

Preamble

West Bengal has always been regarded as one of India's States with high intellectual capital and with immense potential to emerge as one of the most attractive investment destinations for the Information Technology (IT) and Information Technology-enabled Services (ITeS) sectors. However, West Bengal was a late starter in this sector and presently it contributes only about 2.6% of India's software turnover, providing employment to an estimated 1,00,000 persons, concentrated in the Kolkata metropolitan area. The major IT/ITeS companies of the country operate in the State, with the seven top companies generating about 70% of West Bengal's IT revenues. A well-planned and effective strategy is required to encourage additional investments from large IT companies, to revitalize and tap the talent of home-grown entrepreneurs in the small and medium sector and to enable the spread of the industry to Tier II and Tier III locations. Ultimately, there is a necessity to move up the value-chain from merely providing services, to the development of products and registering Intellectual Property Rights. West Bengal being the second most densely populated State, with pressure on its scarce land resource, the IT and ITeS industry provides the high employment potential per unit of land utilized and deserves to be promoted on a priority basis vis-a vis other industries. Access to IT tools and communication hardware by all sections of society is also required to be enabled. This would facilitate the electronic delivery of Government services through effective e-Governance measures and would have a positive impact in the social and economic lives of a larger community of citizens.

As far as the Electronics System Design and Manufacturing (ESDM) Sector is concerned, the position of West Bengal in an all-India context is not satisfactory, given the relatively poor scenario of the country as a whole.

West Bengal has, however, some presence in the manufacture of solar equipments. On the other hand, the hardware sector in West Bengal has great potential for growth with the availability of skilled and qualified manpower. A large part of the existing manpower in the semi-conductor industry in India, for instance, is from West Bengal.

The Government of West Bengal had constituted two separate advisory committees on the development of the software and hardware sectors in the State in 2011. Shri Nagavara Ramarao Narayana Murthy is associated as Chief Mentor and Shri Satyanarayan Gangaram Pitroda is the Chairperson of both the committees. Eminent personalities from the industry and from educational and R & D institutions comprise the other members. The committees are assisting the State Government in developing public policy to achieve the overall goals as finally decided by the Government. Under the guidance of the two committees, a number of working groups with experts in the relevant fields have also been formed. All the working groups have submitted inputs in the form of recommendations which have been considered during the drafting of this policy.

The policy will be known as the **West Bengal Policy on Information and Communication Technology, 2012** and will replace the existing policy West Bengal IT Policy 2003.

I. Vision

To become one of the leading States in India in the IT and ITeS and ESDM sectors and to enable West Bengal to transform into a knowledge-driven welfare society with extensive use of IT and ITeS in Governance and in the daily lives of the people of the State.

II. Mission

- To become one of the top three States in India by turnover and employment, both in the IT and ITeS and ESDM sectors by 2020.
- To create an investor-friendly climate in the State for increasing West Bengal's share in production of electronic goods in India to 15% by value by 2020.
- To create a robust IT eco-system for enhancing competitiveness and productivity of the key economic sectors affecting the lives of the majority of the population of the State.
- To provide seamless and reliable citizen-centric services and information for the public, thereby enhancing efficiency, transparency and accountability in Government.
- To ensure e-literacy among the masses to reduce the so-called "digital divide".
- To disseminate the IT and ITeS activities across the State so that rural population is equally benefited.
- To seed all educational and R& D institutions with required IT infrastructure including state-of-the-art communication facilities for promoting excellence and transforming West Bengal into a knowledge-based society.
- To leverage on the premier educational and research institutions located in West Bengal to emerge as a leading State in the area of chip design, embedded software industry and areas related to Very-large-scale integration (VLSI) technologies.
- To significantly enhance availability of skilled manpower in the ESDM sector. Special focus for augmenting post graduate education and to produce about 400 PhDs in this field annually by 2020.
- To work with the Government of India and other State Governments for developing and mandating standards and certification for electronic products and services and to strengthen the Quality Assessment infrastructure in West Bengal.
- To develop a necessary mechanism for effective disposal of e-waste in the State.

III. Strategies

West Bengal has always been regarded as one of India's States with a high level of intellectual capital and an immense potential to emerge as the most attractive destination for investments in the field of IT/ITeS and ESDM. The quality of talent available is demonstrated by the fact that students from the State fare well in all-India engineering entrance examinations and a significant section of the NRI entrepreneurship in this sector, too, belong to this region. Premier educational institutes such as the Indian Institute of Technology, Kharagpur, the Indian Institute of Management, Calcutta, the Indian Statistical Institute (ISI), Bengal Engineering and Science

University (BESU) and Jadavpur University are located in the State. Two colleges, Presidency and St. Xavier's, are ranked among the top degree colleges in India. West Bengal is the prime source of artistic talent in India and has a strong tradition of the visual arts, with the history of modern Indian theatre and cinema being intertwined with the city of Kolkata and West Bengal. The creative tradition of the State in different fields of entertainment-related IT and ITeS activities e.g. animation can significantly help it in attaining its vision. West Bengal has enjoyed lower attrition rates compared to the industry averages in India and the State offers IT players one of the lowest operation costs in the country. The strategies for the fulfilment of the Mission outlined above for IT/ITeS and ESDM sectors have some common and some separate elements. The common elements are dealt with first in Section 2 below and thereafter, the strategies for IT & ITeS and ESDM sectors have been dealt with in two separate sections.

2. Common Issues

2.1 Human Resources

- The State will cause reforms in the technical education policy of the State so that it is closely aligned with the needs of the industry and there is a qualitative improvement in the standards of instruction and industrial exposure. It will encourage a model that will ensure that necessary investments are made in this sector and more quality institutions are set up.
- The State will institutionalize an Industry-Academia forum to facilitate regular communication on pertinent issues including updating of curriculum. Common infrastructural facilities will be set up by the State on a no-cost no profit basis for capacity building of personnel from SME companies.
- The existing skill development programmes of the State and Central Governments in respect of the IT and ITeS sector will be evaluated and mandated for the improvement of quality.
- The State recognising the importance of e-literacy in overall development of the child will ensure that all children completing elementary education get an exposure to basic computer skills in school.
- The State shall ensure that within next five years every family in the State has at least one e-literate member amongst it.
- Special training schemes suited for the rural population will be initiated so that job opportunities in IT and ITeS sectors open up for them.

2. Common Issues

- The Information Technology Department will be renamed as the Information Technology and Electronics Department, recognizing the importance of the ESDM sector.
- The Government will establish a Directorate of Information Technology and Electronics and set up separate Branches under the Department.

- At the operational level, the Government will ensure that potential investors are serviced through a single window system and will enable web-based transactions to the maximum extent. The Government will examine the provisions for self-certification and automatic clearances for various Acts and will continue to permit the same to the extent possible.
- It is also proposed to review Government procurement policies in the State, so that local manufacturers and developers have a preference in participating in Government procurement of hardware and software.
- The West Bengal Electronic Industries Development Corporation (WBEIDC) will be reorganized so that it concentrates on developing technical competencies, especially in e-Governance, besides providing incubation infrastructure for the SME sector both in software and hardware.
- The resources of the West Bengal unit of the National Informatics Centre (NIC) will be utilized optimally by amendment of the Rules of Business of the State Government and transferring the subject from the Development and Planning Department to the IT department and by ensuring greater coordination between the IT department, other departments, District units and the State unit of the NIC.

3. IT and ITeS Sector

3.1 Creation of a geographically-decentralised and competitive ecosystem for the sector

- The Government recognizes that West Bengal being the second most densely populated State and with considerable pressure on its scarce land resources, the IT and ITeS industry provides high employment potential per unit of land utilized. The Government will encourage the intensive use of land by allowing horizontal utilization by IT and ITeS Companies through necessary changes in building rules and regulations.
- At the same time, efforts would be initiated to develop infrastructural facilities in Tier II and III cities for the expansion of the sector outside the greater Kolkata area. Cities such as Durgapur, Asansol, Kharagpur, Kalyani, Siliguri etc. have been identified where road, rail and air connectivity are already well-developed. IT Hubs and/or Incubation Centres in such identified cities and other areas with potential such as Falta, Haldia, Barjora, Purulia are also to be developed. Apart from infrastructure modules in the form of space and telecommunication facilities which would be on offer to the SME sector at reasonable rates, the State Government will also undertake other measures like additional fiscal incentives for new set-ups in Tier II and Tier III cities. To fulfil the need of qualified manpower, the State will arrange for requisite skill development amongst the local population, and also facilitate the recruitment process through localized job fairs. The aim is to help escalating the local economy by creating increasing employment opportunities in the districts and ensuring an inclusive growth.
- The State Government will also ensure that digital communication infrastructure in the rural areas is substantially upgraded in the next five years.

- Other than the infrastructure and fiscal incentives and enhancement of localized human resources, the State will also vigorously pursue the promotion of innovation and R&D to build a world-class knowledge-based business scenario.

3.2 Focus Areas

- The State wishes to focus its attention in certain key areas identified as avenues of high growth and traditional strength. These include key industry verticals namely, financial services and banking, insurance, retail & distribution, engineering design and life sciences.
- The State will take necessary initiative to assist the industry to focus on these sectors through creation of necessary human resources who would be technically equipped to work in these areas. The institutionalized Industry-Academia forum would be utilised for producing required human resources.
- Animation and Gaming Industry (AGI) is the other vertical where the State wants to focus its attention. It is observed that while a large percentage of professionals working in this sector originate from this State, the share of West Bengal as a State in the sector is insignificant. As per a NASSCOM study in recent years (2008-2012), the animation industry in India is expected to grow at a CAGR of 22 percent and the gaming industry at 49 percent. The State wishes to promote the AGI in a systematic manner, so that in the next five years the CAGR of the State in the animation industry is at least 35% and that in the gaming industry is 75%. To fulfil this objective, the following measures will be taken:
 - Recognition and development of a AGI curriculum at University- level to offer specialised diploma, graduation and post graduation courses through existing institutions;
 - Introducing AGI curriculum in select Fine Arts and General Stream courses and in technical institutions;
 - Involving industry experts for standardising and upgrading courses;
 - Setting up a permanent Working Group on AGI with select professionals of repute and representatives from relevant Government Departments.

3.3 Promotion of innovation and R&D

- The State Government will set up a Venture Capital Fund with a corpus of Rs 10 crore to start with through a State Government Agency to encourage innovation and creativity among the local entrepreneurs.
- Development of applications and solutions related to cloud computing and mobile value added service and other cutting edge technologies will also be assisted through this Venture Capital Fund.

- As already stated, incubation centres for start-up Companies will be set up by the State Government agencies in Tier-II and Tier-III cities.
- Universities and technical institutions will be encouraged to take up innovation challenges in collaboration with R & D organisations as well as private companies.
- The setting up of private Data Centres would be encouraged by including such activities under a relevant incentive scheme.
- In order to encourage the participation of entrepreneurs in innovative governance measures by the State, the development of suitable technologies through solution-oriented research related to G2C and G2G services would be incentivized.

3.4 Leveraging IT in the enhancement of productivity in different sectors of the economy

- The State government recognises that in the last decade the IT sector has contributed to the nation's accelerated growth momentum by enhancing efficiency in certain sectors of the economy. While the large industrial enterprises have immensely benefited from use of IT and telecommunications, there is a need to extend its use in the agriculture, animal husbandry, fishery, and SME sectors for a more balanced growth and development.
- The State will encourage use of IT in the SME sector through the setting up of common infrastructure and training facilities. For the benefit of global marketing of handicrafts and indigenous therapeutic products, suitable portal would be developed.
- To increase productivity in agriculture and allied sectors through modern models of extension services, it is imperative that various e-content is developed in local languages. The delivery mode of such contents could be varied, including web portals, compact disc or video broadcast on demand. Information and Communication Technology, including mobile telephone technology, would be leveraged to disseminate market information and to set up e-auction services for inputs as well as for marketing agricultural produce.

3.5 Auxiliary support for investors

- The Government would strive to simplify the procedural framework under various laws for the IT/ITeS sector so that it would facilitate the smooth functioning of the business.
- All IT companies would be notified as 'Public Utility Service' providers under the Industrial Disputes Act, 1947.
- All IT units, given the nature of their operations, will be granted permission to work on a 24x7 model and would be enabled to engage female employees between 20.00 hours and 06.00 hours under the provisions of the West Bengal Shops and Commercial Establishment Act, 1963.

3.6 E-Governance

For effective implementation of e-Governance initiatives, the State Government will adopt,

among others, the following measures:

- The State Government will ensure that all identified citizen services are delivered electronically.
- Enable mobile-telephone-based delivery of citizen-centric services by integrating Internet-based and mobile-based delivery of services into a common platform.
- All procurement and auction of Government property above a notified figure are to be conducted online.
- All important Government documents and data generated will be preserved in digitised format and will be open to public except that are relevant for the security of the State and for any other reason cannot be available in the public domain.
- The State shall frame a policy of digital data preservation so that technological obsolescence does not affect their later usefulness.
- The State Government will formulate a policy related to obsolescence and disposal of hardware and software being utilized by different Departments.
- Standardisation of Unicode assignments of local languages would be encouraged. While this has been achieved to a considerable extent for the Bengali and Alchiki scripts, the State Government will take the initiative for standardisation of Unicode assignments for Urdu and Nepali.
- The State will give special importance to the capacity building of its employees in the IT domain and evaluate their competency in this field while deciding their future advancement in their professional career.
- The State will create a pool of IT professionals under the IT Department to assist different departments in the execution of its e-Governance initiatives.
- The State shall promote open standards in all e-Governance projects. The State shall also adopt open technologies in all its e-Governance projects to the extent it is technically feasible and practicable.

4. Electronic System Design and Manufacturing (ESDM)

4.1 Infrastructure

- The State of West Bengal has reasonably good infrastructure for setting up ESDM units in the State. The strategy of the State for providing infrastructural support can be divided into two parts, one for the SME sector and the other for any large unit setting up shop in the State.
- For the SME sector the State will build Clusters in select cities like Kolkata, Falta, Asansol, Kharagpur, Purulia, Kalyani and Siliguri. Some three or four other cities also will be identified

for building such Clusters. The target is to build at least fifteen such clusters in West Bengal in the next five years, either through Central assistance or through State funding.

- The investors falling in the category of SME and willing to set up units other than in Electronic Clusters will be also be offered maximum assistance for its infrastructural needs.
- For the large units willing to set up units in the State, the State will offer all infrastructural support at reasonable cost and assist the investor through a dedicated "Hardware cell" of the IT Department.
- A "Design Centre" will be developed with the assistance of one or more premier technological institutions located in the State.

4.2 Focus Areas

- Considering the known intellectual capital that exists in the State of West Bengal, the State will attempt in promoting the creation of Intellectual Property (IP) on Design, Automation and Embedded Systems.
- Leveraging existing strengths, the State will strive to attract more investments in focussed verticals like Lighting, Smart Meters, Security Systems, Set Top Boxes, Industrial and Medical Electronics and certain specified components.
- The State will try to bring investments in focussed ancillaries in LCD and Plasma devices, Solar photovoltaic, LED equipments, Device level Packaging, and Assembly Test Mark Pack.
- The State will try to reach out to the relevant companies involved in the above four sectors to invest in West Bengal where opportunities are abundant.

4.3 Setting up of Semiconductor fabrication plants ("Fab")

The State Government will carry out all necessary policy and promotion efforts to bring in investment in the Fab sector, both in Digital Fab and Analog-Mixed Signal Fab. For setting up Fab units, the State Government will provide suitable land-sites and facilitate the building of necessary infrastructure.

4.4 Look East Policy

The State Government will take effective action in mobilizing foreign direct investments in the electronics hardware sector, especially from Japan and Taiwan, given the proximity and the potential in these two countries.