both in India and abroad.

STQC is the only Indian Agency proving both the accredited certification and the accredited training programs within the country. Support services on ISO 20000 to DOHA Bank, Qatar and Training programs on software testing to Kofi-annan Institute at Ghana were also provided.

Setting up e-Governance conformity Assessment Centres

Recognizing the importance and focus for e-Governance, an initiative has been launched to support Department for assessing conformity with standards on quality and security. Department has awarded a project entitled 'Establishing an e-Governance Conformity Assessment Centre' for three years. Six conformity assessment centres have been established under this project. Infrastructure tools and test environment have been upgraded to meet the requirements of industry and the NEGP.

Workshop under NEGP Mission Mode Project - Municipalities was organized to explain software testing and evaluation requirements to demonstrate conformity with Ministry of Urban Development (MoUD) requirement.

Website Quality Certification Scheme

STQC has developed a Certification Scheme for Quality of Websites. The scheme is based on the objective evaluation by testing, review and assessment of the website using the international standards as reference criteria.

Thereby, promoting e-Business and support NeGP programme in its endeavor to improve quality of websites for provision of information and services.

e-Governance - Standards Formulation

The responsibilities for standards formulation on quality and documentation were assigned to STQC. A Working Group has brought out procedure for standard formulation, guidelines for preparing RFP and guidelines for writing SLAs. Conformity Assessment Framework and Quality Assurance Framework are at finalisation stage.

Test And Calibration Services

Laboratories provided Test and Calibration services to SMEs, Government organizations, industries and users in the areas of Electronics & IT. To meet the growing demand of users, facilities have been upgraded in the area of EMI / EMC, Safety, Explosive Atmospheric Environment, Climatic & Durability, High precision calibration and Fiber Optics / Opto-electronics.

ERTL (East), Kolkata has successfully executed several test and calibration projects for overseas clients from China, Bangladesh, Bhutan, Saudi Arabia, Bahrain, USA and Germany. Most of these jobs were executed on-site in these countries. During the current year the laboratory has received recognition from Underwriters Laboratories (UL) for testing of electronic / electrical products used in hazardous atmospheres like mines, petroleum industries, etc. This recognition will enable Indian manufacturers to obtain US HAZLOC and European ATEx certifications without having to send their products for testing to laboratories abroad.

A facility for combined climatic and vibration testing has been created at ERTL (East). A testing assignment for assessment of IT hardware to be used in one of the data centres of WBSEB has been completed successfully.

The laboratory has initiated a facility for calibration of gas sensors used in automation and safety systems of mines, petrochemical industries etc. Also, the laboratory has executed calibration of fibre-optic measuring equipment at many locations in the country, which are used for maintaining fibre-optic communication networks. The laboratory

successfully participated in an international Proficiency Test Programme organised by IECEE-CB Scheme in the area of safety testing.

ERTL (N), Delhi has established Combined Environmental Test System comprising of 5-Ton (5000kgf) vibration test system for "HALT" & "HASS" testing, Impulse tester for Energy meters and Capacitors, Tracking Index Analyzer. Facility have been upgraded for R/F calibration capability upto 40GHZ, Power/ Energy Testing and Calibration capability up to 200A, calibration of Pulse Oximeter Simulator, Ventilator tester, Primary Temperature Standards (Fixed Point Cell) for temperature Calibration.

During this year the laboratory has provided test and calibration service to industry for products like Wireless LAN, Digital Set - Top Box, Ultrasonic Cleaner, Boiler Management System, Vibration Monitoring System, DNA extractor, Interactive Boards etc. Safety testing of GENSET as per ISO 8528 for SONCAP was undertaken. Laboratory has participated in International / National Proficiency Testing program.

Laboratory has successfully implemented Laboratory Information Management (SLIM) package by integrating both Technical and Administration activities. The laboratory has explored this Software in testing and calibration for Power /Energy, Pressure, DMM , Calibrators, EMC measurements.

ERTL (W), Mumbai has carried out, for the first time, the safety evaluation of high power audio amplifiers as per IEC/EN 60065; safety evaluation of LCD TV (19" to 32") as per IEC/EN 60065 and safety evaluation of baby infant warmer as per product specification IEC/EN 60601-2-21. The European Notified Body has accepted all these safety evaluations. The impulse test generator for 5 KV impulse amplitude of simulation with special pulse shape in accordance with the requirement of medical collatory standards IEC/EN 60601-1 has been made at ERTL(W), Mumbai. A number of safety evaluation tests for various products were carried out for the first time as per the Standards Organization of Nigeria Conformity Assessment Programme (SONCAP). For EMI/EMC testing, various facilities have been upgraded to meet the ever-demanding requirement of customers for export of their products. To meet the requirement of various International Standards like CISPR 22/ CISPR 11/CISPR 20 for 3 meter test distance measurements, a Semi-Anechoic Chamber for Radio Compatability Compliance has been installed at ERTL(W), Mumbai. A National Seminar on "Consumer Electronics Marking" was conducted in November. Scientists of ERTL(W), Mumbai has written following two books:

1. Handbook on "Consumer Electronics Marking" for EMC & LVD Directives as per Unified European norms.
2. Handbook on "Consumer Electronics Marking" for Machinery Directives as per Unified European norms.

In order to cater to the requirement of industry to design more energy efficient blasts and lighting products a state-of-the-art Light Measurements System has been installed and commissioned at ERTL(W), Mumbai. To simulate typical tampering of energy meters and for verification of tampering immunity of energy meters, special test facilities has been installed and commissioned at ERTL (W), Mumbai, which will cater to various State Electricity Boards.

For the first time in the Western zone, the calibration services in the area of Optical Fiber Instrumentation have been installed at ERTL (W), Mumbai. These facilities will meet the growing need of calibration of Optical Fiber industries for OTDR, optical power meter, optical attenuator and optical light source with NABL accreditation. Keeping in view the requirement of industry, the calibration facilities for the single phase and three phase power and energy parameters have been expended up to 1000 V and 200 A with 50 ppm accuracy.

ETDC, Chennai has commissioned a Combined Environmental Systems comprising of 5 Ton capacity Vibration Machine and a Temperature Cyclic Chamber with a fast rate of heating and cooling, to facilitate improvement of reliability of products and systems. The centre provided calibration services to many organizations and particularly, to the various divisions of Tamil Nadu Electricity Board located all over the State for calibration of their substandard Energy Meters. ETDC, Chennai carried out Safety Testing of 7 products designed in USA as per IEC 61010 Standard. Centre also provided assistance to Electricity Boards and BIS for type testing and acceptance testing of various types of energy meters.

Centre For Reliability (CFR), Chennai provided complete reliability solution to the Anti-Collision Device (ACD) network developed by Konkan Railway Corporation by carrying out Reliability Prediction, Failure Mode & Effects Analysis (FMEA) and Fault Tree Analysis (FTA). Reliability Predictions of Central Interlocking Unit (CIU), LED and Signaling Lighting System supplied to Indian Railways were also carried out. The centre has also facilitated Reliability improvement of UV Water Purifier manufactured by Philips through carrying out Highly Accelerated Life Testing (HALT) and

Highly Accelerated Stress Screening (HASS).

To inculcate reliability consciousness amongst industries, CFR also continued to conduct a Certified Reliability Professional (CRP) programme. In order to facilitate design improvement, CFR carried out Failure Analysis of Triacs used in Vending Machines for M/s Pulsars, Chennai.

ETDC, Bangalore has established an RF Anechoic Chamber which can be used upto 18 GHz. Radiated Susceptibility test can be carried out up to 3 GHz @ 3V/m & 10V/m. The Facility is unique in Bangalore and has FCC listing. Laboratory has also upgraded environment facility by installing two Programmable Humidity Chambers having rate of temperature rise as 5deg C/min. Additionally , following facilities have been enhanced:

- Power/Energy calibration facility extended upto 200A.
- DC Resistance measurement capability from 1 uO to 10 PO.
- DC Voltage measurement capability enhanced from 3 ppm to 1ppm.
- RF level & Frequency sourcing capability extended up to 40 GHz.
- New Optical calibration facility established for calibration of Optical instruments like Optical Power meter, Optical Attenuator, Optical source & OTDR at 1310nm & 1550 nm.

Laboratory is successful in getting NABL accreditation for in-house & On-site for all 44 Electro-technical parameters (Source & Measure) and Thermal Calibration for in-house & On-site for temperature & humidity parameters including electrical simulation (Source & Measure). Also, IECEE-CB accreditation for IEC 60950 testing for appliances has been received.

ETDC, Hyderabad have provided service to industry by conducting crucial Vibration and Environmental Tests for Missile sub systems for Defence applications. On-site calibration services have been provided to top Multi-Nationals like GE-Energy and other major organizations from Defence, Atomic energy, Space, Telecom, Railways, Power, Pharmaceutical sectors Laboratory has specially designed and organised job oriented training programmes for Minorities and SC/ST candidates.

ETDC, Pune has set up EMI/EMC facility upto 3 GHz and helped industry to improve their product as per International standards. In addition to normal test and calibration service to industry, laboratory has carried out testing of Power Modules, HD Music (being used in their PSLV project) for VSSC Thiruvananthapuram.

ETDC, Jaipur is enhancing its calibration facilities for obtaining NABL (India) accreditation for temperature and dimensional calibrations. Laboratory has inspected computer systems and peripherals under e-Governance plan of the Government of Rajasthan for installation at different districts.

The centre is providing Entrepreneurs Development training courses for the benefit of young entrepreneurs, in association with District Industry Centre (DIC), under State Government, in the area of maintenance of PC Hardware and Networking. For the first time a course for Schedule Tribe participants was conducted for The National ST Financial Development Corporation, New Delhi, which was attended by 18 participants.

ETDC, Goa organized Onsite calibration camps and training programs on Quality Management System, Environment Management System, Statistical Process Control, Information security and LINUX Operating System.

ETDC Mohali has added new facility for calibration of Infrared Thermometer. Also, Vibration machine has been installed.

Laboratory has got accreditation in the field of Electro Technical calibration & Thermal calibration and got the renewal of accreditation in the field of Electrical Testing and Electronics Testing. Laboratory has conducted Customer Satisfaction Survey in May 2007. Rating at an average of 4 out of 5 was received.

Training Services

CETEs provides skill based practice oriented training in the field of Electronics, Test Engineering and IT covering the areas like Industrial Automation, Electronic manufacturing Techniques, EMI / EMC, Networking, Agri-electronics etc. Special courses for the benefit of SC/ ST/OBC, weaker section of the society and women are also conducted. CETEs undertook following additional major activities.

CETE, Kolkata has shifted to its own building constructed in the camp-us of the ERTL (E). Centre launched a no of new courses, which included the following:

- Course on Siemens HMI (Human Machine Interface) Protool Pro & "OP7/OP17 configuration was conducted for Steel Authority of India

- Course on Estimation of Uncertainty in Analytical Measurements was launched for Industries, Test Houses, etc

- Course on Medical Laboratory Quality Requirements as per ISO/ IEC 15189 for Diagnostic Centres, Hospitals (Govt. & Private) was launched.

- Course on Magnetic Particle Testing.

The Centre has designed the course on 'Penetrant Testing' and 'Application & Maintenance of ICU & OT Equipment' for Biomedical Engineers, Professionals, Entrepreneurs, Doctors, etc., The later course will address the salient features of use of essential ICU & OT equipment, like ECG Machines, Defibrillators, Multi-para Monitors, Infusion Pumps, Pacemakers, ETCO2 Monitors, Anesthesia Machines, etc., as well as their preventive maintenance & repair.

CETE, Bangalore has designed & conducted one year course "Certified Computer Trainer" in two semesters as "Diploma in Computer applications" & "Diploma in Computer Programming". Additionally, 3 months Course on "Embedded Systems" & Project works on embedded systems was developed.

The centre has also launched "Certified Calibration Professional" Course towards personnel certification of technical competence for Calibration Engineers/Technicians at Bangalore, Noida.

CETE Hyderabad has organized training programmes for 300 Engineers from Hindustan Aeronautics Limited (HAL) Hyderabad. Dedicated job oriented training programmes have been organized for Minorities and SC/ST candidates.

CETE Pune in addition to normal skill oriented courses has developed two courses for Medical Laboratories based on ISO 15189 and ISO 13485 and organized three courses and got good response from the industry. Additionally, centre has also conducted 3 courses on ROHS compliant and trained nearly 40 participants.

CETE Noida extended training support on 'Quality Management' and 'Information Security Management' to various Government and Public Sector organizations including BHEL, NTPC, Ministry of Defence, MES and ADE etc., New course on 'Energy management and Conservation', 'Certified Calibration Professional', Design for EMC' and 'EMC standards, testing, and certification' have also been introduced.

Indian Institute of Quality Management (IIQM), Jaipur as an apex institute continues to provide training in the area of Quality Management, Quality Technology, Laboratory and Environmental Management. New course on Proficiency Testing has been launched for the benefit of people working in Test and Calibration Laboratories. The Lead Auditor courses in QMS, Information Security, along with the Internal QMS Auditor Course, already approved by IRCA, UK, are in regular demand from industry. IIQM also organises these courses, at other STQC centres or onsite to cater industry requirement. As planned, a new Lead Auditor Course on IT Service Management System (ITSMS) has been successfully designed and steps for its approval by IRCA, UK have been initiated.

IIQM is also establishing an e-Governance Training Institute, under the e- Governance initiative of STQC/DIT. As a step in this direction, it has been instrumental in designing and launching the course on "Implementation of Services Quality in Public Service Organisation (IS 15700:2005)". The course has been approved by the Quality Council of India to support the DARPG initiative, for excellence in service delivery by Public Service Organisations (Sevottam Scheme).

The two year off-campus post graduate Quality Management Program (MSQM) of IIQM, in collaboration with Birla Institute of Technology and Science (BITS), Pilani, for practicing engineers, working in quality and related areas, continues to be popular. 124 students, from various fields, including software and IT, have enrolled for the course during current academic session. Since its inception in 1998, over 700 have successfully completed this course and have been awarded degrees by BITS, Pilani.

Certification Services

An STQC Certification service is providing certification in the Management Systems as well as Product Certification to about 900 customers. These services are internationally accredited and provided to organizations in India and abroad. In the area of Management Systems, the certification is provided for the standards viz. ISO 9001:2000 (Quality Management System) and ISO 14001 (Environmental Management System). Product Certification broadly covers International Certification services for safety of electrical products under IECEE-CB,S-Mark and Quality for electronics components under IECQ system. In addition factory inspection services are provided to various International agencies viz. VDE (Germany), IMQ (Italy), KEEMA (Netherlands), CEBEC(Belgium), JQA(Japan), LCIE(France), etc. In addition, to accreditation by International agencies, STQC also got accreditation from Quality Council of India. Some of the major

Government clients/ PSU served by STQC for certification services include Delhi Police, ISRO, DRDO Laboratories, Bharat Sanchar Nigam Ltd. (BSNL), Telecom Training Centre, Military Engineering Services and Interim Test Range under DRDO apart from a number of private sector units and SMEs.

Services In the North-East Region

STQC, through ETDC, Guwahati and ETDC, Agartala is providing test, calibration and training service to the industry in the North-East region.

ETDC, Guwahati has created High Precision state-of-the-art calibration facilities in Optical / Opto-Electronic field, enhanced High Precision Power / Energy Test & specialized calibration & Test facilities in the Electro-Medical field. Through these facilities most of the major health care units, hospitals, pathological & medical test laboratories and Power generating transmission & distributing organization of the North-East Region are benefited.

e-Governance Conformity Assessment Centre has already initiated awareness creation related to Software Quality Testing, Network Security, Information Security etc., for various user organizations. The IT service lab would be fully operational with its complete facilities from the year 2008 for extending its charter of services in the NE Region for the benefits of IT Service providers & users.

The centre has been conducting DOEACC "O" & "A" level computer courses. Through its various awareness programme on Quality and Standardization, this Centre has taken a lead role to create awareness about the ISO 9000 QMS & ISO 14000 EMS in all the industrial & service sectors of NE Region.

ETDC Agartala has created the state-of-the-art Test & Calibration facilities for Electro-Medical equipment for the benefit of health care units, clinical & pathological laboratories etc. The laboratory is providing the calibration services in electro-technical as well as some of non-electrical fields. Moreover, acceptance testing and other technical support for IT related product or services is also provided to various Government Departments, SSI Units, PSUs, etc., in the State of Tripura.

ETDC, Agartala is also providing Training in the IT and Computer related fields for the educated youths for development of their expertise and professional skills. The centre is also regularly providing DOEACC "O" & "A" level courses and most of the students completing these courses are absorbed in IT related jobs.

Activities for the welfare of SC/ST women

Both ETDC Guwahati and Agartala laboratories are organizing a one-week extensive training programme on "Fundamentals of Computer Operation" for the benefit of SC/ST women community of North-Eastern Region.

STQC Overseas Services

STQC has been providing overseas services in the areas of Explosive Atmosphere Compatibility, Product Safety, EMI / EMC, Inspection & Certification, Calibration and Training on Quality Management and IT Services.

Officers of STQC have been recognized by CMU, USA for eSCM evaluation and by IRCA, UK for ISMS / QMS Lead auditor training courses. eSCM evaluation services were provided for approx. 250 man days in South Korea and Singapore. Additionally, ISMS and ITSM facilitation and evaluation services were provided in DOHA Singapore and USA.

Testing, Calibration, Training and Certification services have been provided to various organizations in countries like South Korea, Germany, USA, UK, France, Bangladesh, Nepal, Mauritius, Sri Lanka, UAE, Qatar, etc.

National Internet Exchange of India (NIXI)

Five more NIXI hubs are being established in the cities of Ahmedabad, Bangaluru, Hyderabad, Lucknow and Mohali in addition to the existing four operational Internet Exchange Nodes at Noida (Delhi), Mumbai, Chennai and Kolkata In order to ensure that the Internet traffic originating and having destination within India, remains within the country. More than 50 ISPs connected with these nodes would be utilizing the NIXI nodes for peering and benefiting for robust low cost Internet traffic related benefits resulting in improved traffic latency, reduced bandwidth cost and better security.

Setting up of Bio-IT Park

For setting up Bio-IT Park 100 acres of land has been identified and is under speedy acquisition. The park would address the IT related needs of the global life sciences industry and is expected to attract investments (both domestic and foreign) in related areas. The Bio-IT Park would be equipped with adequate infrastructure and facilities

to provide the required/ desired services to its tenants by providing facilities of High end super computing; Wet lab; Data communications; Business Centre Services; 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; Service apartments and recreational facility, etc.

Establishment of Three (3) Root Servers in the Country

Three Root servers replicated as mirror servers and set up in India at Chennai, Mumbai and Delhi are functioning to ensure that traffic currently routed outside the country stays within the country for the look up of all domains at the root. It saves international bandwidth reducing dependency on root servers outside the country and enabling a redundancy in the case of Distributed Denial of Services (DDoS) attack and similar other root server destruction possibilities.

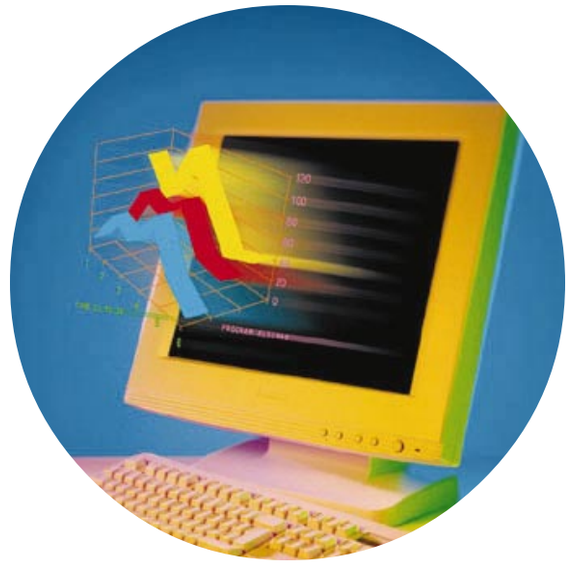
National Knowledge Network

There is a need to optimally utilize the potential of institutions, such as research laboratories, universities and other institutions of higher learning, including professional institutions, engaged in generation and dissemination of knowledge in various fileds. Research and development activities and innovations are increasingly multi-disciplinary and collaborative, and require substantial computational power. The key to successful research today is live consultations, data sharing and resource sharing. Therefore, it is essential to provide high-speed broadband connectivity to our knowledge institutions to improve access, quality and quantity of R&D activities. This necessitates the need for a National Knowledge Network that seamlessly interconnects the knowledge institutes in the country.

National Knowledge Commission has recommended setting up of high-speed digital broadband network with adequate capabilities and access speed to encourage sharing of resources and collaborative research.

The primary objective of the proposed National Knowledge Network would be to interconnect all the knowledge institutions in various field, and at various locations throughout the country, through a high-speed broadband network with gigabit capabilities.

National Knowledge Network would result in data sharing and resource sharing among knowledge institutions. This network will also facilitate intra-domain and inter-domain directed collaborative research. Education and research communities would benefit from facilitation of transmigration and cross-domain collaborative research. These initiatives will also lead to creation of a pool of highly trained persons in the country.



Societies

Centre for Development of Advanced Computing (C-DAC)

Overview

Starting from its initial mission on building indigenous supercomputers, C-DAC has progressively grown to build an eco-system and institutional framework for innovation, technology development, skills development, delivery plans, collaboration, partnership and market orientation in a number of niche areas of national importance and market relevance in ICT and Electronics. Of special relevance to C-DAC are innovation and development of solutions impacting larger public interest.

Activities and achievements during 2007-08

High Performance Computing (HPC) and Grid Computing

In line with 11th Plan Objectives, C-DAC is building on competencies built so far, especially in the last few years to commence the momentum towards R&D in technology drivers of Petaflop computing, setting up of shared HPC facilities, Main Garuda, and grand challenge and research applications in close conjunction with communities and eco-system development for national leadership.

Significant achievements during the year in the area of High Performance Computing and Grid Computing include the following:

High Performance Computing (HPC): "Anuman" - a Real Time Weather Forecasting system has been released by Union Minister of State for Communications and Information Technology in ELITEX 2008 at Delhi.

Action is being taken for operationalising 10 TeraFlop facility and sub-systems building.

HPC applications building including projects of national importance in the area of Atmospheric Sciences, Bio-informatics application alongwith BRAF portal, Seismic Data Processing, Computational Fluid Dynamics, Structural Mechanics and Materials Modeling are progressing well.

MOU has been signed with Nicholas Piramal and Ocimum Biosolutions in Bio-informatics area.

C-DAC hosted the Third IEEE International Conference on e-Science and Grid Computing held during December 2007 at Bangalore.

More than 10 papers have been published in International Conferences and journals.

The following HPC applications were developed / demonstrated :

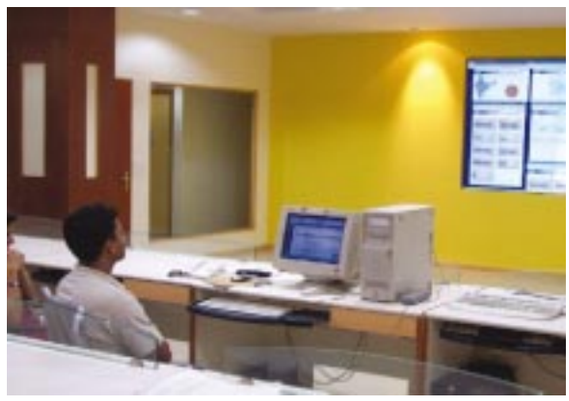
- Daily weather forecasting at Pune airport.
- Daily rainfall forecasting for Koyna dam catchment areas cut-over.
- Real-time weather forecast system for Indian Air Force.
- Atmospheric-Ocean coupled model was developed in collaboration with IISc.
- The performance speedup possible with the indigenously designed and developed RCS (Reconfigurable Computing System) platform

was demonstrated for Bioinformatics (Smith-Waterman algorithm for sequence search) and Cryptanalysis applications. Speedups of the order of 40 to 80 times were demonstrated.

- Problem Solving Environment has been developed on HPC for scientific and engineering applications and it has been first tested for Computational Structural Mechanics applications.
- Protein and its polymerization has been simulated using parallel and distributed algorithms based on Monte Carlo and Evolutionary Techniques.
- Fiber Reinforced Plastic structures have been modeled for optimal strength using parallel Genetic Algorithms.
- Internal Combustion (IC) Engine simulations have been done for several experimentally available test cases and validated.
- INVWAV software for seismic migration has been developed and its second phase of testing on real data is in progress.
- Molecular Tailoring approach has been developed and applied to large scale biologically important molecules.

Grid Computing: Continuing with the Proof of Concept phase of Garuda (National Grid Computing Initiative), the following were achieved during the year:

- Development of Debugger and GIDE tools
- Middleware deployment at all 45 sites
- Access portal developed
- Parallel File Systems PFS 1.0 released
- GRID monitoring tool and GUI completed
- Disaster recovery system implemented through upgraded SRB



- Bioinformatics portal for grid completed.
- EU-India Training and workshop was conducted on Earth Sciences, Material and Atmospheric Sciences, etc.
  - Disaster Management application (with Space Application Centre, Ahmedabad), and Bioinformatics application were demonstrated on the grid infrastructure.
  - Integration of C-Crypto with Globus GRID middleware was done.
  - Grid enablement of Bioinformatics applications (ChestalW, Smith Waterman, AMBER and CHARMM) was done.
  - Genome Grid portal on Garuda was developed.

Multilingual Computing and Heritage Computing

C-DAC has played leadership role in the field of multilingual computing and continued focus to strengthen its research and delivery initiative in partnership with academic and other research labs. Also, a whole range of new and emerging technology tools and capabilities including Machine assisted Translation, OCR/OHR, Cross Lingual Information Retrieval (CLIR), Indian language Browser, Speech interfaces (text-to-speech, speech-to-text and speech-to-speech), and Search Engines have been developed and supported in major Indian languages. In addition, development of support to .IN domain with Indian language domain names is another target area of work.

Significant achievements during the year in multilingual computing include the following:

- Hon'ble Vice President of India and Hon'ble Chairman of the Rajya Sabha launched the MANTRA-RajyaSabha Translation System at Parliament House, New Delhi in August 29, 2007.

- Bangla and Gujarati CDs are ready for release
- Application built on Bangla Text To Speech (TTS) are being used by State Government. bodies.
- Multilingual productivity enhancement tools such as OCRs/OHRs, spell-checkers, light-weight platform independent tools, etc. are being developed/enhanced.
- Creation of Digital Library of 28 million copyright free printed pages has been completed.
- Adapting Angla-Bharati technology of IIT Kanpur, English to Bangla Machine Translation system (named Angla-Bangla) with 50,000 words of Bangla lexicon has been completed.
- Active work is being pursued in all areas of English to Indian Language (E2IL) Machine Translation, Indian Language to Indian Language (IL2IL) and Cross lingual Information Access.

A Multi-stakeholder workshop was conducted at Madurai in July 2007 for Content Generation (in Tamil) for Agriculture Vertical of InDG portal. This event was organized as part of India Development Gateway (InDG) project.

Professional Electronics including VLSI and Embedded Systems

C-DAC has several achievements in the areas of Hardware Systems, RF Systems, Control & Instrumentation, Power Electronics and Mechatronics, VLSI Design and Embedded Systems, and Agro-electronics. In the area of Power Electronics, the technology development efforts are focused towards designing of tools and components for power quality improvement, power supply modules, energy meters, distribution automation, remote inspection devices, etc.

In the area of agro-electronics, the technology development efforts are focused towards development of tools for online, real-time quality estimation for 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 during the year in the area of VLSI and Embedded Systems, Real- Time Systems and Professional Electronics include the following:

"Black Box for automobiles" has been released by Hon'ble Union Minister of State for Communications and Information Technology in ELITEX 2008 at Delhi.

- NaMPET, the National Mission on Power Electronics Technology, a five year programme was launched by DIT to strengthen the Power Electronics Technology in the country.
- Development of Sonic Ultrasonic Non-Destructive Test System (SOUNDS2) was successfully completed. The same was handed over to VSSC.
- An Underwater Range Complex for Indian Navy was developed.
- Signal Processing Hardware - MultiSHARC1 was developed and supplied to Naval Science and Technology Laboratory.
- Plant Wide ATM Networking for Bhilai Steel Plant was completed.
- SCADA system for Teesta Canal fall Hydel Power Stations of West Bengal State Electricity Board at Siliguri was commissioned.
- Transfer of Technology has been done for technologies developed for Single Phase compensator and Grid Interactive solar inverter. IGBT Gate Driver testing has been completed.
- Consolidated E-Nose and E-Vision prototypes are ready for delivery to selected tea planters. A national quality standard for Indian tea is under formulation on the advice of Tea Board of India.
- Hybrid 3-wheeler electric vehicle in undergoing field trials. CAN Controller completed and are being deployed in various applications.
- After successful prototype deployment of Area Traffic Control System in Pune, deployment of first phase in Jaipur completed. Further augmentation is in progress.

- Field trials of high-sensitivity Digital Programmable Hearing Aid has been successfully completed.

- Establishment of WSN lab with 18 Motes and sensor boards with temperature, humidity, pressure accelerator and magnetometer has been completed.

- A team has undergone training in software communication architecture by CRC Canada and has built up expertise in the same.

- Tetra Protocol stack was enhanced with Packet Data and Encryption. Delivery for customers in China and Korea, was completed.

Software Technologies including FOSS

During the year, C-DAC addressed issues of developing eco-system for Free and Open Source Software (FOSS), National initiatives on standards, architecture and contemporary technology driven delivery for e-Governance infrastructure, applications and services on public private partnership mode, and major field work in ICT4D efforts and initiatives by bringing C-DAC's past work and competencies as through CSC project and InDG.

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

Bharat Operating Systems Solutions (BOSS) Server Version, has been released by Hon'ble Union Minister of State for Communications and Information Technology in ELITEX 2008 at Delhi.

- BOSS Server version can be used in the Government departments as an Intranet Server.

- BOSS Linux ver 2.0 - fully localised to Tamil/ Hindi was released during Connect 2007 held at Chennai (September 2007). BOSS Linux Server edition ver 1.0 beta is ready for release.

- A detailed study of the Service Oriented Architecture (SOA) framework using open source tools for e-Governance applications was completed. An application for Personnel Information System has been developed as proof of concept.

- TOT and Technical support was given to some companies/agencies - Encore, BAIF and DGF.

- Multilingual portal covering four languages has been hosted on the net.

- Seven workshops to identify information needs

of stakeholders and content generators were held in the States of Andhra Pradesh, Tamil Nadu, and Jharkhand. Initial set of contents on the chosen verticals were aggregated from over 30 organizations.

- New modules for accounting were added to Prime Minister Gram Sadak Yojana (PMGSY). OMMS already deployed and under operation. Indian Language interfaces are also being added.

- New version of IGR was deployed in Karnataka and is currently being deployed in Goa.

- Solutions for PWD, MIDC and MPRDC are under development and pilot testing.

- Proof-of-Concept version of NSDG Messaging Gateway was developed and successfully demonstrated.

- GIS enabled applications for land and road management are being developed and deployed for the states of Orissa, Bihar, Uttar Pradesh and Delhi.

- GIS component to OMMS has been successfully implemented in two states - Rajasthan and Himachal Pradesh.

- Support groups for establishment of BOSS Linux Support Centres and Business Development have been established across C-DAC centres.

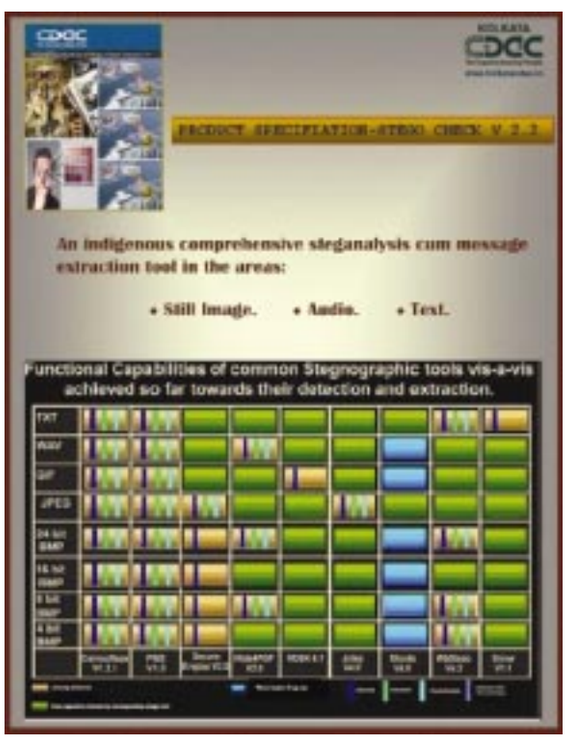
- An MOU has been signed with CHIPS, Chattisgarh - nodal agency for Chattisgarh Government. in Information Technology for proliferation of BOSS Linux in Chattisgarh Government.

- Training on BOSS Linux to officials of Indian Navy was held during November 2007 in Mumbai, Kochi, Vishakapatnam and Delhi.

- Research papers titled : FOSS in Education, FOSS in Scientific Applications, FOSS business models for developing countries (in ASIA) were brought out by the centre.
- Training titled "Desktop Moksha " and "Jumpstart Localisation" were conducted. The participants were drawn form other South Asian countries apart from India.
- A Training programme was organized in Chennai during August 2007 to the members of the support groups for BOSS.
- National Resource Centre Foss (NRCFOSS) sponsored persons from India, Bangladesh and Pakistan for attending the Open Source Healthcare Conference held in Malaysia during May 8-11, 2007. The forum was a gathering of technologists and doctors trying to promote adoption of Open Source in healthcare.

Cyber Security and Cyber Forensics

C-DAC with wide experience in R&D has chosen cyber security as one of the priority areas and proposes to deliver multilevel/multilayered security solutions to safeguard the Government Infrastructure. Solutions already developed in this direction are Cyber Forensics tools, Adaptive Intrusion Detection System, End systems security solution, document security solutions, Steganographic tools, etc. These solutions cannot be static as the attacks keep growing with changing times and technologies. Thus C-DAC continues to explore delivering the need of the hour (just-in-time) Cyber Security Solutions.



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

Two new products have been released by Dr. Shakeel Ahmad, Hon'ble Union Minister of State for Communications and Information Technology in ELITEX 2008 at Delhi -

- Know Your Network (KYN) - An open-source based integrated platform exclusively for Network Monitoring and Measurement for diagnosing network health
- NetForce - A Network Session Analyzer for analyzing and reconstructing network packets
- Cyberforensics tools are already being used by Law Enforcement Agencies (LEA). The tools are used for seizure and analysis of evidence, and have been used in several significant investigations. C-DAC Thirvanathapuram extended technical guidance and support to LEAs from Resource Centre for Cyberforensics.
- EnSAFE (Enterprise Suraksha Framework) an end systems security solution for TCP/UDP applications over Intranet was developed.
- An e-Suraksha concept lab has been established at C-DAC, Hyderabad.
- Stegocheck Ver. 3.0 was released and demonstrated to user agencies. Its integration with Cyber Check 3.0 is under progress.
- Algorithms for cryptanalysis on High Performance system for symmetric Public Key and hardware accelerators to decipher cyber text has been developed.
- Face recognition 2.0 has been released for beta testing.

Health Informatics System

C-DAC continued to improve its Health Informatics System (HIS) and Telemedicine applications and health infrastructure during this year. Roll-out of initiatives in healthcare informatics such as national roll-out for cancer-net and African Telemedicine programmes have been initiated.

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

- Telemedicine site at Raibareli District Hospital with link to Sanjay Gandhi Post Graduate Institute of Medical Science (SGPGIMS) under

Gas Authority of India Ltd. - Corporate Social Responsibility (GAIL-CSR) initiative was established.

- Health Information System (HIS) was deployed at many hospitals including Mahatma Gandhi Institute of Medical Sciences (MGIMS), Sevagram, Wardha.
- Cancer Net Project of Tamil Nadu is nearing completion. Systems have been commissioned at Adyar Cancer Centre and Gandhigram near Madurai.
- Deployment of Mercury (Telemedicine) in Kerala completed. Deployment of the same is in progress in Tamil Nadu and Himachal Pradesh. Deployment in Ethiopia is completed.
- Development of additional software modules for Mercury, Sanjeevani and Sushrut is in progress. HIS for PGI has commenced.
- 150 installations of Ayusoft ver 1.0 has been completed in India and abroad.
- Based on the success of the Onconet-Kerala Project, project proposal for Onconet India, for linking of cancer centres across the nation, was prepared and submitted to Ministry of Health.

Ubiquitous Computing

As part of the ubiquitous computing activities, C-DAC has established a concept-proving laboratory for carrying out Wireless Sensor Network Applications Research and Development (WiSARD Lab). The WiSARD Lab consists of various hardware equipment like Wireless Sensor Nodes, Base station, WLAN, GSM/GPRS, Bluetooth, etc.

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

- Literature survey on Context Modelling approaches, Intelligent Room, Health Care Architecture, Context Aware Applications, Ultra-wide Band Technology, Location sensing and Service Oriented Device Architecture have been carried out.
- Architecture for context-aware framework has been finalized.
- Four papers have been published/presented/accepted for presentation in International conferences.
- Prototype system capable of deployment in agriculture research applications for sensing environmental parameters for effective decision making in agriculture applications was demonstrated at CRIDA in Hyderabad on Farmer's day.
- System study for Delhi-Mumbai sector of postal department for parcels movement tracking based on RFID was conducted.
- "Establishment of National Level Ubiquitous Computing Research Centres" has been initiated.

Education & Training

C-DAC's Education and Training divisions at its various centres continue to build and mobilize high quality and skilled manpower requirement to the extent possible with its available resources. A range of specialized courses catering to the needs of the IT sectors including VLSI, Embedded Systems Design, Information Technology, Enterprise System Management, System and Database Administration, Electronic Product Design, Bioinformatics, Geoinformatics, Digital Multimedia, Internet Technologies, Software Technologies and Software Development are offered. C-DAC also conducts Post Graduate Degree programmes like M.Tech and MCA in affiliation with universities at select centres.

During the year, C-DAC continued to offer its Certificate, Diploma and Post Graduate Degree Programmes in the areas mentioned above. C-DAC has also set up state-of-the-art training centres in IT in few countries abroad including those at Ghana, Uzbekistan, Tazekistan and Mauritius.

C-DAC continues to strive hard to further establish and maintain its leadership position in R&D in the areas mentioned above. It also continuously explores new areas of R&D in IT and Electronics. In this endeavor, C-DAC is already spearheading several efforts at the national level in cutting-edge, futuristic technology areas such as Speech Technologies, Next Generation Internet Technologies, Grid Computing and Ubiquitous Computing, as well as in High-End Training.

C-DAC, Hyderabad established its Research, Development and Training activities at JNT University (JNTU) Campus starting from June 2007. An MoU was signed between C-DAC and JNTU to offer two short term certificate courses: i) Certificate course on Networking and System Security (CNSS), ii) Certificate Course in Digital and Analog VLSI Design (C-DAD).

Software Technology Parks of India (STPI)

Software Technology Parks of India was established and registered as an Autonomous

Society under the Department of Information Technology in year 1991 with an objective to implement STP/EHTP Scheme, set up and manage infrastructure facilities and provide other services like technology assessment and professional training.

STP Scheme and Highlights

The STP scheme is essentially an export-oriented scheme with focus on quality initiatives and facilitates export of professional services as well. This scheme is unique in its nature in that it focuses on one product/sector i.e., computer software. The scheme integrates the concept of 100 percent Export Oriented Units (EOUs), Export Processing Zones (EPZs) of Government of India and the concept of Science Parks/Technology Parks, as operating elsewhere in the world. A distinctive feature of STP/EHTP scheme is that it provides Single-Point Contact Services for member units.

Highlights of STP Scheme

- Approval under single window clearance mechanism.
- 100% foreign equity permitted.
- Goods imported / procured locally by the STP units are completely duty free.
- Second hand capital goods may also be imported.
- Sales in the domestic market are permissible up to 50% of the export.
- Income tax benefits under sections 10 A / 10 B of Income Tax Act
- Minimal Export Obligation with positive Net Foreign Exchange.

High Speed Data Communication

One of STPI's remarkable contributions to the software-exporting sector is provision of High-Speed Data Communication (HSDC) services. SoftNET, state-of-the-art HSDC network, designed and developed by STPI is available to software exporters at internationally competitive prices. Since its inception to 2005-06, STPI is credited with setting up its own International Gateways at 45 locations for providing HSDC links to the software industry.

Local access to International Gateways at STPI centres is provided through Point-to-Point & Point-to-Multipoint microwave radios for the local loop, which has overcome the last mile problem and enabled STPI to maintain a high up time of nearly 99.9%. The terrestrial cables (fiber/copper) are also used wherever feasible.

STPI provides the following HSDC services through its network:

- International Private Leased Circuits (IPLCs)
- Shared Internet Services
- VSAT Services
- Value added services.

SoftPOINT

The SoftPOINT service is the provisioning of "International Private Leased Circuit" (IPLC). Which is ideal for companies that have high volume of International data transmission.

SoftLINK

SoftLink is a service offering Internet access on a shared and dedicated basis. The service was launched to cater to the rising demands of the industry for better quality and committed services. Today SoftLink services enjoy a large customer base amongst STPI's datacom services.

International Fiber Capacity

STPI has acquired International & Domestic fiber bandwidth. With this, STPI is able to provide Internet Private Leased Circuit (IPLC) & IP services on fiber.

STPI is offering IPLCs on full circuit basis completely on fiber between Indian company and USA customers with attractive tariff. The up time in these services is very high with minimal restoration time. The bandwidth is provided in multiples of nx64Kbps, nxE1 or 1xDS3.

To provide better Quality of Service (QoS) to the customers in terms of latency and reliability, STPI is tied up with Tier - 1 Service providers in USA for Internet backbone. The bandwidth is provided in multiples of nx64Kbps or nxE1.

Access Network/ Last Mile Connectivity (Local Loop)

To address the requirement of last mile connectivity, STPI has set up its own digital Microwave networks using Point-to-Point and Point-to-Multipoint, which cater to the primary needs of the customers. With the addition of Point-to-Point radio networks, the network was further strengthened enabling the delivery of 2 Mbps, NxE1 links over the last mile under the STPI's overall control. Besides last mile connectivity on radio, STPI also provides the last mile on fiber wherever feasible.

Leased Internet Access Using ISDN Lines

STPI also provides Internet Services to the

customers through ISDN. This service is presently available for ISDN BRI and leased connection is for 64 Kbps or 128 Kbps. ISDN services are also sometimes used as a backup to the leased line connectivity.

Performance of STPI Registered Units

During the year 2006-07, 1164 new units were registered under STP Scheme. As on 31st March 2007, 7543 units were operative out of which 6321 units were actually exporting. The remaining units are at various stages of gestation as the scheme allows three years for companies to start commercial production.

Exports

There is 43 per cent increase in Software Exports through STPI in the year under review, from Rs 100, 965 crore in 2005-06 to Rs 144,214 crore in 2006-07.

Activities of STPI Centres

STPI, Chennai

- STPI, Chennai conducted a one day workshop on controller Area Network in association with ESAI, Forum nurtured by STPI.
- It organized SME to SME meet between Finland ICT sector and Chennai ICT sector, in association with JSN school of Management services, (EU-INDIA SME LEARNING NET), for facilitating business collaborations / exchanges between ICT SMEs through video conferencing.
- Organized networking meet of women on - "Enhancing the share and sustainability of women in IT" through eWIT a Forum of Women in IT, nurtured by STPI, in March 2007.

STPI, Guwahati

- STPI, Guwahati has been appointed as a consultant for setting up of IT Park facility in Kokrajhar under BTC (Bodoland Territorial Council), Assam.

STPI, Hyderabad

- The State of Art facility inaugurated by Hon'ble Chief Minister of Andhra Pradesh in February'2007. The centre is equipped with one of the best incubation facility for IT companies in a Tier II city. Many software companies have started their operations for the first time in Kakinada after the STPI facility became operational.
- As a member of State Government the delegation visited Germany and US as a part of promotion of the IT industry and for attracting investments in the IT/ITES sectors.

STPI, Jaipur

- STPI, Jodhpur participated in Jodhpur Hastshilp Udyog exhibition and conference on 'Opportunity of Venture Capital in Rajasthan' organized by RVCF, Rajasthan, a State Government Body.

STPI, Mumbai

- STPI, Pune participated in IT event "Hitech Pune Maharashtra" as one of the partner along with Government of Maharashtra.

STPI, Noida

- Participated in WASME 2007 - World SME convention (the XVIIth International Conference in Noida under the aegis of World Association for Small and Medium Enterprise (WASME)).
- Organized a conference on the main theme "Small Cyber Enterprises Business & Market Development for Sustainability".
- Participated as a co-host in 3rd National Conference on "Emerging Business Opportunities and role of venture Capital Finance" orgainsed by Rajasthan Asset Management Company Pvt. Ltd. Along with Indian Venture Capital Association (IVCA) and FICCI.
- Conducted an event on Finance Acquisition Strategies for BPO in association with the Call centre Organization of India.

New STPI Centres

STPI has already set up 48 STPI Centres across the country. During the year 2006-07, STPI has set up one new Centre including High Speed Data Communication facility at Kakinada (Andhra Pradesh).

International Projects

Consultancy for setting up of IT Park at Bhutan

STPI was awarded consultancy for establishment of IT Park at Bhutan. This is a project of Royal Government of Bhutan with the support from World Bank. The IT Park is intended to be set up through Public Private Partnership.

BIO - IT Park

The Bio-IT Park is being implemented in the form of Public Private Partnership model. The park is proposed to be set up in an area of around 100 acres. The land for the Bio-IT Park is under acquisition.

India. in

STPI is implementing the project for 'India.in' portal and associated services including free e-mail and web hosting services. The free e-mail service under the India.in portal would be provided in Indian regional languages along with Hindi and English.

STPI has formed a Joint Venture Company with Mahanagar Telephone Nigam Limited (MTNL) named MTNL-STPI IT Services Limited to implement the India.in portal and associated services. The necessary formalities for the creation of JV have been completed and STPI is working in close co-ordination with MTNL to implement the portal.

National Internet Exchange of India (NIXI)

Five more NIXI hubs are being established in the cities of Ahmedabad, Bangaluru, Hyderabad, Lucknow and Mohali in addition to the existing four operational Internet Exchange Nodes at Noida (Delhi), Mumbai, Chennai and Kolkata. In order to ensure that the Internet traffic originating and having destination within India, remains within the country. More than 50 ISPs connected with these nodes would be utilizing the NIXI nodes for peering and benefiting for robust low cost Internet traffic related benefits resulting in improved traffic latency, reduced bandwidth cost and better security.

Society for Applied Microwave Electronics Engineering and Research (SAMEER)

SAMEER is a premier R&D institution working in the hi-technology area of microwave and allied disciplines.

SAMEER continues to be in a position of strength in handling design, development and delivery of hardware to meet stringent specifications of user agencies in its expert areas of High Power RF amplifiers, RF communication systems, Atmospheric Radar Instrumentation, Linear Accelerators, Electromagnetic Interference/ compatibility (EMI/EMC), Thermal Engineering of electronic hardware, RF/Microwave/Millimeter wave antennas, Photonic devices, Microwave components/modules and Industrial RF/ Microwave application products.

SAMEER, Mumbai has been pursuing R&D, design and engineering in the field of Optoelectronics, Medical electronics, Radar based Instrumentation, Atmospheric Remote Sensing &

Meteorology, RF & Microwave systems and components, Navigational aids etc. Many of SAMEER's R&D outputs and spin-offs have found applications and acceptance in industry.

SAMEER,Chennai has been pursuing Research and Development, Consultancy, test and evaluation services in the areas of electromagnetics and antennas, EMI/EMC, Communications and Thermal management. The Centre has been awarded ISO 9001 certificate for its EMC design consultancy and testing services including performance evaluation of power conditioners. Further, its EMC laboratory has obtained NABL accreditation after successfully completing National Accreditation Board for Testing Calibration Laboratory (NABL) certification audit. The centre's EMC Laboratory has been accreditated by EMI Tech France for CE Marking Certification.

SAMEER,Kolkata is actively involved in research and development programs in multi meter wave (MMW) Electronics having direct application and relevance to country's requirement.

Achievements during the year 2007-08

6 MV Medical Linear Accelerator: The 6 MV Medical Linear Accelerator Machine Siddharth-2 has been commissioned at Adyar Cancer Institute Chennai. As a part of the Integrated Oncology System the 3D-Treatment Planning System " ASHA" has also been commissioned at the said hospital in addition to SIDDHARTH. Type Approval has already been obtained for the operation of this machine. This has paved way for deployment of more such indigenous units in the times to come.

Multi Frequency Phased Array Sodar: SAMEER has developed multi-frequency Phased Array Sodar system for profiling of atmospheric boundary layer wind and turbulence. It transmits ten frequencies starting from 1880 Hz to 2500 Hz with frequency increment of 80 Hz to improve the height coverage. This system typically gives wind profiles upto 800m with a resolution of 20 m. It can measure maximum wind speed upto 30m/s. SAMEER has installed and commissioned the Sodar at NPC at Kaiga and VSSC Thiruvanthapuram for monitoring winds for their activities.

Development of low cost GSM modules for SCADA Applications: A low cost approach for data communication has been planned by SAMEER making use of the existing GSM infrastructure used for mobile phone communication. This GSM based network is targeted for Supervisory Control And Data Acquisition (SCADA) applications. The GSM base wireless Remote Terminal (RT) and Control Station (CS) were developed and demonstrated for one potential application of Power / energy monitoring from a remote site.

Tail-fin antenna for airborne applications: SAMEER has developed V/UHF antenna for the airborne applications. These dual band antennas is intended to be used for aircraft to aircraft and aircraft to tower communication in VHF (100 -156 MHz) and UHF (225 - 400 MHz) frequency bands, with omni-directional coverage. It is mounted on the tail-fin of the aircraft and is enclosed by FRP fin-tip. The antenna meets all electrical, mechanical and stringent environmental specifications, mandated for airworthy subsystems and is an import substitution.

Digital Radiosonde With GPS Receiver: Regular monitoring of the troposphere is an essential exercise for atmospheric studies. This unit is flown up with a balloon. The balloon rises slowly and reaches a height of about 30 Km.

SAMEER has designed and demonstrated a Digital Radiosonde with GPS capability. The induction of Digital Radiosonde system improves the accuracy of weather observations.

1680 Radio Theodolite: Upper air observations are conventionally taken by sending atmospheric sensors to the air with balloon and tracking it with ground based Radio Theodolite. The radiotheodolites are sophisticated antenna steering units with sensitive receivers. SAMEER has taken up the development of a Radio Theodolite units at 1680 MHz. The development of all the subsystems is complete. The field unit with steerable parabolic dish of 2.1 m diameter is installed at SAMEER.

Sapphire window for high power microwave and mm wave applications: RF Window is an

important constituent of any high power microwave applications. The window allows the high power to pass while maintaining the high vacuum. SAMEER has developed the technology of Sapphire to metal joining and is ultra high vacuum grade. SAMEER has also developed machining technique for straight cutting diameter grinding and thickness reduction of flat sapphire plate. A bond strength of 50 MPa was achieved.

Fiber-Optic Gyroscope: A fiber optic gyroscope (FOG) is a sensor device that uses the interference of light to detect mechanical rotation. A FOG provides extremely precise rotational rate information. FOG is usually used for guidance and navigation purposes. SAMEER has successfully developed integrated optic chip for fiber-optic gyro by annealed proton exchange technology and has been packaged.

Embedded controllers for real time applications: Embedded Controllers (EC) are used to meet the critical requirement of Process, Event and Timing control. SAMEER has developed Embedded System Controllers. This System has also been qualified for Electromagnetic Compatibility Standards CISPR 11 and FCC class B.

Activities initiated/continuing

Establishment of facility for batch fabrication of linear accelerators: This facility is being created for batch fabrication of LINAC tube, System integration of LINAC machine and Radiation testing of LINAC machine for medical purposes. The phase I of the construction activity which the radiation shielded laboratory is under progress. The laboratory is also equipped with the state of art equipments

Electronics Design Centre for System on Package: Advent of technology is leading to the integration of a billion transistors onto a single IC. This is leading to the development of System on Package (SoP) technologies where complex digital and analog/RF functions can be integrated into the package with dies from multiple domains. SAMEER has taken up a joint collaborative project for setting up and infrastructure and training manpower to this new concept.

Compact Antenna Test Range Facility (CATR): SAMEER is establishing a CATR infrastructure for design, development and future R&D work in the field of antennas, radar cross section studies and radome measurements. The design of CATR complex has been completed and test range has also been finalized.

Millimeter Wave R & D Facility: SAMEER is establishing a R&D design centre for design, simulation, fabrication and measurement facilities for MMW subsystems and systems. The laboratory is being established and simulation activity has already commenced. Equipments like millimeter wave Vector Network Analyzer with probe station, power meter, Spectrum Analyzer upto 110 GHz are being equipped.

EMC Facility: This is a continuing activity where SAMEER has a strong presence both in testing facility as well as consultancy services. SAMEER Chennai is now accreditated for certification for CE Marking a mandatory requirement for export to European Union.

RF Dryers for NE Region: SAMEER has developed technology for drying of various products using RF technology. SAMEER has taken up deployment of two 45 KW RF Dryers for use in Agro industry for the NE region.

Microwave Disinfection System for NE Region: SAMEER has developed the technology for Disinfection of infectious hospital waste. Five such units of 5 KW capacity are being deployed in various hospitals in the NE region.

Computational Electromagnetics Laboratory: SAMEER has taken up core activity for EM problems which are too large to solve using single method. The expertise will be built under this activity to analyze the multi-radiating systems on board.

Thermal Engineering: This is a continuing activity where evaluation of thermal performance of electronics at elevated ambient temperatures is carried out. Simulation, Modeling and testing as per user requirement is carried out.

High Power Dielectric Window for Gyrotron: Under this project, sponsored by Department of Science & Technology, as a part of national programme on Gyro devices, Dielectric Window is being developed for 200 KW 42 GHz Gyrotron for fusion research community.

Dilute Nitrides: Dilute Nitrides Iny Ga 1-y As 1-x Nx are emerging as future materials for long haul communication lasers. A project has been undertaken to synthesize and characterize dilute Nitrides using Molecular Beam Epitaxy (MBE) and demonstrate the light emitting devices such as LED and Laser.

DOEACC

DOEACC Society, an Autonomous Scientific Society of Department of Information Technology (DIT), was set up to carry out Human Resource Development and related activities in the area of Information & Communication Technology. The Society has 10 Centres at Aizawl, Aurangabad, Calicut (with Southern regional office at Pudukkottai), Chandigarh (with 3 branches at Shimla, Lucknow & New Delhi) Gorakhpur, Imphal, Srinagar/Jammu, Kohima/chuchuyimlang, Kolkata and Tezpur/Guwahati with its Headquarters at New Delhi.

The Society is engaged both in the formal & non formal Education in the area of Information, Electronics and Communication Technology (IECT) besides development of Industry oriented quality education and training in the state-of-the-art areas, establish standards to be the country's premier institution for Examination and Certification in the field of IECT. It is also a National Examination Body, which accredits institutes/ organizations for conducting courses particularly in the non-formal sector of IT Education & Training.

DOEACC Centres are conducting long term courses at Post-Graduate level in Electronics Design & Technology, Embedded Systems, etc., which are not offered by Universities/Institutions in the formal sector. Other long term courses conducted by the Centres are Diploma Level in Electronics Production & Maintenance, Electronic Engineering, Computer Science & Engineering, Masters in Computer Application, Bachelor in Computer Applications etc., which are affiliated to respective State University/Technical Board. The DOEACC Centres are also engaged in Short Term Courses in the area of Information Technology, Electronics Design & Technology, Manufacturing Technology, and Maintenance Engineering, etc. About 40,000 candidates are trained through these short term courses annually. Besides the training activities, DOEACC Centres are offering consultancy services and software development.

In the Non Formal Sector, the Society is implementing the DOEACC Scheme on Computer Courses, at the National Level by utilizing the facilities and infrastructure available with the institutions/organizations. Under this Scheme, 'O' Level (equivalent to foundation level), 'A 'Level (equivalent to Advance diploma), 'B' Level (equivalent to MCA Level), 'C' Level are being offered. O/A/B/level courses are recognized by MHRD for the purpose of employment. Since inception of the Society more than 6.4 lakhs candidates have been registered, and about 1.25 lakhs candidates have qualified the various DOEACC Computer Courses at O/A/B & C Level.

The Centres are also undertaking government sponsored projects in the field of ICT & related activities and also embarking upon training programme to develop entrepreneurs and provide ICT based services to users.

Activities of the Centres

DOEACC Centres are conducting long-term courses (both Formal & Non-Formal) courses and short-term courses in the area of ICT and projects sponsored by DIT / Department of North-Eastern Region (DONER).

Formal Courses

- M.Tech in Electronics Design & Technology (2 years, Aurangabad, Calicut, Gorakhpur)
- M.Tech in Embedded Systems (2 years, Calicut)
- MCA (2 years, Calicut)
- BCA (3 years, Aizawl, Kohima)
- Diploma in Electronics Production & Maintenance (3 years, Aurangabad)
- Diploma in Electronic Engineering (3 years, Imphal)
- Diploma in Computer Science & Engineering (3 years, Imphal, Aizawl)
- Diploma in Electronic Engineering & Telecommunication Engineering (3 years, Aizawl)
- Post Graduate Diploma in Computer Applications (1 year, Chandigarh)

Non-Formal Courses

- DOEACC 'O' / 'A' / 'B'Level
- DOEACC 'CHM-O' /'CHM-A' Level H/w course
- Bio-Informatics 'O' /'A' /'B' level
- ITES-BPO customer care

Short Term Courses

The continuing education programmes (Short-Term courses) broad subject wise are listed below:-

- Electronics Design Technology
  - Embedded System
  - VLSI Design
  - PCB Design and Fabrication
  - Surface Mounted Device Technologies
  - Fiber Optics
- Information Technology
  - Computer Science and Applications
  - Computer Hardware & Networking
  - C, C++, Core JAVA & VB programming courses
  - Internet & Web Page Designing
  - Basic Multimedia Courses
- Manufacturing Technologies
  - CAD and 3D Modelling
  - CAM / CAE Tools
  - Maintenance Engineering
  - Consumer Electronics
  - Telecom and Office automation
  - Process Control, etc.
- Entrepreneurship Development Programmes
- CCC (Certificate Courses on Computer Concepts)

New initiatives

The programmes under Women Empowerment Project of DIT

The Society is implementing DIT partly financed project for training of Undergraduates/ Graduate women in various areas of ICT. Under the project, the women candidate has to bear only 10% of the total cost. No fee is chargeable from SC / ST candidates. Under the Scheme, following courses are being offered by various Centres as mentioned below:-

Training of Graduate & Undergraduate women in DOEACC O/A level courses at DOECCC Centres

The project of DIT is being implemented by DOEACC Centres in 13 locations at Chandigard, New Delhi, Lucknow, Shimla, Gorakhpur, Imphal, Kolkata, Guwahati, Tezpur, Kohima, Chuchuyimlang, Jammu and Srinagar. Under the project, 2560 women candidates would be trained in O/A Level courses over a period of 2 ½ years. The first batch of 559 candidates are undergoing training under this project.

Women empowerment through value added skill development in IECT at DOEACC Centre, Aurangabad

Under this project of DIT, the women are being trained for entrepreneurship development elementary IT awareness, so as to enhance their employment opportunity. This would also help in capacity building in ICT. It is aimed to train 1110 candidates over a period of 2 years. The Centre has admitted 28 candidates for training in two courses.

Women Empowerment in Information Electronics and Communication Technology at DOEACC Centre, Gorakhpur

The project of DIT is aimed at empowerment of Women through capacity building in ICT, entrepreneurship development, ITES BPO, Computer Graphics & Animation, etc., so as to enhance their employment opportunities. It is aimed to train of 500 candidates over a period of 2 years. The Centre has trained 190 candidates in six courses.

Professional IT & Electronics courses for upliftment of Youth & Women in Mizoram through DOEACC Centre Aizwal

Under this project of DIT, DOEACC Centre Aizawl is training unemployed SC/ST and women candidates for increasing their employability & entrepreneur development in the areas of IT/ Electronics/ITES/Bio-Informatics etc. A total of 90 candidates are undergoing training in 4 courses under this project.

Project on Training of Trainers in E-Learning

A project of on Training of Trainers in e-Learning is being implemented by DOEACC Centres. In the Phase-I, DOEACC Centres, Aurangabad & Kolkata implemented the project by training 240 teachers. The Phase II is being implemented by DOEACC Centres, Calicut, Imphal & Gorakhpur and the Centres are expected to train a total of

360 candidates.

Setting up of facility for Repair & Maintenance of Hospital Equipment and Related Training Programmes at DOEACC Centre, Srinagar / Jammu

DOEACC Centre, Srinagar / Jammu is implementing the project for establishing necessary infrastructure for undertaking Repair & Maintenance of wide range of Hospital Equipment in the State of Jammu and Kashmir. The Centres are expected to train a total of 240 students in a period of 3 years. A total of 102 candidates are undergoing training/trained in this project.

Certification of Information Science for Colleges (CISC) in Assam supported by DONER at DOEACC Centre, Guwahati / Tezpur

DOEACC Centre, Guwahati / Tezpur is implementing a project to facilitate the youths of NE Region to have easy access to education and training in the filed of Computer Science and Technology by introducing a value addition ICT training programme to Under-Graduate Students from all streams i.e. Arts, Science & Commerce at four locations in Assam i.e., Udalguri, Silchar, North Lakhimpur & Tinsukia. The Centre will be training a total of 1600 students in 2 years time. A total of 400 candidates are undergoing training/trained in this project.

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

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 pursing O/A/B/C Level of courses of the DOEACC Society as a full time course through an 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.

Details of SC/ST and female candidates registered during April, 2007 to January, 2008 are as under:-

No. of Female Students = 16193

No. of SC/ST Students = 1476

Projects in North Eastern Region

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

The Regional Institute of e-Learning and Information Technology (RIELIT), a Centre under DOEACC Society at Kohima, Nagaland became operational in the month of July, 2004 and is located a rented building. The Centre is conducting DOEACC O/A Level, C, Core JAVA, Internet & Web Page Designing, PC Assembly & Maintenance. The Centre has recently introduced BCA course, which is affiliated to Nagaland University. So far, a total of 716 trainees have been trained at Kohima.

Setting up of Permanent Campus for RIELIT at Kohima, Nagaland

Government of Nagaland handed over a land of 15 acres to construct the permanent Campus for REILIT, Kohima. Civil construction of the building has been started in October 2007 at the permanent site with an area of 30000 sq. ft. area for Academic & Administrative Sections and, 30000 sq. ft. for staff quarter & students hostel.

RIELIT Extension Centre at Chuchuyimlang, Nagaland

RIELIT Rural Extension Centre at Chuchuyimlang started August 2006, is conducting DOEACC O/A Level and CCC courses. So far, a total of 129 trainees have been trained at the centre.

ITES-BPO Training

ITES-BPO Training in North Eastern Region

Under ITES-BPO Customer Support Programme, some of the DOEACC Centres including the Centres of NE Region offered a course of 160 hours duration consisting of Computer Skills, Soft Skills and English Language Skills with a financial support from DONER. Till date, the Society has trained about 2827 candidates and 1247 placed.

ITES / BPO Training at Jammu and Kashmir

Under the reconstruction plan for the State of Jammu & Kashmir, it has been envisaged to support the training in ITES / BPO under same lines as in North East region through Department of Information Technology. DOEACC Centres at Srinagar and Jammu is expected to train 2400

students 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, are being imparted training through a training program of 160 hours duration, over a period of 3 months. The training programme was launched in February 2005 at Srinagar and Jammu. 693 candidates were trained / undergoing training in current year.

Scheme on Hardware courses

A scheme for computer hardware courses has been launched by DOEACC Society in line with existing DOEACC scheme in Computers and experience of CEDTI Franchising Schems. The scheme was launched during 2006-07 in association with Manufacturer's Association for Information Technology (MAIT).

Under this scheme, DOEACC Centres are offering Diploma in Computer Hardware Maintenance (CHM) - 'O' Level and Advance Diploma in Computer Hardware Maintenance & Networking (CHM) - 'A' Level courses in addition to the private sector computer training institutes/ organizations. As on date, a total of 95 institutions (including DOEACC Centres) have been accredited for the 'O' & 'A' level courses. So far a total of 2582 candidates are registered for CHM 'O' level and 82 candidates for CHM 'A' level cources.

Centre for Materials for Electronics Technology (C-MET)

Centre for Materials for Electronics Technology (C-MET) has been set up as a Registered Scientific Society in March 1990 under Department of Information Technology as an unique concept for development of viable technologies mainly in the area of electronics materials. C-MET is operating with its laboratories with well carved out programmes at Pune, Hyderabad and Thrissur. The main objectives of C-MET are:

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

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

Achievements during 2007-2008

Ultra Pure Materials

- Technology of structural grade tantalum powder, high purity tantalum pentoxide & tantalum niobium carbide transferred to an industry.
- Developed process technology for 6N+ Cadmium at pilot plant scale.
- Process technology developed for the preparation of low voltage capacitor grade Tantalum powder at 300 Kg/annum scale.
- Process technology developed for the pilot level preparation of Tantalum pentoxide at 100 kg/annum scale.
- 35 Kgs of structural grade tantalum powder prepared and supplied to DMRL.
- Test procedures for the analysis of ppm level impurities in Nb, Hf and Ga have been established on ICP-OES.

Electronic Packaging, Optoelectronic Materials & Sensors

- Technology on `Solder Pastes for SMD assemblies" has been transferred to an industry.
- Developed quantum dots of CdS for Solar cells by sonochemical route.
- Developed quantum dots of ZnSe for optoelectronics by organo metallic route and its tuning for photoluminescence is continued.
- Developed Copper nanoparticles.
- Developed Nano Pd-Ag via Sodium Formaldehyde Sulphoxalate route.
- Prepared thin films of substituted polyanilines and studied humidity sensing property.
- Preparation of glass filters of OG-515 type has accomplished at Moderate scale.
- Optimized striking conditions for in-situ growth of semiconductor nanocrystals to achieve sharp UV-Visible cut off at 515 nm .
- Optimized melting conditions for preparation of OG -495 glass filter and optical characterization of as prepared OG-515 glass was carried out.

Sensors & Actuators

- Optimized co-firing process for LTCC green

tapes with pure Ag paste and compatibility established. Prepared 6" x 6" size LTCC green tapes with 125-135 micron thickness. Supplied 25 Nos. of 6" x 6" LTCC green tapes to C-MET, Pune.

- Fine tuning of the microwave dielectric properties of the Cu cladded low K substrates successfully completed. 25 Numbers of low K substrates meeting all the targeted specifications have been prepared and system level evaluation carried out.

- Multilayer PMN-PT based electrostrictive actuators from indigenous source with ~ 100 Nos of layers of individual layer thickness ~50 micron was fabricated which showed targeted 0.1% strain at 150 V.

Intellectual Output during year 2007-2008

S. N.	Activity	Status
1	Research publications in journals	57
2	Conference presentations	46
3	Invited talks	09
4	Awards and Honors	02
5	Fellowships/visits (Abroad)	02
6	International/National conferences organized	02

Electronics And Computer Software Export Promotion Council (ESC)

Electronics and Computer Software Export Promotion Council (ESC), has emerged as the premier nodal agency to promote trade of information technology and electronics between India and the rest of the world. Headquartered at Delhi, the Council has regional offices at Bangalore, Chennai, Hyderabad and Kolkata as well as a representative office in Dubai. ESC has a membership base of over 2200 manufacturers and exporters covering the entire gamut of Electronics, Telecom and Software Industry (including : consumer electronics, electronic components, instrumentation, telecommunication hardware & services, computer hardware, computer software and information technology enabled services).

Starting in 1989, with an export performance of US$ 200 million, ESC has successfully steered the direction of India's electronics and software and services export to reach an all time high of over US$ 36.65 billion during 2006-07. Under the aegis of the Council, the exports have reached more than 200 countries across the world establishing the hallmark of India's quality and competitiveness. ESC's members together contribute around 15 per cent in India's total export earnings.

ESC provides member exporters the following :

- One-stop source of information on Trade related information and trade facilitation
- Helping hand to members for participation in

a. International trade fairs
b. Exhibitions
c. Buyer-Seller meets
d. Catalogue shows
e. Business delegations abroad

- A platform between the industry and the Government to help members in policy and procedural matters
- ESC acts as an implementation agency for the export promotional activities in India and overseas under the various programmes of the Government of India, such as,

a. MDA : Marketing Development Assistance
b. MAI : Market Access Initiative
c. LRMAFI - J : Language Related Market Access Facilitation Initiative in the Japanese IT market.
d. LRMAFI - G : Language Related Market Access Facilitation Initiative in the German IT market.

e. Participation in specialised Trade - Shows Exhibitions like CeBIT, Gitex, Electronica, etc.

- ESC keeps its members abreast of the latest developments in the world economic scenario and inform members about latest happenings, trade enquiries and threats

Global Tenders

ESC has initiated a new and unique service of providing information relating to electronics hardware and telecommunication computer software and services global - tenders and procurement opportunities. ESC acts as a facilitator to facilitate Joint Ventures, Collaborations, Sub-Contracting tie-ups, technology transfer, etc.

New Initiatives for Information Technology Sector

ESC is setting up two incubation-cum export facilitation and business support centres in New York and Chicago. This initiative of ESC will provide 20 Indian IT / ITES companies an opportunity to market their IT / ITE services in USA.

New Initiatives For ICT 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 the global market. ESC's IT SME member-exporters are well represented in its all programmes such as ICT delegations abroad, organization of Indian participation in various IT / ICT specific trade fairs, Buyer Seller Meets, etc.

List of ESC's Export Promotional Activities : 2007-08

Participation in Global Expositions

ICT Expo at Hong Kong: ESC organized Indian pavilion at the ICT Expo 2007 held April, 2007 at Hong Kong. The India Pavilion under ESC's banner was visited by a very large number of Buyers across the world including US, UK, Japan, China, Australia, Africa, Middle East, EU, etc. 20 Indian member companies participated under the Council's banner.

Futurex May 2007 at Johannesburg: The strategic economic position of South Africa needs to be leveraged by India to enhance its trade with Sub Saharan African and Latin American Countries. India was given the honour of partner country. 32 Indian companies participated under the Council's banner.

Outsource World May 2007 at London: The United Kingdom is the second largest destination of India's computer software and services export. The Council organized participation of 10 member companies in this event.

KITEL - 14th Kazakhstan and Central Asian Telecommunications, Computers and Information Technologies Exhibition May 2007, Almaty: To assist Indian firms to have a first hand feel of the market in Kazakhstan and to identify the market niches, ESC organized participation of its member exporters at KITEL, 2007. 5 Indian companies participated under the Council's banner.

Communic Asia, June 2007, Singapore: Communic Asia has emerged as Asia's premier event in the Information Technology and Communication sector. The Council organized participation of 10 Indian member companies under its banner.

Gitex, September 2007, Dubai: GITEX, the third largest and most important IT exhibition in the world is Under the Council's banner, 32 Indian companies participated in GITEX Dubai 2007. Some companies have received proposals for joint ventures, business tie-ups etc.

Outsource World, October 2007, New York: The US continues to be the largest destination for India's IT exports. The Council set up an INDIASOFT pavilion at the Outsource World event in USA, the largest IT Outsourcing market in the world. 15 Indian companies under the banner of ESC participated.

Buyer Seller Meets : Abroad

Delegation Visit to Panama, October 2007: ESC sponsored a delegation visit to Panama with the objective to provide a platform to member companies to forge linkages, 7 Indian member companies both from Electronics and Software & Services sectors participated under the Council's banner.

Delegation Visit To EU (Germany, Belgium, and Holland), November 2007: The Council organized a visit of a high power Indian IT industry delegation to Hamburg and Frankfurt in Germany to coincide with India Week Hamburg taking place in Hamburg in the first week of Nov 2007, Amsterdam in Holland and Brussels in Belgium.

The delegation comprised of 24 members. Indian IT delegates established contacts with a large number of IT customers, vendors, local IT SMEs, consulting and market entry support firms , agents / IT distributors.

Buyer Seller Meets: In India

Indo-Thailand IT Partnership Programme, August 2007: A group of 85 IT delegates from Software Industry Promotion Agency (CIPA), Thailand and "World Beat with Suthichai" Thailand, visited Bangalore to have a Technical Development Progrmame with ESC's Software & Services member companies.

ESC along with Royal Thai Consulate organised an IT Partnership Programme. The Council organized a seminar and thereafter one to one meetings of member exporters with Thai IT delegates at Bangalore.

Visit of IT Delegation from Montgomery County, Maryland, USA, November 2007, New Delhi: A delegation of senior executives from Montgomery County-based biotechnology and advanced technology firms, USA, visited ESC to explore the opportunities for joint ventures and partnerships with dynamic Indian biotech, pharmaceutical and IT companies.

The Council organized a meeting of the visiting delegates with the member exporters. Around 30 member companies participated in the event.

Colloquium : Visit by Deutsche Management Akademie Niedersachsaen (DMAN) and German-Indian Business Centre (GBIC) November, 2007: Deutsche Management Akademie Niedersachsaen (DMAN) and German-Indian Business Centre (GIBC) in close cooperation with Electronics and Computer Software Export Promotion Council (ESC), New Delhi organised a Colloquium on "Indo-Germany Business-Relations" in November, 2007 at New

Delhi.

The Council organized an exclusive meeting of the visiting delegates with the member exporters and academicians.

India & Holland Buyer Seller Networking Meet November, 2007, New Delhi: In coordination with the Dutch Embassy in New Delhi, ESC organized B2B meetings of selected Indian IT firms with the Dutch IT delegates who visited New Delhi along with the large multi-sectoral Dutch delegation headed by the Dutch Minister for Foreign Trade.

Catalogue Shows

Hanoi International Exhibition 2007 Vietnam October, 2007: As part of the Council's effort to promote Indian ICT Exports to Vietnam, ESC along with the Indian Embassy in Vietnam organized a Catalogue Show at the exhibition to assist Indian ICT industry to promote their exports to Vietnam.

Seminars / Interactive Meetings:

Invest In America April 2007, New Delhi : ESC along with Indo American Chambers of Commerce (IACC) organized the seminar. The theme of the programme was to highlight the investment opportunities emerging in US in a big way especially for the SMEs to create niches.

MoUs Signed

A MoU with seven leading IT & Telecom focused organizations at FUTUREX 2007 held in South Africa in June, 2007.

Incoming Delegations

China, April 2007: A large delegation from China visited ESC for cooperation in the IT sector.

SPAIN, July, 2007: A delegation comprising of the following three Spanish Chambers of Commerce visited ESC on July 2007 to explore the possibility of cooperation with ESC in their on-line industrial subcontracting exchange Programme.

KIICA Delegation, Korea, December, 2007: Korea IT International Cooperation Agency (KIICA) visited ESC to meet the needs of today's business environment in the ICT sector.

China, December 2007: A delegation from China visited ESC Bangalore for partnership with Indian SMEs. The Council organized a meeting of the Chinese delegation with the member companies.

ESC Exports Awards for Excellence In The Field Of Electronics and IT October 2007, New Delhi

ESC presented Council's Annual Awards as a token of appreciation to the exporters in the Electronics and Computer Software sector for their excellent contributions in the following categories:

- Awards for highest export performance on All India Basis.
- Sectoral Awards for SSI as well as non - SSI units.
- Special Awards in various categories for outstanding achievements.

The Council also presented Special Awards to Outstanding Women Entrepreneurs on All India Basis. In addition, a Jury Award for Outstanding Export Performance to the Best Emerging Company, was also presented. The awards for the years 2005-06 and 2006-07 to India's top IT entrepreneurs were presented by Hon'ble Union Minister for Communications & Information Technology, Government of India in a function held in October 2007.

ERNET India

Computer Networks and other services have become an essential part of Research and Education. Over the last decade, ERNET has made deep roads into educational and research sector in the country and has been working very closely with them in transformation to install and integrate computer networks into the learning and research environment. Starting with a modest bandwidth of 128 Kbps, a large number of educational and research institutions have installed bandwidth of 45 Mbps and some of the institutions are in the process of installing higher bandwidth. More and more institutions are installing campus-wide networks so as to effectively deliver benefit of networks, Internet and Intranet at the desktop of students and the faculty.

ERNET worked very closely with University Grants Commission and Indian Council of Agricultural Research in providing access to the digital library and scientific journals to educational and research institutions across the country. Today, more than 5000 journals in various disciplines of Science, Technology, Agriculture and Culture are accessed by the faculty and students in their libraries through ERNET.

ERNET, over a period of decade, has completed four stages in the development, namely ; initiation, growth, control and maturity. It has grown in size, range and quality of service and is connected to the educational and research networks worldwide. At present research and education networks in many parts of the world deploy Gigabits capacities and multiple technologies and network protocols. Time has come that ERNET should also consider its transformation to gigabit capacities to meet the challenges posed by technology and pedagogy for providing infrastructure for research and development in frontier areas. ERNET has dedicated itself to strive hard to meet the above challenges.

National Informatics Centre

National Informatics Centre (NIC) of Department of Information Technology is the nodal S&T organization providing network backbone and e-Governance support to the Central Government departments, States, UTs and District Administrations in the country. NIC has been playing a pioneering role in propagating IT-led development by setting up a countrywide satellite based VSAT network (NICNET), first of its kind among the developing countries, linking about 602 districts, 28 State Governments, 7 UT Administrations and Central Government departments.

NIC has successfully implemented many large e-Governance projects in the area of Land Records Computerization, Passport, Visa, Treasury Computerization, Judiciary (e-courts), Customs, India Portal, Accounts Computerization, Web-enabled systems, Rural Information systems, Utility mapping, Geographical Information systems, e-Procurement, Transport Authority Management, Police Station Automation, Property Registration, Panchayati Raj Computerization, Agriculture, etc. NIC is constantly in the pursuit of developing state-of-the-art application software related to various sectors, which is customized to the users needs. NIC has also provided IT support to neighboring countries namely Laos, Mangolia, Afghanistan & Myanmar by undertaking various projects related to capacity building, framing e-Governance action plan and setting up of data centre.

NICNET - An e-Governance Network Backbone

NIC is the only Government organization in India offering network services using both leased lines and VSATS (TDMA, FTDMA, DVB, DAMA and SCPC) across the country, Wireless MANs and Local Area Networks (LANs) for Intranet application and with NICNET Gateway for Internet resources, e-Governance, e-Commerce, multimedia information system and Geographical Information System.

The major NIC's ICT Infrastructure comprises

- The satellite based Wide Area Network of more than 3000 nodes.
- Enhancement of Terrestrial bandwidth to State Capitals to 45/100 Mbps on OFC from BSNL / PGCIL / RailTel
- Internet Data Centre at NIC Hq. with storage capacity of 110 Tera Bytes for hosting websites and databases.
- Data Centres at State capitals for their local storage needs having storage capacity from 2-10 Tera Bytes.
- 2 Mbps Leased data circuits from BSNL from State Capitals to all the districts is operational (576 districts)
- STM1 on fiber from BSNL is operational for 20 State Capitals & is being expanded to few other states & 185 NIC districts Centres.
- Terrestrial bandwidth of 100 / 155 Mbps to DR centres in Delhi & Hyderabad
- Leased circuit connectivity has been provided to Regional Passport offices & MNIC, BOI, RGI, NCRB, DOP projects.

- About 35,000 nodes of Local Area Networks in all the Central Government offices and State Government Secretariats including 6500 nodes in NE States.
- Outsourcing of Network Operation for NIC centres in States, Districts & Bhavans in Delhi.
- Video-Conferencing operations connecting 490 locations
- NICNET peering with NIXI with a bandwidth of 68 MBPS.
- Certifying Authority for Digital Signature in G2G domain.
- Training facilities at NIC Headquarters and State Government Secretariats.
- Network Security.
- DR Centre with 33 TB capacities at Hyderabad.
- 7x24 based Integrated Network Operation Centre (INOC) at NIC(HQ) to monitor all the WAN links across the country.

Cyber Security

National Informatics Centre(NIC) provides necessary security for NIC network, servers, applications and client systems by introducing security appliances at the critical network segments of NICNET (using network firewalls, Intrusion Detection Systems/Intrusion Prevention Systems, Application Firewalls), formulation of NICNET Security Policies, restructuring of the network at various levels (headquarters, Ministries and State Centres) to incorporate security in the network, introduction of Patch Management and Anti-virus Services, Secure Communication Establishment over Virtual Private network(VPN)/ Secure Sockets Layer(SSL), Scanning of servers for vulnerabilities and hardening, Security Auditing of networks and applications, Security incident monitoring and response, etc.

Certifying Authority

NIC has set up a 'state-of-the-art' secure infrastructure with biometric sensors, surveillance system at its HQ for housing the NIC Certifying Authority (NICCA). About 6000 Digital Signature Certificates (DSC) (individual & device) have been issued till date. Two Registration Authorities (RA) have been opened at NIC, Bangaluru and BARC, Mumbai. As part of Disaster Recovery (DR) Services for NICCA, the directory services have been made operational at Hyderabad DR site. The NICCA CPS was modified for issuance of Encryption Certificates, in tune with the requirements of the Bhoomi Project, Karnataka. Symmetric Key Infrastructure for issuance of DL & RC Authority Cards for State Transport Authorities is also Co-hosted and established in the common NICCA infrastructure.

NIC Web Services and Data Centre Infrastructure

NIC has extended a comprehensive World Wide Web (WWW) services to Central and State Governments Ministries & Departments with respect to consultancy, web design and development, web hosting, value added web services for promotion of websites, enhancement of web sites & training. NIC has designed, developed & maintained the major Portals like India Image Portal, Government of India Web Directory, Districts portal, Exam Results, Government Policies Portal, Tenders Portal, etc.NIC has hosted over 4500 websites & portals.

Video-Conferencing

NIC has set up Video-conferencing Disaster Recovery Centre (VDRC) at Hyderabad. Further, Multi Conference Unit (MCU) has been provided in 21 States.

e-Learning Solution (NIC-IELS) on NICNET

The NIC e-learning Services over NICNET has been implemented and stabilized. Over 3000 Live Sessions have been conducted over the NICNET. The consolidated e-Learning Portal is running at http://weblearning.nic.in/.

Geographical Information System (GIS) and Remote Sensing Services

National GIS with NSDB in 1 : 50,000 scales have been enhanced with data from Survey of India (SOI) and satellite derived information, and their updates like Transportation network, Water body, Wetlands, Geology, geomorphology etc. Village Level boundaries were verified for few districts along with SOI. Framework Digital Spatial Data in terms of accuracy of village locations & boundaries, gram panchayat boundaries, location based infrastructure such as schools, health facilities has been enriched further. In the case of high resolution mapping, the country coverage at 5 meters has been taken up with NRSA and the District Head Quarter/Town locations mapped with fine resolution (60 Cms to 2 Mtrs) satellite derived products using Quick Bird Data.

Institutional Linkages were Established and strengthened with Spatial Data producing organizations (viz., SOI, DOS, FSI, RGI, CGWB/ CWC, DAC (AISLUS), State Remote Sensing and

Survey organizations, etc.) to facilitate data availability for GIS applications and also help in developing ICT capacity.

Major National Level Projects

Land Records

Computerization of Land Records project is fully operational in terms of on demand distribution of Record of Rights (ROR) and mutation updation in 3432 Tehsils so far. There are eleven States, which have provided web interface for citizens to view their ROR. Number of ISO certified land records application software variants has increased to 16 from the previous year of 10. ISO quality Certification is in progress for 4 States (Goa, Gujarat, Tripura and Haryana). Application Security Audit for two States (Karnataka, Maharashtra) has been initiated through third party auditors.

Land Records application software implemented in Tamil Nadu, Gujarat, Himachal Pradesh, and Madhya Pradesh has received national recognition at various forums.

Court Computerization

To provide transparent, speedier and efficient justice, the Government has initiated several steps to transform the Indian Judiciary in 2007. Introduction of Information Technology in about 13000 District & Subordinate courts across the country has been initiated as a major step. About 2500 court complexes are in the process of getting electronically interconnected.

North-East Informatics Development

The last module of the NLCPR MIS was inaugurated by the Hon'ble Minister of DONER at Kohima in July, 2007 during the NEC summit. Project on Citizen Centric services by connecting around 10 service-oriented offices in all the districts of NE is being implemented using WiMax technology.

DISNIC Plan

The pilot phase of the project envisages building a Web based Village Information system integrated with Geo-Spatial Technologies. The project is being initiated in pilot districts, one in each state. (http://disnic.gov.in).

Bibliographic Informatics Services

NIC continued with the biomedical information services and continued with its existing database services of IndMED and medIND. OpenMED archive has presently 1700 submissions with over 1000 users. The Indian Medlars web page (http://indmed.nic.in) continued to be ranked the 1st Indian health website by Google Directory.

Intellectual Property & Know-how

NIC provides global patent information (bibliographic, abstract and patent documents) to Indian industries, R&D Organizations, consultants, patent attorneys, scientists, researchers, etc. Further data on EPIDOS-INPADOC bibliographic patent of over 70 countries is kept updated on our website patinfo@hub.nic.in to global users from all over the world.

Utility Mapping

Under the Computer Aided Digital Mapping Project for Six Cities - Ahmedabad, Bangaluru, Chennai, Hyderabad, Kolkata and Mumbai, the necessary spatial data infrastructure is in place. The necessary training to the concerned NIC and utility agencies personnel has been completed in all the cities except Bangaluru. The system is functional in Kolkata and the necessary utility data compilation process is in progress. Base map compilation of Mumbai, Hyderabad, Chennai and Ahmadabad is in progress. The aerial photography with extended area of Bangaluru and Kolkata is to be conducted in January 2008.

The necessary extension of ground control by photogrammetric methods using main control grid established for Delhi city using GPS has been completed. Updation of digital base map of Dwarka, Delhi using aerial photography of the year 2002 is in progress. The digital base map is being accessed by various agencies of Delhi Government and the services are kept up and running on the 24 X 7 basis.

Computer Aided Design and Modelling

The Tripartite MOU between NIC, BARC and VSSC was amended. The 2D / 3D Constraints Solver has been integrated and the Plot Configurator and IGES parser have been enhanced.

A large number of Feature enhancements have been added in different areas like: 2D Drawings - Plot Configuration, Provision of Symbol Library in Plot Configuration for release of Fabrication Drawings, Improvements in Surface Modeling, Solid Modeling, Reverse Engineering from User Perspective (GUI), Stereoscopic Viewing (Virtual Reality) is made available in CollabCAD, IGES Parser to take in the Designs from other CAD packages into CollabCAD, Part Number Generator and LDAP Configuration for the CMS, etc. The 2D / 3D Constraints Solver has been integrated with CollabCAD and released to the strategic sector for testing and feedback.

52 Designs of Parts from IGCAR which represent

a sub-assembly of prototype of Fast Breeder Reactor were built as a 3D conceptual model. NIC has undertaken 3D Structural Analysis of Power House structure of 4 x 100 MW Koteshwar Project from Tehri Hydro-development Corporation, dynamic Structural Analysis and Design of 3 x 33.3 MW Surface Powerhouse of Uhl Stage-III HE Project from HP State Electricity Board.

Government Informatics Training Programme

Training programmes in various upcoming open source technologies were conducted for NIC officers. The recommendation of training needs analysis, conducted by an independent agency, is being implemented. Under sponsorship of DoP&T, various courses have been conducted to Government staff. Workshops on e-Governance have also been conducted.

GOV.IN Domain Registration Services

NIC is authorized registrar for GOV.IN Domain registration for government departments and organization at all levels. On-line domain registrations can be done through http://registry.gov.in. So far around 3500 domain names have been registered with more than 335 fourth level domain names.

e-Payments

e-Payments through COMPACT (Computerised package for Pay & Account Offices) with digitally signed authorisation for processing through NEFT, RTGS or core banking facilitated for Ministry of Agriculture as a pilot project.

Analytics and Modeling Services

Business Intelligent System has been developed for Planning Department of UP State pertaining to data from 18 major sectors. The data includes thousands of parameters up to the village level. An Enterprise Project Management System is getting built for Navodaya Vidhalaya Samiti, Ministry of HRD which includes monitoring and control of time and cost overrun for construction sites of around 700 schools.

Online Web Based CAPES (Computer Aided Paperless Examination System)

On-line Entrance Test for Session 2007-08 for admission to Haryana MCA, Pharmacy, LEET (Engineering), LEET (Pharmacy) & BHM&CT Courses have been implemented. The CCC CAPES Exam was successfully taken by 30000 candidates at 100 centres across India including 33 Community Information Centres in North-East.

Office Procedure Automation (OPA)

OPA is a comprehensive and integrated web enabled package to monitor pendency of cases and tracking of letters & files. It provides facility for creation & processing of Electronic File with digital signature. It is designed to meet the requirements of Government offices as defined in the Manual of Office Procedure (MOP) of the DAR&PG. The latest version of OPA is implemented in 20 ministries/departments during 2007.

UNIQUE ID Project

The project aims to create a central database of residents across the country and thereby generate a unique number for identifying each resident, primarily for delivery of government services by various departments and agencies. UID database has been created for 35 states (about 70 crore residents) from the electoral rolls.

Support to Elections

NIC provided ICT support for Assembly Elections held in 2007 for the states of Punjab, Uttarakhand, Manipur, Uttar Pradesh, Goa, Gujarat and Himachal Pradesh. MoUs have been formulated with ECI and State Chief Election Officers for appointment of NIC as service level agency with regard to the Election processes.

Employment Exchanges

National portal on 'Common Application System for Employment Exchanges' with the underlying application covering all functions of employment exchanges, on-line vocational guidance and career counseling is under implementation. Another project is "Comprehensive Computerization of Employees' State Insurance Corporation" which is also being implemented as a pilot in 22 branch offices, 2 regional offices and 7 dispensaries in the states of Haryana and Delhi.

Property Registration

The on-line computerized property registration is operational in 1872 sub-registrar offices of the country with technology support from NIC. During 2007-08, the project has been made fully operational in Uttar Pradesh, Tripura and Bihar and is now being extended to Assam, Meghalaya, Sikkim. The States of Haryana, Himachal Pradesh and Karnataka have integrated Registration with Land mutations. Few States have discontinued the use of stamp papers and standardized 2-3 page deed documents.

Central Record keeping and Accounting Agency

Central Pay and Accounts Officer (CPAO) database having details of employees who have

joined after January 2004 from civil, defense, post, telecom and railways is being maintained and processed.

Community Information Centre (CIC)

About 550 CICs continued to provide all basic services like internet access, e-mail and trainings to local populace in North-East. Further, 132 blocks of J&K have been operationalized under the project. Host of e-Governance services related to certificate issuance, forms, etc., are being provided through e-Suvidha system. About 209 Sub-division offices in North-East have been brought under NICNET domain to automate sub-division level services and offer linkages to CICs and Districts.

Common Integrated Police Application (CIPA)

The development of the Common Integrated Police Application software for Police Stations has been completed. Common Integrated Police Application Software has been rolled out at 2800 Police Stations covering all the States. State Development Teams are working on the Local Customization requirements. Vertical link by consolidating the Police Stations Databases at State-level and developing Web-based software for higher authorities is taken up for Delhi Police.

Use of Open Standards and Reusable Technologies

Integrated File and Document Management System and Project Monitoring have been taken up based on open standards and reusable technologies. The technology neutral Intra GOV solution framework has been built on standards and implemented in various states and departments of central Government. The Intranet solution framework for NIC has been upgraded to the latest version based on Web 2.0 technologies. The website http://egovernance.nic.in based on W3C Standards provides the information on the e-Governance activities. The Project Monitoring System has been implemented in Department of Water resources and Department of AYUSH during the year.

Library Services

e-Granthalaya - Library Management Software (http://egranthalaya.kar.nic.in and http://mcitconsortium.nic.in) from NIC for automation and networking of libraries has been installed at more than 1000 libraries till 2007 with regular training programmes for working librarians in India on implementation of e-Granthalaya Software at NIC Centres as well as user premises. Discussion forum at https://lsmgr.nic.in is available for the users of e-Granthalaya and Consortium members for sharing views.

A Consortium of Libraries of the Ministry of Communications and Information Technology has been formed. Further to increase the usage of world class digital resources and making the library users aware of the services, workshops have been conducted. On-line 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.

Smart Card

Key Management Infrastructure for MNIC project has been developed. Smart Card based DL and RC, KMS for Smart Cards for Driving Licence and Vehicle Registry was implemented for the States of Nagaland, Sikkim, Assam, J&K, Chandigarh & Delhi (DL only). KMS for Smart Cards for Driving Licence and Vehicle Registry is being extended to the States Delhi, Maharashtra, West Bengal, Jharkhand and Orissa. e-Passport Project is under design and development phase. Smart Card based Rashtriya Swasthya Bima Yojna project is also being customized.

Systems Software

DPILM National Portal for Evolving Technology Solutions, Training, Implementations and Support Design, Development and Testing is Complete; Portal Security Audit is through with Portal deployed at - http://eitsm.nic.in/DPILM/.

Open eNRICH

Open eNRICH contract was signed with UNESCO and OneWorld International to develop the next version of Open eNRICH v4.0. The software has been successfully developed and has been submitted to the clients for field testing.

National Do Not Call Registry

The National Do Not Call (NDNC) Registry (http://ndncregistry.gov.in) has been set up for Telecom Regulatory Authority of India (TRAI) to curb Unsolicited Commercial Communication (UCC). Any telephone subscriber who does not wish to receive telemarketers' calls can register free of cost on the NDNC Registry through their Telephone Operators (TO). The present status is: TM registration started on-line from July 2007 and about 7.1 Million subscribers have been registered in NDNC database.

Software Development Centre, Pune

'Court Information System' has been implemented in 350 locations at taluka and district courts. A web portal giving details of the cases filed in any taluka court is available on the web site (http://court.mah.nic.in). Software for the National Horticulture Mission (Maharashtra State) has been

developed for the NHM Maharashtra State to monitor and reconcile the funds distributed to the various beneficiaries. The web portal RojgarWahini, http://ese.mah.nic.in has been developed and hosted for Directorate of Employment providing an on-line exchange functions at the user's home/office. Data pertaining to 35 lakh candidates and one lakh employers, from all the 45 Employment Exchanges of Maharashtra is consolidated on the portal RojgarWahini.

NIC Training Unit, LBS National Academy of Administration, Mussoorie

NIC Centre at LBSNNA provides Communication and Information Technology related training to the officers of All India Services during all the training programmes conducted at the Academy. More than 70 sessions of IT based trainings were conducted during 2007 to IAS professionals. Further 152 sessions of foundation courses were conducted. ICT trainings were also conducted for ITBP and also IAS officers.

International Cooperation

Under Lao PDR - India Bilateral Cooperation on Information Communication Technology (ICT), National Informatics Centre is implementing various project components at Lao PDR. Three years Masters in Computer Applications (MCA) Programme for 30 Laos students in India has been started through Guru Gobind Singh Indraprashtha University (GGSIPU), New Delhi from July 2007. For the establishment of 10 Rural Tele centres (RTCs) in various provinces of Lao PDR, a team visited Lao PDR and finalized the action plan.

NIC Services to Central Government Ministries and Departments

Accounts

E-Payments through COMPACT with digitally signed authorizations for processing through NEFT; RTGS or Core banking has been facilitated for Ministry of Agriculture on pilot basis. Revenue Accounts Management System (RAMS) has been implemented for Central Board of Direct Taxes for receipt accounting at ZAO level with upload to e-Lekha. E-Lekha, a web based solution for providing a Core Accounting Solution (CAS) for the Civil Accounts Organization has been enhanced for monitoring of 27 Flagship Plan Schemes of the Government of India.

Comprehensive DDO, a complete solution for management of receipt and payments functions of Drawing and Disbursing Officers for generation of all kinds of Bills with electronic interfaces with COMPACT, Income tax Department and Banks has been developed and implemented. It includes cheque issue functions of cheque Drawing DDOs (CDDOs).

Audit

Support has been provided for Web hosting, maintenance, and Portal development and management. NIC has also developed and running web-based applications for IA & AD Web based Budget/Expenditure Monitoring System, Web based Staff Strength/Men-In-Position Monitoring System, On-line submission of Application of Chartered Accountant Firms and Empanelment and selection of CA Firms for PSU Audit, Public Grievances Monitoring System regarding GPF/Pension cases for State Government employees etc.

Agriculture

NIC has developed six portals and 40 websites for the Department of Agriculture and Cooperation (DAC) and its field offices/Directorates under the DACNET (an e-Governance model for DAC).

AGMARKNET (Agricultural Marketing Information System Network) spans over 2900 Agricultural Produce Wholesale Markets spread across the country. The portal (http://agmarknet.nic.in) provides daily market information, trends, studies, etc. The commodity prices and arrivals information is being disseminated in Hindi, Gurumukhi, Marathi, Kannada, Telugu, Tamil, Assamese, Bengali and Oriya besides English.

DACNET (http://dacnet.nic.in) aims to provide information and services to the farming community on a number of specific subjects.

PPIN (Plant Protection Informatics Network) provides Information for protecting the plants from Pests & Diseases to sustain the production. Web based Integrated Pest Management Information System (http://dacnet.nic.in/iipm) and Pest and Disease Monitoring System (http://dacnet.nic.in/pdmis) have been implemented by Central Integrated Pest Management Centres and District Agricultural Offices.

The INTRADAC (http://intradac.nic.in) portal facilitates information dissemination within the DAC.

Development of Agricultural Informatics and Communication (DAIC) : The major components of DAIC are development of SeedNet India Portal, Data-warehousing, Knowledge portal on RFS and Watershed Development. The other activities of DAIC are Digitization of Soil Mapping Data, ICT in Extension Reforms, Mass Media support to Agricultural Extension, Farm women database for National Gender Resource Centre for Agriculture (NGRCA), etc.

Seed Net India portal and various on-line applications related to Seed sector have been

developed. Data on various watersheds under NWDPRA and RVP and FPR schemes have been captured on-line.

A plan was prepared for strengthening the ICT infrastructure at Directorate of Extension with setting up of Video-conferencing facility at KVS. NavKrishi portal was launched for capturing and dissemination of information on Agricultural Programme Schedules under mass media support by Doordarshan and All India Radio to strengthen agricultural extension services to empower farming community. The portal on National Gender Resource Centre for Agriculture (NGRCA) consisting of farm women database has been developed.

A National portal on Farm Mechanization has been developed. Development of Horticulture Informatics Network (HortNet) has been taken up to facilitate implementation of National Horticulture Mission programmes. Web based Agricultural Marketing Infrastructure, Grading and Standardization (AMIGS) monitoring system has been implemented for Directorate of Marketing and Inspection. Retail price information system on food and non-food items has been developed.

AgRIS (Agricultural Resources Information System): Agricultural Resources Information System (http://agris.nic.in) project is being implemented in the pilot districts of Banaskantha (Gujarat) and Rohtak (Haryana). Development of Buffaloes Portal has been undertaken.

Agricultural Census : Agricultural Census 2000-01 has been completed. Input survey 2001-02 is near completion. Ministry has now entrusted the Computerization of Agricultural Census 2005-06 & Input Survey 2006-07 to NIC at an estimated cost of Rs 12.04 crore. The data for the Agricultural Census 1995-96 & 2000-01 and Input Survey 1996-97 & 2001-02 have been made available in public domain at http://agcensus.nic.in.

Live Stock Census-2007 database has been completed and training at 6 locations has been provided to master trainers.

Agricultural Research

ARISNET (Agricultural Research Informatics System Network): Video-Conferencing facilities have been established at the five campuses of Central Agricultural University. Website support and Network services of the Department of Agricultural Research and Education, is continued. National Advisory Committee on Standardization of Soil Testing Software for Integrated Nutrient Management has been constituted.

Commerce & Industry

In order to have electronic delivery of services, information exchange interfaces for Government-to-Government (G2G), Government-to-Business (G2B) and Government-to-Citizen (G2C) have been strengthened. Web sites of Department of Commerce, Export Promotion Council of EOU & SEZ and PEC Limited have been launched. Various systems like Cash Management System, System for Anti-dumping investigation findings, System on Quick Estimates of India's Trade and Analysis of export and import of commodities to and from various countries have been implemented for Department of Commerce.

A fully integrated Digital Signature based web enabled facility for on-line filing and processing of application is operational in Directorate General of Foreign Trade and its thirty five offices all over India. An EDI interface with various community partners is integrated in the system to minimize the overall transaction cost and time for exporters as well as Government. At Directorate General of Supplies and Disposal (DGS&D), e-Procurement system covering e-Tendering, Generation of Rate Contract, On-line Placement of Supply Order and Generation of e-Inspection Note is operational at Headquarter along with various regional / field offices. On-line Submission of Bills & e-Payment has been implemented and made operational in O/o Chief Controller of Accounts (CCA),

A web based systems for monitoring Grant-in-Aid scheme for handicrafts sector and litigation cases for the Ministry of Textiles have been implemented. In Department of Industrial Policy & Promotion (DIPP), web based system for Intellectual Property Offices in India has been designed, developed and implemented for automating the Patent & Trademark Administration process. The e-Filing systems for Patent and Trademark applications have been released with payment gateway and digital signature facilities.

Culture

Dharohar - a Cultural Heritage Digitization Project which creates a digital register of Museum artifacts, has been customized for the museums in Chandigarh. Digitization of rare collection of manuscripts at Orissa State Museum has been successfully completed. 3.5 lakhs pages are digitized and handed over all output in DVDs. Archival Information System (AIMS) for National Archives of India (NAI) has been implemented and 18 lakhs of legacy data of the earlier package has been completed and incorporated into the new system. LAN has been established at ASI HQ New Delhi.

Central Excise

SERMON 6i.0.6 version with the incorporation of the budgetary changes has been released to the Central Excise Field formations all over India. The new version is also loaded onto the central server to facilitate e-Filing by the top revenue paying assesses. All the web based applications have been shifted to the centralized shared web hosting environment. The Electronic Accounting System in Excise and Service Tax (EASIEST) package has been rolled out to all Pay and Accounts Offices (PAOs) and to all Central Excise Commissionerates all over India. The Revenue Accounting (RevAct) package is under conversion to web based environment. The 'e-Management of Revenue Data' developed for the Directorate of Data Management; CBEC has been released to all the Central Excise, Customs and Service Tax Commissionerates all over India.

Customs

ICES is operational in 38 Customs locations. The application has been augmented with additional functionalities such as - integration of license messages received from DGFT, automation of cargo movement to CFS operators, auto approval of SMTP manifest to Inland Container Depots, implementation of Risk Management module at new locations, and its integration with ICES, etc. As a part of consolidation process of the CBEC, ICES application is migrated to new platform using Linux and Oracle 10g RDBMS and is implemented on pilot basis on a centralized environment at ICD Dadri, NOIDA and five sites are made operational. The application is accessed by the Customs Stations on the centralized infrastructure using web interface in a secured mode.

Nearly 98% of export documents and over 95% of the import declarations are getting processed under the EDI system. Over sixty per cent of the documents are being filed over Internet. Remote EDI System (RES) has been developed. RES, a Windows based application enables 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.

Central Vigilance Commission

Vigilance Cases Monitoring System encompassing the receipt of complaints, investigating of cases, final penalty and compliance of penalty by the disciplinary authority has been implemented. CVO Profile Information System has been designed and implemented for capturing and maintenance of the detailed information about CVO, on-line Complaint Monitoring System has been placed on public domain for facilitating the vigilant public/citizens lodge complaints through CVC website and view the status of their complaints at various stages.

Drinking Water

Water Sources - Habitationwise database is being maintained. Integrated Monitoring Information System (IMIS) for Drinking Water Supply & Sanitation has been implemented. This web based solution facilitates states and district level functionaries to capture and input the habitation wise data related to water supply, water sources, its quality and other associated information. Total Sanitation Component (TSC) manages the information related with sanitation conditions and provision for sanitation units GP wise.

Energy

Integrated portal for Ministry of Power (MoP), Ministry of Coal (MoC) , Ministry of Petroleum and Natural Gas (MoP&NG), Ministry of New and Renewable Energy (MNRE) and Department of Chemicals and Petrochemicals (C&PC) has been implemented. NIC has designed & developed application software such as Board Level Appointment Monitoring System and Captive Coal Mining Blocks Management System for M/O Coal; Chemical Weapons Convention (CWC) Information System and web based Production Monitoring System for D/o C&PC; Remote Village Electrification Information System for MNRE; Overseas Projects Information System for M/o P&NG; besides Web Based MIS for RGGVY.

Environment and Forests

Web based GIS for Emergency Planning & Response System (GEPR) has been developed to improve emergency preparedness at the local level to minimize the damages during chemical accidents. National Hazardous Waste information System (NHWIS) Phase II has been undertaken to update and monitor the activities of all hazardous waste generating industries. Web GIS for ISBEID has been developed to utilize the strengths of Web Geographic Information System (GIS) for better understanding and dissemination of information related to various Environmental related areas. Automation of Libraries at various ZSI & BSI Units across India using e-Granthalaya Software has been initiated with a 3 days Workshop at Kolkata.

External Affairs

NIC has Provided ICT support to all the 34 passport offices in India and 22 Indian Missions abroad. On-line Passport Registration System has been made operational in all the Passport Offices. A new version of the web enabled application of

Passport Management System has been introduced in Delhi, Ghaziabad, Kozhikode, Shimla, Mallapuram, Lucknow, Bangaluru, Raipur and Madurai Passport offices. Hague Apostille Convention (HAC) for attestation of educational certificates issued in India by MEA has been made operational. Centralized Passport printing at Delhi for Indian Missions abroad has been implemented successfully for 115 Missions.

Fertilizers

FERTNET- IT Based Application Systems for e-Delivery services have been developed and implemented in Department of Fertilizers. IT based tools have been introduced for Integrated Plant Nutrient Management. IntraFERT, an Intranet portal has been developed to provide and one stop source of information to the staff and officers of the Department of Fertilizers. Various Office Automation Packages developed by NIC are operational in the Department of Fertilizers.

Finance

As part of support to 6th Central Pay Commission, Demand Analysis System has been developed and implemented. The system captures the details of the demands made by various associations/ individuals.

Document Management Information System for on-line tracking of file movement has been implemented in Department of Economic Affairs, Department of Expenditure and Department of Revenue, Central Board of Excise and Customs, Central Board of Direct Taxes and Office of Finance Minister.

Budget Information System has been implemented for CBEC. Foreign Institutional Investor (FII) Tax Information System has been implemented for Foreign Trade and Tax Research Division. This system captures the financial transactions made by FIIs in stock market, computes short and long term capital gains and generates sub-account, financial year and calendar-wise reports. Data from SEBI was analyzed to generate reports

Food Processing

On-line Display of status of the Proposals submitted by entrepreneurs for grant release, has been provided in the Ministry's website. More than 6 lakhs digital documents are made available on the central server. To enhance NeGP initiatives, a new website http://pprc.nic.in was designed and launched for Paddy Processing Research Centre (PPRC), one of the autonomous body of the Ministry of Food Processing Industries.

Food, Public Distribution and Consumer Affairs

The integrated Information System for Food grains management is implemented at 600 depots & 167 district locations of FCI.

The CONFONET project has also been implemented at 408 districts out of 566 locations. Case monitoring workflow software is standardized for all India. Application software were developed & put to use for Sugar directorate (for Sugar production, Export Incentive, Buffer subsidy), Pulses export, commodity prices, etc.

Health and AYUSH

NIC has developed an automated system for CGHS dispensaries which has been rolled out to 86 dispensaries, 4 Zonal Offices, Medical Stores Depot and First-aid Posts in the Delhi/NCR region & CGHS HQ.

Home Affairs

Data Centre has been established at Central Foreigners Bureau (CFB), connecting 19 Immigration Check Posts (ICPs) and all FRRO offices. The new Immigration Control System (ICS) application software has been implemented at 23 airports, 3 seaports, 2 rail check posts and 2 land check posts during 2007. Passport reading machines have been installed in all computerized ICPs.

Human Resources Development

Centralized on-line (web based) counseling covering 17 counseling centres distributed across the country has been conducted for AIEEE 2007. Apart from this, centralized counseling has also been conducted for Haryana, Delhi and UP State Counseling Projects (UP- Engg, UP-B.Ed. & UP-Medical). In Haryana State, for the first time, on-line entrance tests have been conducted for MCA and Diploma courses. Development and pilot implementation of on-line MIS application software for Sarva Shiksha Abhiyan, a Mid Day Meal Scheme was continued. On-line acceptance of entrance exam forms has been carried out for AIEEE 2008, PMT 2008.

Information & Broadcasting

The new on-line media accreditation software for Press Information Bureau has been implemented.

Software for Advertisement Section of Directorate of Advertisement and Visual Publicity has been implemented where advertisement are sent, approved on-line to appears on Website. There is a Publisher corner and Client corner on the

Website. This application is available on Intranet to all DAVP officers.

Information Technology

Management and operational support is being provided for various Databases such as Financial Accounting; Personal Information System (PIS); File Tracking System (OPA), Project Monitoring System, Expenditure Monitoring System, Utilization Certificate Monitoring System, Security Information System, Information System containing information for Electronics & IT Industry, PAO2000, etc.

Official Language

NIC is giving technical support to D/o Official Language to promote Hindi language tools through the use of computers.

NIC has developed IntraCTB (Intranet) for Central Translation Bureau and are in final stage. The Office Procedure Automation (OPA) has been implemented in Hindi. The examination of Prabodh, Praveen, and Pragya, typing and Shorthand are conducted by Hindi Teaching Scheme, twice a year.

Overseas Indian Affairs

Automation of Offices of Protectors of Emigrants system has been implemented successfully at Delhi, Chandigarh, Trivandrum, Kolkata, Hyderabad and Mumbai. Support has been given for the issuance of OCI card and universal Visa through web enabled application from on-line registration till delivery of the document to the applicant.

Panchayati Raj

The National Panchayat Portal (http://panchayat.gov.in) is an organic collection of dynamic websites of all Panchayati Raj Institutions (PRI) and the Ministry of Panchayati Raj. Panchayat Profiler Software has been developed to capture the profile of a panchayat in terms of various amenities available. PlanPlus system was developed to enable PRIs to prepare plans. National Panchayat directory (http://panchayat.gov.in/directory) is being maintained in collaboration with State PR departments and displays state wise list of villages, GPs, IPs & ZPs.

Parliament

New website of Lok Sabha has been designed and hosted. Software for result processing for Joint Recruitment Cell, registration delegates and MIS for the CPC conference has been implemented. Web application has been developed for Debate Archival/retrieval system using DSPACE. Other regular assignments such as Publishing System of Daily Business, Committee reports, synopsis, organization chart. Questions List, Machine assisted Translation System (MANTRA) have also been completed.

Pension

Re-engineering of existing Pension Authorization Application Software has been undertaken to design a new system named as Pension Authorization, retrieval and Accounting (Pension Authorization, retrieval and Accounting). This has been implemented using latest Oracle 10g. Under disaster recovery, the entire database is being copied to NIC Data centre on regular basis. e-PPO project for Electronic transfer of PPO data from PAO to CPAO and to banks is being implemented.

Personnel and Administrative Reforms

Implemented Centralized Public Grievances Redress and Monitoring System (CPGRAMS) on-line Grievance Lodging and Monitoring for citizens. Under RTI- Request and Appeal Management Information System with additional features like attaching scanned request, PIO, Multiple forwarding, Annual Return has been developed. Hosted Pensioners' Portal, a Mission Mode Project under NeGP, serving as one stop information for civil pensioners across the country.

ACC Proposal Monitoring System has been modified. CSS Processing System has been implemented for capturing on-line applications and auto generation of panel for appointment. Integrated Personnel Information System for IAS Officers has been enriched by providing facilities for on-line application, training foreign assignment, etc.

Planning Commission

VLAN Implementation : The existing leased line of Power Grid Corporation Ltd. (PGCL) has been upgraded from 10 MBPS to 34 MBPS and an efficient state-of-art, faster and secured WiFi enabled wireless internet access network has been established and support for Internet and e-Mail facilities have been provided. Spatial Data Infrastructure for Multi-Layered Geographical Information System (GIS) for Planning, is being executed with the support of NIC.

A web based system to maintain increment details of employees at Yojana Bhavan has been developed. Planning Commission Expenditure Monitoring System (PC-EMS), a web-based MIS to monitor both plan and non-plan expenditure and integration with Demands & Grants has been developed.

Posts

National Data Centre (NDC) of the Department of Posts is established and made operational. 544 Administrative/ Operational offices across the country have been networked to access the servers located at the NDC. This will facilitate the customers to operate their accounts from any networked post office across the country. GPF Accounting information system has been implemented in all the Postal Accounts Offices.

New Version of the e-Post software has been released across the country. Instant Money Order system has been extended to 565 locations across the country and up to Rs.50,000 can be transferred and collected in cash from the iMO centres. An intranet portal for G2G services has been implemented in Department of Posts.

Prison Computerization

Prison Management System (PMS) has been customized and implemented at Birsa Munda Central Jail, Ranchi, (Jharkhand), Central Jail, Alipore, Kolkata (West Bengal), Sabarmati Central Jail, Ahmedabad and at Central Jail, Vadodara (Gujarat). Visitor Management System (VMS) Software is operational at the Central Public Relations Office (CPRO). This is integrated with the PMS through the central database of prisoners. The Video-conferencing is made operational between Tihar Court, Patiala House, Karkardooma, Tis Hazari and Rohini Courts and Nine Jails.

Programme Implementation and Statistics

The Member of Parliament Local Area Development Scheme monitoring system has been modified as web-based MPR system with GIS interface for Member of Parliaments, state level monitoring,.

The Central Project Monitoring System which maintains a live database of more than 800 central sector projects has been enhanced in terms of web-based data entry/ updation and generation of various reports and analysis. The computerized Infrastructure Monitoring System has also been made web-based for distributed data entry/ updation. The Twenty Point Programme has been redesigned as TPP 2006 for monitoring various performance indicators.

Rural Development

Family/BPL survey Portal is being maintained. Under NREGA project on-line application has been rolled to capture key activities and processes at grass root level. The software provides the roles for various stakeholders and the entire physical and financial progress monitoring is being done using the package. The package has been implemented in majority of states.

Science and Technology

National Survey on S&T Resources is being carried out with the help of the web-based application. Complete e-Enabling of Nanomission and National Accreditation Board of Laboratories is under implementation. Data Collection of OASTCs related projects completed and for other Scientific Programmes is being carried out. ICT Support for Antarctic Treaty Consultative Meeting - 2007 and Webcasting of Indo-EU Meet has been provided.

Shipping, Road Transport & Highways

Computerization and Networking of the 22 Regional offices of the Roads wing, DRT&H was initiated during the year. Application software to monitor the ongoing roads & highways projects is under implementation at the ROs. Offices of Directorate General of Shipping located at Mumbai have been rendered advisory support for managing and outsourcing the IT induction functions.

Social Justice

The website has been redesigned and developed. Training on software packages. Trainings have been conducted for Document Management Information, PAO 2000, RTI Annual Return Information, ACC Vacancies Monitoring, Inventory Management, Pensioners Grievance Redress Monitoring and Public Grievances Information System. VPN set up and Web Publishing have been carried out for Office of Dr. Ambedkar Foundation. Document Management Information System has implemented for the Office of Chief Commissioner for the Persons with Disabilities and training was given on the usage of the software.

Telecommunications

Software is being developed to monitor the revenue earned by the Department from the various service providers. OPA (Office Procedure Automation) System in the Office of Minister of State for Communication & IT is being implemented.

Tribal Affairs

NIC provided WAN connectivity through NICNET Gateway with Optical Fiber Cable (OFC) of 34 mbps connectivity and with a back up of 54 mbps RF (full duplex) and 4 mbps of Leased Line for Shastri Bhawan. NIC has also established a LAN (Local Area Network) having 140 nodes at Shastri Bhawan and August Kranti Bhawan. Web System is being designed to monitor the implementation

of Schedule Tribes and other Forest Dwellers Act 2006.

Tourism

Foreign Tourist Arrival Information System (FTAIS) has been redeveloped and the hands-on training conducted in all the sections of the Ministry.

Intra-Tourism portal is deployed on the server integrating all the back end applications which can now be accessed by different offices of the ministry located in various places in India and abroad.

Urban Development

The On-line License Fee Monitoring System was developed and implemented for the Directorate of Estates. The eAwas system for government residential accommodation management has been implemented in the regional offices of the Directorate of Estates at Chennai, Kolkata, Chandigarh, Shimla, Nagpur, Faridabad and Ghaziabad. e-Patravali - a Correspondence and Document Management System has been developed and implemented for the office of Minister of State for Urban Development.

Water Resources

Ministry of Water Resources has entrusted the Computerization of 4th Census data of Minor Irrigation Schemes to NIC for which MoU has been signed. Computerization of 3rd Minor Irrigation Census project executed by NIC has won the Best IT implementation Award by PCQUEST for the year 2007. A MoU has been signed between NIC and Central Water Commission for development of Web based application for monitoring and dissemination of Flood Forecasting information. To exchange inflow and utilization of Indus rivers data between India and Pakistan as per Indus Water Treaty 1960, a web- based application has been developed and implemented for 280 sites in India and 343 sites in Pakistan. Re-designed the Bilingual website has been hosted.

Women and Child Development

Loan Operations Management System for Rashtriya Mahila Kosh has been developed and implemented in five states. MIS for monitoring of adoption of children in the country has been developed for integrating data of Central Adoption Resource Authority and agencies. Portal has been designed for missing and recovery children for the west Bengal State as a pilot project. On line display of status on NGO Grant-in-Aid application was designed and developed for the Ministry.

Youth Affairs & Sports

System for creation of Sports Infrastructure having Location of the Centres, Facilities available, Deployment of Coaches, Disciplines covered has been implemented. Database has been created for Sports Training Grid. Training programmes have been conducted for the field officers of National Service Scheme (NSS) at Lucknow, Pune, Banglore and Kolkata. System for recording of performances of Sportspersons in National and International events vis-à-vis National and World Records has been taken up and is under development. RTI request Management Information system for assessing and processing RTI requests has been implemented in the Ministry.

NIC Services to States/UTs

Andhra Pradesh

A web based comprehensive Petition & Task Monitoring system in real time mode, has been developed and implemented for Hyderabad City Police Commissionerate and is operational in 153 locations. The same has been enhanced with additional features and implemented in 80 locations of Cyberabad Police Commissionerate. It is also being implemented across the state. Prajavani-an on-line grievances lodging and monitoring system in local language has been developed and implemented in Ranga Reddy District on pilot basis and subsequently replicated the same in 9 districts. Pilot version of Photo & Thumb impression has been integrated with CARD software and implemented in 4 districts. SMS based Drug Indent System has been introduced for Medical & Health Department. On-line Pre-metric and Post-metric Scholarship Processing system for Minority Welfare, Social welfare and Tribal Welfare has been implemented.

Andaman and Nicobar

Focus has been on Citizen Services through launching of software projects with integrated delivery of 11 citizen services. Web based software for Births Registration and Certificates has been launched for certificate issuance. New Planned Family Trust software has been implemented for the Health department . Internet and portal for delivery of G2E services to around 30,000 employees of the State Government has been taken up. Computerization of Land Records has been completed for pilot tehsil, with issue of Record of Right and work flow of mutation processes. Land records details have been published on Internet.

Assam

e-Registration project has been implemented in 8

Sub-Registrars' Offices. Transport Project (Vahan & Sarathi) has been implemented in Cachar. Immigration Control System (ICS) has been fully implemented at Guwahati Airport. Employee Database Project for State Government employees has been developed and implemented in the State as a web-based system. Data porting for Dharitree (Land Records) has been completed. State-wide roll-out has been coordinated with the State Government. 2 Mbps leased line has been extended to 21 districts.

Multilayer GIS project is under implementation where Village Polygons have been digitized and validated from topo-sheets for a number of districts. A web-enabled suite of common office management software (Dak, File Movement, Court Case Monitoring, and Telephone Billing) has been implemented in the offices of the CM and CS and GAD Department.Thirty two training programmes were conducted covering 502 participants

Arunachal Pradesh

GPF Computerization for Directorate of Treasury has been done. Further, Payroll has been computerized for all government offices. Web based system has been developed and implemented for PHED. Jan-Suvidha, Public Felicitation Centre, http://lohit.nic.in/jansuvidha.htm has been operationalized in Lohit district. Video- Conferencing facility has been set up at 16 districts and 3 locations at the Itanagar. State of art Computer Training Centre has been established and trainings were conducted to NIC field staff and state government employees. Web sites for Department of PHE &WS, Police, Planning and Election & IPR & Printing have been designed and hosted.

Bihar

SCORE 2 (System for Computerized Registration) has been operationalized at all 111 registry offices in records time and was appreciated. Chanakya system has been implemented for all universities of Bihar which has automated Examination system, e-Administration and e-Accounting. E-Granthalay has also been implemented in many Institutes' libraries. Integrated Document Flow Management System (IDFS) has been implemented for Rural Development Department. Total monitoring solution for NREGA, Scheme Monitoring and Certificate Issue at block and district level has been implemented in the state successfully. DCIS which is Management of case filing, the caveat filing and allocation of cases to a particular court/bench has been successfully implemented. Employment Exchange Portal of Bihar has been launched. This portal allows job seekers for On-line Registration for Employment. More than 125 websites has been hosted and maintained. Disaster Management System (Chetana) has been implemented in the districts which helps the district administration in management of demographical and topographical databases of land area.

Chhattisgarh

The Common Integrated Police Application software has been implemented in all the 32 police stations with provision of on-line FIR. Employment Exchange software has been implemented in all the Districts. Integrated Information System for Food grains Management (IISFM) is running in all 18 depots of FCI. The Custom milling rice (CMR) system has also been installed at 21 locations. Around 320 persons all over the state were trained on content management for national panchayat portal. The NREGA MIS is being implemented in 135 blocks of 15 districts. The land records computerization project of Chhattisgarh has been extended up to village level. Software for Computerization of Sub-Registrar offices (e-Panjeeyan) is being pilot tested at two locations. The e-Kosh (On-line Treasury Computerisation System), Chhattisgarh is running in entire state. Internet based e-Challan software is implemented. Public distribution system through 126 distribution centres is computerized through a web based application which includes calculation of allotment, issue of delivery order and truck challans.

Chandigarh

SWAN has been implemented connecting all UT offices. Citizen centric services have been started through e-Gram Sampark centres in the villages. Many more services have been added through e-Sampark and e-Jan Sampark centres. SARATHI with STALL (computer aided learner's licence test) and SCOSTA compliant Driving Licence has been started. Many departments have been given identity in cyber space and website creation like Education, Food and Civil Supplies, Transport and District Courts. Some new initiatives like eProcurement and e-Stamping are being rigorously pursued.

Dadra and Nagar Havelli

IDSP for Health department, Common Integrated Police Application for Police Department are under implementation.. Budget & Employee Strength software has been implemented for the Finance Department. The Corporate Millennium software is installed at Silvassa Municipal Council.

The http://www.dnh.nic.in website was re-designed. NIC is providing all technical support

on Election department in computerization of Electoral rolls and publishing of Chief Election officer website (www.ceodnh.nic.in). The File Tracking system software is implemented in Collectorate.

Daman and Diu

Computerization of Transport Department (VAHAN & SARATHI) has been completed. Technical support including training/ demo for CONFONET, IDSP, CIS, Common Integrated Police Application projects has been given. Certificate Management System has been implemented at Collectorate and sub-district. Water billing computerization has been fully implemented at PWD water supply division.

Delhi

Delhi Government SWAN Connectivity has been established in 52 locations with 2 Mbps Leased lines. 100 Mbps Lease Line have been made operational at Delhi Secretariat. e-Awas has been implemented for Delhi Government. On-line Counseling for admission to diploma level programme for Board of Technical Education has been done through Centralized Real Time System. MCD & Delhi Jal Board Court cases computerization has been taken up. Property Registration has been implemented in 12 SR offices. Land Acquisition Management System has been implemented.

Goa

Infogram (Village Panchayat Computerization Project) software and Municipal Administration Software were upgraded with Web service features so as to provide Citizen Centric Services through Citizen Facilitation Centres (CFCs) and Goa State Portal. Digital Signatures are being introduced in the issuance of Birth, Death Certificates and RoR (Record of Rights - Form I & XIV and Form D). Web enabled version of Land Records Software (Dharani -II) has been developed and is being evaluated for ISO Certification. Pension System has been developed and. Software package was developed for Nomination filing, Poll staff management, Randomization (Poll team formation), Poll day activities and Counting day activities. District Court and five Lower level Court complexes were computerized. Common Integrated Police Application software has been implemented at four Police Stations in Goa. Around 350 State and Central Government employees were trained on computer fundamentals. Web sites were developed and launched for 6 user departments (GPSC, Central Library, AGs Office, NAY Goa, GIRDA, SIC).

Gujarat

Web based applications like ICDS, IDS, SWAGAT, Ration Card, RTI Annual return, Employment Marketing information (EMI), Animal husbandry schemes monitoring, etc., are made operational in all districts over State Wide Area network up to block level. Intra Department applications for Forest, Health, Tribal, Horticulture are developed and being implemented now.

The land record system is operational at all blocks. The Registration of Documents (ReD) system is implemented in all 150 sub-registrar offices. Drugs logistics Information and Management System (DLIMS) is implemented at Central Medical Store

Organization. The web based grant & expenditure system (STAGE) is developed and implemented in three offices. The district court application is implemented in Gandhinagar and Ahmadabad.

The technical support is provided to Directorate of Pension and provident Fund Office for GPF, HBA/MCA and pension system. Krishi Mahotsava-2007 application made operational covering the beneficiary details. The trainings conducted on AGMARKNET & Common Integrated Police Application. The CONFONET project has been made operational at district consumer forums. The SARATHI application with STALL module is made operational at Ahmadabad. A system to monitor the planning activities is fully implemented at Junagadh. Similarly work flow application for Panchayat scheme (VIKAS Path) is being implemented at districts.

Haryana

ISHiCo Integrated software for High Courts Work flow automation has been implemented over 900 nodes LAN of High Court. Integrated web enabled Cyber Treasury (OTIS) with Payment Gateway Interface to SBI On-line developed and hosted. The VATMACS of Commercial Taxes has been integrated with Treasury facilitating Registered Dealers to make on-line payments. Integrated Paperless system for admissions to professional courses has been implemented by integrating the On-line Entrance Test system and On-line off Campus Web based Counseling System.

Integrated software with 2D Bar Code security has been implemented for all Tehsils & Sub-Tehsils. A standard G2G suite of Packages and a dynamic Police Web portal with G2C services has been implemented. The Common Integrated Police Application (Common Integrated Police Application) implemented at all districts. The Workflow based Haryana State Annual Budget Integrated System and other major functions of Finance Department has been automated & implemented. The ICT support has been provided to state sector Mission Mode Projects of NeGP namely Agriculture (AGMARKNET, AgRIS, Website, ICAR institutes), Transport Regulatory (Vahan & Sarathi), Panchayats (e-Panchayat, Model Village MIS, Engineering Works, NREGA, BRGF, BPL Survey, website) Municipalities (House Tax, Birth & death Certificates System), Social Welfare (HaPPIS), PWDs (IMPACT), e-Office Suite of Packages, Centralized File Movement & Tracking System, RECORD (Revenue Courts), Website services (Development of New website, updating & maintenance, hosting and VPN services), official e-Mail (services to 5000 users, e-Mail directory), Employment Exchange, Operations & Management of State Data centre and LANs in State & Districts Secretariats. The NIC efforts helped Haryana to achieve Winner's TELECOMM India Excellence Award 2007.

Himachal Pradesh

Land Records Computerization is made on-line/ operational at 109 Tehsil Centres. Property (Land Deeds) Registration (HimRis) has been operationalized in 58 Tehsils. Further, integration of Land Records and Property Registration has been achieved. e-Praman(Certificate Issuance System) has been operationalized in all the tehsils(109) and 40 Sub-divisions. E-Governance Centres (PEHAL-Sarthi & Vahan)) have been set up in additional 48 RLAs. The Police Web Portal & Common Integrated Police Application has been launched for facilitating interaction between public and police. CONFONET is implemented in HP.

Shastr(Arms Licensing Software)workflow and web-enabled software has been implemented in two districts. Electronic tracking of files/letters in a office, internet interface for officers/general pubic, auto e-mails for better monitoring/assessment of workload under RefNIC(Reference Monitoring) has been achieved. Web-Interface has been developed for State Information Commission under RTI ACT 2005. Integrated software Pay & Accounts software has been implemented in whole state covering about 1.5 lakh employees. HP AG Office G2E interface for GPF/Pension Statement was implemented. OLTIS-Treasuries have been extended to all Treasuries and Sub-Treasuries. E-Pension has been implemented in all the districts.

Jammu and Kashmir

Websites of the General Administration Department, Rural Development Department, Jammu Municipal Corporation, Institute of Management and Public Administration, Science and Technology, Government Medical College Jammu and the Board of Professional Entrance Examinations have been launched. VAHAN and SARATHI are implemented at ARTO Udhampur and Budgam. Transliteration of Electoral Rolls from Urdu to Hindi and English for preparation of tri-lingual e-Rolls has been done. Free Voter Name Search and e-Filing of Voter claims has been added.

Computerized Energy Billing System of Power Development Department has been implemented on pilot basis at Jammu and rolled out at 2 locations in Srinagar. GPF Computerization application has been implemented at 4 district and 2 Police HQ. Cashless transaction system of Treasuries has been implemented at Saddar Treasury, and district treasury Srinagar, Civil

Secretariat Treasury. IVRS implemented at High Court of J&K at Jammu and Srinagar. Under e-Court, laptops were distributed to judges and training programs were conducted. Single Window Transaction system, Assets Management System and Payroll systems were implemented at Jammu Municipal Corporation. LAN establishment, Births and Deaths certificates issuance are now operational at Srinagar Municipal Corporation. Common Integrated Police Application has been implemented at 21 police stations. Land Records and Cadastral Maps of 5 Tehsils have been computerized.

Jharkhand

e-Nagrik Sewa - An application was developed for providing G2C services from Citizen Kiosk (Kendra). The application facilitates submission of application forms by the citizens for issue of certificates like caste, birth, death, residential and Income. The Client server GPF software was developed and implemented at GPF Directorate and at four district offices. Web based Treasury software has been developed and implemented at all the 31 treasuries of the state. The Vahan & Sarthi software has been implemented at all the 22 districts of the state. The Smart card based RC book & driving license has been introduced at few districts. Under High Court Computerization, Cause List is being prepared and uploaded on the national web site. Common Integrated Police Application (Common Integrated Police Application) software has been implemented at 26 police stations of Ranchi district under first phase of the project. NIC has implemented the Video conferencing facility between district court & Jail at 17 locations in the state The NREGA MIS software has been implemented at all the 22 districts in the state.

Karnataka

NEMMADI, the Single Window system for delivery of 42 G2C services is implemented in 50 Taluks. BHOOMI system has been enhanced to integrate Land Records with Registration Department & Banks, Integrated Phodi, PKI enabled Bhoomi, Crop data updation on handheld devices. Documents are being issued through 800 Tele-centres at Hubli level. VATSoft has been implemented in all 95 VAT Offices of Commercial Taxes Department. Through e-Filing, dealers can update their details directly. e-Mandi for Agricultural Produce Marketing Board (APMC) has been implemented where traders quote their offered rate for 12 commodities through computer terminals or directly over mobile handsets, data transfer to the server over Bluetooth. PLO (Paper Less Office) web-based workflow system for Internet and Internet is integrated with Finger Identification Technology (FIT) and Digital Signature Certificate (DSC). Letters/files are scanned and stored in digital form & for storing manuscript using e-Pen. Web based Permit Management System has been implemented in all the 23 District Offices of the Mines and Geology Department.

Under mineral permit project, digital signatures, bar coded permits, control stationery and holograms have been incorporated. VAHANA-VIMA for State Insurance Department for the issue, renewal and management of insurance policies of Government vehicles has been implemented. Further, (complaints monitoring system) for Karnataka Lokayukta has been implemented. Submission of assets and liabilities by the MLAs / MLCs to Karnataka Lokayukta is also operational. The election results of the urban local bodies were disseminated on the web; (registering authority) (RA) has been set up at NIC Karnataka to validate identities and issue Digital Signature Certificates (DSC). Till date, 1366 DSCs have been issued. Student internet world 2007, has been organized by GoK with the technical support of NIC in all 29 districts at various venues, where more than three lakh students participated. Extensive support is being provided to VAHAN & SARATHI, Common Integrated Police Application, CONFONET, IDSP, CPWD, NREGA projects. TRAINING Programmes were conducted for 17 NIC officials & 20 user departments. Thirty WEBSITES were designed, hosted and web audited.

Kerala

DC Suite system has been replicated in eight districts out of 14 districts during the year. Vahan-Sarathi - has been implemented in 59 out of 60 RTOs. Further, Touch Screen module (Smart Touch) has been implemented in 59 out of 60 RTOs. Smart - Check post has been operationalized in Amaravila Check Post. Automated website administration module and 10 websites have been designed and hosted. Treasury Information System has been implemented in 202 treasuries in Kerala. 69 lakh Ration Cards were generated in all Taluks Supply Offices (TSO)/City Rationing Offices (CRO) in the State using Ration Card Management System. Development and hosting of workflow based training management system for Kerala institute of local administration (http://kila.gov.in) was done. Under Training Activities, 149 Training Programmes, 6 Capacity Building Programmes for State Centre, 3 Capacity Building program for District Officials, 91 User Department Programmes at State level and 49 District Level Training have been conducted. Land Records portal hosted at http://www.revenuekerala.gov.in enabling public of entire state to view their land details and register complaints.

Lakshadweep

On-line registration has been started District Employment Exchange, Lakshadweep. The e-Governance solution to the Department of

Electricity was completed and operationalized with following major components namely Web-enabled consumer Management System, web-enabled Materials Management System, Web-enabled Energy Billing System, Web-enabled Complaint Management System, Web-enabled Personnel and Payroll Management System. The electricity consumers of Lakshadweep are on-line and all the electricity offices including the remote island of Bitra having 300 people are connected through NICNET.

The Web-enabled Medical Inventory Management system has been implemented. All the Hospitals/ Health Centres in Lakshadweep were interconnected and all the details of medicines stocks are now available on-line. Video-conferencing facility has been set up in all the islands for interaction of Panchayat and other functionaries between capital island at Kavaratti and other islands.

Madhya Pradesh

A single windows system 'Samadhan Ek din Me' has been launched to provide various services to citizens. Geomatics based Forest Mapping has been implemented. Common Integrated Police Application Project has been implemented in about 90 police stations. ChRIS-Child Record Information System providing information about marriages, pregnancy, child birth and its growth progress has been implemented. BhuAbhilekh for land records has been extended. Other projects such as NREGA, AGMARKNET, IMO for post offices, Janani Suraksha Yojna (JSY), e-Granthalaya, MIS for Panchayat & RD (Swajal Dhara & Total Sanitation Campaign) and Rural Work Monitoring System has been implemented.

Further, 2Mbps Leased Line connectivity to 30 DICs, Extension of NICNET to 22 Post Offices, High Court and it's benches, Commissioner Offices at Divisions, creation of about 1000 new e-mail accounts, VPN connectivity to 75 new users were completed. 500 VC meetings were conducted for various Department /Institutions. 57 new Government website were hosted. 39 training programmes for 60 Government Departments. covering 967 participants, 9 update training programmes for NIC staff has been undertaken. State bagged CSI Nihilent e-Gov Award'07 for three projects viz., CRIS, Samadhan Ek Din me and Parakh.

Maharashtra

2 Mbps connectivity between Mumbai and 35 districts through STM1 has been completed. Driving Licence system has been implemented in 30 out of 45 RTOs of Maharashtra. NREGA software was implemented in 12 districts of Maharashtra. Panchayat Portal Content for 33 ZPs, 357 Tehsils, 28000 Gram Panchayats has been prepared. Common Integrated Police Application system Phase I for 127 Police stations has been completed successfully. CONFONET for 35 out of 43 locations has also been completed. Under Utility Mapping Project for Mumbai, digitization of maps is in progress. Accounting system has been implemented in 4 Zilla Parishads. Computer support is being provided via web application for result transmission and compilation for Panchayat elections in Maharashtra. Computer training programmes has been conducted for State Government staff.

Manipur

Personnel Information System has been implemented in all the Government Departments of Manipur. Property Registration has been implemented in Bishnupur District. Roll out of the same has been initiated at Imphal East & Thoubal District. Computerization of Pension Payment has been implemented in all the 13 Treasury offices. Six police stations have been computerized under Common Integrated Police Application project. TreasuryNet has been rolled out to 2 more Treasury Offices. Roll out of Land Records has been initiated in 6 SDC Circles. Computerization of Consumer Forums has been started in one State Commission and three districts. Under Manipur SWAN Project, work has been started on identification of POPs. IDSP has been implemented in 5 sites. Websites have been developed for the offices of Accountant General, Manipur, SISI, Imphal and Sainik School Imphal.

Meghalaya

VAHAN software has been implemented in all the District Transport Offices. TreasuryNET is being implemented in Shillong North and Shillong South Treasury.

Web based PHED MIS Software is being done. Computerization work is being done for the Shillong Municipal Board Energy billing system has been implemented at Jowai Division, Jaintia Hills. Hospital Management System has been taken up for a pilot phase and is under implementation at Ganesh Das Hospital, Shillong. The implementation of Ration Card Management System and Value Added Tax (VAT) Computerization is under progress. Waybill, Computerization of the Photo Electoral Roll has been implemented throughout the state. Various Central Projects has been taken up and implemented, such as Common Integrated Police Application, CONFONET, IDSP, City Civil Court (CCC), AgMarkNET, DACNET, AgrisNET, CPAO, NEC, Central Excise, FCI, etc..

Mizoram

Customization of Land Record and Property Registration software implemented as pilot project in Aizawl District and Serchhip respectively. 11 (eleven) courts were computerized in Aizawl District. Technical Support has been provided to numerous projects such as Common Integrated Police Application, IDSP, CCS, CONFONET, UID etc.

Nagaland

City Civil Court computerization has been successfully done at Dimapur District. Attendance Monitoring System using bio-metric implemented at Nagaland Secretariat. CONFONET and AISES project has been implemented and training has been imparted to State Government staff. Common Integrated Police Application project has been implemented in 4 Police stations in Kohima District successfully. Publication of Naga News Bulletin on daily basis is being done through State website. Content updation of departmental website and Hosting of new Department websites is going on. Employment Exchange Computerization has been implemented and data entry of live register is under progress.

Orissa

Land Records computerization has been implemented in 166 tehsils of the state where ROR data are being provided on demand. Orissa Registration Information System has been implemented at 14 DSR / SR offices. Tribal Soft" - the e-Governance Suite has been implemented at 21 ITDAs. Transport - Sarathi & Vahan has been implemented in all RTO offices of the State. Panchayati Raj- Portals of all 3-tier PRIs have been developed. NREGAsoft, RuralSoft, PRIAsoft have been implemented at all blocks. AGMARKNET project has so far covered 73 markets in Orissa. DACNET, PDMIS, RFS, AGRISNET have been implemented. NIC-GeP (Government e-Procurement) project for Orissa is in the advanced stage of implementation at Orissa. e-Granthabali - National Manuscripts Mission Project, e-Soochana, e-RTI for State Information Commission, e-GPF for Accountant General, Orissa etc., have been implemented.

Puducherry

e-Pathiram for Registration Department has been installed at Puducherry, Karaikal and Mahe Districts in about 9 offices for on-line use. Nilamagal workflow applications has been installed and accepted at Pilot Taluk at Villianur for Land Records on-line Information System. The Land Record Details are hosted on website. Automation of Field Measurement Book (FMB) has been completed for one village.

Vahan & Sarathi has been fully implemented. Automation of Property Taxes of Municipal areas in Puducherry, Oulgaret has been done. On-line Birth and Death registry is being done from Puducherry and Oulgaret Municipalities. New websites development and hosting has been done for about 35 departments (www.pon.nic.in). Capacity building on e-Governance and RTI activities were undertaken for 80 officers and about 200 participants from Academic Staff College of Puducherry University. On-line VAT Computerization has been implemented for the Commercial Taxes Department. Common Integrated Police Application has been implemented in 27 Police Stations.

Punjab

SUWIDHA 2.0 has been replicated at 58 Tehsils. PRISM has been implemented at 144 Sub-Registrar Offices (SROs). Treasury Information System of Punjab (TISP) has been implemented in all District & Sub-Treasuries of Punjab. SARTHI & VAHAN has been implemented at 30 sites. Election software has been developed and implemented. Common Integrated Police Application (CIPA) was implemented in 31 police stations in 1st phase. Affidavit Issuance System (AIS) has been replicated in 50 Tehsils. DISDIS (DIstrict Sangat Darshan Information System) has been implemented in all the districts. An e-Interface of police department with DC office has been developed and implemented for Arms licenses. Social Security Information system (SSIS) has been developed and implemented for pension disbursement. CONFONET Computerization and networking of Consumer Forums has been implemented in district forums and state commission. Office Procedure Automation software has been implemented in Department of Finance and Punjab Planning Board. 13,58000 blue cards have been generated using ADIS system under Atta Dal scheme for poor families of Punjab State. Implementation of DSMS (District Scheme Monitoring System) has been initiated with the success in pilot district. 2Mbps leased link has been extended to all the districts.

Rajasthan

Web based on-line grievance redressal system e-Samadhan has been initiated for CM Office. Videoconference facilities were established at Chief Minister's office and residence office. Kiosk based delivery of Land records has been initiated. Daily debates of Rajasthan Assembly were made available on-line. Common Integrated Police Application in Rajasthan was inaugurated. Gram project for monitoring of grass root level facilities

has been launched. PHED MIS has been developed and launched. Computers and software have been deployed in all Employment Exchanges. BPL lists has been published on the Net. Primary Health Centre's data flow has been initiated through HEALING. 2 Mbps Leased line circuits extended to all 32 districts. RF connectivity extended to Rajasthan Legislative Assembly.

Sikkim

First phase of Sikkim SWAN has been completed connecting 43 sites. The remaining sites are expected to be completed. RF connecting Directorates/Departments has been extended to 55 new sites at Gangtok. The software for Automation of certificate handling system in the district Collectorate complete and under implementation. VAT software has been implemented in Income and Sales tax department. The software for election department for on-line capturing of photographs has been modified and being tested. Instant Money Order services have been started at Gangtok Post Office.

Tamil Nadu

First phase of e-Tenders Project of Tamil Nadu was launched in July 2007. PKI enabled e-Procurement System was launched enabling e-Bid submission. Web based VAT systems for the benefits of Dealers were launched for e-Filing of Monthly Returns and related services. Workflow based bills processing system was implemented at two District Treasuries and one Pay and Accounts Office. Vahan & Sarathi System implementation has been completed in all the 96 Regional Transport Offices. Computer based testing system for Learners Licence issue was implemented in four Regional Transport Offices in Chennai.

Intranet based workflow system for accounts maintenance of subscribers under Contributory Pension Scheme was developed and implemented for the Office of the Accountant General, Tamil Nadu. Web based grievances application filing and processing system was launched in seven districts. All the 348 textbooks of TN State Board for all the classes from 1st to 12th Standard were hosted on the web for free access by public.

Intranet based workflow system was developed and implemented for Chennai Metropolitan Development Authority for Building Plan Permissions and related activities. House Site Patta Assignment module was added to the Tamil-Nilam system under Land Records Project of Tamil Nadu. CollabLand System for generation of Field Maps under Land Records System was implemented in four taluks. Defence Land Records System was developed for Defence Estate Offices which was implemented in more than 40 Cantonment / Defence Estate Offices in the country.

Six projects sponsored by Department of Information Technology, for enhancing the eServices have been undertaken. GIS system for Cuddalore and Nagapattinam districts is being developed in coordination with State Planning Commission. Intranet based system was used for Single Window Counseling for admissions to Diploma Courses of more than 660 Teachers Training Institutes. SMS based dissemination of GPF particulars was enabled for the employees of BSNL in Tamil Nadu in coordination with the office of Controller of Communication Accounts, Tamil Nadu. Web based registration of applications for various recruitment examinations of Tamil Nadu Public Service Examination were enabled. Web based registration of application for inclusion in Electoral Roll was also enabled. Around 90 training programmes were conducted at Chennai in which more than 1800 officials had participated.

Tripura

Land Records Information System (JAMI) has been rolled out in seven Revenue Circles during the financial year. Smart Card based driving licence and registration certificate has been rolled out in other remaining districts. Common Integrated Police Application has been successfully implemented at five police stations. Energy Billing System has been rolled out in entire state of Tripura. Twenty Point of Presence (PoP) of Tripura SWAN have been operationalized.

Uttarakhand

NIC Uttrakhand has taken new initiative as well as tried to consolidate the ongoing projects with special emphasis on e-Governance in the areas of Citizen Centric services in the areas of Land Records Mutation workflow application, Jal Sansthan (PHED), Common Integrated Police Application, Transport - Vahan software, VAT computerization and Treasury - ECS / EFT between banks and treasuries. 2 Mbps leased lines have been extended to all the districts.

Uttar Pradesh

The scholarship computerization targeting around three crore students belonging to BPL families of the state has been implemented. NIC is also implementing the DIT sponsored NeGP project - UPSWAN connecting 885 nodes spread across all blocks, tehsils & districts. Websites of 83 departments have been launched. E-Patravali (File Tracking System) has been implemented in 10

different departments of the state government. Common Integrated Police Application (Common Integrated Police application) has been rolled out in 170 Police stations of six districts of the state. Koshvani portal has been launched reflecting the on-line financial status of the state, based on data received from all the district treasuries. Vahan (Transport Computerization) has been started in 60 districts of the state. On-line Patient Care System has been started at district hospital, Bahraich keeping track of diagnosis, pathological checkups, issuance of drugs and patients indoor admission and discharge details.

West Bengal

Information Management for Promotion of Administration in the Commercial Taxes (IMPACT) with VAT compliance has been implemented. Excise Program for Effective Revenue Tracking (xPERT) towards total e-Governance of State Excise has been operationalized. The transport and Import Passes has been implemented. Roll out of Computerization of Registration of Documents (CORD) completed in 135 Registration offices. Port System designed and implemented in Haldia Port has been rolled out in Kolkata and Ennore Ports. Further, Container Yard Planning and Management (CYPM) Software has been developed and being implemented in Haldia, Kolkata and Ennore Ports. Exchange portal with live register data in of 70 Employment Exchanges has been hosted. Software integrating land records and maps has been developed and is being rolled out in Block level offices. DPR and consultancy under National e-Governance Plan (NeGP) for the projects in the areas of commercial tax, cooperation, Municipal affairs, transport, treasury, agriculture and labour department has been given.

Turn-Key projects

NIC is playing the role of IT consultant to user departments for their ICT projects. In many cases, NIC has been undertaking such projects on turn-key basis. This includes deployment of infrastructure, networking, analysis, design and development of application software, testing, implementation, maintenance/handholding services. The continuous ICT support has been given to major projects like transport computerization, passport computerization, VAT, PHED etc. Utility Mapping project has been started for six metro cities of the countries. Treasury Computerization has been completed for 6 treasuries of Manipur and being rolled out. Project on Forest Mapping of Madhya Pradesh has been completed and being used for field level decisions making. Computerization of Land Records and Property Registration has been extended to more circles in Manipur. ICES (Indian Custom EDI System) has been implemented for Customs. Electronic Accounting System in Excise and Service Tax (EASIEST) package has been rolled out to all Pay and Accounts Offices (PAOs) and to all Central Excise Commissionerates all over India. CONFONET project has been implemented in more than 400 locations. IDSP project is being implemented through out the country. Web Based Counseling for Admission to various Medical, Engineering, MCA, MBA and Diploma courses has been taken up for many States. Common Integrated Police Application project has been implemented in 2800 police stations.

NIC has set up a Project Evaluation Committee, an inhouse mechanism to scrutinize the turnkey projects with reference to NIC commitments, technology proposed, implementation methodology and costing. This has streamlined the process of undertaking turnkey projects.

Some of the major important projects undertaken on turn-key basis during 2007-08 are : National Do Not Call Registry, a flagship project operationalized for TRAI, Networking of post offices for Department of Posts & automation of Telecom License fees for Department of Communication. CGHS computerization has been rolled out to remaining CGHS dispensaries. Port Operations Management System is under implementation for Kolkata Port. Computerization of Agartala and Shillong Municipal Council has been taken up. Energy billing project has been taken up for the States of Manipur and Meghalaya. Integrated Disease Surveillance Project (IDSP) is being implemented throughout the country. Number of other projects have been undertaken for the computerization of Delhi Tourism Development Corporation, Divisional commissioner office, Computerization of Immigration for Ministry of Home, Automation of FCI Haryana, Strengthening of Citizen Centric Services in North East, Department of IT, IT support for Board of Revenue, Cuttack, Computerisation of Rajya Sabha Secretariat, Mapping project of Department of Culture, Drinking Water Information System for Department of Drinking Water, Total Sanitation Campaign for Departments of Woman & Child Development, PlanPlus for strengthening grass root planning for Ministry of Panchayati Raj, etc.

National Informatics Centre Services Incorporated (NICSI)

National Informatics Centre Services Inc. (NICSI) was set up in 1995 as a section 25 Company under National Informatics Centre, to provide total IT solutions to the Government organizations.

It promotes development of services, technologies,

infrastructure and expertise supplementing that developed by NIC, in directions which will increase the revenue earning capacity of NIC. NICSI develops and promote value added computer and computer-communications services over the basic infrastructure and services developed by NIC including NICNET.

In furtherance of these objectives, NIC Services Inc. has been providing following Products & Services to organizations in the Central Government, State Governments and P S Us etc.: Hardware, Systems Software, Application Software, Software Development, Intra-Networking, Wide Area Networking, Videoconferencing, Customized Software, IT Training, IT Consultancy & IT Implementation Support.

To strengthen the above activities, NICSI is setting up a Data Centre in Delhi, in close coordination with NIC to provide value added services to its Customers. In this centre 130 IT professional have already been deployed along with complete ICT infrastructure for software development support. The Data Centre Infrastructure implementation is under programme.

Highlights

National Informatics Centre (NIC) is the nodal S&T organization providing network backbone and e-Governance support to the Central Government departments, States, UTs and District Administrations in the country. NIC has been playing a pioneering role in propagating IT-led development facilitating rapid economic growth and social transformation in India, by setting up a countrywide satellite based VSAT network (NICNET), first of its kind among the developing countries, linking about 602 districts, 28 State Governments, 7 UT Administrations and Central Government departments.

NIC has acquired NICNET's complete transponder capacity from a single satellite and migrated about 1200+ remote VSATs from PAS-10 to IS-10. Terrestrial bandwidth to State Capitals has been enhanced to 45/100 Mbps on OFC from BSNL / PGCIL / RailTel. Capacity of Internet Data Centre at NIC Headquarter . has been increased to 110 Tera Bytes for hosting websites and databases. During the years, 2Mbps Leased data circuits from BSNL have been extended from State Capitals to around 576 districts. Disaster Recovery Centre has been fully operationalized with 33 TB capacities.

Security systems were put in place at the critical network segments of NICNET using network firewalls, Intrusion Detection Systems/Intrusion Prevention Systems, Application Firewalls. Patch Management and Anti-virus Services were integrated to establish secure communication. About 6000 DSCs (individual & device) have been issued till date. Symmetric Key Infrastructure for issuance of Driving Licence and Registration has been undertaken.

NIC has designed, developed & maintained the major Portals like India Image Portal, Government of India Web Directory, Districts portal, Exam Results, Government Policies Portal, Tenders Portal, Portal related to offices of President of India, etc. NIC has hosted over 4500 websites & portals related to Governments and its agencies. Land Records project has been extended to 3432 tehsils. In order to provide speedier and efficient justice, the Government has initiated several steps to transform the Indian Judiciary in 2007 and extended the automation to around 13000 districts and sub-ordinate courts. The Prison Management System (PMS) with a provision of authenticating prisoner using biometric details (photograph & fingerprints) along with details pertain to their personnel information has been implemented. e-Learning Portal is launched to provide forum for conduct live and offers access to archived sessions along with the updates, help documents and the required downloads for application usage. Under the Computer Aided Digital Mapping Project for Six Cities - Ahmadabad, Bangalore, Chennai, Hyderabad, Kolkata and Mumbai, the necessary spatial data infrastructure has been installed and required digital data is being created.

MoU between NIC, BARC and VSSC was amended to share equally the cost of out sourced development of CollabCAD. The 2D / 3D Constraints Solver has been integrated and the Plot Configurator and IGES parser have been enhanced. Under Government in domain registration, 3500 domain registration has been done. On-line Entrance Test for Session 2007- 08 for admission to Haryana MCA, Pharmacy, LEET (Engineering), LEET (Pharmacy) & BHM&CT Courses has been implemented.

CIPA Software has been rollout at 2800 Police Stations covering all the States. Business Intelligence System has been developed for UP Planning Department and Navodaya Vidhalaya Samiti. Document Management Information System for on-line tracking of file movement has been implemented in Department of Economic Affairs, Department of Expenditure and Department of Revenue, Central Board of Excise and Customs, Central Board of Direct Taxes and Office of Finance Minister. NIC has developed CGHS system automating all functions of the dispensary such as Registration, Doctors' prescription, Pharmacy Counter, Stores, Laboratory & Indent and system has been rolled out to 86 dispensaries.

Data Centre has been established at Central Foreigners Bureau (CFB), connecting 19 Immigration Check Posts (ICPs) and all FRRO offices. The Office Procedure Automation (OPA) implemented in Hindi. The National Panchayat Portal (http://panchayat.gov.in) has been launched for Panchayati Raj Institutions, the State Panchayati Raj Institutions and the Ministry of Panchayati Raj. New website of Lok Sabha has been designed and hosted. Existing Pension Authorization Application Software has been re-engineered to design a new system named as Pension Authorization, retrieval and Accounting for Pension Authorization, retrieval and Accounting. Under NREGA project on-line application registration has been rolled to capture key activities and processes at grass root level. Web System is being designed to monitor the implementation of Schedule Tribes and other Forest Dwellers Act 2006. Foreign Tourist Arrival Information System (FTAIS) has been redeveloped which provides useful statistics related to international tourist arrival patterns.

A web based comprehensive Petition & Task Monitoring system in real time mode, has been developed and successfully implemented for Hyderabad City Police Commissionerate and is operational in 153 locations. In Assam, e-Registration project has been implemented in 8 Sub-Registrars' Offices. Immigration Control System (ICS) has been fully implemented at Guwahati Airport. In Bihar, SCORE 2 (System for Computerized Registration) has been operationalized at all 111 registry offices in records time. In Chhatisgarh, Integrated Information System for Food grains Management (IISFM) is running successfully in all 18 depots of FCI. Delhi Government SWAN Connectivity has been established in 52 locations with 2 Mbps Leased lines. In Goa, Digital Signatures are being introduced in the issuance of Birth, Death Certificates and RoR (Record of Rights - Form I & XIV and Form D). Further, around 350 State and Central government employees were trained on Computer Fundamentals. Web based applications like ICDS, IDS, SWAGAT, Ration Card, RTI Annual return, Employment Marketing information (EMI), Animal husbandry schemes monitoring etc., are made operational in all districts over State Wide Area network up to block level. In Haryana, Integrated web enabled Cyber Treasury (OTIS) with Payment Gateway Interface to SBI on-line developed and hosted. Further, integrated HARIS # HALRIS software with 2D Bar Code security has been implemented for all Tehsils & Sub-Tehsils. In Himachal, e-Praman(Certificate Issuance System) has been operationalized in all the tehsils(109) and 40 Sub-divisions. In Jammu & Kashmir, Computerized Energy Billing System of Power Development Department has been implemented at Jammu and rolled out at 2 locations in Srinagar. In Karnataka, NEMMADI, the Single Window system for delivery of 42 G2C services has been implemented in 50 Taluks. Under Land Records Bhoomi system, Documents are being issued through 800 Tele-centres at Hubli level. In Kerala, DC*Suite system has been replicated in eight districts out of 14 districts during the year. In Madhya Pradesh, CSI Nihilent e-Gov Award'07 has been awarded three projects viz., CRIS, Samadhan Ek Din me and Parakh. In Maharashtra, NREGA software was implemented in 12 districts of Maharashtra. Panchayat Portal Content for 33 ZPs, 357 Tehsils, 28000 Gram Panchayats has been prepared. In Manipur, Personnel Information System has been implemented for all State government Departments. In Meghalaya, Computerization of the Photo Electoral Roll has been taken up and implemented throughout the state. In Orissa, Panchayati Raj- Portals of all 3-tier PRIs have been developed. NREGAsoft, RuralSoft, PRIAsoft have been implemented at all blocks. In Tamilnadu, PKI enabled e-Procurement System was launched enabling e-Bid submission. Intranet based workflow system was developed and implemented for Chennai Metropolitan Development Authority for Building Plan Permissions and related activities. Around 90 training programmes were conducted at Chennai in which more than 1800 officials had participated. In Uttar Pradesh, ePatravali (File Tracking System) has been implemented in 10 different departments of the state government. Koshvani portal has been launched reflecting the on-line financial status of the state, based on data received from all the district treasuries.

NIC has undertaken many ICT projects on turn-key basis. This includes deployment of infrastructure, networking, analysis, design and development of application software, testing, implementation, maintenance and services. The major projects completed in the areas of Transport, Police computerization, on-line counseling for Admission for PMT/Engineering, Treasury, Energy billing, etc. National Informatics Centre Services Inc. (NICSI) was set up in 1995 as a section 25 Company under National Informatics Centre, to provide total IT solutions to the Government organizations. NIC Services Inc. has been providing following Products & Services to organizations in the Central Government, State Governments and PSUs, etc., in the area of Hardware benchmarking, Systems Software, Application Software, Software Development, Intra-Networking, Wide Area Networking, Video-conferencing, Customized Software, IT Training, IT Consultancy & IT Implementation Support.

Promotional Matters

International Co-operation and Bilateral Trade

Department of Information Technology in association with Commonwealth Business Council (CBC) and Confederation of India Industry (CII) organized 'Commonwealth connects : International e-Partnership Summit' during March 2007 at New Delhi. The Commonwealth connects Programme works towards bridging the deepening Digital Divide across the 53 countries of the Commonwealth. This international e-Partnership summit brought together on a platform ICT Ministries from around the Commonwealth, CEOs, Managing Directors and other senior people from the private sector and ICT world, Government officials, international agencies and senior representatives from Civil Society. The President of India inaugurated the Summit. ASEAN IT Ministers and IT Industry forum was also organized in New Delhi in May 2007 to propel IT Industry in forward direction among ASEAN nations and India.

Recently held Working Group meetings with US, Australia, EU, Russia, Bulgeria, France etc. have seen enhanced participation of ICT industries from both sides. Broadly, these Working Groups deliberated and adopted the recommendations on cyber security cooperation, global workforce mobility, research collaboration in the areas of Free Open source Software, Ubiquitous Computing, RFID, Embedded System, New Generation Network, Smart Cards, e-Governance, etc. and Telecom and Media related issues for continual exchange of information and collaborative approach. The India – EU collaboration in research and development looks promising with the establishment of the ICT – National Contact Point (NCP) and Euro India Research Centre (EIRC) as a permanent platform for cooperation between India and EU.

To enhance cooperation with Vietnam, DIT is executing projects under grant-in-aid for bilateral cooperation for them. These are setting up of Advanced Resource Centre (ARC) in ICT sector, supporting the Human Resource Development for Software industry and Supercomputing facility. An MOU between India and Myanmar has been signed in December 2007 in New Delhi for setting up an IT Centre for Enhancement of IT skills (CEITS) at Yangon. A joint team of IT experts from DIT and C-DAC was entrusted with the job of carrying out a feasibility study in August 2007 at Maseru Lesotho. India has extended its support for Thailand's Foreign Mission Integrated Projects (FMIP) on Service and Technology cooperation. Kasetsart University of Thailand has shown interest in India's AGMARKNET Project and transfer of the associated e-Governance solutions of the project for their pilot project. A Two-member delegation headed by Mr. Koichi Ishii, Economist visited NIC for fact-finding Mission for JBIC FY 2007 ODA loan package for 'National Gigabit Backbone Network over NICNET' in July 2007. A modified proposal "National Gigabit Backbone Network over NICNET" has been submitted to DEA for onward submission to JBIC. A 16-member government official's delegation from Republic of Korea had visited DIT in September 2007 to understand the current development of the IT sector in India and explore the possibility of further cooperation between Korea-India in this field. This delegation had also visited STPI, Noida.

India, Brazil and South Africa (IBSA) Working Group meeting on Information Society was held in November 2007 at Brazil. The Action Plan for 2008 was discussed, which includes, measurement of e-Readiness in IBSA countries, IBSA Website, standards in e-Government and Quality of Data and IBSA Digital Inclusion Awards. An IT Centre 'Jawahar Lal Nehru India-Uzbekistan Centre for Information Technology (JNIUCIT)' at Tashkent was set up with technical and financial assistance of India. DIT has set up an IT Centre at Dushande, Tajikistan wherein Government of India has provided cost of technical infrastructure, course curricula and training etc. 5 Community Information Centre (CICs) are being set up in Ghana. These CICs will be connected with the Kofi Annan India-Ghana Centre of Excellence for Information Technology in Accra, Ghana, set up with the technical and financial assistance from India.

Feasibility study for IT Centres in Tanzania, Seychelles, Armenia, Belarus and Turkmenistan has been conducted. Feasibility study report on networking of Madagascar President's Office with other offices and organizations has been submitted to Ministry of External Affairs. A substantial progress has been achieved for implementation of the South Asia Sub Regional Economic Cooperation (SASEC) Information Highway project. CeCs and Research and Training Network (RTN) under ADB's SASEC programme which cover four countries viz., Bangladesh, Bhutan, India and Nepal.

WTO – GATS Services Negotiations

As per the mandate in the Doha Ministerial Declaration adopted in November 2001, the negotiations on trade in services including computer and related services (IT software and services including ITES and BPO) under the General Agreement on Trade in Services (GATS) of the World Trade Organisation (WTO), are going on. The negotiations are being conducted based on request – offer approach as per the guidelines and procedures adopted by the WTO Council for Trade in Services in March 2001.

India has submitted request - offers to the WTO member countries and the same are being negotiated.

The computer and related services is a continuously developing area. Due to various technological developments new types of services are emerging. Often there are difficulties to classify such emerging and new types of services within the existing classification of services given in GATS, which is based on the United Nations Central Product Classification (CPC). Therefore, in order to over come this problem, India and some other members like US and EC has proposed commitments at 2-digits level (CPC - 84 – Computer and Related Services i.e., there is no further sub-classification).

The negotiations in all the service sectors are still in progress. Department of Commerce in the Ministry of Commerce and Industry is the Chief Negotiator from India.

ELITEX 2008

Electronics & Information Technology Exposition (ELITEX 2008), the annual event of the Department of Information Technology (DIT) was held during January 2008 at New Delhi. The event comprised an Exhibition to showcase the technologies, products and services developed under the aegis of the DIT and technology-focused seminars. The Hon'ble Minister of State for Communications & Information Technology, inaugurated the event and Chairman, Parliamentary Standing Committee on Information Technology delivered the keynote address. The role of close association between Academia, R&D institutions and industries have been very clearly emerged and emphasized.

The following products/technologies were transferred and released: -

- BOSS Linux Server – C-DAC, Chennai
- Black Box for Automobiles – C-DAC, Mohali
- Smart Access Plus – C-DAC, Thiruvananthapuram
- Network Forensics Tools (NetForce) – C-DAC, Thiruvananthapuram
- KYN – Know Your Network – C-DAC, Bangalore (Electronics City)
- Anuman – Real Time Weather System – C-DAC, Pune
- Reconfigurable or Adaptive Computing Systems (RCS Card) – C-DAC
- GIPSY – C-DAC
- Infinite Commodity Store (ICOS) – C-DAC
- Honeynet India – C-DAC
- e-Senani – C-DAC
- 40 KW Radio Frequency Dryer, SAMEER
- Electromagnetic Signature Analysis, SAMEER

- GSM Based Low Cost Wireless Network, SAMEER
- Dual Frequency RF Front End for GPS Receiver, SAMEER
- Polysensors – A Water Quality Testing Device – Media Lab Asia
- Ruralnet Including DGP – Media Lab Asia
- Sehat Saathi – Media Lab Asia
- Sahayika – The Knowledge Network, Media Lab Asia
- Training Tools for Nomadic Tribes, Media Lab Asia
- Samvidha – Offline Internet Access System, Media Lab Asia
- Sanyog – Media Lab Asia
- Multiport Wireless Access System, Media Lab Asia
- aAQUA (Almost All Question Answered), Media Lab Asia
- Fertilizer Sprayer, Media Lab Asia
- SIP-EIT Scheme Brochure – DIT

The Seminar Sessions were held on the theme of ELITEX 2008 "Securing Indian Cyber Space" including 'Digital Signature for Authentication Under the IT Act 2000', 'Internet Governance – Indian Perspective', 'Digital Innovation for Inclusive Growth', 'Opportunities and Challenges in Localization', 'Info-Security – International Practices', 'Making NeGP Happen – Views and Perceptions', 'Securing Cyber Space – Issues and Challenges', 'Ubiquitous Computing: Linking Physical World to Computing World', 'Next Generation Communication and Broadband Technologies', 'R&D in Electronics' and 'Enhancing Security in Your System'. The Seminar deliberations were available on-line via direct webcasting on www.elitexlive.nic.in and www.elitex.in and also at all the video-conferencing centers of NIC.

A compilation on 562 "Technologies/Products developed under DIT Funding", containing a brief write up on each of the technologies, was widely distributed for dissemination of the information about these technologies. As on now, Department has filed 301 IPR for Patent/Copyright/Trademark and Design related applications. Out of these, 157 (132 Copyrights, 12 Patents, 13 Trademarks and Designs) have been granted.

Computer Literacy Excellence Awards for Schools

The school children, the teachers, the school authority have become aware of the need for creating excellence in computer literacy and they are improving the IT infrastructure and skill development facilities in their school. Proliferation of Technology based Education deployment at schools has grown over the year**.** 51 schools from various states/UTs were awarded by Hon'ble Minister of Communication and Information Technology, in a prize distribution ceremony at Vigyan Bhawan Delhi in October 2007.

Support to Conferences / Seminars

DIT provides financial support 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. The information related to events, supported by DIT through Grants-in-aid, has been listed on DIT's website.

During the year, about forty five proposals from various organizations like R&D institutions and academia from all over the country were approved under the scheme. Through these events the latest trends in high tech areas like Condensed matter physics, Power electronics, Microwaves and optoelectronics, Cyber crime and Security management, Networking optimization and emerging communication technologies, Optics and optoelectronics, Liquid crystal, Mossbauer effect, Advanced materials and composites, Solar cells, Microsensors, Smart materials, Nanotechnology, Vacuum devices and applications, Computational intelligence and multimedia applications, Wireless communication and Sensor networking, Grid computing, Bioinformatics, Luminescence and its applications etc., were shared by the experts and the papers were presented about the latest work being carried out in the related areas by International/National experts.

Office Automation

An Intra-DIT –Portal for G to G and G to E Services is already operational in DIT and provides services like on-line file tracking, Project monitoring, Expenditure monitoring, Parliament questions/ answer, knowledge management (Library, E-Magazine, Newspaper/News). All dynamic forms related to Personal, Store, Finance, ACRs Property Return are made available to DIT users at the Intra

DIT portal.

Intra DIT - Scope enhanced by hosting i) On-line Complaint Monitoring System, ii) On-line IT Proforma for all the employee, iii) E-profile containing the detailed resume of the employee, iv) Enhancement in EDBS (Electronic Display Board System) v) Incorporation of Utilizations certificate applications and different reports of expenditure for Project Coordinators and IFD. Some privilege User can view the details of all the employees.

Designed, Developed and hosted "On-Line Application form for selecting/short listing Potential Service Centre Agency (http://www.mit.gov.in/csc)" for establishment of 100,000 Common Service Centres across the country.

Public / Staff Grievances Redress

A total of 36 cases relating to public / staff grievances were received during the year, out of which 6 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 35th year of publication. The journal has a wider readership among the Industry and users. Its coverage in all includes aspects of promotion of Electronics, including technology developments, applications, policies and data.

During the year, the journal covered in-depth analysis reports/articles by professionals, on the latest technology, such as, India e-Readiness Assessment Report for State/Union Territories, Wimax Technology-Emerging Wireless, Broadband Solution, Business Intelligence and e-Governance, Status of ICT in Education in India, Guide to Measuring Information Society, etc.

To streamline the distribution and accounting system, a computerized data base for the subscribers is being maintained.

Electronics Industry Information System

The data pertaining to production, exports, foreign collaborations, manufacturers and product directory and other 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 production and export data is available since 1981. The manufacturer and product directory provides the information and serves as a Buyer/Seller Guide. It provides manufacturer's information such as address details, telephone, fax, executive, year of establishment, brand, manpower, sector, product range and export product range, etc.

CD on Indian Electronics and IT Industry

The Data Bank and Information Division (DBID) of the Department of Information Technology brings out latest edition of the CD to provide comprehensive information on Indian Electronics and IT Industry.

The CD covers :

- EIIS software Package: An user-friendly package that provides the directory information on Manufacturers, Product, Exports, Time-series Production and Exports data, Foreign Collaboration, etc. Information can be retrieve on the parameters 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.

IT in Parliament:

During the year 2007, a number of Parliament Questions on various issues in Information Technology and Electronic Sectors like Growth in IT Sector, National e-Governance Plan, Community Information Centre, Formulation of a Semi-conductor policy, Hardware and Electronic Manufacturing in India, Software Technology Parks, Data Protection, Policy on critical infrastructure protection, terror on internet, Cyber crime, Outcome of International Conference, Policy on critical infrastructure protection, Super Computer for Research and Development, Road Map for becoming IT Super Power, Availability of low cost computers, Manpower for IT Sector, Promotion of Internet in Rural Areas, etc., were answered in both the Houses of Parliament.

The Consultative Committee attached with the Ministry of Communications and Information Technology discussed the subjects matter on Common Service Centres (CSCs) and State Wide Area Networks (SWANs).

The Parliamentary Standing Committee on IT presented its reports to the Parliament on:

i) Demands for Grants (2007-08);

ii) Functioning of C-DAC;

iii) Information Technology (Amendment) Bill, 2006.

In compliance of directions of Speaker of Lok Sabha and Chairman of Rajya Sabha, Hon'ble Minister of Communications and Information Technology made statements on status of implementation of each recommendation made by the Standing Committee on IT on Demands for Grants 2007-08.

The Annual Reports 2006-07 and Audited Accounts of all Societies under the Administrative Control of the Department of Information Technology were laid on the Table of both Houses of Parliament during the Winter Session, 2007.

Use of Hindi and Requisite Technology Development

The Second Sub-Committee of the Committee of Parliament on Official Language visited the Centres of DOEACC Society at Jammu, Kolkata & Chandigarh and C-DAC Centres at Kolkata & Noida with a view to reviewing the progressive use of Hindi and implementation of OL Act, Rules, etc. 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 & Information Technology in Hindi, the Department has instituted incentive schemes like financial assistance for writing original books & 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 continued to be signed in bilingual form during the year with different countries.

During the year, two attached offices of the Department viz., Standardisation Testing and Quality Certification Directorate, New Delhi and National Informatics Centre, New Delhi were notified under Rule 10(4) of Official Language Rules, 1976.

Various subordinate offices, etc., of the department were visited and discussions held with the officers of such offices to review the progressive use of Hindi and guide them on implementation of various provisions of OL Act and Rules.

The Department participated in the 8th World Hindi Conference held in New York during the year and exhibited different products of Indian Language processing developed by C-DAC.

Hindi books worth over Rs. 1,75,000/- were purchased for the library.

Hindi fortnight was organised and messages were circulated to all officers and staff on Hindi Day. Various competitions were also held during the period and prizes awarded.

Appendix - I

Electronics & IT Production (Calendar Year)

(Rs. crore)

	Item	2002	2003	2004	2005	2006	2007*
1.	Consumer Electronics	13,580	14,850	16,500	17,500	19,500	21,880
2.	Industrial Electronics	5,400	5,980	8,300	8,600	10,100	11,560
3.	Computers	4,180	6,600	8,680	10,500	12,500	15,500
4.	Communication. & Broadcast Eqpt.	4,800	5,150	4,770	6,300	9,200	13,150
5.	Strategic Electronics	2,330	2,670	2,850	3,070	4,500	5,700
6.	Components	6,510	7,450	8,700	8,530	8,600	9,320
	Sub-Total	**36,800**	**42,700**	**49,800**	**54,500**	**64,400**	**77,110**
7.	Software for Exports	44,000	55,000	75,000	97,000	132,025	157,500
8.	Domestic Software	12,000	15,500	20,500	27,000	35,150	44,730
	Total	**92,800**	**113,200**	**145,300**	**178,500**	**231,575**	**279,340**

* Estimated

Electronics & IT Production (Financial Year)

(Rs. crore)

	Item	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08*
1.	Consumer Electronics	13,800	15,200	16,800	18,000	20,000	22,500
2.	Industrial Electronics	5,550	6,100	8,300	8,800	10,400	11,950
3.	Computers	4,250	6,800	8,800	10,800	12,800	16,400
4.	Communication. & Broadcast Eqpt.	4,800	5,350	4,800	7,000	9,500	14,350
5.	Strategic Electronics	2,500	2,750	3,000	3,200	4,500	6,100
6.	Components	6,600	7,600	8,800	8,800	8,800	9,500
	Sub-Total	**37,500**	**43,800**	**50,500**	**56,600**	**66,000**	**80,800**
7.	Software for Exports	46,100	58,240	80,180	104,100	141,000	163,000
8.	Domestic Software	13,400	16,250	21,740	29,600	37,000	47,300
	Total	**97,000**	**118,290**	**152,420**	**190,300**	**244,000**	**291,100**

* Estimated

Appendix - III

Electronics & IT Exports

(Rs. crore)

	Item	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08*
1.	Consumer Electronics	750	825	1,150	2,000	1,500	
2.	Industrial Electronics	1,400	1,515	1,500	2,300	3,000	
3.	Computers	550	1,440	1,200	1,025	1,500	
4.	Communication & Broadcast Eqpt.	500	165	350	500	650	
5.	Components	2,400	3,755	3,800	3,800	5,850	
	Sub-Total	**5,600**	**7,700**	**8,000**	**9,625**	**12,500**	**12,700**
6.	Computer Software	46,100	58,240	80,180	104,100	141,000	163,000
	Total	**51,700**	**65,940**	**88,180**	**113,725**	**153,500**	**175,700**

* Estimated

Summary of Audit Observations

Para No.2-Non transfer of technology (Civil)

Department of Electronics now Department of Information Technology (DIT), approved (December 1998) a collaborative project on “Technology Development for Ferrite Absorber Tiles for Electromagnetic Interference (EMI) Measurements”. The project was to be taken up by the Society for Applied Microwave Electronics Engineering and Research (SAMEER), an autonomous body under DIT, in collaboration with Associated Cement Companies Limited (ACC), a public limited company and was targeted to be completed by 30 June 2000. The objective of the project was to develop indigenous technology for Ferrite RF absorber tiles for shielded chambers to be used for all EMC, Antenna and Microwave measurements.

Audit examination disclosed that the technology developed at a cost of Rs.60 lakh, including Government grant of Rs. 25 lakh, could not be used for intended purpose resulting in unfruitful expenditure. The purpose of research was defeated as Ferrite Radio Frequency Absorber Tiles continue to be imported due to non-commercialization of technology.

Action Taken: Action Taken Note has been sent to Office of the Principal Director of Audit for vetting.

Appendix - V

Department of Information Technology - Annual Plan 2008-09 (Rs. crore)

	SCHEMES	Budgetary Support
	I. R&D PROGRAMMES	
1	SAMEER	24.00
2	Microelctronics & Nano-Tech Development Programme	35.00
3	Technology Development Council	32.00
4	Convergence, Communications & Strategic Electronics	22.00
5	Components & Material Development Programme	10.00
6	C-DAC	91.00
7	Electronics in Health & Telemedicine	13.33
8	Technology Development for Indian Languages	8.89
9	IT for Masses (Gender, SC/ST)	8.00
10	Media Lab. In Asia	1.00
	R&D Sub-Total	**245.22**
	II. INFRASTRUCTURE DEVELOPMENT	
11	STQC	42.00
12	Electronic Governance	800.00*
13	Cyber Security (including CERT-In, IT Act)	33.00
14	ERNET	0.09
15	Promotion of Electronics/IT Hardware Manufacturing	0.80
	Infrastructure Sub-Total	**875.89**
	III. HUMAN RESOURCE DEVELOPMENT	
16	DOEACC	0.44
17	Manpower Development	45.00
18	Facilitation of Setting up of Integrated Townships	0.11
	HRD Sub-Total	**45.55**
	IV. OTHERS	
19	Headquarter (Secretariat & Building)	13.34
20	NIC	400.00
21	National Knowledge Network	100.00
	Grand Total	**1680.00**

*Includes External Aid of Rs. 100 crore

EMPLOYEES STRUCTURE (TOTAL AND SC/ST) *As on 01.01.2008*

(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	2383	158	6.63%	59	2.47%
	(ii) Lowest rung of Class - I	544	43	7.90%	28	5.14%
	Temporary					
	(i) Other than lowest rung of Class - I	-	-	-	-	-
	(ii) Lowest rung of Class - I	-	-	-	-	-
GROUP B Gazetted	Permanent	457	31	6.78%	19	4.15%
	Temporary	-	-	-	-	-
GROUP B (Non Gazetted)	Permanent	468	74	15.81%	35	6.02%
	Temporary	203	31	15.27%	26	12.80%
GROUP C	Permanent	581	153	26.33%	35	6.02%
	Temporary	4 5	6	13.33%	1	2.22%
GROUP D (Excl. Sweeper & Farash)	Permanent	325	155	47.69%	23	7.07%
	Temporary	11	3	27.27%	1	9.09%
Sweeper	Permanent	39	36	92.30%	3	7.69%
	Temporary	1	1	100.00%	-	-
Farash	Permanent	20	6	30.00%	1	5.00%
	Temporary	3	-	-	-	-
TOTAL		**5080**	**697**	**13.72%**	**222**	**4.37%**

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

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