CHAPTER – I

Introduction

A. Objectives.

Department of Information Technology, 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, Electronics and Internet (all matters other than licensing of Internet Service Provider). All policy matters including e-Governance (which aims to make all Government Services accessible to the common man in his locality), computer based information technology and processing including hardware and software, standardisation of procedures and matters relating to international bodies, establishing the National Knowledge Network with multiple gigabit bandwidth to connect Knowledge Institutions across the country, 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.

B. Following are the business allocated to the Department of Information Technology:

1. Policy matters relating to Information Technology, Electronics and Internet (all matters other than licensing of Internet Service Provider).
2. Promotion of Internet, IT and IT-enabled services.
3. Assistance to other Departments in the promotion of e-Governance, e-Commerce, e-Medicine, e-Infrastructure, etc.
4. Promotion of Information Technology education and Information Technology-based education.
5. Matters relating to Cyber Laws, administration of the Information Technology Act 2000 (21 of 2000) and other IT related laws.
6. Matters relating to promotion and manufacturing of Semiconductor Devices in the country excluding all matters relating to Semiconductor Complex Limited (SCL), Mohali. The Semiconductor Integrated Circuits Layout Design Act, 2000 (37 of 2000).
7. Interaction in IT related matters with international agencies and bodies, e.g. Internet for Business Limited (IFB), Institute for Education in Information Society (IBI) and International Code Council- online (ICC).
8. Initiative on bridging the Digital Divide: Matters relating to Media Lab Asia.
9. Promotion of Standardization, Testing and Quality in IT and standardization of procedure for IT application and Tasks.
10. Electronics Export and Computer Software Promotion Council (ESC).
11. National Informatics Centre (NIC).
12. Initiatives for development of Hardware/Software industry including knowledge based enterprises, measures for promoting IT exports and competitiveness of the industry.
13. All matters relating to personnel under the control of the Department.

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C. Organizational set-up.

The Department of Information Technology in the Ministry of Communications and Information Technology (MC&IT) is headed by Secretary who assists Hon'ble Minister for Communications and Information Technology/Minister of State of Information Technology in carrying out the business allocated to the Department of Information Technology. The Department has two Attached Offices, four Statutory Organizations and seven Autonomous Societies besides three section 25 companies under its control to carry out the business allocated to the Department.

D. Schemes/Programmes being implemented by Department of Information Technology.

In the 12th Five Year Plan, the following seven thrust areas have been identified:

- e-Government
- e-Learning
- e-Security
- e-Industry (Electronics Hardware)
- e-Industry (IT-ITeS)
- e-Innovation/R&D
- e-Inclusion

In order to operationalise the objectives of the Department, schemes are formulated and implemented by the Department. The schemes are implemented directly by the Department and through various organisations / institutions. To make the technology robust and state-of-the-art, collaboration of the academia and the private / public sector is also obtained. The following broad programmes/schemes are implemented by the Department.

Society for Applied Microwave Electronics Engineering and Research (SAMEER); Micro-electronics and Nano-technology; Technology Development Council (incl. ITRA); Convergence, Communication & Strategic Electronics; Component and Material Development; Centre for Development of Advanced Computing (C-DAC); Electronics in Health and Tele-medicine; Technology Development for Indian Languages (TDIL); IT for Masses; Media Lab Asia; Standardisation, Testing and Quality Certification (STQC); Software Technology Parks of India(STPI) & EHTP; E-Governance; Cyber Security (including CERT-In, IT Act); National Informatics Centre (NIC); National Knowledge Network; Controller of Certifying Authorities (CCA); ERNET; Promotion of Electronics/IT Hardware Manufacturing; National Institute of Electronics & Information Technology (NIELIT – erstwhile DOEACC); Manpower Development (including Skill Development in IT); Facilitation of setting up of Integrated Townships and Headquarter (Secretariat & Building).

The Department has two attached offices – (i) National Informatics Centre (NIC) and (ii) Standardisation, Testing and Quality Certification (STQC) and four statutory organizations – (i) Controller of Certifying Authorities (CCA), (ii) Cyber Appellate Tribunal (CAT), (iii) Semiconductor Integrated Circuits Layout Design Registry(SICLDR) and (iv) Indian Computer Emergency Response Team (CERT-In). The Department also has seven Autonomous societies under its control namely: (i) Society for Applied Microwave Electronics Engg & Research (SAMEER); (ii) Centre for Development of Advanced Computing (C-DAC); (iii) Software Technology Parks of India (STPI); (iv) National Institute of Electronics & Information Technology (NIELIT – erst while DOEACC); (v) Centre for Materials for Electronics Technology (C-MET); (vi) Education & Research Network (ERNET) and (vii) Electronics and Computer Software Export Promotion Council (ESC). Besides

above, there are three section 25 companies viz. (i) Media Lab Asia, (ii) National Informatics Centre Services Inc. (NICSI) and (iii) National Internet Exchange of India (NIXI).

1. Attached Offices

1.1 National Informatics Centre (NIC)

NIC, under the Department of Information Technology, has been playing an important role in the development of ICT infrastructure and applications for e-Governance. It has created a nation-wide data communication network, NICNET, connecting government at various levels.

NIC provides it services to almost all the Central Ministries/departments, 35 States/Union Territories and 624 districts and large number of panchayats in the country. It has established LAN in large numbers of ministries/departments of Central Government and State Governments. The network operations of NIC include Network Security, Data Centre, Video Conferencing, e-mail Services, etc. The NICNET infrastructure is continuously being upgraded to meet the growing demand of government and to harvest the advantages of new technology for e-Governance.

NIC is developing and implementing several large e-Governance projects such as MGNREGA Soft, GePNIC, Vahan, Sarathi, IVFRT (Immigration Visa Foreigners Registration and Tracking), e-Courts, e-Office, CPSMS, Treasuries, e-PDS, e-hospital, admission counseling, Sarva Siksha Abhiyan, AGMARKNET, AGRISNET, etc. NIC developed applications are being used on day-to-day basis for management of several flagship social sector schemes of Government of India such as MGNREGA, Sarva Siksha Abhiyan, national Old Age Pensions, RSBY (Rashtriya Swasthaya Bima Yojna), etc.

NIC has been entrusted with implementation of the ambitious National Knowledge Network project. A high speed National Knowledge Network has been established in the country. It facilitates sharing and transfer of knowledge between major research and educational institutions. NKN is expected to inspire innovation and help researchers in the development of technologies that uplift the quality of human life. 590 institutions have already been connected including several IITs, IIMs and premiere research institutions such as AIIMS, CSIR, IISc, etc. It is proposed to connect more than 1500 institutions by 2012-13.

NIC also provides neutral consultancy to various government organisation on ICT projects. It has also created a section 25 company called NICSI for faster procurement of hardware, network equipment and implementation support for e-Governance projects.

1.2 Standardisation, Testing & Quality Certification (STQC) Directorate

Standardization, Testing, Quality and Certification (STQC) Directorate, an attached office of the Department of Information Technology provides Testing, Calibration, Training and Certification services through its well-developed network of laboratories spread across the country. Electronic Regional Test Labs (ERTL) at Delhi, Kolkata, Mumbai & Thiruvananthapuram and Electronic Test & Development Centres (ETDC) at Bengaluru, Chennai, Hyderabad, Pune, Goa, Mohali, Solan, Guwahati, Agartala & Jaipur are providing test and calibration services. In order to provide software evaluation services, IT Centres have been established at Delhi, Kolkata, Bengaluru, Chennai, Hyderabad, Pune, Guwahati, Mohali & Thiruvananthapuram. Additionally, Indian Institute of Quality Management (IIQM) at Jaipur, Centre for Electronic Test Engineers (CETE) at Bengaluru, Hyderabad, Pune, Noida & Kolkata, Center for Reliability (CFR) at Chennai and Regional Certification Centers at Delhi, Mumbai, Kolkata and Bengaluru have been rendering specialized services in the respective areas. Currently, STQC services are being utilized by more than 10,000 organizations representing the entire segment of industry, Government departments, R&D organizations etc.

Through National / International accreditation and recognitions, STQC Directorate has also earned an International reputation and its testing & certification services are being recognized globally. Apart from being a major testing & calibration network in the country and primary institution in this field, STQC has strengthened its infrastructure and activities in the area of Information Security and Software Testing & Certification keeping in view the Department's thrust in these areas. A number of projects sponsored by the Department in the field of Software Quality Assurance, Common Criteria, Information Security Management, Website Quality, Biometrics, e-procurement etc. have been successfully executed.

2. Statutory Organisations

2.1 Office of Controller of Certifying Authorities (CCA)

The Controller of Certifying Authorities (CCA) has been appointed under Section 17 of the IT Act, 2000 to promote the growth of e-commerce and e-governance through the use of digital signatures. The number of digital signature certificates issued continues to grow and is expected to increase significantly with the launch of various e-governance/e-commerce programmes. Initiatives have been taken in this respect through coordinated interactions between the e-governance/e-commerce application service providers and the Certifying Authorities.

CCA is assisted by Deputy Controllers, Assistant Controllers, Technical Officers and other support staff. In addition, the Office of CCA also functions with administrative set up with Director (Finance & Admn) and supporting staff.

2.2 Cyber Appellate Tribunal (CAT)

In accordance with the provision contained under Section 48(1) of the IT Act 2000, the Cyber Regulations Appellate Tribunal (CRAT) has been established in October 2006. As per the IT Act, any person aggrieved by an order made by the Controller of Certifying Authorities

or by an Adjudicating Officer under the Act can prefer an appeal before the Cyber Appellate Tribunal (CAT). This Tribunal is headed by a Chairperson who is appointed by the Central Government by notification as provided under Section 49 of the IT Act 2000.

Before the amendment of the IT Act in the year 2009, the Tribunal was known as CRAT and the Chairperson was known as the Presiding Officer. Provision has been made in the amended Act for the Tribunal to comprise a Chairperson and such number of other members as the Central Government may notify/appoint. The name of CRAT has also been changed to CAT.

2.3 Semiconductor Integrated Circuits Layout-Design Registry (SICLDR)

Govt. of India has enacted Semiconductor Integrated Circuit Layout-Design Act, 2000. The legislation lays down mechanisms for registering and protecting the intelligent property of the Integrated Circuit Layout Designs. Section 5(1) of the Act provides for establishment of Registry to be known as Semiconductor Integrated Circuits Layout Design Registry. The Registry is to receive Semiconductor Integrated Circuits Layout Design Registration applications, determine the ones eligible for Registrations and grant Registrations. The Registry is to be headed by Registrar appointed by Government as per section 3(1) of the Act.

Semiconductor Integrated Circuits Layout Design Registry (SCILDR) has been put in place for receiving Semiconductor Integrated Circuits Layout Design Registration applications and granting Registrations to eligible cases. The Registry has been made operational with effect from 1st May 2011. The Registry will have jurisdiction all over India.

2.4 Indian Computer Emergency Response Team (CERT-In)

CERT-In has been designated under Section 70B of Information Technology (Amendment) Act 2008 to serve as the national agency to perform the following functions in the area of cyber security:

- Collection, analysis and dissemination of information on cyber incidents
- Forecast and alerts of cyber security incidents
- Emergency measures for handling cyber security incidents
- Coordination of cyber incident response activities
- Issue guidelines, advisories, vulnerability notes and whitepapers relating to information security practices, procedures, prevention, response and reporting of cyber incidents
- Such other functions relating to cyber security as may be prescribed

CERT-In has been evolved as the most trusted referral agency in the area of information security in the country. Activities of CERT-In include regular interaction with Critical Infrastructure Organisations and sectorial CERTs to ensure security of the critical systems, collaboration with IT product and security vendors to mitigate the vulnerabilities in various systems, cooperation with international CERTs and security organizations on information sharing and incident response, promotion of R&D activities in the areas of Artifact analysis and Cyber Forensics and security training and awareness.

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CERT-In is the national nodal agency for responding to computer security incidents as and when they occur. 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. It provides Incident Prevention and Response services as well as Security Quality Management Services.

3. Societies/Autonomous Bodies

3.1 Society for Applied Microwave Electronics Engineering and Research (SAMEER)

Society for Applied Microwave Electronics Engineering & Research (SAMEER) is an autonomous R&D institution under Department of Information Technology, Ministry of Communications and Information Technology (MC&IT), Govt. of India. SAMEER is an offshoot of the Microwave Engineering Group of Tata Institute of Fundamental Research (TIFR), Mumbai. SAMEER was formed in 1984 as an R&D Laboratory of the Department of Information Technology (earlier known as Department of Electronics), Government of India to pursue research in the areas of electromagnetic and develop RF and microwave based systems and products. SAMEER has two other Centers namely Centre for Electromagnetic located at Chennai and Centre for Millimeter Wave research at Kolkata. The headquarters of SAMEER is located at Powai, Mumbai.

Under various core and sponsored research programmes, SAMEER has done pioneering work in the areas of Linear accelerators, Atmospheric radar systems and RF /Microwave industrial systems. In Mumbai Centre work is carried out in the areas of Microwave and RF systems, Medical electronics, Opto-electronics, EMI/EMC and high power components. SAMEER Mumbai center undertakes and executes sponsored projects for various Government agencies, Public Sector Undertakings and Industries. EMC facility for CE Marking was established at Kharghar, Navi Mumbai in 2005. The services provided by the EMI/EMC center are beneficial to the industries. A state-of-the-art Linear Accelerator infrastructure facility has been established for batch production of Linac tubes for Medical Linear Accelerators.

Chennai Centre specializes in the areas of Antennas, Communications and Electromagnetic Interference /Compatibility (EMI/EMC). It offers comprehensive test, consultancy, training, engineering and research services to national agencies and electronic industries in India. It is also involved in research in the area of RF communication, RF & Microwave antennas and Electronics packaging. Under the sponsored project of DIT, an Electronics Design Centre (EDC) for realizing System on Package (SoP) has been set up in the second campus of SAMEER Chennai at Perungudi. Establishment of Safety Laboratory for testing electrical/electronic products and a comprehensive EM calibration and reference laboratory are upcoming facilities at Taramani campus.

The Centre at Kolkata specializes in the areas of Antenna and Millimeter wave technology. It is involved in the development of RF, Microwave and Millimeter-wave (MMW) components, sub-systems and systems for various users in the country. It has established a full-fledged EMI/EMC Test and Measurement facility for evaluation of electronic products for CE marking. Under the DIT funding, a Compact Antenna Test Range (CATR) and a state-of-the-art millimeter wave laboratory have been established at the Centre.

3.2 Centres for Development of Advanced Computing (C-DAC)

Centre for Development of Advanced Computing (C-DAC) is a Society under the Department of Information Technology, carrying out R&D in IT, Electronics and associated areas. 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. Through in-house research, technology and product development efforts in collaboration with Academia, Research Labs and Industry in India or abroad, it endeavors to identify promising ideas nurtured building of ideas and competencies convert many of them into practical tools, technologies, products and services to meet the needs of SMEs and other industrial players in the country; intermediate players; and end-users in Science and Engineering, manufacturing & service sectors, government, health, development and strategic sectors.

3.3 Software Technology Parks of India (STPI)

Software Technology Parks of India has been set up as an Autonomous Society under the Department of Information Technology with an objective to implement STP/EHTP Scheme, set-up and manage infrastructure facilities and provide other services like technology assessment and professional training. The objectives of the Software Technology Parks of India are: to promote the development and export of software and software services including Information Technology (IT) enabled services/Bio-IT, to provide statutory and other promotional services to the exporters by implementing Software Technology Parks (STP)/Electronics and Hardware Technology Parks (EHTP) Schemes and other such schemes which may be formulated and entrusted by the Government from time to time, to provide data communication services including value added services to IT/IT enabled Services (ITES) related industries, to promote micro, small and medium entrepreneurs by creating conducive environment for entrepreneurship in the field of IT/ITES. The main services rendered by STPI for the software exporting community have been, statutory services, data communications services and incubation facilities. STPI has also played a developmental role in the promotion of software exports with a special focus on SMEs and start up units. The STP scheme has been widely successful and the exports made by STP units have grown manifold over the years. STPI has also been providing incubation facilities for the software exporters, specifically to the SMEs and start up units. The incubation facilities include ready to use built up space with plug and play facilities and other backup resources such as power, DG set, internet enabled workstations etc., which have been very useful for the start-up units and SMEs.

3.4 National Institute of Electronics and Information Technology (erstwhile DOEACC)

NIELIT, an Autonomous Scientific Society under the administrative control of Department of Information Technology, Ministry of Communications and Information Technology, Govt. of India was set up as DOEACC Society to carry out Human Resource Development and related activities in the area of Information & Communication Technology. The Society has 15 Centres at Agartala, Aizawl, Aurangabad, Calicut (with Southern regional office at Pudukkottai), Chennai, Chandigarh (with 3 branches at Shimla, Lucknow & New Delhi) Gorakhpur (Eastern Regional Office at Patna, Bihar), Gangtok, Itanagar, Imphal, Srinagar/Jammu, Shillong, Kohima/chuchuyimlang, Kolkata and Tezpur/Guwahati with its Headquarters at New Delhi. One more Centre at Ajmer is being set up with the approval of DIT.

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The Society is engaged both in the formal & Non formal Education in the area of 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.

NIELIT 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 NIELIT Centres are also engaged in Short Term Courses in the area of Information Technology, Electronics Design & Technology, Manufacturing Technology, and Maintenance Engineering etc. Besides the training activities, NIELIT Centres are offering consultancy services and software development.

In the Non Formal Sector, the Society is implementing the DOEACC Scheme on Computer Courses, a joint Scheme of the then Department of Electronics (DOE), now Department of Information Technology (DIT), in the area of Information Technology 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 8.59 lakhs candidates have been registered, and about 1.66 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. The Centres are also embarking upon training programme to develop entrepreneurs and provide ICT based services to users.

3.5 Centre for Materials for Electronics Technology (C-MET)

Centre for Materials for Electronics Technology (C-MET) has been set up as a Society under the Department of Information Technology as a unique concept for development of viable technologies mainly in the area of electronics materials. 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". C-MET is operating with its laboratories with well carved out programmes at Pune, Hyderabad and Thrissur. The objectives of CMET are to establish the technology up to pilot scale for a range of electronic materials transfer the same to industry for commercialization; to establish relevant characterization facilities; to undertake applied research activities in the area of its operation; to establish national Data Base on Electronics Materials.

3.6 Education & Research Network (ERNET) India

Education & Research Network (ERNET), India is an autonomous Scientific Society under the administrative control of the Department of Information Technology. ERNET India has been serving institutions in various sectors namely, health, agriculture, higher education, schools and science & technology and thus, understands the needs of these knowledge institutions. ERNET India is helping to create a truly global research community where advanced resources and new learning can be effectively shared by connecting the research network in Europe with ERNET. ERNET network is a judicial mix of terrestrial and satellite based wide area network. ERNET Network Supports IPv4 and IPv6 Internet protocol in dual stack, unicast and multicast. IPv6 routing protocol OSPFv3, end-to-end Ethernet services, QoS, Video Conferencing, authentication and authorization have also been implemented on ERNET network.

3.7 Electronics and Computer Software Export Promotion Council (ESC)

Electronics and Computer Software Export Promotion Council (ESC) is mandated to promote India's exports of Electronics, Telecom, Computer Software and IT Enabled Services. ESC offers a varied set of services to its members for accelerating exports. Some of the services of ESC are as follows:

- ESC implements foreign assisted development programmes to facilitate joint ventures, technical /financial collaborations and strategic alliances.
- ESC undertakes Market Research / Studies in major overseas markets.
- For enhancing the brand equity of Indian IT industry, ESC undertakes publicity Campaigns in overseas markets.
- ESC facilitates business interface between Indian and foreign companies through Buyers – Seller Meets, Receiving and Mounting Business Missions and Match-making and Contact Promotion.
- ESC locates new business partners for Indian electronics, computer software and IT companies.
- For facilitating foreign trade, ESC provides on-line facility for Data Search, Information Dissemination and Broadcast using internet and Dial-up facilities.

ESC provides a set of value-added services to its members as well as overseas companies. These are:

- ESC has a critical mass of Information on electronics, IT and services sectors.
- ESC provides information at a single point.
- ESC assists in moving up the value chain.
- ESC acts as an Information Kiosk for small enterprises.

4. Other Organisations

4.1 Media Lab Asia (MLA)

The Media Lab Asia has been set up as a not-for-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 works on the paradigm of collaborative research in the task of developing relevant and sustainable technologies and bringing them to the daily lives of people. Media Lab Asia works with academic and R&D institutions, industry, NGOs and Governments in this endeavor. It has reached 1500 villages / remote sites in the country in almost all the states of the country.

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 research themes of Media Lab Asia include an affordable computing and access device, technologies for broadband rural connectivity, advance interfaces etc.

4.2 National Informatics Centre Services Incorporated (NICSI)

NICSI was set up by NIC in 1995 as a Section 25 Company to promote the economic, scientific, technological, and cultural development in India by promoting the utilization of Information Technology, Computer Communication Network, Informatics, etc. by a spin off of the expertise developed by National Informatics Centre of Government of India including its Computer Communication Network, NICNET and associated infrastructure and services. NICSI, since its inception has been providing services to government organizations in coordination with NIC. NICSI has implemented large number of e-Governance projects. It helps in the formulation of ICT projects, procurement of hardware and system software and establishment of ICT infrastructure including LAN/WAN/VC and data Centres. It also facilitates in providing consultancy services in coordination with empanelled organization and under the overall technical guidance of NIC.

4.3 National Internet Exchange of India (NIXI)

The National Internet Exchange of India (NIXI) is a not-for-profit organization under Section 25 of Companies Act to facilitate handing over of domestic Internet traffic between the peering ISP members. This will enable more efficient use of international bandwidth, save foreign exchange. It will further improve the quality of services for the customers of member ISPs, by being able to avoid multiple international hops and thus lowering delays. Five additional Internet Exchanges Nodes have been operationalised at Ahmedabad (Gujarat), Bengaluru (Karnataka), Hyderabad (Andhra Pradesh), Mohali (Chandigarh) and Lucknow (Uttar Pradesh) to add to the existing hubs at Noida (Delhi), Mumbai, Chennai and Kolkata. The Internet Exchange nodes have been successful in ensuring the Internet traffic originating within India and also with destination in India, has remained within the country, resulting in improved traffic latency, reduced bandwidth cost and better security.