

# INDIA: E-Readiness Assessment Report 2004

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For States/Union Territories

September 2004

Department of Information Technology (DIT)  
'Electronics Niketan', 6, CGO Complex  
New Delhi-110 003, INDIA  
Tel: +91-11-2436 0160 Fax: 91-11-2436 3079  
E-mail: jsegov@mit.gov.in  
          ramki@cdacindia.com  
          renu@mit.gov.in  
website: www.mit.gov.in

National Council of Applied Economic Research (NCAER)  
Parisila Bhawan, 11, I.P. Estate  
New Delhi- 110 002, INDIA  
Tel: +91-11-2337 9861-63  
Fax: +91-11-2337 0164  
website: www.ncaer.org

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# Foreword

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India has made a mark across the world in IT Software Services, and more recently IT enabled Services and Business Process Outsourcing. This has helped transform the way others perceive India. At home, there is a growing awareness that the ICT sector, which contributes more than 3 per cent of the GDP (2002-03), has a vital role to play in economic development. But if the dynamism displayed by this vital sector is to be sustained, we must multiply these IT applications at home, in our industries, in rural areas and in governance.

Our first report 'India: E-Readiness Assessment 2003' was the first attempt at ranking the e-preparedness of States and Central Ministries. It received wide acclaim and was very well accepted. Building upon that experience in this second attempt, we look at new dimensions of e-readiness of States and Union Territories and bring forth the strong correlation between economic development and ICT. Econometric modeling has been used to identify the drivers of Information Technology in the country and state level prioritization of activities for the transformation using ICT.

India's national competitiveness has been studied and documented. The application of ICT to social sectors can improve governance and bring in better fiscal discipline in the provision of public services. In this report, case studies have been used as a tool to highlight the sustainability of e-governance initiatives. In keeping with the essence of second-generation reforms, we bring to light the importance of the involvement of the private sector in making rural development profitable.

The aim of this report is to provide valuable inputs to top-level decision makers in matters of resource allocation and policy formulation. It should also encourage various nodal ministries and departments to borrow or share best practices, put in place effective implementation mechanisms and move up in the realization of value from technology in tune with the opportunities provided. For the investor community at large, the report should act as a pointer to where the gap areas and opportunities lie.

The hard-working and committed team of the Department of Information Technology has worked closely with the National Council of Applied Economic Research (NCAER) to conduct this study. State governments and Union Territories willingly participated in the whole exercise, sharing their insights and field level experiences, which were used to supplement our primary survey in order to reflect the ground realities. Our future endeavors will greatly benefit from the feedback we hope to receive from our discerning readers.

**Dayanidhi Maran**  
Minister  
For Communications & Information Technology  
Government of India

Date: September, 2004

# Message

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Information and Communication Technologies have contributed tremendously to the progress of nations over the past couple of decades. Breakthroughs in technology and innovative applications have brought vast benefit to certain sectors and sub-sectors of the economies of a number of countries. However, the achievement of sustainable competitiveness for an economy as a whole depends on the reach of these technologies and the ability of ICT to bring large sections of the population on to the “network”. Therefore, understanding and leveraging ICT is critical for nations striving for accelerated economic progress. Even in respect of social sectors, employment creation, betterment of social delivery system, e-governance, etc., ICT will increasingly play a vital role leading to a better quality of life.

Over the past few years, numerous attempts have been made to measure the comparative levels of ICT development of nations. The Global Information Technology Report, 2003-04, ranks India at 45<sup>th</sup> position. The report cites that the large pool of skilled manpower in India and the recent initiatives by the Central and state governments in getting the states/provinces e-ready as the main factors aiding India’s competitiveness. Even today, with one labour force growing at 2.4 per cent a year, the acceleration observed in the rate of growth in India comes primarily from improved labour productivity illustrating the vital role productivity plays in the economy.

In view of the above, this year’s E-Readiness report also focuses on the progress made in different States in the application of ICT in the social sectors leading to employment creation and hence a better quality of life. This report would help to establish the facts and perspectives from within India and would help crystallise the role of ICT in the economic development of the country. I am sure, this report will be discussed and analysed widely and thus help bring about awareness on how ICT can take our nation to still greater heights.

Dr. Shakeel Ahmed  
Minister of State  
For Communications and Information Technology  
Government of India

Date: September, 2004

# Preface

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Information & Communication technologies hold the promise of sharpening the competitive edge of India Incorporated by increasing productivity across various sectors of the national economy. They can also help in bridging the gap between the providers of government services and their consumers and improving the certainty and quality of service delivery. The Governments, therefore, need to encourage the development of appropriate tools, technologies and applications for e-Governance services and build supportive infrastructures.

The assessment of e-Readiness and the formulation of national ICT strategies are complex exercises, which must address a variety of issues covering diverse elements such as infrastructure, applications, institutions, people, and policies. Carried out with a sense of purpose and a determination to use globalization as a lever for the social and economic development of the country, they can help bring about greater equity in the emerging Information Economy.

In this context, it becomes important to take stock of the state of e-readiness at the country level, State/UT level and in major verticals by appraising the status of the underlying infrastructure, human resources, policy regimes and investment climate at regular intervals. Such an exercise at the disaggregated level of territorial and functional units provides useful insights into strategic choices to optimize the investments made in the programmes for integrating information and communication technologies into government processes. The present report presents the conclusions of this effort in a structured manner.

The preparation of this report has, as in the past, been a collective endeavour of immense instructive value to those who have been associated with it. The models used, case studies discussed and outcomes brought out should also be of interest to academia, civil society and researchers, apart from decision-makers and implementers. Their comments and observations will be of great encouragement to the team and help it in its future efforts.

K. K. Jaswal  
Secretary  
Department of Information Technology  
Ministry of Communications and Information Technology  
Government of India

# National E-Governance Action Plan - Assessment and Awareness

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The Government of India has approved the National E-Governance Action Plan for implementation during the year 2003-2007. The Plan seeks to create Core Infrastructure and Policies required for the long-term growth of e-Government services and to implement a number of Mission Mode Projects to bring about a citizen-centric and business-centric environment. The initiative also envisages providing necessary guidance and assistance to the State Governments for implementing in parallel, a set of projects of national priority.

The Government of India's National E-Governance Action Plan entails significant financial outlays and involves both public and private investments. A significant portion of the plan relates to implementation of Core Mission projects at the Center and States. The level of e-readiness of the environment in which such projects are undertaken has an enormous bearing on the likelihood of success as well as the cost of each project.

In the above context, the assessment of e-readiness of states and central ministries has particular significance. The findings of last year's E-Readiness assessment report 2003, helped identify the gaps and strengths as well as the level of disparity within and across the States. Tamil Nadu set up a task force to review sub indices and areas where it could improve based on last year's inputs. Karnataka also set up new e-governance cells. Gujarat has shown aspirations to graduate to the leaders category. Sikkim and Himachal Pradesh put in place special committees to fulfil data requirements.

The findings of the last year's report also brought out the importance of leadership, connectivity, skilled manpower and e-preparedness of the society through the Case studies undertaken. These findings proved very significant while evolving the National E-Governance Action Plan. In fact, the National E-Governance Action Plan has a separate component on Awareness and Assessment to carry out assessment activities related to the Plan.

This year's report apart from bringing out the E-Readiness Index of all States and UTs, also brings to light through Case studies the importance of increased private sector participation in developmental activities and sustaining high growth through appropriate institutional mechanisms. We hope this report will enable decision-makers and investors at large to make the right decisions with regard to policy formulation and investments to foster healthy competition.

R. Chandrashekhar  
Joint Secretary, (E-Governance)  
Department of Information Technology  
Ministry of Communications and Information Technology  
Government of India

## Message from Mr. Suman Bery, Director General, NCAER

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With the advent of liberalisation, almost all Indian states, which are the size of nations, are actively competing with each other to attract domestic and foreign investment through the provision of incentives, infrastructure and better governance which of late includes e-governance. Information Technology in the developed economy context is associated with capital deepening, increased labour productivity and spill over effects due to network externalities. In the developing country context, ICT is viewed as a tool to improve human capability, integrate marginalised sections of the society, modernise provision of services, reduce rent seeking activities due to increased transparency and process efficiency. Research on the new economy as well as ICT for e-governance and e-commerce have become important and relevant theme areas in today's context. NCAER has in the recent past analysed issues affecting the "New Economy" as well as comparative studies of IT clusters in India and abroad. The concept of IT clusters in Bangalore was one that countries all over wanted to replicate in their own backyards.

NCAER is pleased to be associated with this important research area and hopes to continue the association with the Department of Information Technology.

## From the Editorial Desk

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The Internet, the 'Information Highway' is turning out to be the infrastructure or 'infostructure' for the computer age. The Internet is the first marketing medium with a truly global reach. The Internet is a medium or crucible through which the global consumer is being reached by the Madhya Pradesh farmer through the medium of e-Choupal. The infostructure is already spreading the possibility of increased distant collaboration and offshoring, which has made Bangalore the international brand equity in today's computer age. Our cover depicts the farmer using the first marketing medium to reach the global consumer as well as in getting across his mandi price, while the Bangalore BPO shows the participation of urban youth.

As Mr. David Pearce Snyder opines that by 2010 we will be living in a truly global village and cyber space will be the town square. These days there is policy competition for direct investment for creation of infrastructure. We see that happening in the case of infostructure. We even toyed with the idea of renaming our report as the *India Infostructure Report*.

Despite the countrywide success and acceptance of the first report, we did not sit back on our laurels. Although the second such exercise, the entire process of putting together this report was an interesting experience. This report involved new methods of analysis of case studies and econometric models to prioritise activities of the states to enable them to transcend levels. We had virtual contributors apart from the primary data from states. E-readiness and State/National ICT strategies, carried out with a sense of purpose, helped facilitate this complex process. We decided that an analytical enquiry based on primary data is overdue. This study portrays a cross-sectional view of the impact in terms of not only the output (in terms of indicators) but also the outcome (in the form of case studies).

A lot has been done in one-year time from knitting together a multi-agency team, carrying out surveys across all states and central government ministries/departments through various steps of review and stake-holders' participation to bringing out this volume in print.

The exercise involved co-operation from the headquarters of ministries/departments as well as inclusion of the operational units at the field level or the public sector units or even further, vertical coverage.

We hope states would interact in the same way as before. If any state wishes to take up issues involved in the report, the team would be available for the same.



# Acknowledgements

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The comprehensive study of e-readiness within the specified time frame would not have been possible but for the cooperation of a number of people and organisations.

The Department of Information Technology team guided by Secretary, DIT, Shri. K.K. Jaswal and consisting of Shri. R. Chandrashekhar, Joint Secretary, Shri. S. Ramakrishnan, Executive Director, CDAC and Ms. Renu Budhiraja, Director, have put in a great deal of effort to give this study a final shape.

The Department of Information Technology appreciates the valuable inputs and suggestions received from the IT Secretaries of Maharashtra, Andhra Pradesh, Tamil Nadu, West Bengal, Gujarat and Karnataka during the initial conceptualisation stage and the cooperation received from them and all other States/UTs in the course of the assessment exercise. Special thanks go out to Dr. N. Vijayaditya, Director General, NIC, Dr. B.K. Gairola, DDG, NIC, Dr. V.K. Dharmadhikari, Sr. Director, DIT and other members of the group who were presented the draft report for their valuable inputs.

We thank the NCAER team led by Mr. R. Venkatesan, Project Leader and Director, Dr. Kanhaiya Singh, Mr. Dripto Mukhopadhyay, Mr. Bibek Chaudhuri, Ms. Rupa Malik, Ms. Priya Rai and Ms. Aditi Mitra for their efforts in bringing out the state-level ranking and case studies of e-governance initiatives. We also thank Mr. Rakesh Srivastava for his secretarial support to the team and for the design of the report and Ms. Sushma Rajan for research assistance to the core research team. We thank Dr. Kanhaiya Singh for his valuable contribution toward the chapters on IT spending : Potential and Prospect of Indian States and Drivers of IT Penetration in Indian States. We also thank Ms Rupa Malik, Ms. Priya Rai and Ms. Aditi Mitra for intellectual coordination of the research content and compilation of this report.

We thank the IT Secretaries of all State Governments and Union Territories for their timely responses which made the completion of this mammoth exercise possible within the allotted time.

Last of all, we express our indebtedness to all those who have not been explicitly mentioned above but have been working ceaselessly behind the scene and have made a substantial contribution to this exercise.

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# Executive Summary



The ICT sector, which contributes more than 3 per cent of GDP (2003-03; NASSCOM-2004), has a vital role to play in economic development. The significance and potential of any industry can be observed by looking at indicators like the output multiplier and the employment multiplier. The output multiplier can be interpreted as a total increase in output generation for one unit increase in final demand in the ICT sector. The ICT sector in the Indian Input-Output (I/O) table ranks 30 out of total of 115 sectors in terms of a derived output multiplier, which is 2.466.

CSO estimated that the value of output for the software sector alone increased within a short span of financial year 1999-2000 to 2002-03 by Rs 30,000 crores; this would have created a corresponding 6.8 lakh man-years of employment based on the employment multiplier co-efficient derived from the I/O table. Its importance in the Indian context needs no further emphasis.

IT spending as a percent of GDP in the case of Australia, China, South Korea, Japan, United States and United Kingdom ranges between 5.3 to 6.5 per cent; why would these progressive, cost and growth conscious countries spend lavishly to get networked? Obviously, there has been significant tangible and intangible benefits and international literature cites important intangible benefits of ICT –

- As an enabler of developmental goals
- Is pervasive and cross-cutting
- Facilitates disintermediation

In fact over the past few years, numerous measures have been made to measure the preparedness of nations; the Global Technology Report 2003-04 continues to provide a comprehensive assessment of the networked readiness of economies globally. Networked readiness is examined by studying the environment for ICT in these economies—market, as

well as political, regulatory, and infrastructure factors—and by analyzing the readiness and usage of ICT from the perspective of three key stakeholders: individuals, businesses and governments. The DIT and NCAER Report of 2003 was the first such attempt to look at e-Preparedness of Indian states.

## E-Readiness Assessment- State level

### Model

For the state level assessment, the Networked Readiness Index framework, 2003-04, has been adopted which is based upon the following broad parameters, which are further, divided into sub-indicators:

- Environment for ICT offered by a given country or community — market, political/regulatory, infrastructure;
- Readiness of the community's key stakeholders to use ICT- individual readiness, business readiness, government readiness;
- Usage of ICT among these stakeholders- individual usage, business usage and government usage.

The framework has been used because of its potential not only to evaluate a state's relative development and use of ICT but also to allow for a better understanding of a state's strengths and weaknesses with respect to ICT. The Principal Component Analysis (PCA) has been used to arrive at the composite index.

## Composite Indices

On the basis of e-Readiness composite index calculated, the states have been classified as under:

Categories	States
Leaders	Karnataka, Tamil Nadu, Andhra Pradesh, Maharashtra, Chandigarh
Aspiring Leaders	Kerala, Gujarat, Goa, Delhi, Punjab, Haryana
Expectants	West Bengal, Pondicherry, Madhya Pradesh
Average Achievers	Uttar Pradesh, Chattisgarh, Orissa, Sikkim, Himachal Pradesh, Rajasthan
Below Average Achievers	Mizoram, Jammu and Kashmir, Assam, Meghalaya, Uttaranchal, Jharkhand
Least Achievers	Lakshadweep, Manipur, Tripura, Arunachal Pradesh, Andaman & Nicobar Islands, Bihar, Daman & Diu, Dadra & Nagar Haveli, Nagaland

## Validation by Case Studies

The evaluation of case studies has been done not just on the basis of Sen's and Brown's evaluation frameworks but also on the basis of sustainability and scalability of the project. A program may touch marginalized sections and/or add maximum value but at the same time, it is important to ensure that the project is not transitory and is sustainable. For a project to be sustainable, there has to be a purposeful mission attached to it such that it serves the cause of the state. It should have a strong business model attached to it such that it is a self-sustaining profitable venture. This has been exemplified by our case studies on e-Choupal and Akshaya. The state of Karnataka has further improved its governance through the expansion of the Bhoomi initiative. Projects like RASI in Tamilnadu have been an instance in capacity and skill building. The case studies have thus been used to examine whether various hypotheses that IT is indeed an enabler of developmental goals, is pervasive and cross cutting, facilitates disintermediation and the creation of an alternative development paradigm is validated in the Indian context through an empirical and critical analyses of these case studies.

## Recommendations

The report finally draws out a set of actionable recommendations gained from insights arising from the National level and the State level analytical models. Based on the above analysis, the report suggests that Policy planners could broadly look at the recommendations which have been detailed in chapter 8. These recommendations are based on the following premises:

- Second Generation Reforms
- Empowering and including marginalized sections through evolution of networked states/provinces.
- Sustainable/Scalable/Profitable rural development initiatives
- Adopt proactive policies to consciously move the states up the pyramid to the status of 'average achievers' and above.
- Match *potential* of Indian states for IT application with *actual* level of applications in the state with assistance from the Central government.
- Developing a domestic market for IT applications to reduce vulnerability from the external environment.
- Improving readiness of verticals.
- Increasing awareness of potential benefits of ICT in rural development.

India's attempts at moving towards an e-ready economy should therefore focus on providing a favourable environment for the Central and State governments.