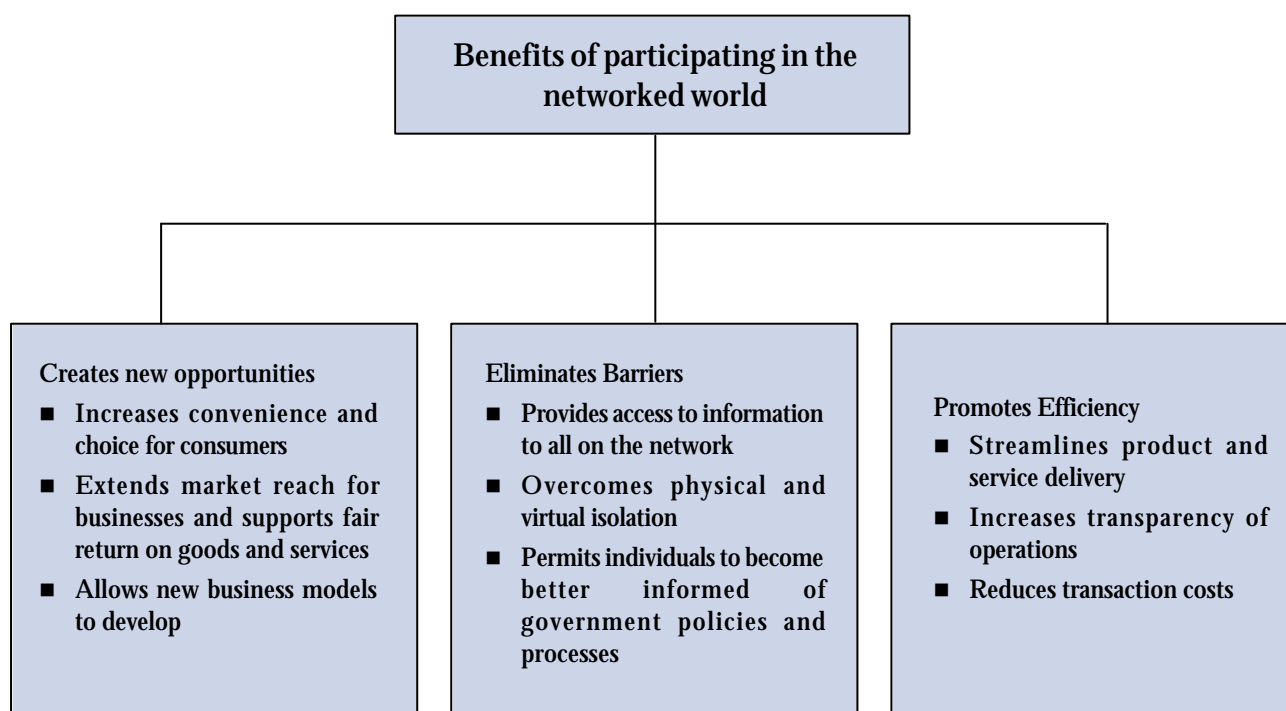# Introduction

Ever-evolving and increasingly powerful information and communication technologies (ICTs) have fundamentally changed the nature of global relationships, sources of competitive advantage and opportunities for economic and social development. Technologies such as the Internet, personal computers and wireless telephony have turned the world into an increasingly interconnected network of individuals, firms and governments communicating and interacting with each other through a variety of channels. The explosion of this technologically mediated global network has resulted in a world in which virtually everyone, everywhere, has the potential to reap the benefits of connectivity to the network[1]. Figure 1.1 enlists the benefits of a networked economy.

Figure 1.1: Benefits of participating in the networked world

Benefits of participating in the networked world

Creates new opportunities
- Increases convenience and choice for consumers
- Extends market reach for businesses and supports fair return on goods and services
- Allows new business models to develop

Eliminates Barriers
- Provides access to information to all on the network
- Overcomes physical and virtual isolation
- Permits individuals to become better informed of government policies and processes

Promotes Efficiency
- Streamlines product and service delivery
- Increases transparency of operations
- Reduces transaction costs

Source: Readiness for the Networked World, A guide for Developing Countries

[1] Readiness for the Networked World, A guide for Developing Countries, published by Information Technologies group, Center for International Development at Harvard University.

1.1 Pro-poor role of ICT

The digital age has interesting possibilities for the hitherto marginalised and neglected groups in the society. Nowadays there is a widespread argument that ICT provides a unique window of opportunity to improve the status of the poor and achieve the Millennium Development Goals. The declaration of principles of the World Summit of the Information Society has expressed a "common desire and commitment to build a people-centred, inclusive and development oriented information society, where everyone can create, access, utilise and share information and knowledge, enabling individuals, communities and people to achieve their full potential in promoting their sustainable development and improving their quality of life".[2] e-Government and e-Governance particularly can be effective tools to empower every segment of the society and even the poorest of the poor.

The creation of pro-poor services means provision of customer-oriented services with public value to rural communities, where the approach would be either demand oriented or supply driven as the faster penetration of such services create its own attendant demand. The success of such projects is gauged by the public value of the service while affordability and accessibility of such services to the targeted group are key to the success. According to a United Nations report, a public service is defined as "value created by government through provision of services, the passing of laws and regulations and other actions"[3]. The more people consider the given information valuable, the higher the public value will be. Success of projects from the perspective of the poor can be ensured when the vast majority of the targeted section of the population uses the provided services. It is true that informed and empowered citizens are better equipped to take advantage of opportunities, access services, exercise their rights and hold the state and non-state actors accountable. e-Governance is a paradigm shift that can help in bringing authorities closer to the marginalised section, leading to an improvement in their status and resulting in some level of economic, social, legal and political empowerment on a sustainable basis.

However, perhaps the most important ingredient for the success of the whole exercise would be the selection of the right mixture of technologies most suitable in a given set-up. For instance, in an area with a large number of disadvantaged people due to poverty and illiteracy, radio combined with the Internet will be of greater public value than an Internet access point alone. An illiterate farmer can benefit from the related information on the web if local market prices are announced through a loudspeaker or written in local language at the community knowledge centre. Moreover, Community Multimedia Centres (CMCs) and telecentres are important for providing easy access in remote areas or in the regions, which are beyond commercial interest. If a CMC is well integrated into the general structure and processes of a community, the infrastructure can be used more effectively.

Poor communities in most parts of the world are getting increasingly aware of the potential of ICTs. While it is clear that ICTs will not be able to eradicate poverty on their own if some basic minimum needs are not met, it is also true that these technologies will be indispensable in meeting the objective of poverty reduction. Exploiting the potential of ICTs for poverty reduction would be key to achieving the Millennium Development Goals. The long-term gains created by ICTs and the commitment of their beneficiaries and supporting groups appear highly valuable to global poverty reduction objectives. But this poverty reduction objective will not be achieved if a large part of humanity is excluded from the knowledge shared by everyone else. For that it is important to select the right mixture. The efforts taken today for spreading ICTs (ICT4P) will also be critical for newer technology revolutions, notably biotechnology, whose essence is linked inextricably with informatics, and whose management and benefits will be highly intensive in knowledge and ICT literacy.

The effective utilisation of these benefits has become one of the most crucial aspects of competitive strategy for a nation. Despite the potential benefits and opportunities the development and adoption of ICT in different sectors in the developing countries is even now very limited. According to the OECD, " The barriers to greater online citizen engagement, (…) are cultural, organisational and constitutional, not technological. Overcoming these challenges will require greater efforts to raise awareness and capacity both within government and among citizens"[4]. In a crucial situation where access to quality

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[2] World Summit of the Information Society (Document WSIS-03/GENEVA/DOC/4-E)
[3] E-Government Cost and Financing, Angela Capati-Caruso (UNDESA/DPADM/KMB)
[4] Engaging Citizens Online for Better Policy-making (www.oecd.org)

education, health and employment are still far out of reach for many millions in India, ICT is one of the few tools that will allow India to address its vast and diverse population and geography. And for that reason e-Governance has been identified as one of the top priorities for state governments across India. Most of the states do not want to be left behind the others in this movement. Despite the numerous advantages of e-Government, there are many challenges and concerns that must be taken seriously by the state governments if they want to exploit the benefits e-Government offers. In this process it is necessary to take a regular stock of e-Readiness at the country and state/union territory and also central ministry level to ascertain the status of underlying infrastructure, human resources, policy regime, environment climate, etc. and arrive at the effective policy measures to gain from the ICT revolution.

1.2 ICT and Economic development

According to the NASSCOM, "The Indian IT-BPO sector (including the domestic and exports segments) grew at an estimated 28 per cent in FY2007. Total revenue for the sector is expected to exceed $47.8 billion, nearly a ten-fold increase over the aggregate revenue of $4.8 billion, reported in FY1998. Direct employment generated by the sector is likely to cross 1.6 million. As a proportion of national GDP, the revenue of the Indian technology sector has grown from 1.2 per cent in FY1998 to an estimated 5.4 per cent in FY2007"[5] .

In many ways, India has been using ICT for development since the early 1990s. In 1998, the Indian government set a target of $50 billion by 2008 for software exports, and made 45 recommendations on the direct use of information technology to achieve development and literacy objectives. This policy focus unleashed a flurry of activity and there are currently over 50 grassroot projects using ICT in the service of India's downtrodden poor.

For example,

- Drishtee – a project funded by McKinsey Ventures – has set up over 25 Internet kiosks around the state of Haryana to automate government services like land transfer and pension.

- Rural e-Seva operates around 150 online information kiosks and rural service delivery points across Andhra Pradesh that provide weather and market information as well as medical and agricultural

advice. People can also use the kiosks to pick up land records or pay bills.

- Funded and supported by the ITC, e-Choupal places computers with Internet access in rural farming villages, aiming to establish an agricultural marketplace for India's poor, where they can order products, track global price trends and find information about new farming techniques. Around 2700 e-Choupals have been created so far across five Indian states, with plans for 22,000 more. The company claims to have made over $100 million of agricultural transactions.

- India's standalone factoring company Global Trade Finance (GTF) has launched the web-based e-Loans facility for small-scale industry exporters recently. This is being done for the first time in India.

- India's first community radio on disaster management was launched in Nagapattinam, district of Tamil Nadu in February 2007.

- The Government of India is planning to set up a national Land Information System (LIS) soon in order to set the age-old land records in the country right. Under the LIS records would be kept in electronic form, and is aimed at helping both the administration and landowners through e-Governance.

- Karnataka's popular e-Government project Bhoomi has developed a land alert system that would send SMS alerts to the landowners in the state whenever a transaction on their land is done. This would particularly help landowners residing in places other than where their property is situated, and detect frequent dubious transactions via impersonation.

- e-Sahayata is an integrated single-window based Information and Service delivery system of the Orissa Government to offer various public related information and services effectively.

1.3 Macro analysis of Indian IT sector

1.3.1 Growth of the Indian IT Industry

The financial year 2006-07 has witnessed a rapid growth in the Indian IT Sector. Sustained double-digit growth coupled with rising investments by Multinational Corporations in the Indian IT industry have improved India's cost competitiveness.

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[5] Strategic Review 2007

Table 1.1: IT Industry sector-wise break-up (figures in USD billion)

	FY 2004	FY 2005	FY 2006	FY 2007E	CAGR (%)
IT Services	10.4	13.5	17.8	23.7	31.6
Exports	7.3	10	13.3	18.1	35.1
Domestic	3.1	3.5	4.5	5.6	22.5
ITES-BPO	3.4	5.2	7.2	9.5	40.6
Exports	3.1	4.6	6.3	8.3	38.7
Domestic	0.3	0.6	0.9	1.2	57.8
Engineering Services and R&D,	2.9	3.9	5.3	6.5	31.4
Software Products					
Exports	2.5	3.1	4	4.9	25.5
Domestic	0.4	0.8	1.3	1.6	59.1
Total Software and Services					
Revenues	16.7	22.6	30.3	39.7	33.5
Of which, exports are	12.9	17.7	23.6	31.3	34.3
Hardware	5	5.9	7	8.2	18.0
Total IT Industry (including Hardware)	21.6	28.4	37.4	47.8	30.5

Note: NASSCOM estimates have been reclassified to provide greater granularity. Historical values for a few segments have changed due to availability of updated information
Totals may not match due to rounding off
Source: NASSCOM

Table-1.1 brings out some important features of the performance of the Indian IT industry. For instance, it is clear that the ITES –BPO sector grew at the highest CAGR of 40.6 per cent during the period of 2004-05 to 2007-08 (estimated) as compared to all other sectors of the Indian IT industry. The total IT industry grew at CAGR of 30.5 per cent during the same period. Thus, ITES-BPO sector has increased its share in the Indian IT industry over the reference period. If we take a closer look at this sector we can decipher the characteristics of its components. Though the revenue from exports of ITES-BPO is higher than the domestic revenue throughout the concerned period, the CAGR of domestic revenue at 57.8 per cent is much higher than that of export in this sector (at 38.7 per cent). Revenue from the hardware sector is the least and even the CAGR of this sector is significantly lower at 18 per cent, albeit relatively speaking.

1.3.2 The IT Industry export scenario

Fig 1.2: IT Industry Export in 2006-07
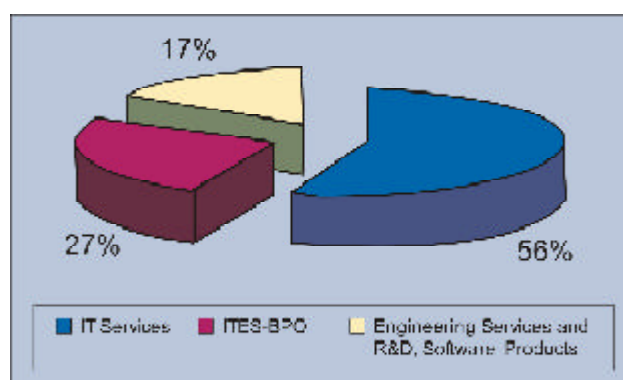
- Services and software exports remain the mainstay of the IT sector contributing $31.3 billion and beating forecasts to register a 32.6 per cent growth.

- In the fiscal year 2006-07, 56 per cent of the IT Industry's export revenue came from the IT services sector (Figure 1.2).

- The compound annual growth rate of the total services and software exports of the IT Industry is about 34.4 per cent.

1.3.3 Domestic market opportunity

1.3.3.1 Domestic IT services market

Due to the liberalisation of Indian economic policy, the de-regulation of key sectors and progressive efforts towards further integrating India with the global economy, IT adoption is accelerating in the country. The two key sector telecom and banking, with noticeable foreign participation, have significantly upgraded their level of IT adoption to offer world class services. These two sectors together account for approximately 35-40 per cent of the domestic spend on IT services. Similar competitive pressure in other service sectors such as airlines and insurance, buoyant manufacturing and industrial sectors and several e-Governance initiatives which have been taken in recent years along with those in pipeline are expected to sustain the growth in domestic demand for IT services over the next few years.

1.3.3.2 Domestic ITES-BPO market

ITES-BPO is a significant segment of the domestic market, driven by voice-based services with customer care, sales and marketing activity accounting for approximately 70 per cent of the total market.

Table 1.2: Domestic ITES-BPO Revenues

(INR Million)

	2004	2005	2006
HR	2428.9	4412.5	8019.5
F&A	2563.9	2975.4	3454.1
Customer Care	7696.1	16161.8	33939.7
Sales and Marketing	8465.2	12019.6	17756.4
Others	2059.2	2449.4	2914.6
Total	23213.3	38018.6	66084.4

Source: IDC, 2005

As discussed earlier domestic ITES-BPO sector, though smaller in size than its export counterpart, is growing at a stupendous rate of 57.8 per cent CAGR that is much higher than the 38.7 per cent clocked by the export sector in ITES-BPO. These are perhaps the portents of the changing face of the growth drivers of the IT industry in India. In other words, next wave of opportunities for the IT industry is expected to come from within the domestic economies.

1.3.4 Employment in the IT sector

As per NASSCOM estimates,

- The number of IT-ITES professionals employed in India has grown from 830,000 in 2003-04 to well over one million in 2004-05

- Industry employee base is estimated at nearly 1.3mn in 2006-07.
  - IT software and services added over 120,000
  - ITES-BPO added approximately 100,000

Total direct employment in the Indian IT-ITES has grown approximately from 284,000 in 1999-2000 to 1,293,000 in 2005-06

  - Indirect and induced employment attributed to the IT-ITES sector was 3 million

Thus, in addition to the nearly 1.3 million-strong workforce employed directly in the industry, Indian IT-ITES has helped create an additional 3 million job opportunities through indirect and induced employment. Indirect employment includes expenditure on vendors including telecom, power, construction, facility management, IT, transportation, catering and other services. Induced employment is driven by consumption expenditure of employees on food, clothing, utilities, recreation, health and other services

Table 1.3: Employment figures - Software and Services sector

Sector	FY 2004	FY 2005	FY 2006	CAGR (%)
IT Services	614000	741000	878000	19.58
ITES-BPO	253000	316000	415000	28.07

Source: NASSCOM

NASSCOM - McKinsey Report 2005 indicates that the Indian industry is targeting USD 60 billion in exports by FY 2009-10. This translates to an estimated demand for 850,000 IT professionals and 1.4 million ITES-BPO professionals by 2010. With offshore penetration for both IT as well as ITES-BPO services estimated at about 10 per cent, and offshore adoption rising rapidly, demand for these services from India is expected to continue on its high growth trajectory.

1.4 Policy measures: Evolution and current measures

As a part of the economic reform agenda, post-1991 economic crisis, the Indian Government has taken major steps to promote ICT in the country. Some of the major focus areas were software development for export; telecommunications policy reform; privatisation of the national long-distance and mobile phone markets; and development of a more comprehensive approach to ICT. The emerging shift in government strategy, toward knowledge-intensive services, has created a climate more conducive to addressing enterprise, domestic infrastructure, education and the use of ICT to meet development needs.

Over the years the Indian Government has liberalised foreign trade policies for electronics and IT products. There was a simplification of customs and excise procedures. The abolition of customs duties on specified capital goods and raw materials for electronics and IT hardware helped India to become increasingly integrated into the global economy through growth in the export of software and skill-intensive software services. IT-related SEZs (Special Economic Zones) are being set up to facilitate IT related exports through provision of right infrastructure, tax incentives and hassle-free environment. Export profits of SEZ operations are exempt from income tax for five years, followed by tax exemption for 50 per cent of profits for next 5 years.

In 1986, the Indian government announced a new software policy designed to serve as a catalyst for the software industry. This was followed in 1988 with the World Market Policy and the establishment of the Software Technology Parks of India (STP) scheme. The establishment of the Telecommunications Regulatory Authority of India (TRAI) was a key step towards effective implementation of telecommunications reforms. In 1992, the mobile phone market was opened up to private operators; in 1994 the fixed services market followed; and finally in 1999, national long distance operations were opened to private competition. Prior to these reforms, the Department of Telecommunications had been the sole provider of telecommunications services.

STPs offer professional labour services to clients. In some urban locations, India's STPs also provide infrastructure, buildings, electricity, telecommunications facilities and high-speed satellite links to facilitate export processing of software. Basically STPs are intended to act as a "single window" to provide services to the software exporters and incubation infrastructure to small and medium enterprises. As of December 2005, 6129 STP units were operational with 4088 of them exporting.

India possesses a number of progressive computerised networks, including a stock exchange (viz. NSE), the Indian Railways Passenger Reservation System (CRIS), and the National Informatics Centre Network (NICNET), which connects government agencies at the central, state and district levels. With increased ICT usage in India, the ICT industry is coming up with innovative and user-friendly solutions to cater to the great variety of domestic demand. For example, a number of ICT companies have developed accounting and word processing packages in Indian languages. The potential impact of this growth on the domestic economy is much broader than developing software for export only.

In spite of relatively low literacy rates among the general population, India has several key advantages in human capital. World-class education, research and management institutions have stimulated investment in science and technology. In addition to establishing Indian Institutes of Technology in various cities around India to create a large pool of technical skills, the government has a computer policy to encourage R&D in the hardware sector. India is a country of large population with great linguistic diversity. Creating and maintaining locally relevant content for a country with more than 400 languages is a challenge. Nevertheless, local language content is slowly making ICT more relevant and accessible to a broader cross-section of the population. Centre for Development of Advanced Computing (C-DAC) has recently launched a scheme called iLEAP-ISP to create a free multilingual word processor to be made available to all Internet subscribers. On the other hand, some states such as Tamilnadu have taken their own initiatives to support the standardisation of local language software through interface programs that can

be adapted to word processors, dictionaries, and commercial keyboards for use in schools, colleges, government offices and homes.

The Government of India approved the National e-Governance Plan for implementation. The Plan attempts to create core infrastructure and policies required for the growth of e-Government services and to implement a number of Mission Mode Projects to bring about a citizen-centric and business-centric environment.

Planning Commission has taken initiative on the Computer Aided Digital Mapping Project for six cities (Ahmedabad, Bangalore, Chennai, Hyderabad, Kolkata and Mumbai). This project aims to facilitate digital maps for use by all city agencies concerned with public utilities including water, sewage, electricity, roads, communication, gas and pipelines. Starting with the village as a unit, multi-layered databases are being created and maintained for block and district levels. National and state GIS (Geographic Information System) atlases with 100 map layers and a district GIS atlas with 150 map layers have been prepared. The latest version uses 11 million data points.

1.4.1 Public-private partnerships (PPPs) in ICT in India

PPPs, catalysed by the IT Ministry, have played a key role in India's ICT-related development. One of the positive results of this effort has been the IT Act of 2000, which was based on the recommendation of the National IT Task Force, and aimed at formulating the overall strategy for the IT sector. Moreover, the government and the private sector are starting to come together to foster ICT development. For example, a joint effort by the Computer Science Automation Department (at the Indian Institute of Science) and a Bangalore based private company have led to the development of Simputer–a low cost micro-computer that enables illiterate users to browse the Internet.

The Prime Minister's launching of a National IT Task Force in 1998 has marked a beginning of a new chapter in the history of India's ICT sector and its role in the economy. The work of the Task Force has demonstrated the need to give high priority to a wide-range of policy reforms and to substantially increase public and private investments relating to the ICT sector. Thus public-private partnership are the new trend in ICT initiatives. This trend has brought in fresh investment and expertise

of the private sector to ICT initiatives in the suburbs and rural areas. This is a very positive trend and needs to be encouraged. For example,

e-Mitra in Rajasthan is a successful case of public –private partnership, which has brought a citizen-centred e-Governance model. The project puts special emphasis on strengthening the demand side of e-Governance. e-Mitra has been conceived as a product and it has been marketed accordingly. In order to increase the awareness of the public, e-Mitra stalls appeared in fairs in rural areas, and road-shows and publicity campaigns were organised. As a result of these efforts, the community became more involved and active in governance issues like transparency, accountability and efficiency.

Hewlett-Packard India (HP) and Karnataka recently signed an agreement for developing a unified e-Procurement strategy for the region. Through this PPP, Karnataka aims to improve its tendering, bidding and empanelment process, including contract management. The strategy would improve efficiency and transparency in public spending by automating processes and allow for demand aggregation.

While assessment of the PPP initiatives undertaken by Union and State Governments does help to throw light on their e-Readiness on case specific basis, when it comes to revealing a complete picture of the governments' network readiness or e-Readiness we require an appropriate framework to assess their performance on this front. We will discuss the analytical framework for the present report in section 1.6. But at the same time, we need to continue the process of internal and external learning so as to benchmark our methodology. This is what we do in the next section by way of a survey of literature.

1.5 Survey of literature

A survey of past studies addressing e-Readiness provides a view of past performance, current assessment and future expectations. This is crucial as it helps in identifying context specific best methodology, constraints in adopting them in our case and any weaknesses in the methodology adopted by us.

In 2003, the World Economic Forum published their report "Assessment of networked readiness and its effects on economic growth and productivity". This report provides analysis of data on the networked readiness of

individuals, business, and government. The findings of the Report are presented in three sections-Essays, Country Profiles and Data tables:

- The Essay section is an exposition of the components of and the analytical framework underlying the Networked Readiness Index. It consists of regional and country case studies with the application of the analytical framework, a highlight on the policy challenges, and an emphasis on the best practices and lessons learned.

- The Country Profiles Section provides a snapshot of each country's networked readiness relative to other countries.

- The Report concludes with data tables, which contain rankings of countries for every variable covered in the Report.

NASSCOM and UNDP published a country study in 2004 "Promoting ICT for Human Development in Asia, Realising the Millennium Development Goal". It assessed progress made in India in drafting and implementing its national e-Policies and e-Strategies towards the country's national development goals and targets and the eight Millennium Development Goals. This study examines the question of how best ICTs can be used to bring about social transformation and development. Specifically, it looks at the ways in which ICTs can be harnessed to best address the critical concerns of human development, poverty eradication, health care, education, human resources, environmental management and economic development.

McConnell International's Risk e-Business: Seizing the Opportunity of Global e-Readiness is designed to assess a country's capacity to participate in the global digital economy. The report analyses a country's e-Readiness on the following dimensions: connectivity (infrastructure, access and pricing), e-Leadership (Government policies and regulations), information security (intellectual property, privacy, electronic signatures), human capital (ICT education, available skilled workforce), and e-Business (competition, political and financial stability, foreign investment, financial infrastructure) climate.

CSPP's Readiness Guide for Living in the Networked World is designed to help individuals and communities determine how prepared they are to participate in the 'Networked World'. Measurements are divided into five categories: Infrastructure, Access, Applications and Services, Economy and 'Enablers' (policy, privacy, security, and ubiquity). The report provides a series of 23 questions. For each question, the users choose from a set of answers, which represent four progressive 'stages' of development. The assessment produces a rating that indicates which of four progressive stages of development the community is at for each of the five categories listed above.

The Center for International Development (CIDS) at Harvard University developed the "Readiness for the Networked World: A Guide for Developing Countries" for Government policy makers to assess the state of networked readiness of a community. This guide measures 19 different categories, covering the availability, speed, and quality of network access, use of ICTs in schools, workplace, economy, Government and everyday life, ICT (telecommunications and trade) policy, ICT training programmes, diversity of organisations and relevant online content. The guide rates the 'stage' a community is in for each of the 19 categories. Descriptions are given of the parameters it has to meet in a particular stage. The Guide does not offer prescriptions for improved readiness.

The Economist Intelligence Unit e-Readiness Rankings for 2007 tallies scores for 68 nations across six categories: Connectivity and Technology Infrastructure, Business Environment, Consumer and Business Adoption, Social and Cultural Infrastructure, Legal and Policy Environment, Supporting e-Services. These include a total of 100 separate quantitative and qualitative indicators. Each variable in the model is scored on a scale from one to ten. Where possible, the variables rest on quantitative, statistical data while others reflect qualitative assessments by the EIU country analysts. The EIU e- Readiness Ranking for 2007 places India on 46th (53rd in 2006, 49th in 2005) and 10th in the Asia- Pacific region.

APEC's (The Asian Pacific Economic Co-operation) e-Commerce Readiness Assessment was published to help Governments develop their own focussed policies, adapted to their specific environment for the healthy development of e-Commerce. Six categories of variables are examined to assess readiness:

1. Basic infrastructure and technology - speed, pricing, access, market competition, industry standards, foreign investment

2. Access to network services -bandwidth, industry diversity, export controls, credit card regulation

3. Use of the Internet - in business, Government, homes

4. Promotion and facilitation - industry- led standards

5. Skills and human resources - ICT education, workforce

6. Positioning for the digital economy - taxes and tariffs, industry self-regulation, Government regulations, consumer trust

Participants are asked 100 multiple-choice questions grouped into the six categories listed above. The possible answers indicate progressive levels of e-Readiness for a country. Scores are given for each category and no overall score is given. The guide does not provide a comparative assessment of nations.

1.6   Analytical framework for the report:

The Networked Readiness Index (NRI)[6] framework used in this report is based on the following broad parameters that are further classified into three sub-indicators:

• Environment for ICT offered by a given state 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.

This framework has evolved from the e-Readiness Report 2003 and is similar to the one used in the e-Readiness Report 2004 and 2005. Feedback based on interactions and discussions with the various stakeholders reveal that the methodology is now acceptable to them. Hence, it was applied this year as well. However, this report, unlike the earlier ones, not only gives the e-Readiness Index but also analyses the progress over the last three years. A new set of qualitative questions has been incorporated in the questionnaire for the 2006 report. The 2006 e-Readiness report also includes a chapter on e-Readiness of nine Central Line Ministries/departments. They have been chosen over others primarily for the greater scope of public interface they have and also because such a pilot study may further explore the possibility for such a study carried for more Central Ministries/departments. In the process it helps policy planners to identify the areas of improvement.

The current framework has been used because of its potential not only to evaluate a state's relative development in the use of ICT, but also to facilitate a better understanding of its strengths and weaknesses in the area. Principal Component Analysis (PCA) has been used to arrive at the Composite Index. PCA is a way of defining patterns in data, and expressing the data in such a way as to highlight their similarities and differences. Since patterns in data can be hard to find when it is of a high dimension and the luxury of graphical representation is not available, PCA is a powerful tool for analysing data. The other advantage of PCA is that once these patterns have been found, the data can be compressed, i.e. its dimensions can be reduced without much loss of information. This technique is used to arrive at a Sub-Group Index from the indicators in each group, as well as a composite Index of groups for every state and concerned Central Ministries.

The other new features in this report are

• e-Readiness of India in International scenario

• Penetration of ICT in Indian Industry

• e-Readiness of selected Central Ministries/ Department

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[6] World Economic Forum (2002-03). The Global Information Technology report: Readiness for a Networked world.

Access to ICT - India and
the World