

EXECUTIVE SUMMARY

Department of Information Technology in the Ministry of Communications and Information Technology is 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).

The vision and mission for IT sector for the 12th Plan is e-Development of India through a multi-pronged strategy of e-Infrastructure creation to facilitate and fast-track e-Governance, Promotion of Electronics Hardware Manufacturing and Information Technology–Information Technology enabled Services (IT-ITeS) Industry, providing support for creation of Innovation/Research & Development (R&D), building knowledge network and securing India’s cyber space.

In order to achieve the vision and mission for the sector in the 12th Five Year Plan, seven thrust areas were identified. The themes of these thrust areas are as under:

- 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 the organizations/institutions under its jurisdiction. To make the technology robust and state-of-the-art, collaboration of the academia and the private/public sector is also obtained. 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.

Chapter I of this document highlights the functions of the Department, organizational set up and major schemes/programmes being implemented by the Department. Chapter II depicts the schemes/programmes of the Department, financial outlays, physical outputs, projected outcomes, etc. for the financial year 2012-13; Chapter III details the reforms measures and policy initiatives; Chapter IV reviews past performance of the schemes/programmes; Chapter V portrays financial analysis of various schemes/programmes; and Chapter VI reviews the performance of Statutory and Autonomous Bodies.

Overview

The global Information Technology sector has made remarkable progress in the last decade. It has transformed the world, enabling innovation and productivity increases, connecting people and communities, and improving standards of living and opportunities across the globe. While changing the way individuals live, interact, and work, IT has also proven to be a key precondition for enhanced competitiveness and economic and societal modernization, as well as an important instrument for bridging economic and social divides and reducing poverty.

Information Technology has tremendous potential for the future of India. In view of the overall priorities of the Government, a focused and coordinated push in the IT sector during 12th Plan period will help India achieve faster, sustainable and more inclusive growth. Accordingly the vision and mission for IT sector for the Twelfth Plan will be on e-Development of India through a multi-pronged strategy of e-Infrastructure creation to facilitate and fast track e-governance, promotion of Electronics hardware manufacturing & Information Technology – Information Technology Enabled Services (IT-ITeS) Industry, providing support for creation of Innovation / Research & Development (R&D), building knowledge network and securing India's cyber space.

Thrust Areas

e-Government

The National e-Governance Plan (NeGP) with a vision to make all Government services accessible to the common man in his locality, through common service delivery outlets, and ensure efficiency, transparency, and reliability of such services at affordable costs is an initiative of the Government of India. NeGP is a program where the Department of Information Technology plays the role of a catalyst while the actual implementation of the projects is with the respective Ministries and Departments. Under the programme robust e-infrastructure is being created to facilitate deployment of ICT solutions by various Departments and state Governments. Besides, there are a number of Mission Mode Projects (MMPs) which have a high citizen interface. Significant progress has been made in the implementation of the core infrastructure and also in most of the Mission Mode Projects. 28 SWANs and 16 State Data Centres are already operational. The State Service Delivery Gateways (SSDGs) have been implemented in 2 States. For making public services available to citizens on anytime, anywhere basis, Department of Information Technology have established around 97,000 Common Services Centres across the country as web enabled outlets to access e-Governance services. Under the Capacity Building Scheme, the State e-Mission Teams (SeMTs) have been setup in 32 States and over 700 Government officials have been trained. Standards have been laid down in the areas of open standards, biometric standards, metadata & data standards, localization

and Language Technology Standards etc. under phase-I e-District project is being implemented in 41 districts in 16 States. Significant progress has also been made in delivery of services identified under various Mission Mode Projects.

In the twelfth Five Year Plan, Department of Information Technology would strengthen and extend the existing core infrastructure projects to provide more horizontal connectivity, build redundancy connectivity, undertake energy audits of SDCs etc. The core infrastructure including fibre optic based connectivity will be leveraged and additional 150,000 CSCs will be setup to create the right Governance and service delivery ecosystem at the Panchayats. The high penetration of mobiles will be leveraged to deliver both informational as well as transactional Government services on mobile phones. The wide spread use of ICT requires that Government takes adequate measures to promote ethical use of data and technology and create a safe and secure cyber world. The Department also plans to reduce the social and economic disparities existing due to information asymmetry, accessibility and ability to utilize the information through the use of ICT. The Department intends to assist all Central and State Government Departments in better targeting the delivery of social welfare schemes to the beneficiaries through adoption of ICT in Government functioning. NeGP will also be expanded to include new MMPs in the areas of Health, Education, PDS, Posts, Skill up-gradation, integrated system of crime to adjudication to jail, Safety & Security against crime, RTI, etc.

e- Learning

In order to sustain India's lead in IT-ITeS sector and to capture new opportunities in the electronics hardware industry, there is a need to address the gaps in the availability of skilled and technically trained human resources for meeting present and future requirements of the sector.

e-Learning mode and the related tools provide a platform for enhanced learning, cost effective delivery, flexibility of learning at the convenience of the learner. Language Technology offer universal access to information and services to the masses in their own language. It is imperative that tools for information processing in local languages are developed and made available for wider proliferation of ICT. This would benefit the people at large and thus pave the way towards 'Digital Unite and Knowledge for All' and bridging the Digital Divide.

Creation of e-infrastructure for e-Learning is a very important aspect, essential to promote this mode of learning that can also supplement the traditional method of learning. In order to work out a road map to generate human resources for the electronics and ICT industry using ubiquitous learning models. A holistic eco system will be but is for the generation of skilled population which can leverage the use of knowledge effectively for the economic and social development of the country.

There is a need to integrate formal and non-formal system of education by introducing the concept of Virtual University or Central University with multiple campuses and blended learning mode.

As a part of skill development initiatives, the capacities of NIELIT (erst while DOEACC) and C-DAC would be enhanced to generate 10 million skilled manpower by the year 2022 starting from the diploma level right up to doctoral level and in line with the

emerging industry/market/society needs. The Central Government scheme for providing financial assistance for setting up of ICT Academy in each State/UT under PPP mode by respective State Governments/UTs along with industry/industry associations has been proposed.

e-Security

Cyber security requirements are dynamic in nature and change with the threat environment. The cyber security threats emanate from a wide variety of sources and manifest themselves in disruptive activities that target individuals, business, national infrastructure and Governments alike. Their effects carry significant risk for public safety, security of nation and the stability of the globally linked economy as a whole. As such, cyber security threats pose one of the most serious economic and national security challenges. The initiatives taken by the Government so far have significantly contributed to the creation of a platform that is capable of supporting and sustaining the efforts to securing the cyber space. However, due to the dynamic nature of cyber threats, these actions need to be continued, refined and strengthened consistent with emerging threats and evolving technology scenario.

Cyber Security strategies to be adopted during the Twelfth Five Year Plan include (a) enhancing the understanding with respect to factor such as dynamically changing threat landscape, technical complexity of cyber space and availability of skilled resources in the area of cyber security, (b) focus on proactive and collaborative actions in Public-Private Partnership, (c) enhancing awareness and upgrading the skills, capabilities and infrastructure, (d) improving interaction and engagement with various key stakeholders, (e) carrying out periodic cyber security mock drills to assess the preparedness of critical sector organizations to resist cyber attacks and improve the security posture and (f) supporting and facilitating basic research, technology demonstration, proof of concept and test bed projects in thrust areas of cyber security through sponsored projects at recognized R&D institutions. Six focus areas have been identified for implementation of the Cyber Security activities. These are: Enabling Legal Framework, Security Policy, compliance and Assurance, Security R&D, Security Incident – Early Warning and Response, Security awareness, skill development and training and Collaboration.

The Department will act as a nodal agency to implement the cyber security activities planned for the XII Plan. Public private partnership (PPP) arrangement will be explored in the relevant areas.

e-Industry (Electronics Hardware)

Electronics is a flagship sector of strategic importance. With the demand for electronics hardware expected to rise rapidly, India has the potential to become an electronics hardware manufacturing hub and contribute significantly to the increase in our GDP, employment and exports. Electronics Hardware Manufacturing continues to be a thrust area for the Government. The vision is to establish India as a leading global destination for Electronics System Design and Manufacturing (ESDM). The objective during the Twelfth Five Year Plan (2012-2017) is to achieve domestic production of about US \$ 122 Billion (₹ 5,98,000 crore) by 2017 by creating an industry friendly policy framework and ecosystem for the ESDM sector. This is expected to generate exports of about US \$ 20 Billion (₹ 98,000 crore), direct employment of about 3.5 Million and indirect employment of 6.5 Million.

The aim is to create a level playing field and an enabling environment for the industry to compete globally. This requires several initiatives including setting up of a semiconductor fab, providing support to manufacturing across the value chain, providing world class infrastructure through Electronics Manufacturing Clusters, supporting R&D and innovation by setting up of Electronics Development Fund. Besides, efforts to institute a mechanism for mandating compliance to standards for electronics goods, communications and brand development, marketing of India as an investment destination and human resource development are some of the other initiatives which need to be pursued. There is a need to set up a National Electronics Mission in the Twelfth Five Year Plan.

e-Industry (IT-ITeS)

Information Technology/Information Technology Enabled Services sector (IT/ITeS) has played a vital role in acquiring a Brand Equity for the nation and has contributed immensely to the increase in the GDP, employment and exports. The IT/ITeS exports have grown from a mere \$ 4.0 billion (about ₹ 19,600 crore) in 1999-2000 to \$ 31.2 billion (about ₹ 1,52,800 crore) in 2006-07 and to a staggering \$59 billion (about ₹ 2,68,610 crore) in 2010-11. This sector accounts for over 5% of India's GDP, and employs 2.5 million professionals directly and another 8.3 million people indirectly. A majority of the Fortune 500 and Global 2000 corporations are sourcing IT/ITeS from India. Further, most of Capability Maturity Model (SEI-CMM) Level 5 firms are based in India.

India continues to be a premier destination for the global off-shoring market of IT-ITeS, accounting for almost 55% in 2010 as compared to 49% in 2005. India has emerged a dominant player in global IT services outsourcing with increase in India's share to 70% in 2010 from 52% in 2005. Although India's share in BPO sourcing market has declined from 45% in 2005 to 34% in 2010 but continues to be the leader in this space. Another important factor to be considered is that due to its nature of being less capital intensive and flexibility in operations, IT/ITeS industry can be relocated in a very short time. This increases to almost 50 locations which present a huge challenge to India's success story.

In the Twelfth Five Year Plan, IT-ITeS industry's growth momentum would be sustained by building an enabling policy environment, supporting small and medium enterprises and providing competitive edge through fiscal benefits, innovation fund and incubation, building world-class infrastructure in identified tier II & tier III cities to create new hubs for industry development as potential centres of excellence and to address the gap of employability through skill development initiatives.

e-Innovation/R&D

There is a high correlation between investment in innovation in and actual benefits flowing from it to the society. In India, in the post liberalization era, due to opening up of the economy, almost all new technology solutions came either through direct import or through assembly with large amount of imported components or modules. However, the country is largely dependent on innovations done elsewhere. Some institutions and industries are doing innovative works which are at nascent stage. These need to be carried forward and increased manifold. It is imperative that research and innovation initiatives in the area of Electronics & IT at various institutes are linked to societal and industry needs directly. Therefore, the overall objective during the 12th Plan would be to

make India a hub of research, development and innovation in the area of IT and electronics leading to commercialization so as to contribute to the overall socio-economic growth of the country.

Overall achievement in the 11th Plan indicates that reasonable amount of R&D infrastructure, technology development and also some industry involvement have been achieved in various areas like Nanotechnology, Microelectronics, High Performance Computing/Grid Computing, Industrial Electronics, Free/Open Source Software, Broadband and Wireless Sensor Network, RF/Microwave Electronics, etc.

Innovation promotion and nurturing entrepreneurs need to be the major area of thrust during the 12th Plan. Activities are proposed at all 4 stages of innovation, i.e., idea stage, innovation phase, incubation phase and business acceleration phase. Involvement of private sector in R&D/innovation activities is expected to play a major role during the 12th Plan to fulfill the objectives of the proposed Electronics Development Fund (EDF). Certain “quick-hit” initiatives, as short-term R&D need to be taken up to identify and develop products which may not be futuristic in nature but have immediate applications in next 2 years’ time. This is expected to kick-start a positive reinforcement cycle motivating industry, policy makers and the market.

Considering the achievements, the R&D activities undertaken during the 11th Plan needs to be accelerated in the 12th Plan for greater industry involvement and commercialization and also to include some new areas like initiatives on Next Generation Computing Systems/India Microprocessor Development Initiatives, Cloud Computing, a few demonstration projects (like Smart Grid, Solar Village, Indian Satellite Phone) and special initiatives focused for students in the area of VLSI Design. The report has also recommended establishment of a Centre of Excellence on Sensors, specific hardware fabrication and design houses/services to help students and SMEs in their development endeavour. Thus the main strategy for the 12th Plan would include widening the R&D base, promoting R&D for manufacturing and creation/augmentation of R&D infrastructure.

e-Inclusion

Inclusiveness is a critical element in the strategy of the IT Sector in Twelfth Five year Plan. This is to be achieved by ensuring that growth is broad-based and is combined with programmes aimed at overcoming deficiencies in critical areas, which affect large numbers of the vulnerable sections of our population, particularly the Scheduled Castes (SCs), Scheduled Tribes (STs), women, and the minorities. The strategy is to deal with these deficiencies through programmes aimed at providing e-accessibility, e-competences, for better access to health, education, and other essential services and programmes of livelihood support.

In order to achieve the vision of e-Inclusion in the Twelfth Five year Plan, an enabling and empowering strategy along with intervention and a focus on specified target groups and areas is to be adopted. The target groups identified for e-Inclusion are SC, ST, minorities, Gender, differently-abled, senior citizens and BPL households. Key programmes and projects in identified components of e-Inclusion would be initiated as part of a major government programme being modeled along the lines of NeGP. A study team will be constituted to examine and set the monitorable targets in consultation with all the stakeholders. It will also identify ICT indicators for e-Inclusion and propose policy and programme evaluation mechanism for the projects in the 12th Five Year Plan.