Sports In India-2016 – A Vision

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Sports and physical education are essential components of human resource development of any country, helping to promote good health, camaraderie and a spirit of friendly competition, which in turn has positive impact on the overall development of personality of the youth. Excellence in sports enhances the sense of achievement, national pride and patriotism. Sports also provide beneficial recreation, improve productivity and foster social harmony and discipline.

After World War-II, the Cold War era has prompted the super powers to prove their supremacy over their opponents in the sports field instead of in the battle field. As a result, the scientific approach to enhancement of human performance in sports had received boost and countries started using the international sports arena to prove their supremacy.

Performance in sports events has been, and continues to be, a showcase of national pride. Sports, particularly at international level, provide an opportunity to each participating nation to present before the world the vitality of its youth, their skills and fighting spirit. Considering the impact of sporting prowess on the human psyche, it becomes a matter of prestige for each participating country to go all out in the hunt for excellence.

Apart from the fact that achievements in competitive sports lends prestige to the nation, there are other spin-offs in the form of healthy motivated youth, which in turn, lead to higher productivity and a more positive and integrated personality.

This has led to a race among the Nations for development of new techniques and methods of sports training and performance. Science and new technology have become the nurturers and

benefactors of sports talent. State of the art infrastructure facilities and modern equipment have revolutionised sports.

1. Sports Scenario in India

Inspite of the glorious past of India's performance in the Olympic Games of pre-Independence era, the standard of sports and games gradually came to naught so much so that, India could remain the uncrowned king in the field of Hockey and within fifteen years of Independence, India started loosing the Olympic Games Gold Medal which it was continuously winning since its first appearance in 1928.

India has been basking in the glory of freedom for half a century and though it can claim achievements in certain fields, it cannot wash off the stigma of stagnation in many others. Sport was one of those sectors dogged by neglect and apathy. No wonder, therefore, that this country has been able to scrape through with just one bronze medal in the Atlanta Olympics, *one Bronze Medal in Sydney Olympics and One Silver Medal in Athens Olympics.* The poor showing at *the Olympic Games* was naturally followed by lot of tear-shedding and breast-beating to the length and breadth of the land. While the national and regional newspapers have been coming out with stinging editorials seeking explanations, apportioning blame and adding to the gathering gloom, hardly any concrete suggestions have emanated from these sources for the future to end the long standing drought of medals and to enable India to gain its rightful place in the arena of sports.

Everyone of us has missed a point: perhaps ignored a glaring fact that our nation of 100 crores has only about 9,000 sportspersons. It is said that if the number of persons on playground is increased, the number of patients in the hospital is decreased. Even in tiny countries, thousands upon thousands of young people take to sports early in life, our schools, colleges and universities have been sadly bereft of playgrounds, trained instructors, sports gear and the necessary budget allocations. A small country like Holland – Hockey champions – is equipped with no less than 400 turfs as compared to 20 turfs in India. The number of Hockey players in Holland naturally exceeds those in our country.

Another small nation, South Korea, can boast of facilities for well over 15,000 archers as against approximately 15 in India. We are woefully inadequate in paraphernalia like running tracks,

badminton courts, wooden floored covered halls for Volleyball, Basketball, special cushions for wrestling and judo, special gymnastics equipment, swimming pools and many other facilities. The availability of shooting ranges is not even one per cent of our needs.

Budget outlays for sports in our five-year plans was dismally low. Whatever was given so parsimoniously, 95 per cent of that is consumed by administrative supervisory and maintenance components? The sports departments and the Sports Authority of India alone account for more than 80 per cent of the expenditure. And then we expect to excel those nations that spend as much amount in one year as our country might have done in 50 years since Independence.

The size of our country, the dimensions of its sports requirements and the areas of demanding priority still have not attracted the attention of our Finance Ministry which has only now earmarked for training and coaching our teams for International competitions, participation in tournaments in India and abroad, national sub-junior, junior and senior championships of about 65 Olympic and Non-Olympic sports disciplines, payment to foreign coaches, running National Coaching Camps, acquiring equipment and training our sportsmen abroad., This includes the expenditure to be incurred for the preparation for the Commonwealth Games 2010 and we are expected to compete with nations that spend Rs. 7,000 crore annually for similar purposes.

Over 150 Universities and thousands of colleges affiliated to them are allocated a ridiculous sum of Rs. 13 crore for sports. The previous year's plan allocation of Rs. 25 crore for promotion of sports activities has been slashed to Rs. 22 crore this year. (The scholarships offered to promising sportspersons during the last several years have been abolished.)

Why have we not been able to develop a sports culture in our country? Why are our youth not attracted sufficiently to sports? Why is the number of our sports persons limited only to a few thousands in a population of about a billion? Despite the sports policy having been formulated several times and the education policy outline twice, sports have not been made an integral part of the curriculum. Sports occupy hardly any place in the syllabi from the primary school to the university level. Playgrounds, equipment and sports teachers

are lacking. And in case they are available, the students are scarce because sports are not a compulsory subject.

Every student aspires to become a doctor, engineer, chartered accountant or computer expert, or he wants to join the exclusive club of IAS, IFS and IPS officers. His or her aim is to secure 95 per cent or even more marks to join these privileged classes.

Where is the need then for the students to achieve excellence in sports? Except for cricket, tennis or golf they hardly receive any recognition. To get a coveted job on the basis of prowess in sports is a far cry or a pipedream. Only the misfits in academic pursuits generally participate in university sports. Those who are unable to secure admission to academic degree classes turn to sports colleges. Haven't we seen our national champions begging for grade III or Grade IV jobs? Lacking educational qualifications, they cannot climb the higher rungs of the ladder.How can an ambitious young person take to sports as a career?

The effect of myopic approach of the authors of the first five-year plan kept sports and games as a sub-section under Education Department and Sports and Games was never given a full-fledged status. Even after hosting the 9th Asian Games in 1982 it remained under the Department of Youth Affairs and Sports under Education Ministry, later on under Human Resource Development Ministry. Only in the late eighties, a separate Ministry was formed to look after Sports and Games.

The ignominious performance of Indian contingent in Asian Games and Olympic Games prompted the NDA Government to create a full-fledged Independent Cabinet Ministry and take many remedial steps to check the downfall of Indian sports.

Inspite of the fact that the policy-makers of pre-independence days kept on emphasising the need for integration of Sports and Physical education with school and college curriculum and made their first recommendation as early as in 1904, the subject remained a debatable issue till the NDA Government came into power.

The performance of Indian sportspersons has been on the ascendant in recent years. The highest ever medal tally in the last Commonwealth Games and excellent performance in the Bussan Asian Games which so far our best performance on foreign soil is ample illustration of the resurgence of Indian sports and efforts need to be made not just to continue on the same footing but reach higher

still standards of achievement. We need to analyse the shortcomings and suggest ways of improvement in view of the fact that India has now been allotted the Commonwealth Games, 2010 and every effort is being made to secure the Asian Games, 2014 and the Olympic Games, 2016. India needs hardware (sports infrastructure) as well as software (sports talent, Sports Trainers and Sports Science back-up of international calibre) to establish itself as Sports Super Power by 2016.

However, the bane of Indian sports has been the absence of proper sports culture, sports clubs and near absence of sports infrastructure in the educational institutions. Unlike in many other countries, sports has not been accorded due importance as an instrument of human resource development, which is manifested in the absence of sports from curriculum in schools and higher educational institutions.

Unlike the club culture, prevalent in most of the countries, designated 'Sports Powers' sports in India have largely, been left to be developed and aided by the Government which is a difficult and uphill task. Inspite of having hosted two Asian Games in Delhi in 1951 and 1982, the enthusiasm generated by these events could not be translated quickly into developing a large number of international level sportspersons. As a developing country with limited financial resources, India could not accord to give sports on over riding priority *vis-à-vis* other pressing needs, such as infrastructure, healthcare, poverty alleviation, etc. Secondly, Sports being a state subject, the primary responsibility of developing sports in the country rests with the State Governments and State Sports Councils. Moreover, sports federations, despite being autonomous bodies, in most parts look towards the Government for financial assistance.

Many Sports Promotion Boards have been established to promote sports by providing employment, and other facilities to sportspersons. Given the scarcity of resources, the Government cannot achieve either broad basing or excellence, all by itself. It is for the private sector and Public Sector Undertakings, who have to come forward to adopt some sports persons and sports disciplines and raise them to be at par with world standard by establishing their in-house training facilities and undertaking research and development. An encouraging beginning in this regard has been made by FICCI and CII.

The success of any sports promotion programme depends on

varied inputs from a host of quarters. Expertise in the field of finance, marking, sports administration are very essential inputs for success apart from scientific coaching, state of the art equipment excellent infrastructure. The philosophy of 'Catch them Young' has caught on world-wide. Anyone showing above average ability is spotted during childhood and encouraged to attend regular coaching sessions and participate in tournaments, in an environment, designed to boost individual performance and prepare the athletes physically and mentally for future events – both in the long and short runs.

In China and other Asian countries, sports have made tremendous progress due to their sustained long-term development programmes, targeting not only the existing generation but also the coming generations. These countries have broad-based sports and created mass awareness about sports by introducing cost-effective sports infrastructure and rural sports for masses. They have introduced sports in schools and rural areas not by providing expensive sports equipment but by improvising local equipment.

The pre-requisite of reaching excellence at international level are international level sports infrastructure, international standard equipment, application of latest scientific method, adequate support of scientific personnel in the form of general training methods, physiologists, psychologists, physical trainers, training method scientists, nutritionists and coaches, exposure to international training, availability of expert coaches – both domestic and foreign. There should be constant monitoring of elite sportspersons.,

There should be a system of continuous research based on the data collected from sportspersons of different events and disciplines and imparting of special skills to them. A well-equipped human performance laboratory is an integral part of scientific training. Establishing a Sports Science Research Centre in the public and private sector which is engaged in scientific research could be of great assistance in providing ncesssary back up in this regard.

This is the age of marking, which is fast paced aggressive and ruthless, Cricket, which by clever marking, has created icons for the entire nation, is an example for other sports to market themselves and build up their own star power for people to look upto. The success stories of multi-million dollar projects, down to consumer products and individuals have been, largely due to an effective and attractive marking strategy. Sports has a vast marketing potential

in India, waiting to be exploited.

For the first time after Independence, the Prime Minister of India addressed the inaugural meeting of the All India Council of Sports, revived after a gap of 40 years, and presented before the Nation a Ten-Point Programme for promotion of Sports in the country emphasising:

1. To make India a strong player in diverse international sports for achieving the goal of making India a developed nation by 2020.
2. Athletes not to take any shortcuts to achieve success in sports and should keep away from use of drugs.
3. To make the working of SAI and the various Sports Federations more transparent and accountable. These institutions should recognise that our sportspersons and not administrators and officials are the most important entity in our strategy to achieve excellence in sports.
4. To remove shortcomings in sports training India and to make it world-class.
5. To ensure a secure and attractive career track, both in government and in the private sector, for medal winners in the National Games, Commonwealth Games, Asian Games and the Olympic Games.
6. Business houses and commercial establishments that take loans from banks and financial institutions should be encouraged to set aside some resources for the development of sports.
7. To create a robust sports and health development culture in India sports should be made a compulsory part of the school curriculum.
8. An effective National Sports Talent Search system should be created to identify promising girls and boys at a young age for a special track of training and development.

9. All able-bodied Indians should devote atleast one hour in a week to sports and physical exercise. Society should help in creating low-cost facilities to benefit maximum number of people. The guidelines for the MPLAD scheme may be suitably amended so that MPs can make their funds available for this purpose. All new housing colonies should be mandated to create a broad-based sports facilities.
10. To increase the allocation for sports in the 10th five-year by five times.

In order to achieve broad basing of sports as well as achieving excellence , the National Sports Policy was re-drafted in 2001. The All India Council of Sports invited views and suggestions from National Sports Federations, former international sportspersons including all Arjuna Awardees and eminent sports administrators for drafting an Action Plan for implementation of National Sports Policy and also for achieving excellence in International Championships. The All India Sports Congress was held under the Chairmanship of the then Prime Minister, Shri Atal Bihari Vajpayee on 26th August, 2003 and many valuable suggestions were received during the Sports Congress. Now that India will be hosting the Commonwealth Games, 2010 and is bidding to host the Asian Games 2014 and Olympic Games, 2016, it is imperative that a fresh look is given to sports promotion in the country especially keeping in view the suggestions made by the then Hon'ble Prime Minister in his historic inaugural speech at the National Sports Congress.

1. Broad basing of sports brings to our mind mass participation in sports. However, inspite of the fact that Indian Population has crossed the one billion mark, the number of sportspersons on playground is not even one lakh (0.10 million) or so. It is only when the net is cast wider that fresh talent is spotted and honed to excellence.
    - It is imperative to ensure that educational institutions, schools and colleges in both rural and urban areas, Panchayati Raj institutions, local bodies, the Government machinery, sports associations and industrial undertakings, as also the various youth and sports clubs, including Nehru Yuva Kendra Sangathan (NYKS) remain fully associated with various

programmes of broad-basing of sports in the country.

- The system of sports competitions at the school, colleges and university level should be more organised and streamline so that weightage in marks is given to talented students who excel in sports.
- In order to provide opportunities to rural students, more and more schools in the rural areas, especially, Navodaya Vidyalayas and Kendriya Vidyalayas should be adopted by Sports Authority of India. Further, it is necessary that the talent identified/admitted to the schools are provided with scientific sports training, stipends, sports kit and competition exposure.
- National Sports Federations and State Associations should introduce a set of competitions in the States at the school level. A calendar of events in this regard should be prepared at the beginning of the academic session by all concerned. Panchayati Raj Institutions, youth and sports clubs, urban/local bodies should be associated with the programme. The State Governments should be requested to undertake these activities.
- **Integration of Sports with Education:** The integration of Sports and Physical education with the educational curriculum, making it is a compulsory subject of learning upto the secondary level and incorporating the same in the evaluation system of the students should be actively pursued by the Central Government as well as State Governments.
- Physical education and games period should be introduced in the regular academic time-table and performance in games and sports should be included in the overall evaluation system to qualify for the promotion to the next higher class.
- Physical education teachers and other teachers who have an aptitude for sports should be trained by Sports Authority of India and LNIPE and other academic institutions in updating their knowledge.
- Ministry of Youth Affairs & Sports (MYAS) should provide assistance through its schemes for creation of

playground and purchase of equipment for the schools.

- MYAS should consider giving recognition to the organisations running cluster of schools at par with the School Games Federation of India.
- In order to achieve the above objectives, it is necessary that instructions are issued by Ministry of HRD to the CBSE institutions and other affiliated a schools/ institutions and State Governments.
- Broadbasing of Sports in North-East and Rural Areas As most of the sport talent hail from rural areas including the North-Eastern Region, special emphasis should be given to the North-East Region for identification of rural sports talent.
- North East Sports Festival should be organised to provide an opportunity to the entire North-Eastern Region to come together and exhibit their skills in sports and various indigenous disciplines. Talent identified from the festival should be admitted in Sports Authority of India's schemes to usher in excellence.
- Special emphasis should be laid on identification of rural sports talent by organising National Rural Sports Tournaments under the Rural Sports Programme.
- Government of India should provide necessary financial assistance to rural sports talent for coaching camps and participation in the tournaments abroad.
- Physical education teachers employed in the schools and reputed sportspersons including Arjuna Awardees and Ex-servicemen sportspersons of the region should be given the responsibility of promoting sports in their specific areas by developing sports clubs. A vast number of sportspersons from Army, Navy and Airforce retire every year and many of them settle in their rural background. Services of such experienced sportspersons from the services be utilised in the rural areas.
- **Promotion of Indigenous Games:** There is a need to revive the indigenous games and sports as well as martial arts prevalent in the country which will also

result in producing outstanding sports persons in modern sports akin to indigenous games and martial arts.

- Wrestling is one such traditional sport. India has won many international medals in the past in this game and has been a force to reckon with. However, with the recent change in conditions in which this sport is played in the international competitions, the Indian dominance has been reduced considerably. In order to create a broader base for modern wresting and to supplement the efforts made by various akharas in the country, the scheme of adopting *akharas* by Sports Authority of India has to be made more effective and on scientific lines instead of emphasising on a few successes of a particular *akhara*.
- *Akharas* should be identified and wrestling mats and multi-gyms should be provided. 15-20 trainees should be adopted and stipend should be provided to them. Upcoming *akharas* should be provided with equipment support.
- To begin with, institutions having a cluster of schools in the rural areas should be identified and the children who are selected should be provided with training in these indigenous games to revive these games and martial arts. Monthly stipend and sports kits should be provided by SAI.
- National Indigenous Games and Martial Arts Festival should be introduced to encourage all indigenous games and other Non-Olympic disciplines in line with National Games.

2. Women in Sports

- Indian women have been doing well in international sports such as Archery, Athletics, Hockey, Weightlifting etc., but there is a need to bring more women into the sports arena and definite programmes in this regard should be chalked out and implemented.
- The existing Women's Sports Championship organised by MYAS and SAI should be enlarged and the talent

coming to participate in such championship should be provided with all facilities to nurture the talent.

- Same competitions in schools/colleges and universities should be organized, exclusively, for women participants.
- The number of women sportspersons in the SAI Training Centres should be increased considerably.

3. Need for greater infrastructure facilities

- One of the reasons for decline of sports standard in the country is non-availability of playing facilities in many parts of the country, especially, at block and rural levels. Definite schemes in this behalf should be implemented by the Government of India.
- Financial assistance in this regard should be available for developing District and State level Sports Complexes. A programme should be chalked out to attract more states and organisations to avail the infrastructure grant of the Government.
- MYAS should take up through its schemes low cost and effective development of infrastructure at the District and State levels. The State Governments should be requested to chalk out detailed programme to optimally utilise and maintain the existing and newly created infrastructure.
- Suitable legislation for reserving open spaces for play grounds to promote sports activities in the residential areas/community will be worked out with the State Governments.
- The law governing the use of Gram Sabha land in villages be suitably amended to allow the Rural Development Ministry to develop sports infrastructure in the rural areas.
- Guidelines for utilisation of MPLAD funds should be amended so as to utilise the MPLAD funds for creation of sports facilities and for providing non-consumable sports equipment.
- Summer coaching camps should be organised during the vacation so as to optimally utilise the sports infrastructure.

- Municipal and other local bodies should be encouraged to develop neighbourhood sports complexes/facilities.
- Efforts should be made to ensure that universities and colleges, whether technical or otherwise, are financially assisted to create sports infrastructure under the schemes of MYAS. One Sports Promoting University in One State should be identified as Centre of Excellence for nurturing the talent coming out of schools.

4. Need for promotion of sports in the coastal and tribal areas

- Sports talent, in raw form, is available in abundance in rural, tribal, coastal and hilly areas. People, living in these areas, have an advantage over the others by virtue of the fact that either due to their genetic characteristics, geographical advantages or due to their social traditions, sports is a way of life for them. Thus, a large number of sports talent can be tapped for excellence development.
- The talent from advantage sports areas, *viz*., coastal and hilly areas, should be identified through the deep selection method/conducting assessment camps and the talented children should be admitted in the centres of SAI.
- People, living in the coastal belts, adapt to the water from their childhood. To tap the talent from the coastal, tribal and remote rural areas, Special Area Games (SAG) Centres of the SAI should be extended to all the regions where there is a sizeable tribal/coastal population.

5. Excellence in Sports

Excellence at the Senior and Junior levels

- Effective measures have to be evolved by which necessary assistance is provided to elite sportspersons in reaching excellence. For planning and development, the genetic and geographical variations should be taken into account so that in areas of potential in particular disciplines, effective steps could be taken timely to harness the existing and emerging talent.

- MYAS has prioritised the sports disciplines for grant of assistance for training, participation and conduct of tournaments, availability of foreign coaches etc. The system of prioritisation of sports under MYAS should be made more dynamic whereby the performance of each disciplines should be the basis of grant of financial assistance and it should be reviewed, periodically, on the basis of their Long Term Development Programmes (LTDPs).
- LTDPs of all major disciplines should be reviewed and finalised and they should include the past performance, projections for the future and anticipated assistance levels from the Government.
- For bringing excellence at the junior level, MYAS should start the Lead-Link School concept. Under this concept, a school in a block should be picked up which has accessibility as well as suitable land to develop infrastructure. These schools should form the base of the first tier in the pyramidal approach to excellence development.
- Proper infrastructure should be created at such places which will cater to 2-3 disciplines and coaches should be appointed accordingly.
- The talent nurtured from this school should be picked up for SAI sports promotional schemes.
- The National Sports Talent Contest (NSTC) Scheme of SAI should be enlarged and more trainees will be admitted.
- The Scheme of Army Boys Sports Companies (ABSC) established with the assistance of Defence Services, should be strengthened and event-wise concentration should be made so as to develop each Army Unit as Centre of Excellence in one particular discipline.
- More SAI Training Centres should be established throughout the country and the existing centres should be upgraded and equipped with scientific and medical set-up.
- Range of disciplines in these centres should be extended with event wise concentration for achieving excellence

in particular disciplines.

- To scout and nurture talent for modern competitive sports from tribal, rural, coastal and hilly areas, Special Area Games (SAG) Centres should be enlarged and event wise specialisation should be introduced.
- More SAG Centres should be established to cover tribal and coastal belts of the entire country.
- Each SAG Centre should be made a model training centre with modern infrastructure facilities and equipment.
- The Training Centres established by NGOs and other agencies in the tribal, rural areas should be assisted for enlarging their base.
- For Senior level excellence, Centre of Excellence, established in the Regional Centres and other places, should be strengthened by providing state-of-the-art equipment, experienced coaches and foreign coaches (wherever necessary), foreign exposure and participation in international competitions.
- A sub-centre in each state should be established and each sub-centre should be made a Centre of Excellence in the disciplines in which the state has proficiency by providing state-of-the art equipment and scientific support, etc.
- MYAS, SAI, Sports Federations at the National and State level and Directorates of Sports in the states should work in close liaison and cooperation to streamline/ improve the quality of training and make everyone responsive/accountable to the needs of sportspersons.
- A suitable method should be worked out to prepare training schedules, skill training, fitness and impact analysis of the scientific inputs and schedule of competitions.
- Schedule of competitions and proper scientific management of all the sportspersons should be evolved so that the really best athletes are fielded in the international meets, such as Commonwealth Games, Asian Games, Olympic Games and World Championships.

- MYAS should introduce a new scheme of State Sports Academies which should be a collaborative effort on the part of a Sponsor, the Central Government and the State Government. The Academy should be discipline-oriented and young children should be selected/ trained over a period of time to achieve excellence. The Academy should be professionally managed by the Sponsor.

6. Upliftment of Standard of Education of Coaches

- With a view to uplifting the standard of coaching education, the following course of action should be initiated.
- Up-gradation and modernisation of academic programmes at the SAI, NSNIS should be accorded top priority.
- The services of foreign coaches should be engaged to impart training to the athletes and upgrade the knowledge of Indian coaches. Foreign coaches should be appointed at NSNIS, Patiala in the priority disciplines to begin with.
- National Sports Federations and SAI should select the coaches, referees and officials to be sent abroad for advanced training.
- Academic courses run by SAI should be reviewed and revised to bring them at part with international standards.
- Refresher courses should be conducted for the national coaches, and other coaches to provide the latest training methodology and benefit of scientific advancements.
- Refresher courses should be conducted for the scientists and all the supporting staff working with national teams. Realistic targets for performance should be set and progress monitored.

7. National Sports Federations

- The Indian Olympic Association and National Sports Federations are autonomous bodies and have affiliated State level and District level Associations.

The Government, its agencies and the Federations/ Associations have to work together in a coordinated manner to fulfil the objectives of the National Sports Policy, 2001. At the same time, the Indian Olympic Association and the various Sports Federations/ Associations will need to demonstrate orientation towards the achievements of results and ensure tangible progress in the field of sports. The NSFs may consider streamlining their activities so as to make their functioning more transparent, professional and accountable.

- The management of sports in the country being the responsibility of National Sports Federations, the its functioning be made more transparent and professional.
- IOA should make in incumbent on the Federations to hold annual championships in their respective discipline in all the categories as per the calendar prescribed by them. The calendar should be compiled and published by the IOA.
- The Federations should also undertake schemes to train and develop the junior and sub-junior players from each level of performance.
- A computerised date bank of junior and sub-junior players of all the disciplines, along with their long term plans, should be prepared by the NSFs in consultation with SAI.
- National Training Centre for each prioritised sports discipline should be established in consultation with the Federations. The centres should have the most modern and latest equipment and infrastructure for training and should have a Research and Development Centre attached to them. These centres should look after the training needs of the talented athletes and future hopes for the Asian and Olympic Games.

8. Long Term Developmental Plan

- Effective participation in International events, especially the Olympics, Asian and Commonwealth Games is a matter of national prestige. The contingents, to represent

the country in such events, need to be selected in good time, in the light of the performance and promise in National Championships and elsewhere. LTDP should be prepared for each discipline, incorporating details of standard of performance, participation in competitions at National and International competitions in the country. The implementation of the LTDP should be reviewed periodically and the same should be continued as a rolling plan year after year.

- LTDPs of all the disciplines should be prepared and the progress monitored every quarter by the Monitoring Committee of the concerned discipline.

9. Assistance to Promising Sportspersons and Supporting Staff

- With a view to providing assistance to promising sports persons and supporting staff, the scheme 'Talent Search and Training' should be launched by the Government so as to provide back up assistance to the promising sportspersons in the sports discipline, where there are chances of winning medals in the international events.
- Government should provide assistance to the supporting personnel, such as, sports scientists, coaches, sports specialists etc. to provide scientific back-up and other support to the promising sportspersons. Efforts should be made to cover more sportspersons under the scheme so that medal winning prospects are increased.

10. Prevention of Drug Abuse

- The issue of performance enhancement by use of drugs presents serious legal, ethical and medical problems. Faced with the increasing pressure to perform at levels, previously unattainable, greater number of athletes are using performance enhancing substances and methods in an effort to gain an unfair competitive advantage. In fact, the frequency of doping has significantly increased, worldwide, during the past decade. Sports are about good health and fair competitions. Doping runs counter to these ideals.

- As the incident of drug abuse in sports is, gradually, assuming significant proportions, it becomes necessary to set up National Anti-Doping Organisation (NADO) to ensure development and harmonisation of the domestic Anti-doping Programme.
- Drug Testing and Research should be undertaken to educate sportspersons about the ill-effect of drugs.
- The existing Dope Test Laboratory should be upgraded to get International Olympic Committee's accreditation.
- The scientific staff and coaches should be specially trained so as to ensure that no banned substance is consumed by the sportspersons.
- An Anti-doping System should be evolved so as to ensure drug-free sports which includes random-testing during all National level competitions.
- Seminars on the subject should be held and elite sportspersons should be educated about drug abuse and about the drugs which, though considered normal in daily life, yet fall within the banned substance list.
- Federations and Associations should incorporate, in their statutes, provisions regarding dope-testing and sanctions against sportspersons, testing positive, in accordance with provisions and norms laid down by their concerned International Federations.

11. Advanced Sports Coaching

(a) Training

- In order to provide a platform to those sportspersons, who are on the threshold of entering into the international sports arena, the Centre of Excellence scheme was introduced in the SAI Regional Centres and other places, where exceptionally good infrastructure facilities are available. The Centres of Excellence, in fact, are operating as regular coaching camps for the available talent in India and provide two or possibly three concurrent layers of skilled sportspersons affording wider choice of talent for selection of national teams. It should also provide alternate 2nd and 3rd options for selection of the

national teams. The scheme envisages training of elite sportspersons in a particular discipline to provide advanced coaching and also competition exposure, including foreign competitions.

- It should be the endeavour of all agencies to provide the best training facilities in the form of sports infrastructure and international standard sports equipment.
- Coaches and scientific officers in various disciplines should be posted in all major coaching centres to monitor the progress of talent.
- The services of foreign coaches should be engaged. Efforts should be made to ensure the services of the world's best coaches by suitably amending the terms and conditions for engaging the services of the foreign coaches.

(b) Scientific Back-up

- The significance of scientific back-up to sports persons is well-established. Accordingly, action should be initiated to strengthen this area, in accordance with international standards. Experts should be associated with each sports discipline or group of sports disciplines on a continuing basis to provide the requisite support in terms of nutrition, psychology, medicine, pharmacology, physiology, biomechanics and anthropometrics as well as other branches of sports science. Suitable mechanism should be introduced to achieve cooperation between the laboratory and the field, that is between the coaches and the sports scientists and particular care taken to ensure nutritional support to talented sportspersons and to sustain their mental health and competitive spirit.
- Appropriate research and development measures should also be initiated for the promotion of sports and to impart special skills to promising sports persons so that they are able to give out their best in international and other prestigious competitions. SAI

and other private organisations should be involved in such research and development programmes. SAI and NSFs should take coordinated steps towards the modernisation of the infrastructure, required for the training of sports persons and to provide them with scientific support for achieving excellence in sports.

- The structure of sports science in the country should be re-designed in such a way that the sportspersons from the grass root to the National level should have access to the scientific facilities in the country.
- The proposal to establish a National Institute of Sports Science should be expedited, aiming to create a practical advanced research system in sports science of world standard to uplift the standard of sports scientists and coaches. It should act as a guiding force in the development of scientific sports culture in the country.
- Sports Science Centres, set up at SAI Regional Centres, should be upgraded in terms of manpower and equipment so that field assistance can be provided to the sportspersons and for superior coordination.
- The teaching of Sports Science in Physical education should be strengthened.
- Additional posts of Sports scientists should be created for upgrading the Sports Science facilities in the Regional Centres of SAI.
- A National Advisory Committee of Sports Science should be set up to advise and monitor scientific work; advise on equipment; evaluate research projects; identify the areas of research and development in sports; and means to implement the research programmes into practice.
- In line with Indian Administrative Service (IAS) and Indian Police Service (IPS) and other services, Indian Sports Service should also be launched to make Sports Management more professional and scientific.

- **Research Fellowship Award:** Research Fellowship Awards are few in number and, presently limited to the SAI scientists. They only need to be extended to the scientists of the Universities/Ayurvedic Research Institutes carrying out research in Sports Science.
- Based on the dietary requirement of sportspersons, under various disciplines, a standard menu should be fixed in consultation with National Institute of Nutrition (NIN). Constant monitoring should be done under the guidance of NIN to ensure optimal diet to all sportspersons of varying age-groups and disciplines.

(c) Sports Equipment

- Suitable measures should be initiated to ensure access to sports equipment of high quality. While the approach to import of equipment would, no doubt, bear in mind the long-term interest of the indigenous sports goods manufacturers, the import of raw materials as well as finished sports goods of International quality should be under the Open General Licence (OGL). Similarly, sports federations, associations and other recognised organisations, involved in sports promotion, as also eminent sportspersons, should be extended benefit of customs duty exemption.
- The matter relating to exemption from sales tax for sports goods and free movement of raw materials and finished sports goods in the country should be pursued with the State Governments.
- The sports goods industry in India should be given special status to support and enable sports goods manufacturers to undertake research and development and manufacture sports goods with international standard. They should also be given concessions for manufacturing sports goods for import substitution where the level of consumption is not viable for undertaking production. For

this purpose, they should be given customs duty exemption for importing sports goods of international standard to use as prototype.

(d) Training of coaches, supporting staff and incentives to sportspersons

- It is a well-established fact that the standards of coaching and scientific backup in the country and those pertaining to umpires, judges and referees, need to be upgraded. Concerted steps should be taken to train coaches, sports scientists, judges, referees and umpires in line with international standards. Apart from developing such expertise on an institutional basis within the country, sportspersons should be deputed to overseas to training courses, conferences, seminars, workshops and tournaments, so that they remain abreast of the relevant developments in their fields. Coaches, would receive rigorous training for up-gradation of their skills. They should also be deputed overseas for the purpose.
- Incentives provide recognition and financial security to the distinguished sportspersons during and after their sporting careers and also motivate the youth in serious pursuit of the sports activities. Adequate assistance should be extended for insurance cover and medical treatment in the event of such eventuality. Job reservations for sportspersons as per the prescribed categories should be made more effective. Criteria for employment of international medal winners must be laid down and made mandatory for all concerned. Social recognition, the conferment of awards and honours at the National, State and District levels, incentives in the form of cash awards and avenues of employment which are important elements should be made more performance oriented. Alongside sportspersons, suitable incentives should be provided to coaches,

judges and referees for developing skills and enriching their expertise.

- Sports Equipment, required for preparation for international competitions should be allowed to be imported by respective Sports Federations/ IOA under Open General Licence and the Financial grants should be given for import of equipment which are not manufactured in India or even if manufactured, the same are not approved by the International Sports Federations.
- A panel of international institutions, providing training and conducting research programmes in sports, should be identified. Cultural exchange programmes in sports, should be negotiated with the countries having such institutes.
- The Coaches, Judges/Referees and Sports Administrators to be trained abroad and the institutions where they should be trained should be identified by the concerned federations and MYAS should provide financial assistance for National Sports Federations for sending their personnel for training abroad.
- It should be ensured that the sportspersons winning medals in Asian Games, Olympics and World Championships get jobs.
- The Government has taken a decision to increase the cash award substantially to the winners of Olympics, Asian Games and Commonwealth Games. However, the same should be disbursed in the same year in which the medal was won.
- Sportspersons should be insured for medical treatment.

12. Special Emphasis on North-Eastern Region

- The North-Eastern States bordering Tibet, Myanmar, Bangladesh, Bhutan, Nepal and China are of vital strategic importance for the country. However, their isolation due to hilly terrain and slow development of

transport and communication systems is a major cause of concern. The Tribal population in the region ranges from 80% to 90% in the states of Meghalaya, Mizoram and Nagaland, 60% in the state of Arunachal Pradesh, 20% to 30% in the states of Manipur and Tripura and around 12% to 13% in Assam.

- The region is ideally suited for implementing the SAI Special Area Games Scheme, which envisages tapping of the natural talent among the people living in tribal and hilly areas. The North-East is a great reservoir of talent in disciplines like Boxing, Judo, Wrestling, Weightlifting, Fencing, Cycling, Table Tennis etc.
- A Special Task Force was set up to undertake the study, the sports infrastructure needs and other facilities required for tapping natural talent and excellence development in the region. The recommendations of the Task Force for the development and promotion of Sports in the region should be implemented. The Task Force had recommended a Plan of Action which briefly envisages the following:
  - (i) Creation of sports infrastructure facilities at Sub-divisional Headquarters, District and State level on priority basis wherever the same is not available.
  - (ii) Provision for maintenance of sports infrastructure thus created and also for provision of services of coaches.
  - (iii) Proper utilisation of infrastructure and provision of equipment has been proposed.
  - (iv) Need for establishing more SAI Training Centres and SAI Special Area Games Centres has been highlighted for achieving in excellence especially in contact sports in which North-Eastern States have potential.
  - (v) On acceptance of the recommendations of the Task Force by the Government, a Monitoring Committee should be set up to monitor the implementation of the recommendations and the

progress of the talent identified from the region.

13. Role of Mass Media

- The role of mass media is central to the popularisation of sports amongst the people, at large. The electronic media including the national broadcasters, the private channels and the print media should be suitably mobilised for strengthening sports culture in the country.
- A Committee should be set up to ensure that all important sports activity get due publicity through the media.
- Important competitions should be telecast through Doordarshan.
- Due publicity should be given to make the people aware of the importance of sports in nation building.
- FICCI and CII should be approached to enrol champions of all disciplines as brand ambassadors for endorsement of various products, manufacturers of which are members of FICCI and CII.
- Efforts should be made to publicise the incentives given to sportspersons in order to attract people to sports.
- Documentation and films should be made on sports infrastructure, training and performance of sportspersons to be telecast on all TV channels to generate awareness among people.

14. Resource Mobilisation for Sports – Involvement of Private Sector

- Financial resource crunch has been a major constrain in promoting sports in India. While the union and State Governments should provide higher budgetary provisions, special efforts are equally called for to mobilise corporate funds for the development of sports in the country. Accordingly, corporate houses should be approached and encouraged to adopt and support particular disciplines as well as sportspersons in the long term for this purpose. Tripartite agreements between the Government, the concerned sports

federations and the corporate houses should be entered into in different sports disciplines. In the context of economic liberalisation, the private corporate sector would be closely involved in the promotion of sports, in general and to build and maintain sports infrastructure, in particular with requisite emphasis on the latest technologies. A suitable package of incentives should also be evolved for this purpose. Eminent sportspersons of established merit should be encouraged to set up and manage sports academies.

- Ministry should approach the corporate houses and encourage them to adopt and support particular disciplines as well as sportspersons.
- A suitable package of incentives should be encouraged by corporate sector to promote sports.
- The corporate sector should be encouraged to support the schemes for sports academies introduced by MYAS.

15. Miscellaneous administrative steps to make sports an effective tool in Nation-building

(a) The MPLAD Scheme should be suitably modified to allow MPs to utilise the MPLAD funds for promotion of sports in their area.

(b) Kendriya Vidyalaya Sanghthan, Navodaya Vidyalaya Sanghthan, DAV Schools, CBSE affiliated schools should be encouraged to take up sports in their respective schools and give weightage in marks to those students who show proficiency in sports and games.

(c) All States should complete the pending projects taken up with the Central Government Assistance and also to provide electricity at concessional rates to Sports Stadia and Sports Hostels.

(d) All States should permit the utilisation of Gram Sabha Land for construction of playgrounds.

(e) It has been recommended to adopt one Champion University in One State as the Sports Promoting University and to provide all sports infrastructure.

(f) The Union Minister of Law, Justice and Company Affairs should explore the possibility of amending the

CCS Rules governing the service conditions of Sports Personnel, bring Sports Administration under ESMA and also to institute All India Sports Service Cadre for Sports Administrators.

(g) All National Sports Federations of Non-Olympic Sports disciplines, Indigenous Games and Martial Arts should popularise their respective sports discipline so as to bring maximum number of people on the playfields in their own natural way of sporting activities.

(h) Sports Authority of India should simplify the tariff and terms and conditions for allotment of SAI Stadia to enable State and National Sports Federations to hold their National Championships in SAI Stadia and maximise Stadia utilisation.

(i) Efforts should be made through various agencies to infuse sports culture in schools, colleges and neighbourhood clubs.

(j) Ministry of Youth Affairs and Sports should suitably amend the scheme of providing pension to former International sportspersons so as to encompass Veterans and non-Olympic discipline sportspersons who have brought laurels for the Country.

(k) MYAS should initiate action to sign Memorandum of Understanding (MoU) under Cultural Exchange Programme (CEP) with various leading countries in Sports for the benefit of Indian teams training and International exposure.

(l) All Ministries especially Ministry of Rural Development should set aside a minimum of one per cent of their total allocation for creation of sports infrastructure and for promotion of Sports in Rural Area

(m) Ministry of Tourism should launch Sports Tourism Programme so as to link tourism with Sports by utilising the vast facilities available in India to promote Sports Tourism.

I am sure that if the above suggestions are implemented in the right earnest by all concerned, India will surely emerge as a Sports Super Power in near future.

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The IT Saga

—Balbir K. Punj

Beginning 1999, the Indian IT industry embarked upon a path which has led India into 21st century. These were the years when India began to be identified with IT and Indian Software become preferred item for the leading US companies. These were also the years when the significant improvement in telecom connectivity and bandwidth availability helped India to become the world's back office (as the *Economist* put it in a special India issue in 2004).

This remarkable success was not an accident. It is the outcome of the progressive policy decisions that the NDA Government led by Shri Atal Behari Vajpayee took. In each case, it required political courage for a coalition to attempt in the Indian context where IT was not a very popular sector. And the forces that had kept this sector as a government monopoly were in positions of influence to keep it under the governmental wraps.

The first one was the 1999 decision of Prime Minister Atal Bihari Vajpayee to end the upfront license fee regime for telecom service providers. The operators were given the option to move to a new scheme of payment of license fees where they need pay only a fixed per centage of their revenue. To an industry burdened by a commitment to pay large upfront licence fees annually through a miscalculation of future prospects, this change in license fee obligation came as a great relief. The Prime Minister refused to be moved by all sorts of allegations against him personally; he had not only saved the industry but helped stabilise and popularise it. Hundreds of applications had to come up on the ICT and was as well that Vajpayee took the plunge disregarding the criticism.

When Pramod Mahajan was appointed Union Communication and Information Technology Minister, he made a significant announcement that went far in attending to a major concern of the telecom sector – the industry would no longer be treated as a revenue raising milch cow of the Government. This announcement marked the end of a mindset that was moulded by the early years of private sector entry into telecom when Government itself had sought to make out that private sector entry would boost Government revenues. The wild and the runaway bidding for the telecom licenses that followed the 1994 telecom policy, had given the wholly incorrect impression that the main purpose of private sector entry was to raise the revenues of the government.

Prime Minister Vajpayee's bold decision in 1999 to shift from annual licence fees to revenue sharing sought to correct that impression also. Vajpayee had sought to refocus private sector entry into the industry to its real aim – serving the general public. For that the telecom services should be as affordable as possible. If Government seeks to overburden the service with levies the service could not be within reach of the common man. At that time mobile telephone charges for local calls were ruling at Rs.12 per minute.

Mahajan took the telecom industry one step further on the road to affordability through two of his most important decisions as Minister in charge of communications: keep the revenue share to the government reasonable and remove the called party pays regime for the mobile services. The Government accepted the TRAI recommendations for the revenue share to be restricted to the maximum of 15 per cent and the calling party should pay for the call on the mobile as in the case of the landline.

Pushing for further expansion of telecom services Mahajan also took the bold decision to let the CDMA technology provide all the benefit it could to the subscriber. CDMA was a new technology in providing wireless transmission of telecom signals between the exchange and the fixed line telephone. It meant the operator could bypass the expensive and time consuming job fixing a cable from the exchange to the subscriber premises. In the 90s when the Government allowed wireless-in-local loop the technology's reach was limited. But soon it so developed that WILL phone could also double up as a mobile with a certain range, turning this "fixed" wireless phone into a second wires mobile phone. The wireless operators using the

existing GSM technology had apprehended this might happen and were warning the Government over it. The question was whether the Government should bow to the genuine fears of the GSM operators that the investment they had made in GSM mobile phone technology would be endangered by allowing a parallel wireless service with CDMA or whether the Government should give priority to the consumer interest who will have now two technologies to choose from.

Mahajan decided to side with the consumer and let the operators using CDMA technology also provide limited mobile coverage. He knew this decision would be controversial and he would be subject to all sorts of allegations. The advantage to the consumer was that the local call charge with CDMA phone would be equal to the local call charge on the landline, that is Rs.0.40 per minute as against the then prevailing charge of Rs.4 to 6 per minute over the mobile. No wonder the GSM operators would raise a hue and cry over the Government's decision. But the Government stood by the people. As a result, mobile phone call rates fell and consumer could now call at almost at the landline rate. In two years, India's mobile phone rates came down to the lowest in the world.

The entry of the private sector operators particularly in the GSM cell phone sector demonstrated conclusively the benefits for the public from the NTP 1999 policy on telecom that finally ended the monopoly of the government owned telecom operator. However, the monopoly in international traffic had remained and the rates in India were far more than that abroad leading to a lot of revenue loss and clandestine operations like 'international call back' flourishing.

Under NTP 1999, this monopoly was to last till 2002, Mahajan ended it in 2000 after compensating VSNL. He also declared intention to privatise VSNL and let more players come into the market to increase the competition. Already licences had been given to private operators for the National Long Distance sector. The result was that by 2002 national long distance tariff fell by 56 per cent as per the Economic Survey 2002-03 and peak hour tariff for North America came down by 47 per cent.

With the sell off of VSNL to the Tatas in a transparent procedure, the Government had divested itself of direct involvement in all

telecom operations. VSNL now faced competition in its international operations from Reliance and Bharti among others. The game of matching tariff cuts that this kicked off enabled ordinary people now to call up relatives at distant places abroad at affordable price. The total telephone connections reached 45 million by March 2002. In April-December 2002 tele-density moved up from 4.5 to 5.2 per cent.

One of the major initiatives that the NDA Government took was to draft a convergence legislation to deal with the emerging convergence of telecommunications, information technology and broadcasting. The drafting of this difficult legislation and pushing it through Parliament took enormous effort and leadership. In a separate bid to push through rural telecommunication, the then Minister Pramod Mahajan prepared for setting up a Universal Service Obligation fund from the contributions received from the existing telecom operators in lieu of their obligation to set up networks in rural areas.

Again, in IT, the then Government took the initiative to set up a National Internet Exchange to reduce costs of Internet usage and expand Internet subscriptions. This fructified during the next four years avoiding the need to route all our Internet traffic through the USA. As major US companies gave contracts to Indian companies to get their back office work done here and transferred over the network, there were several scare scenarios raised in the US. Mahajan with the active help from Indian IT companies association NASSCOM lobbied extensively in the US to protect Indian interests against attacks from US labour unions and others and succeeded in taking the sting out of the attack. Leading US businessmen like Microsoft Chairman Bill Gates publicly came out in support of India and its IT services and even petitioned President Clinton against taking any steps against the Indian IT services. Bill Gates visited India a second time and so too many leading IT corporate figures including Intel Chairman Craig Barott, GE Chairman John Welch, Oracle's Larry Ellison, Dell Computers' John Welch, Oracle's Larry Ellison, Dell Computers' John Dell, Cisco's John Chambers and others. From running mere call centres India became a major hub for business process outsourcing work that employed over one lakh people in just three years and was all set to employ one million by 2007.

Arun Shourie, who succeeded Mahajan in the Ministry took the initiative further. With the active support of the TRAI, Shourie

tried to end the eternal conflict between GSM and CDMA mobile phone operators that had created bitterness and landed both of them in the court. Achieving this very difficult task marked a high point of Shourie's stewardship. With support from the TRAI the partial universal service was introduced by which any basic or cellular telephone operator could operate either basic or mobile phone in any technology platform. The Government also made it clear in response to TRAI's recommendation that it would move for a single licence for all types of telecom operations ending the inter-sectoral conflicts once for ever and in anticipation of the convergence of fixed and mobile communications due to rapid technology changes. Such unified licences would naturally affect existing operators but the Government helped by reducing revenue share that the operators had to pay and made other concessions resulting in a big boost to telecommunications. This also resulted in further tariff reductions. At the end of it all mobile phone subscriptions were growing at the rate of almost two million every month and India was rushing to complete a century of telecom connections. In between the initial licence fees were reduced further, the need for too many bank guarantees was done away with and the other facilities were opened up.

Significantly, the corporatised telecom services of the former DoT did not suffer in the competition. Both BSNL and MTNL prospered and continued to dominate the fixed line market. Within a short time after BSNL launched its mobile services it was racing ahead of several private sector operators and had reached the number two position in many circles in mobile coverage. BSNL then launched a new initiative in broadband networks ahead of all private operators. During Shourie's captainship, the Government asked the TRAI to come up with its recommendations for a countrywide broadband and high speed Internet network reaching out to villages and also a separate recommendation for covering all the villages. The recommendations on broadband were received just before the Government changed hands. The rest is history.

The Phase 1999-2004 which witnessed India transforming itself from the backwaters of the world economy into a recognised global force in IT (and several other areas such as automobiles, textiles, pharmaceuticals etc.) makes a fascinating story which is still to be documented in all its details and nuances. The present volume is an

effort to narrate the IT saga by someone who, along with millions of fellow Indians saw it unfolding from the ring side.

AN 'AMBITIOUS CHARTER OF ACTION' ON ICT

"Our aim: to enable India to emerge as a global Infotech superpower."
—Jaswant Singh, Chairman
of National IT Task Force

The image make-up of India underwent a tremendous change abroad in the late 90s. Indians were no longer seen as menial job seekers and body shoppers. Primarily in America they were seen as carriers of knowledge and enterprise and India as a potential Knowledge Power. That this happened at a time when the advanced countries were moving from the industrial age to the Information-Knowledge Age (cf. *The Power Shift by Alvin Toffler, The Road Ahead by Bill Gates)* established Indians as catalysts of the change.

"Change is the essence of the Information Age" and Indians were among those driving that change. (Ref: *Giant Killers by Geoffrey James. The quote is from Compaq's famous CEO Eckhard Pfeiffer)*

As is well-known many Indians in the United States like Vinod Khosla who co-founded SUN Microsystems and then went on to become a major venture capitalist, Sabeer Bhatia who founded the Hotmail and a host of others impacted the American elite. Some 40 per cent of all successful start-ups in the Silicon Valley of the US, the entrepreneurial crucible of that country, were Indian founded fully or partially. The 90s was also the decade when world industrial and financial leadership was snatched back by America from its competitors like Japan re-establishing itself as the lone economic as well as the political super power of the world. The Khoslas and Bhatias the Shiv Nadars and Deshpandes of the Information Technology drive made a significant contribution to this transformation. It is then that the US think-tanks began to discover India as a potential strategic partner of their country for the Twenty-first Century.

The scene then moved from Indian brainpower going to the US to Indian brainpower working from India to leverage first the US economy and then the economies of other significant industrial nations like the UK, France, Germany, Japan etc. If Indians could

do so well in the US, why can't they do so right in India itself and export their knowledge products to the world?

Such an outsourcing business would help the importing country get its IT products far cheaper than if they were created in the advanced countries themselves. It would help India by creating well-paid jobs here on our shores and earn almost limitless foreign exchange as software requirement for the world alone was running into hundreds of billions of US dollars (in rupees tens of thousands of crores). In effect it was to be a win-win situation for both India and the advanced countries. (In the following pages we will see how the strategic alliance in the economy that grew up between India and the US triggered strategic alliance between the two countries in political terms also and re-wrote not only Indo-US relations but also sub-continental and Asian politics).

Thus were born the start-ups that were to later become shining examples of Indian talent and enterprise. A school teacher's son N. R. Narayanamurthy set up Infosys with a few thousand rupees that he and his companions could muster. Shiv Nadar, a former IBM employee and his co-workers there, founded HCL, Azim Premji who was forced to give up his studies at Stanford and take up his father's vegetable oil refining business Wipro got into software which became its defining product soon, making him the richest man in India, and so on. Several dozens of such success stories were to roll out soon.

But the potential remained suppressed for various reasons. In the decade ending 1990, software exports from India were at the modest figure of 100 million US dollars. Even the five years of Dr. Manmohan Singh's economic liberalisation in the 90s pushed it up to nearly one billion dollars only. In the Department of Electronics that was handling IT at that time, the projection was only in terms of a few billion dollars by 1999. The reason: though new institutional arrangements were set up like the Software Technology Parks to isolate software production from the national environment of high duties, low power availability, poor telecommunication connectivity and customs hassles, the basic requirement of world class communication services were not available. How could a foreign client rely on Indian brainpower working in India when he could not be sure of a 24×7 communication with his supplier? There was no real liberalisation in regard to computer imports, software and telecommunications though some change had come from 1985

onwards. Infosys founder Narayanamurthy recalled in an interview how he had to visit Delhi 18 times to get an import license for a computer he needed for his software making business. The first major step was taken in 1996 only when Government committed to WTO to bring down customs duties on specified electronics items to zero by 2005. Computer software was freed from customs duty but other recommendations made by different bodies were still under consideration in 1997. Profits from export of software were declared exempt from income tax earlier. A working group for electronics industry set by the Planning Commission had made a set of recommendations to develop this industry. Early 1998, these recommendations were still pending for implementation when the Vajpayee Government took over the reins of the administration.

After a decade of telecom reforms, there was in 1995 only a telecom base of eight million telephones for a country as vast as ours. In addition it was operated as a state monopoly. Telephone tariffs specially for foreign leased lines were the highest in the world. The 1994 new telecom policy (NTP-94) that liberalised telecom somewhat, was mired in controversy and court cases and foreign telecom giants who once flocked to India were packing up to leave. The private telecom companies that obtained licenses first for wireless services and then for basic wireline phones, had to pay huge license fees that must be paid upfront. This obligation weighed down telecom services. The telecom reform was at a standstill.

Then destiny set up a Government that made all the difference.

A coalition Government under the leadership of BJP stalwart Atal Bihari Vajpayee came to power in March 1998.

In his first televised address to the nation on 25 March, 1998, Vajpayee as Prime Minister declared that promotion of Information Technology would be one of the five top priorities of his Government. This was the first time any Prime Minister had committed his Government to an IT agenda. On 28 April, in his address to the CII, the Prime Minister defined what he expected IT to do for the country: "This is one of the areas where India can quickly establish global dominance. India can be fully competitive in this area with tremendous pay-offs in terms of wealth creation and generation of high quality employment". He also disclosed his Government's intention to set up 'within a month' a National Task Force on Information Technology. This Task Force was to formulate the draft

National Informatics Policy for adoption by Parliament to guide the IT vision of the country. The notification constituting this Task Force came from the Prime Minister's office on 22 May the same year. The rapid sequence of events from the TV address to the Task Force constitution revealed the Vajpayee Government's determination to shift Information Technology from the periphery to the centre stage of India's development process.

In the 1970s, electronics became the most significant industry in the world. But the then Central Government under a misguided socialism behaved as if electronics did not exist. The use of computer was virtually banned. Import duties on software were as high as 119 per cent. Special permission was given to the Indian Airlines to import computers for passenger reservations due to the rush expected from the Asiad sports event in 1982. Television-even black and white—was only allowed at experimental level. In the early 1980s we were still debating whether colour TV was to be allowed in the country. In the absence of any consumer electronics industry worth the name, India completely missed the bus in the Electronics Age. Its negative impact on the economy continues to dog the country even 15 years later. Other South-East Asian countries like Thailand, Taiwan, South Korea and Singapore in addition to Japan etc., became major exporters of electronics. It is interesting to recall how policies on consumer electronics was formulated under the then Congress Governments. In mid-80s the Government decided to let Indian industry make VCRs—that concession was forced on the Government as despite a ban on their import VCRs were coming into the country either through passenger baggage or smuggled through the porous land border or imported as components and then assembled here. When the policy to manufacture VCRs was finally formulated, it was laid down that Hindustan Machine Tools would make the deck and state electronics development corporations would assemble the components on the HMT deck. It took another three years for this policy to be actualised. By then VCR had become obsolete, the compact disk having taken over.

The successive Congress Governments had confined Television to within the official channel and even after colour TV was allowed, as late as 1988 India had a total of just 10 million TV sets(colour and black and white together) about one per cent density. TV was virtually a taboo in the 70s at the height of the Congress rule. In the

80s after colour TV was allowed, manufacture of TV sets was not allowed in large enough numbers to be viable. For ever it remained a small scale industry with a high cost and low component base. No wonder it got completely overwhelmed when in the 90s foreign TV sets were assembled and sold here. Only three of the original Indian TV making companies have survived. As an example of a totally negative approach to industry, the successive Congress Governments' electronics policy stands out as a sad commentary on a lopsided socialism. Satellite Television, cable television, all grew up by themselves almost against Government prohibition forcing Governments to bend before reality and legalise both cable TV and satellite transmission of television signals.

In the latter half of the 80s and 90s Central Governments had no doubt given up the anti-computer policies of the 70s and first half of the 80s. But beyond some PCs adorning the offices and some reports about introducing e-governance and opening a few citizen information centres at the Ministries, they formulated no vision or placed an IT programme before the nation. No doubt the computerisation of the railway passenger reservation and use of computers in some of the Government departments like customs, passport etc. did demonstrate the benefits of IT. Even after the economic reforms of 1991, tight control was maintained on every aspect of electronics usage. A favoured step to impose this control was to raise the license fee barrier as high as possible to restrict entry even in liberalised environment as was done when e-mail policy was formulated or when easy entry to Internet service provided. The desire to command and control communication media for fear of letting people know the truth, on the lines of the Soviet system, dominated Government thinking for the major part of the 50 years of Congress rule. The country paid dearly for it as the electronics revolution totally bypassed us. But for the bold steps taken by the Vajpayee Government in the late 90s and early 2000, the IT-Communication revolution too would have met the same fate.

A ROADMAP FOR IT AND COMMUNICATIONS

The announcement that IT and telecommunications would be a priority for the BJP-led coalition Government at the Centre and setting up of a National Task Force for mapping the ICT road marked

a turning point in the economic development in the country. It had a wide policy implication in almost every area of governance and socio-economic situation.

The National Task Force on Information Technology and Software Development was a blue ribbon panel with a mandate to reach out to as many people as possible through its web site. To lead the Task Force, the Prime Minister chose his close colleague and senior BJP leader Jaswant Singh, a former Army officer who was then Deputy Chairman of the Planning Commission and later External Affairs and Finance Minister of the country. Co-chairman was a computer savvy N. Chandrababu Naidu who had become famous as the laptop wielding Chief Minister of Andhra Pradesh. Dr. N. Seshagiri who had set up India's first data collection and processing network National Informatics Centre, was the member-secretary. The panel had many major luminaries of IT, science, industry and administration as well as telecommunications: Prof. M.G.K.Menon, a science administrator in successive Governments, Dr. P.V. Indiresan, former Director of IIT, Chennai, IT industry icon N.R. Narayanamurthy, NIIT chairman Rajendra Pawar, then Wipro group president Ashok Soota, former VSNL chairman T.H. Chaudhary, former Telecom Commission and many others. Late Dewang Mehta who was then Executive Director of NASSSCOM, the software industry's organisation, was another prominent member. The then secretaries of Telecom, I&B, Electronics were also members representing the administration. Technology leaders like Dr. Y. S. Rajan , senior advisor then with CII, ILFS managing director Ravi Parthasarathy, IT professional Anil Bhakt and Sudheendra Kulkarni, who was director in PMO, constituted some of the other members of the panel.

"The Indian Prime Minister Shri. Atal Bihari Vajpayee has brought to bear his personal commitment to this mission" Jaswant Singh wrote in inviting the IT and Telecom professionals in India and abroad for interaction with the Task Force. Describing what IT meant to the country Singh wrote: " In IT we see a great potential to modernise our national economy, our education system, our communications and the government-citizen interface." "Our aim: to enable India to emerge as a global Infotech superpower."

For the first time Government thus committed itself to making India an IT Superpower.

From the beginning this Government was perceiving IT not in itself but as a major change factor. This perception was a defining factor in the subsequent policies and differentiated them from the previous knee jerk responses of governments in New Delhi to the challenge of the computer and communications revolutions. Jaswant Singh wrote: "Advances in computers, telecommunications, consumer electronics and the media, and especially the fast growing convergence among them constitute the greatest scientific revolution in human history. The sheer dimensions of it, the impact of this revolution on national and international life, indeed upon individuals, is unprecedented. It will change the way we live, work, produce, learn, travel and entertain. That change is upon us already."

Taking this multi-dimensional change into account, Jaswant Singh defined the Vajpayee Government's response: "India is willing to embrace this IT-driven change."

Not just accept this change but be a contributor to it. "(India) is determined to make its own unique contribution to it. Besides, this is an area where India can speedily establish its global pre-eminence." In pursuing the IT and communications revolution Vajpayee Government was telling the world that it has a global vision and is willing to set the local agenda for its implementation. (*All quotes from the Task Force report*).

What the Task Force was asked to do

The notification setting up the National IT Task Force was a document that came directly from the Prime Minister's Office. Thereby the BJP-led Government underlined its importance and priority in the new Government's scheme of things. (It should be remembered that in 1998 the Government was not politically still stable enough to take up long term policies that required basic changes. The stability came only after the 1999 general elections and the Government went through trying times before that. Yet, Prime Minister Vajpayee's commitment to IT and telecommunications and determination to take India into the Information Age as a leader and not as a follower, remained firm as is seen in the way this Task Force worked and the Government responded to its string of recommendations.)

The Task Force was asked to formulate a draft National Policy

on Informatics "whose aim will be to enable India to emerge as an IT Super Power within the next ten years." The Task Force was also to recommend the "appropriate empowered institutional mechanism" to implement the policy—yet another indication that the Government was serious about driving to town with the policy and not shove into one of those Government honeycombs. While the long-term policy was being formulated, the immediate requirements were also to be stated within a month. Finally there would be a Vision Statement "that will excite and energize the people of India, creating the faith in them that IT vitally aids personal growth and national growth." Thereby the Task Force was to connect IT to individuals as well as to the nation resulting in a web for knowledge transfer that was accessible to one and all. IT was thus to be a mass phenomenon in India – not just a class game. "The information society" Bill Gates wrote in his famous book 'The Road Ahead' "should serve all of its citizens, not only the technically sophisticated and economically privileged."

The Indian IT policy would be formulated for the people and as an agent of change, not just a computer tied to a person but a computer mindset implanted into the national consciousness—a significant difference from merely installing some computers. The Government document said the Task Force "will also suggest a strategy for the effective articulation and dissemination of that Vision so as to create an ethos, an ambience, a mindset and a work culture consistent with the needs of the emerging knowledge-driven global civilisation." It was to be a blue print "for making the adoption of IT into a national movement, with a wide network of empowered task forces at all governmental and non-governmental levels."

These were not to be mere brave words. Once the immediate tasks were defined by the panel, Government went on to implement most of the recommendations. The 2000-01 budget saw many steps for the implementation of the long-term recommendations of the task force.

We will be dealing with the implementation part of the recommendations later in this volume. Coming back to the Task Force, the terms of its reference revealed the wide areas of action where the Vajpayee Government wanted IT to be applied.

The Task Force was to recommend a strategy "for the extensive use of IT in all areas of national economy-agriculture, industry, trade

and services—as a critical input in making India a global economic power." In effect it meant that Government wanted IT to be a major driver of economic growth over the entire national canvas. For this, the Task Force was asked to prepare the design "for building a world-class physical, institutional and regulatory IT infrastructure" appropriate for India. The terms of reference also revealed that the Government was already aware that telecom, computers and consumer electronics and media infrastructure were moving towards a convergent structure. The country should prepare for it in advance so that it is ready before the change is upon us. The Task Force in effect was to help create the National Informatics Infrastructure (NII) over which the economy would move in future. This NII was to be linked to the Global Informatics Infrastructure GII. For this Internet was to be the main vehicle. It meant promoting massive use of Internet in all sections of society. Naturally it would also mean use of Indian languages in the Internet discourse. IT was to be used extensively in Government 'at all levels' to make governance transparent and accountable. IT was to be used extensively in commerce and other economic activities also. Raise PC density and towards that end every telephone was to be connected to a PC. Dramatic increase in PC density (which would also require dramatic increase in telephone density—a committee of the Task Force was asked to make separate recommendations for a new National Telecom Policy , NTP-99 to replace NTP-94).

Through the Task Force Government envisaged a 20-fold increase in India's software and other IT services exports. The Task Force actually fixed a target of 50 billion dollars by 2008. The aim was also to create an appropriate legal framework for the bringing into being of an IT-based society which meant a host of steps to establish intellectual property rights, data security and safety of information. And then be a model for a globally competitive InfoTech that could be replicated in other developing countries. The terms of reference were thus as comprehensive as possible and took into account the creation of a front-line future for India in the emerging global Information Age. In recent times, there had been no other governmental initiative in India as comprehensive and as all embracing the future as the National Task Force.

IT ACTION PLAN

"In the history of civilisation no work of science has so comprehensively impacted on the course of human development as Information Technology."

—NTF

Terming IT as the "greatest change agent in this century and promises to play this role even more dramatically in the coming decades" the NTF defined the advantage India would gain from a National Information Infrastructure. "For India, the rise of IT is an opportunity to overcome historical disabilities and once again become the master of one's own national destiny," the NTF said in its recommendations titled 'Information Technology Action Plan'.

The basic objective of the Action Plan would be to create an Info-Infrastructure Drive, Target ITEX-50 and IT for all by 2008.

Info-Infrastructure Drive

Accelerate the drive for creating a world class info infrastructure with an extensive spread of fibre optic networks and wireless networks for seamlessly inter-connecting the local such structures, the national informatics infrastructure and global structure. This would ensure that information in the form of voice, text and video (pictures) flows smoothly from one end to the other within local communities, regions and nation and connects to similar global structures. That would be an enormously powerful tool for India to get to the world and for the world to get to India most efficiently without loss of time or data. As global computer expert Prof. Raj Reddy, dean of school of computer sciences at Carnegie-Mellon University said at an ASSOCHAM meeting in New Delhi early this century, productivity could go up by over a thousand times on such infrastructure. IT Icon Bill Gates has also endorsed the impact of such information network. "Information highway will magnify those (free-enterprise) advantages. It will allow those who produce goods to see, a lot more efficiently than ever before, what buyers want, and will allow potential consumers to buy those goods more efficiently," he wrote in his book 'The Road Ahead' (page 183). More important, with such a seamless information highway, producers and their suppliers would be able to build up a smooth flow of components into factories without having to build large inventories

or facing production breaks due to lack of components in time. Just-in-time supply of inputs and manufacture and despatch to retailers would reduce costs significantly. In turn the consumers would benefit. Competitiveness improves. Greater productivity and greater efficiency in production and distribution spreads its benefits across the entire national economy-even across the globe. It would be a basic requirement for India to play its global role in the front ranks as a country of over a billion people with a large technological pool and a huge natural resource base.

To create such a NII connected to GII, the NTF recommended use of all available and emerging technologies in telecommunications, television, satellite broadcasting, cable networking, optical fibre and wireless connectivity. This would finally connect every part of the country to every other part on a 24 × 7 basis in real time. Besides, it would open connectivity to the GII from any corner of the country. It dealt with the public-private partnership needed to set up this infrastructure. NTF wanted conversion of PCOs into Tele-Info centres bringing voice, text and video to all villages through the Internet. This would get the villages direct connectivity to the global business and commerce as well as to people in every part of the world. The various policy measures needed for such an NII to come into effect were also dealt with in the report.

One of these policy measures was to deregulate telecommunications and end the Government monopoly in international telecommunication as well as radically change the very structure of it. A separate telecom task force was also created out of the NTF and it made wide-ranging recommendations known as National Telecom Policy–99 (NTP-99). We will deal with it separately.

The report called for Hi-Tech Habitats in 50 chosen locations around the hinterland of large cities like Delhi, Mumbai, Pune, Bangalore, Hyderabad, Bhubaneswar etc. This was to be essentially task of State Governments. Six years down the line, many of these hi-tech centres have already come up. Even Marxist Government of West Bengal was attracted by the proposal and has developed its own such centre near Salt Lake city of Kolkata. Recently it also modified labour laws to enable IT industry to work 24 × 7 protocol to attract more IT units into these exclusive areas.

TARGET ITEX-50

It was a leap forward that took most people including many IT experts by surprise and awe: An export target of 50 billion US dollars by 2008 for IT software and IT services. At the time of making this recommendation Indian IT software and services exports were merely Rs. 17,150 crores or hardly four billion US dollars, even though the growth was projected to be 65 per cent per annum. From four billion US dollars to 50 billion in about eight years was an unbelievable target. IT enabled services were just getting established at that time with a work force of just 70,000 and annual income of about 900 million dollars. That such a target was set in this background appeared more a leap of faith than an achievable goal. The NTF made elaborate recommendations to boost exports like total abolition of all excise and custom duties on software, income tax exemption given to software exports to be extended to IT enabled services, advancing the commitment to WTO on zero duty for over 200 electronic items from 2000 to 1999 and from year 2005 to year 2002. (Source Economic Survey 2001-02 and NTF report) The software industry was to be supported by more liberal bank credit. The industry was to get many concessions in retaining part of export earnings abroad, in acquisition of technology companies abroad and in expenditure for on-site work of off-shore clients. Duty concessions on capital goods imports, infrastructure status for equipment, etc., were to push the industry further into more risky markets. The target was not only in terms of acquisition of foreign exchange but also in terms of Indian software driving major American companies hi-tech products. Such Indian brain sitting inside American product was to lead to a strategic partnership between Indian and American enterprise that set the tone for a turn in political relationship later.

IT for all by 2008

The rooftop of exports of software was to be supported by a parallel growth of Information Technology application in almost every sphere of life on the Indian ground. NTF termed this programme 'Operation Knowledge'. The NTF wrote:

"Recognising Information Technology to be a frontier area of Knowledge, and also a critical enabling tool for assimilating, processing and productivising all other spheres of knowledge, the Government shall launch 'OPERATION KNOWLEDGE'. The aim of this national campaign will be to universalise computer literacy

within the next three months."

The programme called for massive distribution of computers to schools, colleges, public institutions like hospitals, libraries etc. and people buying home computers. The institutions of higher learning were to network their computers and also use this network to reach out to others through distance education (like IGNOU has done to reach out construction workers to upgrade their skills at their site of work or IITs were later to try to upgrade engineering skills at distant locations). The programme was to lead to establishment of IIT like IT training institutes of very high standards, creating IT module in all degree courses, setting up of digital libraries networked among themselves and with institutions of higher learning and more emphasis on distance education attached to more universities.

The NTF envisaged pervasive computers and IT-structures from information kiosks in rural areas to ATMs for cash dispensing and 'one-stop, non-stop' service provision to the public. Smart cards for all citizens were also on the horizon – cards that could be multi-purpose in addition to providing identity proof. It would also mean a national database of citizens. Bar coding of every item was yet another means of spreading computerisation. The report envisaged networking of planning information from local to national level, of information regarding the legal system like courts and Parliament. In short the NTF laid down the parameters of a new economic, political and social order in which order and access was established through Information Technology.

By 2008 the total IT structure would generate revenues of 80 billion US dollars. Of this, 50 billion US dollars would be through exports and 30 billion US dollars through domestic use of IT. (One billion US dollars would equal to Rs. 4,500 crores). At this rate, the total IT industry by 2008 was to be worth Rs. 360,000 crores. It would be nearly ten per cent of the then GDP of the country.

IT HRD and R&D

The NTF report had both a short term action plan and a long term action plan on the different sectors into which the IT progress was divided. The report covered action in human resource development in IT and research and development required to keep abreast of rapidly changing technologies. It also recommended an extensive infrastructure for research and development, attaining

highest quality and other requirements. The report had a separate section on development of a hardware base so that terminal or personal equipment like Personal Computers, servers, routers, printers, fax machines etc could be manufactured in the country and supplied at affordable cost for the middle class. The report also dealt with establishment of microelectronics base and setting up electronics chips making and very large integrated circuit etching on the chips (fabs).

On the development of human resources to serve this high level of IT infusion into the economy, the report had suggested setting up at least six IITs, upgradation of regional engineering institutions to level of IITs with IT instruction facilities, extensive masters and doctoral level teaching at these institutions, at universities and centres of excellence. The estimate was that India would need over a million highly trained IT engineers for its IT programme. It would be the largest group of highly paid and talented people. It was obvious that only India with its teeming millions and high level of educational infrastructure and talent could provide such large numbers of IT personnel.

In his 1998 book "*India – A Vision for the New Millennium*", *Dr. A.P.J. Abdul Kalam* (now President of India) and Dr. Y.S. Rajan (now senior technology adviser CII) list as many as 21 high technology services in which Information Technology would play a significant role in the coming 10 to 20 year time frame. We are recalling this list only to demonstrate how important it was that the BJP-led Government in 1998-99 took the lead in drafting an IT vision for the coming century and committed India to its implementation.

1. Networked automatic teller machines (ATMs) for banking and other transactions—what Kalam and Rajan forecast would come in 5 to 10 years time frame is already at our doorsteps in all large cities in year 2004. Prof. Ashok Jhunjhunwala is developing a rural version of it, which would dispose cash in one denomination only so that in rural area too there would be cash available for bank account holders in a 24 × 7 framework.
2. Smart phones for home banking operations—in 10 to 15 years time frames. In 2004, home banking over the phone has become widespread at least in large cities.

3. 'Visual' branches of bank operating from the customer activated terminals (CAT) or a kiosk—10 to 15 years time frames. This should be possible once broadband networks come into being (Please seen telecom section of this book).
4. Debit cards for electronic fund transfer at point of sale—10 to 15 years time frame.
5. Smart cards with built-in microchips for electronic cash, pay phones etc.—limited versions of these are already in circulation in all cities.
   Electronic Data Interchange (EDI) for paperless banking transactions—5 to 10 years. In the process of being set up now with the coming into operation of the legal framework including public and private electronic keys.
6. Image processing-by 2004 imaging phones were in use and digital cameras and image processing for a variety of uses is taking root.
7. Expert systems and neural networks for financial services-would be in position in 10 to 15 years but in some institutions limited financial services are already on line.
8. Business process of re-engineering, training and skill development for absorption of new technologies – 5 to 10 years. This again is taking root as is discussed in our section on IT enabled services.
9. Information security—already by 2004 had become a new skill area.

Telemarketing, visual shopping, online electronic newspapers, multimedia and virtual reality, interactive television and user controlled on-demand entertainment, direct broadcast satellites, bar coding for product identification, decentralised and networked warehouses that would connect rural production and distribution with their customers or vice-versa, supply chain network, comprehensive demographic and socio-economic-personal data base for all citizens with smart cards incorporating the secured data.

It might appear as somewhat too futuristic for a few people. But viewing it in 2005 when we have mobile phone with multi-media capability including Internet browsing on them, nothing could be ruled out as irrelevant to us. Mobile phones were thought to be luxuries meant for the elite in 1998. In 2004, two million subscribers

were registering every month for new mobile connections. Fishermen, artisans like plumbers, carpenters, repairmen, etc., were using cell phones.

In 1998, the formation of the National IT Task Force with the concurrent Telecom Task Force ended an era of Government indifference in application of hi-technology. It also heralded the BJP-led Government's policy of riding on technology change towards a better and brighter future for all its people.

THE JOB GOLDMINE

These days open any national newspaper and its job section says there are opportunities going abegging not only for graduates in any subject but also for undergraduates. Most of these jobs are in what are known as call centres and in BPOs-business process outsourcing. Graduates and undergraduates are invited for walk in interviews. The salary offered is above Rs. 10,000 per month with transportation and meals and incentives added on top for the jobs that are mostly to be done in night shifts. Indian companies contract with reputed foreign clients for taking up their customer servicing or business processes like paysheet making, output tracking, accounts keeping, human resource selection, training and development, many other types of routine working. All this could be done in India and transferred electronically to the client abroad. Apart from these routine jobs, there are others also that demand skills and knowledge—like medical and legal transcription, financial and business consulting, human resource development, administration, content development, many medical services like pathology, X-ray and radiography assessment and other health care services, etc. In the last category pay could be above Rs. 50,000 or more per month. Value addition increases as you move along the value chain of these services and accordingly employee remuneration also increases.

According to IT industry association NASSCOM, in these IT enabled services and BPOs would create 1.1 million jobs by 2008. Many other projections have also been made about the number of jobs. In 2003 the ITES and BPO industries employed over 1,71,000 people, according to NASSCOM(source Economic Times, 19 October, 2003). It meant an increase of 70,000 over the previous year. By 2002-032.3 billion US dollars, almost a billion US dollars more than previous year—that was the rate of expansion that was further accelerated in 2003-04. In 1998 when the NTF finalised its report, this was a fledgling bird employing a mere 23,000 people with a turn over of just Rs. 980 crores. However, the BJP-led Government recognized its prospects in time. In 1998 itself IT enabled services were recognised as an area of key opportunity for the country and called for a public-private partnership in formulating suitable strategies. These services were given income tax exemption. The NTF

wanted a number of habitat parks for these services in the country so that employment could be spread out. Knowledge of spoken and written English is a key in this job. Another key issue is cost of leased lines—and as we shall see in the chapter on telecom, here too the BJP-led Government's several interventions helped drastically bring down the cost of leased lines both through mandate and competition. Yet another step was to exempt these services from imposition of service tax, in addition to the exemption from income tax. Most important, the BJP-led Government's tenure saw intensive industry-government co-operation in successfully lobbying in the US against the tendency there to limit outsourcing of jobs especially during the election year of 2004. After a particularly nasty period of ill will, India-US relations step by step improved during the new decade through patient diplomacy of the BJP-led Government leading to first the Clinton Administration and then the Bush administration clinching a strategy deal with India. The rising goodwill for India in Washington helped beat back the domestic critics of outsourcing in the US and keep Indian BPO industry on its fast track of growth.

As the BPO industry is expected to grow to 12.2 billion US dollars by 2006(as per the IDC forecast) and to around 25 billion dollars by 2008(as per NASSCOM survey), the almost 100 per cent growth every year has been pushed forward because of the foresight of the then Government in 1998 to provide the fertile ground for its expansion. Industry analysts like IDC say the worldwide market currently (2002) for BPO is 770 billion US dollars. So just imagine what we could make if we get even 10 per cent of that market as against 0.29 per cent now! But the market is expected to grow beyond a trillion US dollars by 2006 worldwide. An MIT professor of computer sciences (Prof. Michael Dertouzos) has claimed that India could absorb its entire English knowing work force if BPO and other IT enabled services could be pursued with single-minded determination (1999 address at HP pavilion in ITU event in Geneva). The IDC report says: "India, given its location and manpower advantage, has over a short span of five years experienced stupendous growth in the BPO space and has turned itself into one of the most favoured destinations on the worldwide outsourcing map." (*Emerging BPO Opportunities for India, IDC market analysis report).*

The 1998 NTF report triggered government action and the growth over the four years from half a billion in 1999-00 to $ 5.5

billion 03-04 of BJP-led Government is now for all to see. We have captured a veritable job goldmine.

This is not a hyperbole. GE India Capital Services BPO alone employs 12,000 people of whom 41 are Ph.Ds, 40 are doctors and 150 are managers in global development work. There are over four locations in India: Gurgaon, Bangalore, Jaipur and Hyderabad. Over 1200 are MBAs. This was in 2003. Business World reported that the company was looking forward to recruit more people. Pramod Bhasin, head of GE Capital Services, said : "India has become critical in giving us the competitive edge in the world market" (US embassy publication People, Progress, Partnership, page 20). Infosys, the leading software company of the country set up by N.R. Narayanamurthy, an industry icon, recruited some 8,000 people in 2003 alone. The IT industry by then was employing as a whole 3.5 lakh people.

A direct consequence of the radical change in Government attitude toward Information Technology and Communications that the creation of the NTF signalled to the world in 1999, and the subsequent re-election with a firm majority of the Vajpayee-led Government in the general elections held that year, India became a great destination for almost all major global companies to set up their centres here and promote research and development work as well as other business. Between 1998 to 2002 Indo-US relationship underwent a dynamic change. At first, the United States distanced itself from India following the Vajpayee-led Government's decision to declare India as a nuclear power in May 1998. However by 2002 the scene had undergone complete change due to patient diplomacy led by the Indian Prime Minister. This transformation is documented in the 2002 National Security Strategy of the United States. "The United States has undertaken a transformation in its bilateral relationship with India based on a conviction that US interests require a strong relationship with India", the document said.

Referring to the then External Affairs Minister Jaswant Singh's patient nine rounds of talks with his US counter part Strobe Talbott, a US Government publication says that the results of these talks was "groundbreaking to say the least" (Ref: People, Progress, Partnership, US embassy in India publication, Page 11; also Talbott has published his version of this era in his book '*Engaging India*').

In year 2000, the then US President Bill Clinton visited New Delhi. India and the US were also engaged deeper and deeper in working together against international terrorism. With the speeding up of economic reforms under the Vajpayee Government (in 2002-03 alone the then Government enacted 35 laws focussed on banking sector reforms, bankruptcy legislation, equity market regulation and financial services sector) Indian market was expanding very fast. The Government had embraced IT and Communications as a major driver of the economy. All these separate developments promoted the onrush of top level US (and also European and Japanese) companies to India. "With the Indian economy opening up, US companies have established profitable linkages with India Inc., and bilateral trade is progressing. …..Technology and services have clearly been the drivers of the economic relationship, and many US companies have taken advantage of India's huge pool of skilled manpower", the US document noted. (ibid, page 13).

A large influx of global companies into India occurred at this time boosting job prospects for qualified Indians directly and for others indirectly. We have already noted what GE Capital Services has done. Intel, the world's leading chip making company, had just 10 employees in India in 1999. By 2004 it had more than 1000 employees here in research and development. American Express's BPO employs over 3000 people. IBM, the world's largest computer and IT Company has 9000 employees in India again in its development centres in four cities. This is besides its engagement with Indian universities to create software skills. Global companies like Cisco and Microsoft and Intel are involved in creating software skills and thereby improving employability and remuneration levels of Indian software/hardware people. Hewlett-Packard with Compaq has over 10,000 employees in India at present across 120 cities and 16 offices and in its manufacturing as well as distribution centres. "India has become critical for HP globally" says Neelam Dhawan, vice-president of the company's Indian operations (People, Progress, Partnership page 31).

Microsoft has invested Rs. 2000 crores in development, education etc., the largest investment of the company outside the US. Oracle, yet another global company in IT, has now over 5,000 employees in this country, mostly in its development centre. This would rise to 6,000 and the company's Indian operations chief Shekhar Dasgupta

says this is "scratching the tip of the iceberg". Oracle is present in 28 states of India offering products in 11 Indian languages. Apple's portable jukebox iPod was developed in the development centre in Hyderabad (Pinex Systems). iPod was the biggest selling product during Christmas of 2002 in America. "Corporate America has started recognising India's strengths and talent base" says Naresh Gupta, Managing Director, Abode Systems' India operations, yet another software major from America. Many of these companies are deeply engaged in improving education in India and infusing IT into Indian educational structure. Microsoft, for instance, has launched Project Shiksha in Uttaranchal and Kerala to begin with supporting 80,000 schoolteachers and 3.5 million students in next five years. European companies like Alcatel, Siemens, Ericsson, Nokia, and others have all started development centres in India during the last five years.

It is claimed that this is largely due to the availability of low cost, good quality and abundant manpower in the country all trained in English language. This, however, was known even in 1990. Therefore the new factor that has made India the destination for the global companies should be looked for elsewhere. Over 100 top global companies in IT and Communications are in India today almost directly as a result of their perception since 1999 of a government committed to IT development and infusion into the Indian economy and concomitant telecommunication expansion and modernization. That made all the difference between the early 90s and the late 90s and subsequent years.

As Infosys chief mentor Narayanamurthy told the *Economic Times* in 2004 (ET 29 June, 04) the software industry's high recruitment of young people alone created demand for 4,000 more airline seats. Then the demand for space, demand for houses for these young engineers, schools, vehicles, FMCG goods,—the demand curve builds on itself. So every job in the IT industry creates more jobs outside it in transportation, home construction, in education, in domestic services like washing, cleaning, ayahs, healthcare, aviation and airports, entertainment etc. This is partly because of the higher income levels of the IT industry people with even entry level employees getting over Rs. four lakhs annually. One estimate is that the one million jobs in IT industry and 1.1 million jobs in ITES and BPO industries by 2006. As per Government of India, Ministry of IT statistics, the professional jobs by March 2004 in IT and ITES

together was 8,13,500. The major part of these jobs was added in the years 1999-2003. IT software output in 1999 was Rs. 23,000 crores; by 2003 it had risen to Rs. 68,000 crores as per annual report of the Ministry 2003-04. From these official statistics, it is clear that the over eight lakh jobs for professionals in IT and ITES must have created at least another 16 lakh jobs in other areas). The 2.1 million jobs in the sector by 2006 or so would add some four million jobs in the country in other areas. Whereas direct employment in IT would be mostly for software engineers and specialists, in ITES and BPO it would be mostly for less skilled people, even ordinary graduates. Knowing English is the only qualification. In the years to come jobs would be for those who study French, Spanish, Japanese and Chinese languages. So the job market would begin to spread out. NASSCOM has suggested creating more Ph. Ds, as well as teaching employable skills to ordinary graduates to get more people qualified in ITES and BPO jobs. IT and Telecommunications between them would be the great driver for jobs in the coming years even more than what they have been over the last five years.

The ICT push today has spread awareness across the country. From Jorhat to Jamnagar, from Jammu to Kanyakumari, ICT training shops have sprung up even in small towns. Call centres or BPOs need not necessarily be near Metros or large cities. It is possible to spread out the job opportunities across the spectrum going to second grade cities and towns—provided the State Governments could create the right environment as the NTF also reported. In short, the Vajpayee Government opened the gates and placed the vision before the country. It is now for the successor government to work out of the opportunity. India is seen as the back office of the whole world and hinterland of our metros becoming back office of Indian business thereby linking global prosperity to India, metros to rural areas and smaller towns and vice versa. The fact that in 2004 as many as 400 out of the Fortune 500 companies of the US are depending on Indian software and services for their competitiveness (source NASSCOM) provides a vision of where India has come since 1999 and where India is headed in the 21st century.

We have not added to this large pool of new jobs created and being created the jobs that came in the telecommunication sector. The mobile telecom industry in India had created 3.6 million jobs by 2004 end. As the bulk of this growth took place during the

six years of BJP-led Government, it is quite rational from this to assume that bulk of these 3.6 million jobs were created during that time. The landline growth during this period was also in leaps and bounds which is described in the subsequent chapters. From around 15 million lines in 1997 the number of landlines rose to nearly 40 million in 2003, according to Department of Telecommunications Statistics 2004, an official publication. That 40 million refers only to Government owned service companies BSNL and MTNL. The private sector added 8.1 million fixed lines. Though the staff strength in the public sector remained around four lakh due largely to overstaffing earlier and technology changes that required less manpower per 1000 lines than earlier, the private sector eight million lines must have created at least 25,000 extra jobs taking the ITU global norm of 320 employees per 1000 lines(subscribers). However, the extension of telecommunications at this level leads to a multiplier effect on the economy improving efficiency and promoting more investment in other sectors like manufacturing, travel, hospitality, health care etc. The tremendous expansion of new service industries like call centres and BPOs was made possible mainly because of the availability of telecommunications on this scale. So it is the impact in job creation in other sectors due to the facilitation created by extended telecommunications that should be taken into account. Another benchmark to find out the impact of the ICT expansion on job creation is the revenue growth. The two public sector companies alone had a revenue of some Rs. 18,000 crores in 1998-99 while by 2002-03 it was nearly Rs. 33,000 crores. The private sector's eight million lines must be adding at least another Rs 10,000 crores by most conservative estimates of Rs. 1,000 per line per month. There has been more job creation in the telecom manufacture also as total equipment production went up from about Rs. 9,000 crores to Rs. 15,000 crores over the six year period ending March 2004 (source: Telecom Equipment Manufacturers Association). In all these various job areas, the focus was shifting from low paid to higher paid jobs in response to the rapid expansion of new technologies.

THE INFRASTRUCTURE AND LEGAL FRAMEWORK

Arising out of the recommendations of the 1999 National IT

Task Force Report, the BJP-led Government took rapid steps to set up the infrastructure and legal framework for making India an Information Technology superpower. The NTF had recommended a short-term policy consisting of 108 steps for software and 84 steps for hardware and then a long-term policy. The latter covered strategy, R&D, human resource development citizen-government interface, content creation, micro-electronics, a special project to create a fibre optic Internet backbone, financing and organisational structure. The Indian software industry would be encouraged to be of the best quality in the world. Taking the productivity of the Israeli industry as a benchmark, the Indian industry was to aim at ISO-9000 and SEI Level 5 standards. Subsequently many Indian companies attained the highest quality standard of SEI-Level5.

The software companies were to be encouraged to spend a part of their export earnings to import necessary items, acquire technology companies, take necessary steps to improve their delivery schedules and raise levels of customer satisfaction. The global firms were to be encouraged to set up their R&D centres in India. A specific target that the NTF set in software development reflected this great concern for quality work in the country. As many as 300 of the Fortune 500 companies should have their development centres in India by 2001, as against 160 in 1998. This should go up to 400 by 2003. Large software projects requiring more than 300 men-years of intellectual input would be eligible for all the concessions those project exports get. The NTF set policy and financial package for those companies pushing themselves up the value chain, moving to software products and packages. The entire Indian economy was to be encouraged to use IT for their critical missions to create a countrywide domestic software base to supplement the export vision. India has to build a brand. To this task, Government and NASSCOM were to work together sending delegations abroad, lobbying with policy makers and corporates in different countries, image building exercises that informed people abroad how work outsourced to India was helping the outsourcing country to improve its competitive ability. It is a matter of great satisfaction that during these five years of intense Industry-Government co-operation in IT, India came to be identified as the IT Country of the world encouraging many leading corporate icons to visit Bangalore and other centres many times. Among those who visited India from the IT industry abroad were such industry

leaders as Bill Gates of Microsoft, John Welch of GE, John Chambers of Cisco Systems, Larry Ellison of Oracle, Carli Fiorina of HP, John Dell of Dell Computers, IBM's chief, MIT Media Lab's Nicholas Negroponte, etc. In fact, everyone who was prominent player in IT and Telecommunications had visited India in the five years between 1999 and 2004. The Indian achievement was also acknowledged when Government leaders from Japan, China, Singapore, went first to Bangalore or Hyderabad to visit the IT companies during their official tour of India.

Even seven years ago, Bangalore/Hyderabad were not on their itinerary at all.

India's IT infrastructure of the future was not to be a mere talent provider for the global economy. More important, the NTF said, India must go for high value services and packages. "Government will enable a paradigm shift to globally competitive value services as against talent provider, as a means for sustaining India's advantage and protecting future earnings", the NTF said. Several institutional structures were recommended and worked out by the Government. A 100 million dollar capital venture fund was to promote software ventures. An institute for design to promote Indian design and stamp products with "Designed with pride in India" logo was one such institutional arrangement. Another was the IT Development Board as a non-governmental body to identify major mission-mode projects, build close links between academia and industry, fund high risk technology projects, and monitor trends in global IT. Government was asked to create a corpus fund for initial support to IT companies. An Indian Institute of Global Services was also envisaged in the report to scout for opportunities in back office jobs.

The IT infrastructure is to be sustained and nurtured with talent of a high order, especially in mathematical science. "The Government will encourage migration of mathematical talent into mathematically oriented software development through adequate number of scholarships as well as promotional re-training programmes", the report said. IT-based knowledge and skills were to be imparted in all professions to encourage an IT fusion into the economy. High quality IT manpower was to get better compensation for joining academics. Half a dozen Indian Institutes of Information Technology on the pattern of the highly successful IITs were to be set up(they came up very soon in different parts of the country.) A national infra-

structural research programme in IT, funding mechanism for R&D in information technology institutes, support for open-ended research, were among the programmes that were recommended. The HRD programmes also included virtual institutes to spread IT training, encouraging IT companies to invest in education, increase intake of electronic engineers in IITs and upgradation of regional engineering colleges to higher level. A Rs. 100 crore Vidya Vahini Project was envisaged as a joint venture between government and industry. This was to increase creation of IT professionals. IT HRD companies should be given the same benefits as R&D institutions. Investments in these companies by third parties should also be eligible for tax benefits, as do R&D investments. One important aspect of the IT infrastructure was the rising involvement of women in the industry.

This has a deep impact on the traditional societies like ours and could lead to greater changes in the gender relations within them. Right from the word go the NTF projected the role of women in IT. It called for several steps to promote women's employment in the industry. Three specific recommendations included one for extensive use of telecommuting to enable women to work from home. Banks and financial institutions were to provide special packages to help women to set themselves up as entrepreneurs in IT and possibly work from home. Training institutions were also asked to provide special learning packages for helping women to be proficient in use of computers and develop software/hardware skills. Five years later if you could now see many computer shops run by women the inspiration has come from the Government steps arising out of NTF recommendations. Many State Governments have since then amended the labour laws to enable women to be employed in night shifts in IT and IT enabled services—most call centres have a majority of women workers and almost the entire telemarketing industry is staffed by women.

Citizen-Government Interface

Though there were some initiatives in creating a citizen-government interface through Information Technology before the BJP-led Government took over, it was the NTF report and subsequent actions by the Centre and states that put IT in the centre of Government. In Ministries and departments information centres were created where citizens could gain information about

the Government activities on payment of a small fee. Payment of bills for public utilities, taxes and other dues to Government were made on line step by step. Interactive voice response systems were introduced in many areas of citizen-government interface. Railway reservation system was the first great example of such voice response system giving information, which was hard to obtain earlier. Today passengers could dial up at any time and obtain information on their reservation status including the specific coach and berth number. Many applications to Government agencies were also online and their progress in the Government hierarchy could be tracked by the applicant himself or with the help of an operator. For instance, when you apply for a passport you get a key number with which you could find out where your application is and what is its status. This information could be obtained from any Internet kiosk. Similarly, litigants could obtain information about posting of their cases in the Supreme Court or High Courts sitting at home or in an Internet café. Consequent to the NTF's recommendations on citizen-government interface, many states have also placed their government information on line and many state authorities including the Chief Minister could be accessed through dedicated websites. With almost all Government departments and Ministries, semi-autonomous bodies etc., having their own web sites, information about happenings in them can easily be lifted by anyone from their web sites. Government procurement information, policy drafts, programme information, etc., are also available on their web sites. Policy drafts on the web sites have now transformed the way government policies are made. They are increasingly influenced by public opinion expressed over the web site. One of the lasting achievements of the BJP-led Government in this period was to kick-start the programme to bring the Government to the doors of the citizens and eventually create a 24×7 linkage between people and their rulers.

The legal structure for this remarkable change in governance was put in position with the enactment of the Information Technology Act. The IT Act was a pioneering piece of legislation as India joined a handful of countries that have such a law. The Act defined IT, specified responsibilities of carriers and operators of IT structures and legalised documents issued on line. To facilitate commerce online, a Public and Private Key Infrastructure was mandated in the Act. It created a Controller of Certifying Authorities (CCA) who would

authorise certifying authorities of public and private keys. When an online document is 'signed' with these keys, the parties to the document cannot repudiate it—in other words it becomes as legally binding as a paper signed by the parties. This certification enables transactions to be made online with a legal backing to them. With electronic commerce rapidly gaining ground in advanced countries especially in exports and imports, India needed matching structure; besides online transactions even in domestic economic areas, reduces costs, accelerates documentation and improves over all efficiency. The IT Act also specified cyber crimes and punishment for them thus providing further protection to Intellectual Property Rights in computer land. This move was important in preventing piracy of software. A large percentage of software in use in the country is pirated one. This acts as a disincentive for creating world class software and creates a hurdle against makers of world class software packages from bringing these to India. The IT Act enables law and order authorities to begin attacking piracy seriously. Yet another legislation, Semiconductor Integrated Circuits Layout Design Act 2000 protected semiconductor lay out designs from piracy and copying. This was essential to promote development of these designs in the country as the first step to the high technology manufacture of integrated circuits on silicon wafers (chips that constitute the heart of most electronic gadgets). The Government was in the process of setting up registry of seem-conductor designs lay outs and takes other steps to promote semi-conductor VLSI designs and applications at the time of its demitting of office.

Electronic Governance

Imagine all the trouble a villager takes in our country to get to the administration. If his petition were not directly delivered to the authority concerned, there is little chance that it would ever be even considered; even if it were considered, he would hardly be informed of its progress. If he travels to district or state or national capital to find out, it is unlikely that he would get straight answer or a convincing reply. Similarly, Government spends a lot of time and energy and expense in informing the citizen either through post or other Government delivery systems. Electronic governance could remove many of these hurdles and bring the Government nearer the citizen and vice versa. One of the great benefits that the BJP-led

Government's IT initiative brought to the citizens was to create a time frame for introducing extensive e-governance initiatives in the Central and State Governments. This flowed from the report of the NTF. As the World Bank representative in India Michael Carter said in his introduction to the ASSOCHAM background paper on e-governance in 2003, "one of the greatest challenges before India today is improving the quality and access of service delivery, especially to the poor. … The application of information technology to public services—or e-governance as it has come to be known—offers an exciting and effective way of achieving this goal." E-governance is thus more important to the poor than to the better off people. The wide-ranging initiative that BJP-led Government undertook from 1999 to 2004, helped narrow the distance between the Government and the governed. These initiatives continue to transform governance in the country from one of a distant, secrecy bound, awe inspiring almost semi divine institution to a citizen-centric, friendly, transparent and efficient facilitator of services to all the people. Most of these initiatives flowed from the NTF report.

The initiatives included the following: creation of a Rs. 10 crore National Institute of Smart Government at Hyderabad to co-ordinate all steps by various public bodies and to undertake research and development in e-governance. The setting up of the institute followed lot of preparatory work and a conference of chief ministers convened by the Prime Minister. The Government undertook comprehensive review of use of computers in various ministries and departments and came out with a time frame for fuller introduction of IT in all of them. A Rs. 2,500 crore national plan for e-governance was approved in 2002.

Critics might claim that many of the initiatives in e-governance like citizen's charter were instituted much earlier. But the ASSOCHAM background paper that a reputed industry analyst Pricewaterhouse Cooper prepared, explains the situation thus: "The 1990s, especially the earlier half witnessed the reforms and a surge in the growth of the economy. There was an improvement in the telecommunications infrastructure and implementation of a number of initiatives to improve the efficiency of the administrative machinery. All the districts were connected *via* NICNET at the start of the 90s. Software was developed for planning and monitoring of IRDP. However, studies have shown that the utilisation of these

systems at the district level has been effective only in a limited number of districts. Obviously, the momentum that was built up initially failed to sustain in spite of spending huge funds. All these initiatives were on the administrative front and not on the citizen-interfacing side. Besides, where it lacked was a lack of proper change management road map. It was more of a technological initiative without much focus on changing the mindset of the people."

E-Governance as developed from the 1999 report of the National IT Task Force meant far more than a mere introduction of computers in the administration. It meant a fundamental shift from which government has been operating so far. The aim is to make governance more simple, accountable, responsive and transparent. The key goals set were:

Citizen's on line: it meant delivery of Government services to the citizens quickly and effectively minimizing manual intervention and rule of thumb approach.

Strengthening good governance: providing accessible information to its constituents to promote transparency and accountability.

Improving productivity and efficiency: procedures are simplified and delivery improved leading to better productivity and increased savings in cost of doing the service.

In all these Information Technology because of its ability to transmit, store, retrieve and process data for decision making, plays a critical role. It is both an enabler and transformer.

The BJP-led Government made a signal contribution in initiating a large number of initiatives in e-governance throughout the country, some of which we have already discussed above. But as noted by e-governance experts, it is a long term process and its impact not easily visible overnight. Many of these steps like state level wide area network to take Government data to sub divisional level, are maturing now only when the people who sponsored them are no longer in power. A Rs. 2,500 crore National e-governance plan was finalised in 2003 and was sought to be implemented over three years. Encouraged by the Central Government's commitment to e-governance, many state governments had brought out their own plans. Gujarat had established a network for online data transfer connecting district headquarters and state capital. Andhra was the pioneer with its 2Mbps optical fibre across

the state, the e-Seva programme in urban areas and the plan for connecting all the 2,100 villages in a triple play network. Andhra also implemented some telemedicine initiatives involving multiple hospital chains and even connecting specialities abroad. Computer literacy in more than 1,000 schools, a database of all children, four TV channels dedicated to public service like school and college education, training, and support to self-help groups. Some 1,800 institutions across the state participate in it. The state has also pioneered creation of a household database, which has become a major resource in targeting Government programmes to needy groups. The electoral rolls for the entire state are now available on line. Punjab, Haryana, Kerala, Tamil Nadu, West Bengal all followed with their own state plans. Global software major Oracle reports that its India operations are involved in e-governance projects in over 21 states. In February 2004, industry analysts Frost and Sullivan reported that over 225 e-governance projects had been implemented across Central Government departments. But the majority of the projects are concentrated in seven ministries, revealing "significant potential yet to be tapped." How much the situation in the Central Government under the direction of Atal Bihari Vajpayee had changed was evident from the F&S analysis: From the earlier attitude of treating computerisation as a novel or fancy idea, 55 per cent of the ministries and departments had begun to consider IT as one of the "key areas whose performance is regularly monitored by the top officials". The IT plans in central ministries "is made by the top officials in consultation with the NIC team". That meant the administration was now serious about implementation. The analysts did report a number of constraints. The Ministry of Communications and Information Technology—itself a creation of the Vajpayee Government—had become "the core to the planning of projects". One of the key drivers was the assessment within the government that e-governance is central to growth. The attitudinal change had begun to kick in in the most conservative citadel of the country—the administration. E-Governance market size was estimated to have grown to Rs. 1,400 crores at the rate of 18 per cent in the year 2001-02. "At least one to three percent of the Government's budgets are committed to IT". That meant a major recommendation of the NTF in 1999 was on the implementation line in under two years. A remarkable change in a Government

that normally takes years to change. (Ref: Frost and Sullivan 19 February, 2004).

IMPLEMENTING IT TASK FORCE REPORT

The rapid implementation of the National IT Task Force report's recommendations were a unique experience in the history of any Central or State Government putting into practice the effort of any expert group. At first the 108 short-term recommendations were implemented and then the long-term recommendations followed. The results were there for all to see. Of course any claim in this regard has to be tempered by the fact that the industry itself is populated and driven by young, talented, self-made entrepreneurs. But even they needed Government as a facilitator. Here the Government became pro-active.

One good benchmark is the growth in software and services exports:

Growth of software and services exports

	Rs. Crores
1998-99	10,940 (2.4)
1999-00	17,150 (3.8)
2000-01	28,350 (6.3)
2001-02	36,500 (8.1)
2002-03	46,100 (9.55)
2003-04	55,500 (12.2)

(Figures in brackets are in dollars billion)

Please note the 65.78 per cent growth in the 2000-01 period compared to the previous year. In 1999-00 itself growth was 58.3 per cent. It was an indication that the rapid-fire steps the Government was taking following the setting up of the Task Force were having their effect and enterprise was blooming. Those three years saw many steps both budgetary and non-budgetary to boost software and services development and IT usage even domestically.

Domestic software production

1998-99	4950
1999-2000	7200
2000-01	9400
2001-02	10,874
2002-03	13,400
2003-04	15,350

(Figures at right in Rs. Crores: source Ministry of IT annual report 2003-04)

It is easily seen that the production of software for domestic use virtually doubled between 1999-2000 and 2003-04, the five years of the Vajpayee Government with over 60 per cent growth in the year 1999-2000 against the first year of the Vajpayee Government. The speed, with which the Task Force report was implemented, was having an impact right from the start.

These years also saw a large number of policy initiatives both in the budget and other areas especially in export-import policy. These are so many that mere recounting of that would take up pages and pages of print. To summarise them, there was significant reduction of customs duties on capital goods for manufacture of semi-conductors, on components for computers and other electronic items, zero duty on cellular telephones, etc. (At one time there was 116 per cent import duty on computers). Excise duty on electronic products was rationalised to a single duty of 16 per cent in the first year and then brought down in subsequent years. A large number of concessions were given for imports into software technology parks necessary to build up software exports and their sale in domestic tariff area was also liberalised. Software has been given extended tax holiday and Internet service providers and Broadband service providers were also given this benefit. The raising of external funds for IT companies was liberalised and they were also allowed to buy foreign companies out of their export earnings. In just two years the R&D spending in IT industry in the country jumped from 2.5 per cent of total spending to 4 per cent. The aim was to raise it to 10 per cent. New export destinations in Europe and Japan were located. Software companies got leased lines of high capacity at lower rates and satellite based bandwidth through

INTELSAT for direct connectivity with their clients. Concurrent steps in telecom sector like liberalisation in setting up gateways for international bandwidth further boosted Indian companies' capability to gain more clients abroad and ensure reliable and dependable delivery schedules. We have already dealt with the enactment of the IT Act and setting up of Controller of Certifying Authorities for public key structure—a critical requirement to authenticate documentation on line. Concurrent developments in telecommunications that we would discuss later in this book strengthened the software firms' standing among the foreign clients, despite the poor infrastructure in the country outside these software technology parks. For the computer hardware sector also Government came up with a number of measures including hardware technology parks, reduction in customs and excise duty, increase in the depreciation in the first year on purchases of computers and peripherals. One of the visible impacts of these steps was the step by step reduction in the price of a desktop to the customer from anything beyond Rs. 50,000 per unit to Rs. 20,000 and above by year 2003. The price of notebooks fell from above Rs. 1,00,000 to Rs. 45,000 and above making computer more affordable to users.

Spawning global IT companies

Yet another landmark in our IT horizon that emerged in the wake of proactive IT policies of the Government of the day was Infosys and several other companies. As we have mentioned earlier, campuses of IT companies like Infosys and Wipro have become as important points in their Indian itinerary as the Taj Mahal at Agra for visitors of the level of Prime Ministers, Presidents and Chairpersons and CEOs of global companies. Infosys revenues touched over a billion US dollars (Rs. 4,761 crores) in 2003-04. As the *Economic Times* report in its 13th Oct 04 issue noted, it took 23 years getting to that level. But the acceleration effect of the IT agenda of the Vajpayee-led Government had such a lasting impact that by 2004-05 Infosys touched 1.54 billion US dollars and still next year was sure to cross 2 billion dollar mark. Recalling that the company's revenues in 1999 were only 100 million dollars, Infosys represents the huge opportunity in IT under a pro-active administration like that of Vajpayee. Several other such companies

popped up since 1999 Mphasis, Polaris, HCL Technologies, HCL Infosystems Ltd. The software part of Wipro has made Azim Premji the richest man in the country. The oldest IT Company TCS had a 52 per cent growth in the first half of 2004. Hughes Software yet another IT company was forecasting 30 to 35 per cent growth in 2004-05. HCL Infosystems under Ajay Chowdhary is number one in making and selling desktops in India. Shiv Nadar's HCL Technologies has development centres in many countries outside India, an example of Indian company becoming an MNC. It also has crossed one billion dollar revenue mark. Most of these IT companies have been growing at around 30 to 50 per cent year after year in the period 1999-04. Among the hardware companies a great example is that Moser Baer of Deepak Puri with exports of CDs and storage disks of over Rs. 1,000 crores.

Writing about the impressive growth of the IT sector and the impact it has made on world leaders, Arun Shourie, who was Minister for Communications and IT in the Vajpayee Government pointed out the role played by both private enterprise and government policies (*Indian Express, 5 January, 2004)*. There were 39 software technology parks the Government set up during this period, he recalls. About 3,500 firms operating out of these parks export Rs. 37,000 crores worth of IT products and services. "In a word, the sector is a model of government-private partnership…..The Government has to continue to and is continuing to, improve the infrastructure the industry requires….. Attitudes too have changed: Government personnel do realise their task is to enable entrepreneurs and technicians to do even better….."

Backing up domestic enterprise to do its best, the Vajpayee Government helped the country to challenge the global economy to take note of India's power and potential in the Knowledge Industry. It is not often that such a global success story is written in so short a time from a developing country that till the other day was disdained as haven for gaudy maharajs and their gilded elephants with snake charmers along. From the false and decrepit impression of snake charming, Indians were now perceived abroad as masters of silicon writing.

IT AS A MASS MOVEMENT, IT TO THE VILLAGES

The significant contribution of the Vajpayee Government in Information and Communication Technology policy making was not just the implementation of some critical measures to bring ICT to the centre of development planning. It went one step beyond- to make ICT a mass movement. Literally the Government took the computer and communication to the villages. World Bank development economist Nagy Hanna in a research paper "Why ICT matters for growth and poverty reduction" has revealed the role ICT could play in lifting the masses out of poverty. He says "it is critical to understand how information and communication are vital to the lives and livelihood of the poor and how ICT could enhance their access to markets, institutions, services, education and skills…The poor lack access to information about income earning opportunities and market prices for goods they produce, about health, about their rights, and about public and welfare services." (Quoted in the book The Great Digital Transformation by D.K. Ghosh). This is reinforced by the lack of education and skills to improve their income levels. Millions of farmers in the country do not even know what is the prevailing price of their products in the major consuming centres. It is said that the oranges grown in Central India go through over 60 types of middlemen before they reach Delhi and the price the farmer gets is not even a fourth of what price the consumer pays in the national capital. ICT could turn this tide by letting the farmer know the prevailing price in all the main markets in real time—that is, as the prices change. This along with other measures could help the farmer to get better prices for his produce. Policy makers would also allocate more resources to bring ICT to rural areas if the village population knew what its benefits could be—as has happened with colour TV and cable TV. A powerful groundswell of demand came from the hinterland for these driving colour TV as the first preference of the rural population. Once this demand power rose, prices of CTV went down. Is it enough for experts to claim that ICT can help break the cycle of poverty, ill health and illiteracy and put the poor on the growth path? We need to make the mass of people aware of its transforming impact and demand more resources focused on ICT and strategies to reach them to the poor.

An inseparable component of the BJP-led Government's ICT policy was to spread the awareness of this among the targeted poor. To create a mass movement in favour of ICT so that ICT would be used increasingly to attack poverty, a working group was created under Prakash Javdekar, then an MLA in Maharashtra who had been associated with many pioneering experiments in using ICT to solve rural problems. The other members of the group were all pioneers in experiments in bringing the benefit of ICT to rural populations. Prof. Ashok Jhunjhunvala of IIT, Chennai had invented the CorDECT, a low cost wireless way of extending connectivity and had set up a group to bring ICT benefits to rural areas at prices they could afford. Dr. A.K. Basu, yet another member of the group was director, Society for Rural Industrialisation. Among other members was Dr. P.V. Indiresan, former Director of IIT, Chennai and a long time think-tank on ICT applications. The official members were also involved with creation of indigenous networks like ERNET, NIC, etc. or electronic devices for rural use.

That ICT should benefit 'all sections of society' and not the upper crust only, was the theme of the Working Group's report. This was reflected in the opening sentence of its report: "The Working Group envisions Information Technology providing an unique and new opportunity to improve economic status of all sections of society", the report said. Information Technology, the Working Group said, "offers new opportunities for self-employment and entrepreneurship to a large number of people who are otherwise not able to participate in economic activities in a major way." Again, the focus was on the disadvantaged sections and how ICT could bring them the advantage of economic activity. Self-employment through ICT could take many forms. The roadside PCO is one-nLog, Prof. Jhunjhunvala's brainchild that has devised means of getting villagers to set up their own PCO-cum-Cyber Café. n-Log trains a village lady with some schooling behind her, to learn computer operation. It gets local bank to advance the money for a low cost Internet connection. The unit is set up in a teashop or any other publicly accessible space. The unit is connected to a hub owned by a regional entrepreneur giving access. Villagers could go to the unit to get information from anywhere in the locality, information on farm inputs, veterinary aid, school and college admissions and exam results, Government forms etc., all for a small fee of Rs. 10 or Rs. 15 they can afford. There is a local stake

in the enterprise and all benefit. The operator makes a good income that she could improve further if she is enterprising enough. Some have even introduced astrological predictions and connections with well-known astrologers for the village folk to get the right day and time for an auspicious thing like marriage. In a country like India, the Group's report said "where a common man has to deal with some Government agencies or the other virtually on a day-to-day basis, the most visible impact of IT on the life of a common man will be felt if no one may be required to visit a Government office for day-to-day work and instead have all such interactions with Government and its agencies through Internet." This was possible only if Governments are e-enabled and there is a countrywide Internet access with a communication infrastructure that reaches out to the last corner. Such a target was what the Group proposed: 100 million Internet connections, one million Internet enabled kiosks for those who cannot afford to have home Internet connection. "The Group believes that this vision is fully realisable by 2008 with large-scale participation of the private sector and self-employed people in the unorganised sector." It said the aim should be not to cry over the digital divide but to work towards a digital unite through ITC's capacity to bring into contact diverse people across great distances. For that, the plan it delineated was to be translated into a movement for 'enabling and empowerment of people to facilitate mass scale spread of IT and its benefits in the country.'

The way to 'enable and empower' people was for the Government to set in motion processes that will enable 'anyone, anywhere' to set up ICT based services. The two-pronged strategy the Group recommended would convert almost every middle class home into an earning unit. All SMEs (small and medium business enterprises) should also have Internet connections. That explained it targeting 100 million Internet connections by 2008. For those who cannot afford to have such connection, the million Internet kiosks the Group recommended would provide access to the Internet and the world of information, by cycling not more than five km from their place in any direction. Through these kiosks even the illiterate could access the Internet and through it many Government agencies as well as information on a wide range of areas of their interest. These kiosks were to come up as individual enterprises, not as a Government extension to avoid the pitfalls

of such governmentalisation. The inspiration for this extensive private enterprise network of kiosks was drawn from the success of the cable operators who had wired nearly 40 million homes across the country without any Government help. If cable TV connections could be had for an affordable Rs. 50 to Rs. 150 per month giving access to a large number of different TV channels, Internet Kiosks too could bring the benefit of worldwide access at affordable cost. "One of the significant characteristics of the cable operators' model is the concept of neighbourhood service provider developing close relationship with the customers," the report observed. The major difference however is that to be relevant to the common man Internet access in local language would have to be provided. The NTF had already recommended the development of local language fonts and operating systems and government was encouraging R&D in it in its C-DAC (Centre for development of advanced computers) and in several privately funded IT development centres. The Government also launched the Media Lab Project with the object among others of developing operational systems in all major Indian languages and also in assisting language to language translations.

ICT has the quality of a tiger tasting blood-it prompts the user to demand more information and better services. The Group dealt with this outcome of the plan to spread access to Internet. "Having enabled the people to enter the field of IT services , it is essential that Government empowers its citizens to demand a high quality of service not only from Government but from all service providers in general." The Group said that empowering should encourage people to demand more and more and get these services.

Dealing with the question of making people aware of the benefits of ICT so that they would demand more and more of its services, the Group headed by the BJP leader Javdekar made some innovative suggestions. IT pilgrimages could be organised to spread awareness. Government must create a role model in e-governance by re-engineering of its own procedures. (The Vajpayee Government announced a number of measures in this direction in the budget for 2002-03: like support for IT, re-engineering of Government procedures, a cut in staff costs and reduction in government staffing by two per cent each year for the next five years). Crucial to the mass awareness programme was the movement to make people computer

literate at different socio-economic levels. A three-tier structure in the Government headed by a Cabinet Committee was to oversee this mass awareness and e-enabling programme. A National IT Mission should provide the necessary impetus to nurture and sustain the high level of IT-related activities to enable the masses to benefit from this medium of information exchange.

In the end, the Group explained why it went by so much faith in the transforming power of IT in lifting the country out of the poverty and underdevelopment trap. "The Working Group is convinced that IT is probably the only solution for the fast paced socio-economic development in a country like India where the population of one billion could be converted into a large pool of human assets to fully exploit the benefits of this technology to uplift their socio-economic conditions." Having said that it deliberately avoided the 'conventional strategies' and made a complete break from Government funded job creation. "The Working Group recommends that Government should confine its role to set in motion enabling processes to facilitate mushrooming of a large number of self-employed people groups in the small and unorganised sector to develop and provide IT and IT-enabled services upto the remotest places in the country." The Government role was to become a facilitator and not a bottleneck. The first thing was, the Group said, to remove completely all licensing provisions for IT services. The Group drew up a time-bound programme for infusing IT into Government and other sectors so that IT truly becomes fully a part of the socio-economic structure of the country by 2008.

Summing Up

Under the BJP-led Vajpayee Government Information and Communication Technology development and application to the economy shifted from the periphery of policy making to its centre stage.

A firm National IT Policy and a Communication Policy were in place from 1999 onwards.

In five years of working it saw a complete transformation in its application. For the first time India set for itself a firm date of 2008 to become an IT Superpower with an export of services of US$ 50

billion, a domestic use of US$ 30 billion and widespread development of Internet use.

A Rs. 2,500 crore programme to put Government procedures on line and create an IT interface between Government and the citizens was initiated.

Financial and other measures were taken to encourage Indian companies to become globally admired IT entities whose products improved competitiveness of clients across the world.

A programme to create large scale self-employment at the level of rural and urban poor was initiated.

In six years India had moved on from exporting Rs. 10,000 crores of software to Rs. 55,000 crores of it.

These were also the golden years when many an Indian IT firm like Infosys became world-famous and many Indian companies took up global challenges and grew into globally feared entities.

IT was declared as a tool of enabling and empowerment of the poor and a whole lot of policies were initiated. A National Plan to make the entire nation computer literate by stages was also put into effect.

India became one of the few countries to have a legislation to make IT use legal and online documentation a widely acceptable legal 'paper'. An IT law defined IT use and prescribed punishments for misuse and fraud, copyright violation etc. to enable IT enterprises to grow.

India became the world's most coveted not only software source but also backoffice with many business processes like accounting, pay rolls, medical assessment and other knowledge and skill based jobs of leading global companies moving into this country thereby creating massive job opportunities even to undergraduate unemployed people in many large cities.

World political and business leaders began to make a regular pilgrimage to India's IT centres. Over a hundred leading companies of the world set up development and manufacturing centres in India. Products designed in India began to be embedded in product packages abroad from global giants. In about five years, India became an IT destination. Global business leaders began to openly espouse with their respective Governments India's cause as a major factor in international competitiveness. Indian business and IT experts asserted that India would be the Knowledge Capital of the world

in early 21st century.

This foundation work made the then Indian Prime Minister Atal Bihari Vajpayee to declare early in his regime: "IT is India's tomorrow."

We will now deal with the concurrent telecommunication infrastructure that his Government laboured to set up in six years of his regime.

THE GREAT TELECOM PUSH

"Winners and losers in the 21st Century will be defined not so much by technological wizardry but by the simple ability of technology to disseminate information where and when it is needed."

—John Naisibitt in his book *'The Global Paradox'*

India was all set to be the loser in the 21st century due to the muddle in telecommunications by previous governments, when the Vajpayee Government first assumed power in 1998. Telecommunication in the country was in a mess. Despite nearly seven years of liberalisation and ten years after an intensive drive was launched to extend the network and reduce the waiting list, explosive conditions prevailed.

The telecom tangle in 1998 was well-summed up in the book 'India's Communication Revolution'. The authors Arvind Singhal and Everett M. Rogers who are independent experts teaching in American universities, have summed up the situation thus:

"The Indian experience with NTP-94 showed that "while policy formulation is difficult, policy implementation is even more beset with problems", especially in a "hitherto state-run telecommunication service, with 425,000 unionised employees" (Athreya,1996, p.20). While private investments, from both domestic and oversees sources, poured into India for basic fixed services and cellular services, DoT's complex rules and procedures, self-serving tariff structures, and painfully slow procedures for bidding and granting licenses led to unnecessary delays, snags, and low returns on the investment for most private operators. (S.Rekhi, 1998; Chowdhary 1999). Several foreign telecommunication companies like

Bell Canada, US West, Swisscom, and AT&T which entered India in 1995-96 when the Government opened up the telecommunications sector, were disillusioned by the unfriendly tariffs and fees, and either froze their investments or pulled out of India."

The telecom network, overwhelmingly fixed line, had reached 17.80 million direct exchange lines by March 1998. But there was still a waiting list of 2.71 million lines (as per DOT statistics). The private sector entry had only begun to have a marginal show, less than one million phones throughout India. These too were mainly in the metro cellular sector, largely Delhi and Mumbai. The cellular network had begun an uneasy start in Delhi and Mumbai mainly because of high costs. Users had to pay anything from Rs. 16 per minute. In addition they had to pay for calls received also. Because of this provision, users were hesitant to broadcast their number to others. So calls were limited, operators' income low, upfront licence fees high and industry was in doldrums. As we saw earlier, the disillusionment of major foreign investors like AT&T, US West etc., was a clear sign that the so-called telecom reform of 1994, had failed. The Telecom Regulatory Authority of India constituted in 1997 at the insistence of the Supreme Court, had its hands full of litigation among the operators. The mobile phone services in most circles could not find a banker to back them. The much-touted liberalisation was unable to give the people telephone on demand or low tariff for long distance telephony. On the mobile phone side, the whole service was beyond the reach of the common people – a mobile phone cost at least Rs. 12,000 (250 dollars per piece in India against 50 dollars a piece abroad) at entry level and the mobile call Rs. 12 to Rs. 16 per minute. The private sector bidders for telecom service licence were encouraged to bid huge amounts by the Congress Government through feeding them false data. Soon they discovered that they had been taken for a ride. The bid prices had become an Albatross around their neck. Having paid hundreds of crores of rupees for getting the licenses they found they could not continue to pay further installments of licence fees. The banks were unwilling to fund them as the financial analysis of the bids had shown that these bids were not viable.

One major reason for the setback was the convolutions that the Congress and the subsequent Congress supported Governments went through between 1991 and 1997 in formulating policy. Writing in the Infrastructure Report 2001 brought out by the independent

3I Network, Prof. Rekha Jain says: "Inability of top management and political executives to address the need to make the DoT more competitive could be cited as a failure." She lists a number of shortcomings in the policy formulation in those years that led to the mess that telecom was caught in by the time the 90s decade began to conclude. "The number of phone faults per 100 stations did not show significant decline since 1992-93", Prof. Jain remarks. That means, the new technologies notwithstanding the performance of the networks was not improving. But expenditure per employee rose by 80 per cent during the 90s. Prof. Jain's review of the DoT finances was not flattering for the organisation either. (Ref: Page 193 in the report referred to above). The DoT largely sought advice from within itself and despite several internal committees, the clear guideline for DoT's reform to face the 21st century challenges did not emerge.

Faced with imminent collapse of telecom reform and inability of DoT to meet the growing and diverse communication needs of the people, the Vajpayee Government sought a bold step forward. It decided to rewrite the licenses and restructure the DoT through introduction of intense competition and creation of a more effective regulator. To advise it, the Government asked a special unit of the National IT Task Force to give it a report. A new policy National Telecom Policy-1999 (NTP-99) emerged from this exercise that reset the entire telecom sector. From then on Government opened a new chapter of high profile growth of telecommunications.

Another area of weakness in telecommunication was the rural sector. In mid 90s, rural teledensity (number of telephones per 100 population) was as insignificant as 0.2 while even in urban areas it was no more than 3.4. Despite repeated claims by Government of spreading telecom to rural areas, the high costs of connectivity and low returns were a huge disincentive. In the DoT's perspective plan for the years 1999-2010, it had to admit that the alternative of wireless connectivity (MARR) was a failure even though some three lakh villages were supposedly connected by it. New wireless technologies like CorDECT and CDMA were to replace the MARR. Connecting all the six-lakh villages came up as a committed goal only in the NTP-99. Creation of a special fund for supporting rural telecom and other steps followed only afterwards.

The approach of the BJP-led NDA to telecommunications differed radically from that of the previous governments. Before the

BJP and NDA placed telecommunications growth as a major promise in its election manifesto, no political party had cared to speak about telecommunications except in passing, in its election manifesto. Not only that, most of these political parties practised a double talk so far as telecommunications was concerned. While the demand for telephones rose everywhere and Ministers, MPs, MLAs were given quota for recommending telephones, most political parties considered telephones as a luxury in their electoral harangue. "You cannot eat telephones. Our people need food" was their constant refrain. The same leaders were writing letters to the Union Communications Minister on behalf of their constituents for allotting telephones to this person or that person. Every visiting Minister was deluged with applications for more telephone connections from his constituency or state. The BJP ended this charade by boldly committing itself to countrywide telephone connections as a major policy objective in 1999 and then again in 2004.

How important is telecommunications in attacking poverty? The International Telecommunications Union's Telecom Development Bureau study groups provide the most authoritative answer. "Today it is universally accepted that telecommunications is one of the most crucial infrastructures in the development of a nation's economy." (Report of the ITU study group-D, first study period 1995-98). Innumerable other studies are there to establish this relationship in quantitative terms. One of these, by Dr. Otto Hieronymi, head of the International Relations Programme at the University of Webster established a "close relationship between availability of telecommunication services and structural change and economic development and growth." (For more on this please see The Great Digital Transformation by Dr. D. K. Ghosh). The specific Indian experience was available in the late 80s itself when a C-DoT designed digital exchange with STD facility was set up in a Karnataka farming area of Kittur (this is described in detail in the article Sam Pitroda wrote in the Harvard Business Review in 1993 titled Development, democracy and the village telephone. Pitroda who was Rajiv Gandhi's technology adviser when the latter was Prime Minister made a signal contribution to Indian telecom by establishing an Indian R&D centre C-DoT that developed an Indian digital switch. He also persuaded the Government to allow private sector to set up PCOs on a mass scale across the country as a result of which nearly

600,000 PCOs came into existence. However, the Congress did not commit itself to telecom reforms or universal telecom service in its election manifestoes though it was in power throughout). The setting up of a STD compliant 126 line rural exchange in Kittur a village with 12,500 population, brought many benefits to the people. The evident signs of the prosperity that the telephone brought to Kittur included 80 percent increase in cash deposits at the local banks and an increase of 20 to 30 per cent in local business incomes. Other benefits like greater social interaction, quicker medical aid especially in emergencies, higher prices for agricultural produce of the village etc followed. "The Kittur project represented a watershed, demonstrating that, even in village India, telephones were a social and business necessity rather than a luxury", remark Singhal and Rogers (India's Telecommunication Revolution, page 207). Despite such revealing experiments, the Congress did not make the village telephone a central piece of its election promises and the Left in its time warp would continue to mock at those who talked about the telecom revolution. Only the BJP had the modern outlook to catch on to the criticality of the telecom revolution. The National Task Force's Group on Telecom was the first public-private sector body to evolve a total telecom policy.

NTP-99 (National Telecom Policy = 99) laid down the key objectives for the next ten years, that is the first decade of the 21st Century. These were:

1. Availability of telephone on demand.
2. Teledensity of 7 per cent by 2005 and 15 per cent by 2010.
3. Internet access to all district headquarters by 2000.
4. High speed data and multi-media capability to all towns with a population above two lakhs.
5. World class services at reasonable rates.
6. India as a major manufacturing base for telecom.

"NTP-99 changed the competitive scenario by liberally reviewing license conditions," points out India Infrastructure Report 2001. (Page 198). The most important recommendation was to change the basis of the licence fees. After reviewing the industry situation, the NTF called for shifting the licence fee basis from the annual fixed amount that was bid by the different license holders

to a share of their revenue after treating whatever they had already paid including the amount defaulted as an entry fee. The revenue share that should go annually to the Government was to be fixed in consultation with the Telecom Regulatory Authority of India (TRAI). This was fixed as 15 per cent later. The operators of both basic and cellular services were allowed to opt for the new licence fee mode after clearing all their dues on a cut off date. However, the license conditions are to be altered to remove all restrictions on the number of entrants and withdrawl of all litigation on this number. (The operators had gone to court after Government allowed incumbent MTNL/BSNL to launch their own cellular phone service.) As per the NTP-99 TRAI was restructured and its appellate function was vested in a special tribunal. Allowing additional operators to arrive on the scene intensified the competition environment and DoT, the largest operator of basic services, was corporatised in one swift move in sharp contrast to the dilly-dallying by earlier governments on this issue. The monopoly of VSNL over the international long distance service was to be ended, not in 2004 as earlier envisaged but by 2002. The service provider was allowed to carry both voice and data. The cap on the number of telecom circles for each operator was also removed and he was free to operate any number of circles by procuring fresh operational licences for additional circles or buying up existing operators. Several other constraints on the operators were also recommended to be removed. Open entry was allowed for national long distance and international service. These licencees could also set up their own gateways to receive international voice and data signals thereby removing the state owned VSNL's monopoly in this regard. The new licensees in all service areas were to be given more liberal terms and far lower entry fee after scrapping the bid system. Finally, the recommendations aimed at pushing the Government and the private sector into a partnership to develop Indian telecom into a world class service.

Most Critical Decision

The Vajpayee Government's bold decision to do away with the heavy licence fees and allow the operators to pay instead a share of their gross revenues (fixed at 15 per cent)annually was a path-breaking step. The Congress and some other opposition parties kicked up a row over this decision and sought to block the progress

of telecommunications by raising all sorts of objections. Even the Supreme Court was approached to block the implementation of the decision but the court said the decision was valid in law.

How critical this decision was in the progress of telecom could be seen from the rapid progress the sector made since then. In 1999, that is, six years after the first cellular service began, there were 1.20 million cellular mobile phones. In 2000, 50 per cent more were added to raise it to 1.88 million. In 2001, 90 per cent were added raising total mobile phones to 3.58 million. Since then, driven by several other decisions also that followed, there was a virtual doubling of the number year after year. The big difference the decision made was that it enabled all the cellular mobile phone operators to get bankers' backing for their enterprises. This enabled early financial closures of all the licences that were otherwise pending for the previous five years. The then Prime Minister's decision would have attracted all sorts of allegations but Vajpayee had a clear vision and clearer conscience that enabled him to go ahead. The nation benefited immensely from this decision.

How important it was for the industry could be seen from this evaluation cellular mobile phone operators' spokesman and director-general, COAI, T.V. Ramachandran wrote about it. "As a result of high cost structure, un-affordable tariffs and lower growth of the market etc., as also unresolved and unending litigation, by the end of 1998, most of the circle cellular licensees were on the brink of bankruptcy and it was looking as if India's telecom dream would soon turn into a nightmare. It was under the above circumstances that the Government undertook a review…" and finally the migration package of entry fees and revenue share was offered to the operators. Ramachandran adds: "Migration was one of the most groundbreaking and landmark decisions of the Government with no parallel either in any other sector in India or for that matter anywhere else in the world…..The timely and responsive intervention of the Government showed tremendous vision and foresight and clearly demonstrated the commitment of the Government to the reforms process." It was "not an easy decision" the industry spokesman says "but the Government did not hesitate to take this bold step. In fact, it can safely be stated that migration was one of the key factors that was responsible for the complete transformation of Indian telecom, especially the cellular mobile sector, which is now widely looked

up to as the flag bearer of the Indian liberation process." (extracted from Convergence Plus magazine, May 2005 issue)

India's real telecom liberalisation started from NTP-99 says Ramachandran. As we noted above there were only 1.24 million cellular mobile phone subscribers in 1999. In October 2004, there were more cellular subscribers than fixed line ones. Between March 1999 and March 2005, they grew at the rate of 85 per cent compound growth rate per annum, subsequent to the several other steps like reduction in tariff.

Tariff Reduction

The freedom of operation given to the existing basic and cellular service operators and the lateral entry of new operators since 1999 policy change, resulted in intensifying competition for customers and subsequent drastic reduction in call charges specially for national and international long distance telephone calls. In the national long distance in place of the monopoly of DoT (now BSNL) the NTP-99 brought in other operators like Bharti, Tata Telecom, Reliance also. In the international call area, VSNL had to face Bharti, Reliance, Data Access etc. In 2002, VSNL's monopoly in international telephony was ended ahead of earlier target date and VSNL itself was sold to a private company. International telephony was now in a competitive environment. DoT that had the 95 per cent of the landlines also underwent changes. Its basic telephone service was constituted into a corporation BSNL.(Earlier Governments could not display the political will to corporatise the DoT's telecom operations in the face of opposition by a section of the trade unions and officers.) This new corporation was made to face competition in its services. The result was that it became more customer centric. Within two years there was a 60 per cent fall in STD rates as cellular mobile phone operators also began to reduce their inter circle call rates and roaming services became a regular feature on all mobile phones. Similar fall in international call rates also benefited the public. The TRAI finally deregulated total basic, NLD and ILD tariff except in the case of rural areas where it was kept sufficiently low.

The benefits of this slashing of national and international call rates were:

Large number of poor and middle class people with close relations staying far away could now contact one another more

frequently and at far less cost. Similarly with millions of Indians working abroad, their families could speak to them without fearing heavy telephone bills. For instance, majority of taxi drivers in Mumbai is from eastern UP. Majority of farm workers in Punjab is from remote areas of Bihar. Most taxi drivers in Kolkata are from Punjab. For all of these ordinary people, talking to their close relations in their home villages became affordable for the first time. New services like video-messaging enabled Mumbai taxi driver to see his wife back in his village home while talking to her at a cost of just Rs. 20 for three minutes. Voice call over a distance of 1000 km became as cheap as Rs. 5 for three minutes. In fact, distances began to collapse across the nation for communications.

Business, both small and medium as well as large ones, benefited immensely. Bulk users of long distance calls could negotiate still lower rates with any of the operators and play one against the other. For the emerging IT sector that required 24-hour contact with their clients abroad, competitive rates could be negotiated with the operators. The far lower communication costs improved their competitive ability in the international market and increased business for India.

The telecom regulator and the Government made constant lowering of call charges a part of their communication policy. This raised the pressure on the operators to improve customer service and look for new services to improve their revenues. The dramatic fall in cellular mobile call charges is one we have all witnessed over the last five years. What used to cost Rs. 12 to Rs. 16 per minute now costs just Rs.1.99 or even less. Within the same operator's system even long distance cellular calls are charged only local call rates in some cases. The difference between cellular mobile phone call charges and landline call charges has narrowed down so much that many people prefer to use the mobile phone only—since 2004 there is a rise in landline phones surrendered as people prefer the convenience of person to person communication of the mobile. There are so many different customer oriented call rates that it is difficult to estimate the impact of the fall in rates in concrete terms. Even these rates are going further down every now and then in response to rising competition.

As the annual report of the Department of Telecommunications 2003-04 points out "the major contributor to the success story

of telecom India is the reduction in tariffs and its sustained rationalisation. With a view to bringing the tariffs closer to cost, TRAI had begun the tariff rebalancing exercise in 1999. This together with the element of intense competition between increasing number of operators has resulted in massive tariff cuts in all services and especially for long distance calls." NLD rates for distances beyond 500 kms. have declined by 50 per cent from a level of Rs. 9.60 to Rs. 4.80 per minute. ILD charges, for example, to the UK, came down from Rs. 24 per minute to Rs. 7.20 per minute. Now the Punjabi villager who has a relation in UK could talk to him or her without having to pledge his shirt! Leased line charges came down by 50 to 70 per cent from those in 1999 quickening the pace of Indian business and its competitive ability.

With AFFORDABILITY as the new goal, yet another cost element in telecom operations, namely Regulatory costs, were also brought down. An indicator of how far these costs have come down is seen in the PricewaterhouseCooper survey on cellular telecom . The analysis showed that regulatory costs as per centage of net service revenue came down from 14.6 to 12.0 for the industry as a whole. For cellular mobile phone the decision to make 'calling party pay' instead of called party pay meant a dramatic change with users shedding their fear of being called by others for which they would have to pay. The 'calling party pay' regime increased usage dramatically and pushed the subscriber base. The Government removed most of the constraints on mobile to mobile traffic. This along with the call rate reduction for NLD and ILD increased cellular usage. The mobile to mobile traffic rose from 30 per cent to 50 per cent between 2002 and 2003 and then to 53 per cent. The ILD, NLD proportion of the total calls for cellular mobile phones rose from 15 per cent to 19 per cent between 2002 and 2004, as per the PwC Survey. "National long distance is becoming increasingly popular" the survey reported. Recall the situation a few years ago when making an STD call required a whole lot of effort and wait—once a Minister was so upset by such wait that he went to the telephone exchange in Delhi with a revolver in hand !

What the bulk of the people have experienced is that today you can call up your relation abroad or in a distant city in this country without fear of a heavy bill. In fact, AFFORDABILITY is now firmly established as a policy aim in telecommunication.

Customer orientation in telecom and affordability criterion drove the removal of restrictions on Internet telephony for international long distance. With that change, telephone calls could be made over the Internet to USA at Rs. 4.50 per minute. This is a new service and many PCOs are now offering such a service to enable people here to talk to their relations and friends abroad at a dirt-cheap rate. During the NDA regime the number of PCOs rose almost four times—in 1998 there were 4,27,940; on December 2003 there 16,15,385 of them. (source: Indian Telecom Statistics 2004).

There was an explosive growth in telephones both landline and wireless as a result of swift implementation of NTP-99 and determined measures to make telecom affordable to the people. Though NTP-99 had targeted a 7 per cent teledensity by 2005, this was almost achieved two years earlier. By December 2003, there were the following:

Fixed line	48.53 million
Wireless	22 million
Total	70.52 million
Teledensity	6. 60

In its election manifesto in 2004 the NDA alliance aimed at 300 million telephones by 2009, far ahead of the 15 per cent teledensity planned in the NTP-99. That target would have meant one in every four Indian would have telephone by then. In fact for urban areas the plan was one out every two persons to have a telephone, Fixed or wireless by 2009.

Rural telephony growth was another focus area of the telecom policy. The target set for all the six-lakh villages to have at least one telephone each was 2002. However, the problem was to find the right technology that would be cost-effective as well. Wireless technology, both CorDECT and CDMA were chosen after a number of trials by 2002. Government asked the regulator TRAI to come out with its recommendations on rural telephony. TRAI proposed in late 2003 that lease line charges be reduced for rural telephony and niche operators be allowed for taking the service from an exchange to the village. Government created a Universal Service Obligation fund from out of the revenue share the operators paid. The infrastructure to use this fund to subsidize rural telephone service operators was being set up in 2003 beginning with the appointment of a USO Fund administrator. Operators were to bid for minimum subsidy for taking

the service to rural areas, the subsidy to be paid from the fund. The TRAI also specified the technology choices for taking telephone to the villages so that even the remotest village could be served. The USO fund was the most effective organisational structure to push telecom into the villages. The results would be seen in the subsequent years, as the fund had already got Rs. 7,000 crores by 2004 end.

The momentum that NTP-99 and other measures like intensive competition, reduction in call charges was further given a boost with the sharp reduction in the prices of mobile handsets. The price reduction was the result of sharp reduction in import duties on mobiles from 20 per cent to five per cent and the free import and intense competition. Mobile phones used to cost anything above Rs. 12,000 in 1999. By 2003 they were being priced Rs. 3,500 upwards. The impulse from all these measures kept driving the mobile phone base raising it from 27 million in April 2004 to 50 million by April 2005. The impulse is continually accelerating the base even now.

During the years 1999 to 2003 the mobile phone became the chosen instrument of people lower down in the socio-economic ladder. Over one lakh fishermen began to use this phone in Kerala coast alone. Villagers along the highways where cellphone coverage was available also began to prefer it. According to COAI over 3,000 villages were having cellphone facility. In urban areas, vendors, salesmen, repairmen, office goers, car drivers, etc., were using the mobile. It was popular among young people also. Several services were started on the mobile phone in urban areas. Games, chat, short messaging and multi-media messaging became very popular. The ubiquitous ring of the mobile phone was announcing to the world that India was on the forefront of the telecom revolution. COAI announced in 2005 the next target was the second 100 million mobile phone by 2008.

Technology change and Unified License

Rapid changes in telecom technology posed serious challenges to the Government, operators and the regulator while they left the user confused about maximising his advantage. We have already seen how the rapid growth of cellular mobile phones had left the landlines behind and more and more people were getting wireless connections rather than wired ones. Several new wireless technologies challenged one another upsetting the business plans of service operators between 1999 and 2004. When the mobile phone was first introduced in the

early 90s, Government had selected GSM as the only technology for the mobile platform. By 1999 the Wireless in Local Loop (WLL) technology began to challenge the GSM dominance. It was first used as a quick and cost effective alternative to the wireline in connecting telephone exchange to the user terminal. The laying of the telephone cable was expensive and time consuming especially in congested urban areas. Instead of cable a wireless connection could provide a telephone at customer premise conveniently. Improvements in the WLL technology using CDMA method enabled connecting to a mobile telephone. That meant there would be a competitor to GSM mobile phone in the CDMA mobile technology. A fixed line operator could set up a WLL wireless connection and the user could carry his terminal (a pocket phone) anywhere within a city range and yet pay only a local call charge while call charges on GSM phone were much higher. Government had the option either to freeze the technology in favour of GSM or let CDMA WLL phone challenge the GSM mobile. When the Government allowed the use of WLL first a fixed wireless phone and then as a mobile phone, the GSM operators who had invested heavily in their network became concerned. This led to prolonged litigation. All efforts to bring these two warring sections of operators together and end the litigation failed. Finally, on the recommendations of the TRAI the choice was made in favour of a unified license for mobile phones with Government committing a technology neutral stand in future licenses. To compensate for the strain on the GSM operators who had obviously invested a lot of money the cost disadvantage of the GSM was offset by several concessions. This was a crowning glory in that the operators came together to end their mutual litigation and the customers were given a choice between two types of mobile technologies. More important the intense competition reduced call charges heavily. The benefit to the people could be seen from the fact that between September 2003 and December 2004 the GSM mobile phone base alone jumped from 18.3 million to 37.4 million. (PwC benchmarking study)

BEYOND NTP 99—CONVERGENCE, BROADBAND

Every year in these five years 1999-2004 has been a year of innovation and change in the realm of communications and information technology. A Government that continually attunes its policy with the changing technology scene helps keep the country at the cutting edge of the forward movement; governments that wait

for change to confront them will forever be left behind. In the 1970s, India slept in the midsummer dream of socialism while even small countries like South Korea left us far behind. The difference was that they boarded the electronics bus while we did not. Even communist China in the 90s was leaping forward with telecommunications reaching over 200 million by 1999 while we were struggling to install even 20 million. Then came the NDA Government and India took a firm decision to clamber up the Information Technology and Telecommunication bus. The scene almost changed overnight. The annual report of the Department of Communications for 2002-03 summarised the developments thus: "The major policy reforms initiated since 1999 have resulted in the fastest ever of the expansion of the telecom network. The variety of telecom services being offered now to the users is amazingly vast. This has been possible because of opening up of all the telecom services for the private sector without any restrictions on the number of operators, except for the cellular mobile phone segment due to frequency constraints. Private sector investment has been helping in bridging the resource gap to a considerable extent as was envisaged."

Once the policy framework for IT and Telecommunication was drafted and implemented the tools of policy making were also put in place. The setting up of the Ministry of Information Technology followed by the merger of the Communications Ministry with it to create the Ministry of Communications and Information Technology announced the next leap forward in the sector. IT and telecom were merging along with broadcast to create the convergent era to be known as the 'Knowledge Age'. By unveiling the new Ministry the NDA Government announced its intention that this time we will not be left behind. In fact we will be on the forefront. Very few other countries had a convergent ministry to deal with IT and Communications in 2001 when such a ministry was constituted here.

Technological change enabled the same telephone line to carry both voice and data (text) and to this was added video. It meant one line, many services. You could have one line connecting your home/business/enterprise to the telephone exchange and you can have all, voice, data and video over that line. To achieve this, the line had to have capacity to carry all these three, that is, its frequency should be broad enough for all the three streams to go over it and then at user's end separated to work with telephone, TV or PC or all the three of them. The voice was carried on the 64 kilobits per second

(kbps) 'bandwidth'. For all the three to be carried, the telecom line or 'pipe' should have capacity above 256 kbps. Convergent connecting line also brought in its train convergent devices—your PC could be used to get the text or transmit it, access film or music or access voice or do all the three simultaneously. All that was needed was to plug your PC to the broadband line and then you can have 'Triple Play'—use it for voice, text or video.

The NDA Government took two more major steps in addition to creating the first convergent ministry of IT and Communications. It drafted the Convergence Bill to create the legal framework for the three sectors to work together to exploit the enormous potential of the convergent technologies of IT, communications and broadcasting. It also moved the telecom regulator TRAI for its recommendations on unified license (one license, many services), followed by recommendations on broadband and high speed Internet on the one hand and rural connectivity on the other.

To treat them as three different matters would be a mistake. And the NDA Government was not going to repeat similar mistakes made by previous governments. It would take the challenge of Convergence, Broadband, High-speed Internet and Universal Rural Connectivity head on.

The Convergence Bill that finally emerged from the Nariman Committee committed the country to move towards the merger of IT, telecom and broadcasting in line with the emerging technology trends. There would be one Communications-Convergence authority that would regulate this new trend replacing the TRAI that was regulating telecommunications. This authority would have eminent people in the field of arts, sciences and technologies and also administration to guide the emergence of convergence. There would be no monopoly of one technology and all of them would be welcome—a great shift in Government policy, which so far used to decide what technology you could use. The responsibility of choosing the technology was now of the entrepreneur who would put his money on it. Yet another step in the reform process by which not the bureaucracy but individuals will make their choice of what to invest in and where to invest it.

A step towards more economic freedom

The unified license and broadband policy recommendations came early 2004. But as it turned out the NDA Government was not

in power to implement them. However, it has the satisfaction of kick starting the process of bringing in the potential benefits of broadband and high speed Internet. There is no need now to elaborate on what Internet access means to anyone. The NDA Government had laid the foundations for Internet growth by creating a congenial environment for it. An Internet backbone was set up to enable Internet access over 1000 towns. Internet service providers could access the backbone from any point and still pay only local call charges. The big issue was to provide lease lines at a price low enough to make Internet affordable. On the request of the Government TRAI moved to reduce lease line charges. In its Broadband and high speed Internet recommendations in 2004 also

TRAI had made wide-ranging recommendations to reduce the leased line charges by over 50 per cent. The public sector units BSNL and MTNL had laid together over four lakh km of optic fibre that became the backbone for providing huge bandwidth to support use of broadband and high speed Internet. Two private sector companies Bharti and Reliance Infocomm also had their own optic fibre network across the country. They were joined by the networks that two other public sector bodies Power Grid Corporation and Railways set up for leasing out to Internet and broadband access providers. The policy of liberalisation in telecom had also led to Bharti with SingTel and Reliance acquiring international submarine lines each with bandwidth in trillions of bits per second. For the first time, India was having a 16 trillion bits per second bandwidth, a surplus of this so far scarce 'commodity' for international connectivity.

The TRAI in its broadband recommendations had stated just before the NDA Government moved out of office, that the aim would be to make broadband affordable to all by making it available at Rs. 500 a month.

The Convergence Bill that got held up in Parliament and the Broadband policy were the two items on which the NDA Government could not fulfil its promise. For, it had to demit office before it could get the bill passed in one case and in the other, turn the TRAI recommendations into a Government policy. But it had set the stage for the next Government to take over and go forward. By an ordinance it had empowered the TRAI to deal with the regulation of broadcasting and cable TV (except the content). It had also prepared the ground for raising the foreign direct investment limit in telecom service companies from 49 per cent to 74 per cent to provide for the

25 billion US dollars worth investment the sector required to move to 200-250 million telephone connections by 2008. On rural connectivity the TRAI was in the process of formulating its recommendations when the NDA Government came to an end.

PATHWAYS OF EMPOWERMENT

The NDA Government did not wait for the Broadband report from the telecom regulator before preparing to launch the scheme. In 2002 the BSNL started some pioneering experiments with Broadband on its copper telephone lines in Kolkata. In this experiment, BSNL's select telephone subscribers got 256 kbps connectivity (as against normal telephone line of 64 kbps) in their homes. With this bandwidth they could get on their telephone line TV, video-on-demand (that is your favourite TV programme at any time of your choice), video conferencing, high speed Internet etc., which you could view either on your TV or on your PC. The pilot project was highly successful and was extended to seven other cities also. Most of the subscribers found that with a small additional investment they could gain 24-hour high speed Internet connection with all its benefits. Their children could improve their homework due to speedy access to the world of knowledge outside and through chat rooms and interaction with other classmates having similar facility. Home entertainment underwent a radical change as subscriber could get the programme that he wanted at the time he needed it most.

Such a facility in rural areas could do wonders. In experiments with Internet connectivity on narrow bandwidth using normal telephone lines a Chennai based NGO nLog demonstrated how a kiosk placed in a prominent site in a village could benefit the people around. Another pilot project that an NGO M.S. Swaminathan Research Foundation (MSSRF) set up in the villages around Pondicherry had the same impact even though all these were not on high speed Internet. Even low speed Internet benefited. Students in villages could find out information about college admission in the nearby cities without having to travel there. Even admission forms could be downloaded and sent back without going to the city. Complaints could be filed with government agencies from the village centres themselves and replies received. Passport forms could be obtained and the status of passport applications could be tracked from the village. Medical and veterinary aid could be summoned.

Village medical personnel could get in touch with specialists far away to check on medical advice. Farmers and fishermen could be posted with hour to hour weather information. Students in villages could improve upon their education by accessing the Internet and downloading more information on the subject of their study. Farmers could learn of prices at various markets so that they could send their produce to the market that gets them the highest price. Information on price movement gave them advice on what crop to plant. Sellers of seeds, fertilisers, tractors and other farm equipment and inputs began to contact farmers with information about their products giving the villagers wider choice in buying what they needed. As the ITC company's rural IT initiative 'e-Chaupal' showed, presence of a pro-active Internet operator in the village who kept the village farming community informed about prices in different *mandis* enabled it to get rid of dependence on the middleman and deal directly with the buyers. If the farmers could also view the developments elsewhere in the areas of their interest like farming practices, crop protection, harvesting and storage, it could improve their efficiency and productivity. As broadband connection is essential to enable the villagers to view these developments in their graphic detail policy makers who have the true interests of farmers at their heart, should strain their last energy to ensure that there is an Internet connection in every village in the country. The NDA Government's endeavour to reach villages with broadband was thus a major step in opening up the world to our villages. When the tenure of the NDA Government ended, that Government was about to decide on the TRAI recommendations that 20 million broadband and 40 million high speed Internet connections be provided by 2010. Such a grand plan to bring information to the doorsteps of people that too in an interactive way, would have created a tremendous shift in power from the rulers to the ruled, from Governments to the people even in far corners of the country.

Consider the following scenario

A villager in say Arunachal Pradesh is able to track the application he has submitted to the Central Government in New Delhi, from his village Tele-info centre.

A common man facing a case in the Supreme Court of India learns from his Kerala village Tele-Info centre when the case would come up before the court.

A village student in Tamil Nadu who sat for the civil services

entrance examination, is able to look up his result at his village Tele-info centre the same day it is released.

A village doctor facing a tough medical emergency is able to call up the specialist doctor in the AIIMS in New Delhi, transmit the X-ray of the patient over the Tele-Info line and get advice on what to do.

A widow of a soldier in a village in Saurashtra, who has applied for pension from the Army headquarters in New Delhi, is able to track the journey of her application through the bureaucratic jungle, sitting in her village.

A student in the deep interior of Andhra Pradesh, who wants to appear for the prestigious IIT entrance examination, is able to get coaching lessons right in his village from his tele-info centre regularly.

The stage is now set for all these things to happen. Already a good deal of information about what is happening in the government is on the web sites of different ministries and departments accessible at any Internet point. Every Ministry has a Citizens Charter setting out its duty to the people and the people's right to know what it does. The walls of secrecy around Government, the culture of 'come tomorrow' are all in the melting pot. NDA's commitment to IT use and telecom reforms during the years it was in power has opened up the pathways to people's empowerment.

MANY SPIN-OFFS FROM ICT

Many people outside the area of ICT have paid a tribute to the transformation in the Information Technology and Telecommunication area in the last five years. Speaking at the CII session in May 2005, Scott Bayman, President and CEO of GE India recalled his Indian experience. "When I came here 12 years ago it was not certain that when you lift the telephone there would be a dial tone or if the tone is there that you would get through", he said. "Now it is a showcase for regulation, privatisation…" he added listing Telecommunication as the first among the three success areas of India betting on Knowledge. He did not mention any particular Government but the implication is clear. He also mentioned the success in software and financial services. The hand of the Government that ruled between 1998 and 2004 is obvious in this success. You may decry, as the Left does often, Government's devotion to vital infrastructure like telecommunication and information technology but not even the previous Government's

critics could deny that the sector has become India's flagship in crafting a globally competitive India. The present Deputy Chairman of the Planning Commission, Montek Singh Ahluvalia has also publicly acknowledged at several forums the success of reforms in telecommunication as a major show window of India. It is a measure of that success that out of the FDI of Rs. 10,273 crores that telecom received in the years 1993 to August 2004, as much as Rs. 8,042 crores came during the period 1998 to 2004. In response to the NTP99 and subsequent reforms, FDI of Rs. 3,970 crores came in a single year of 2001. Foreign investors were planning to pack off in 1997-98 due to the depressed state of reforms in the sector, as we noted earlier. The set of actions taken by the NDA Government came in time for the mood to change. This is also acknowledged though not directly by the strong pitch the successor Government has made for raising the FDI limit in telecom services from 49 to 74 per cent in the face of strong opposition to it from a section of the supporters of the current Government. This Government asserts that foreign funds to the extent of at least 25 billion dollars have to come for the telecom expansion to go forward in the next three years (for details please see the exchange of correspondence between the Left and the current Finance Minister P. Chidambaram). The very fact that it expects such large funds to flow in, underlines the health of the sector.

The lift that the country's image has received because of its ICT achievements is by now a global story. What is not so well recognised is the spin-off effects of ICT on other sectors of the economy. Take for instance the move to give Indian citizens a National Multi-purpose Identity Card. The primary purpose of this exercise that too began during the NDA regime in the Ministry of Home Affairs, was to help identify citizens from non-citizens especially in the border areas where there was a continuing threat of infiltration by illegal immigrants and criminal elements. The identity card would carry the details of the holder and his thumb impression. If a database of all such holders of the cards is also created simultaneously, all such cards could be checked against this master database. This will help security agencies to detect people claiming false identities, as the fingerprint is unique to each person. Other data could also be added on this card like educational qualifications, medical data of the person etc. In case of an accident easy identification of the person and information about his health status would help rapid treatment. The NDA Government got extensive programme launched in this respect after a consultant,

TCS, India's top IT company, made a presentation. A pilot project was launched in 13 sensitive districts. The next step was to be a nationwide move that would be a massive effort to provide such identity cards to all citizens. For this programme to succeed, there has to be a countrywide base of connected card readers, specific software and, first of all, a massive data base of every single citizen, verified by a proper agency for accuracy. This is going to be a long-term effort but the beginning has already been made.

Supply Chain Management

India is now a major player in the emerging global community. This imposes a certain discipline on us if we are to succeed as the front ranking nation, not as a mere member. For such leadership role, our enterprises should be competitive and of world class. "Businesses have now come to realise the value of co-operation and partnership and accept the centrality of the supply chain function on their performance," says Mahendra K. Sanghi, president of ASSOCHAM (*foreword to the chamber's background paper 'winning strategies of supply chains'*). To be successful, the best companies have to be smarter in managing the four key business resources of Man, Material, Money and Information. "Information Technology is a key enabler of supply chain" asserts the ASSOCHAM document. "As products proliferate and supply chain complexities increase, effective information systems are a sine-qua-non for effective supply chain management. In addition to the fact that these are needed for Indian companies to be competitive, any company without its own supply chain management will not be able to log on to the supply chain management of its potential clients abroad and thus would lose in the export market. For instance, leading automobile companies of the world like Ford, GM, Daimler-Chrysler, Nissan etc. have formed supply chains. Indian auto components industry has to have its own chain to connect to this global chain so that the Indian components could flow into the production pattern of its customers in USA and elsewhere. Even in domestic market corporations are finding it advantageous to build supply chains with producers of primary goods and components. Earlier chapters we read about the ITC's 'e-Choupal' through which it connects to the farmers producing soybeans, tobacco and other agricultural inputs. This assures the farmers better prices without any intermediaries and the company better supply and direct

dealing with the farmers whom it then could help with right information on credit, seeds, farming methods and other supplies. It is a win-win situation for everyone on the supply chain links. Information being the vital part of this success, the criticality of the networks on which information flows is also important. It is here that the developments in ICT during the last six years have had a tremendous spin–off. As the Indian networks are now world class, being mostly digital electronic with added and customised features, their reliability is accepted by our clients and customers abroad. No wonder that in the last six years Indian merchandise exports have moved from 30 billion dollars to more than 50 billion dollars. The presence of multiple players in providing telecom access like dedicated networks, Virtual Private Networks (VPN), Voice over IP networks national and international leased lines and large availability of bandwidth ensures that competitive access services are available to Indian enterprises. Small and medium enterprises need not even have dedicated networks all to themselves; they could rent VPNs for their use. Facilities like video-conferencing are available in major cities from BSNL, Reliance, MTNL, Bharti, etc. Because of the world class and competitive network services, Indian enterprises could go ahead boldly and plan for their own supply chains and e-commerce programmes. They can now make and receive documents on line and also payments cutting down transaction time and costs substantially. Many Indian companies selling consumer goods are in the process of setting up networks connecting them to their retailers upto the sale point to the end customer so that they have a constant information on the sale of their goods that in turn will determine what to produce, how much to produce and when to produce and market. This reduces inventory and saves costs. In sum, the developments in Information Technology and Telecommunications in the last six years have enabled Indian enterprise to face global competition and give a good account of itself in the globalising world economy.

Some of the many benefits that telecommunication developments of the last six years have conferred on the people apart from affordable voice communication are:

1. Railway reservation information: passengers can know reservation status from their homes by making a telephone call to a three-digit number.
2. Tracking journey of your goods sent by trucks of reputed

transporters from home computer/telephone.

3. Many banking operations from home or through neighbourhood ATMs. Rural ATMs are also in the process of development.
4. Other financial services like home and personal loans, drafts, even cash, delivered to home.
5. Integrated supply chain management that benefits chain of enterprises across the board involved in supply, production and distribution of goods and services.
6. Producer-customer linkages over real time.

Safer Travel

During the last six years, Indian Railways have replaced their age-old copper cable based communications system with fibre optic lines. This gives them faster and more reliable communications. They have now enough capacity not only to meet the requirement of railways but also extend their capacity for reaching out to villages around the railway tracks. For this a separate entity RailTel has been spun off from Indian Railways. The fibre optic based communication system enables the railways to run faster trains, track goods wagons to improve their efficiency and turn round and reduce the chance of accidents. Among the innovations that were under trial during the NDA regime were anti-collision electronic devices that stop the trains that are on the same track before they collide and wireless communication links between the driver and the guard and from them to the station authorities. The latter one has now been formalised and would soon be fitted on most trains thereby enabling the railways to be in constant contact with the staff on the moving trains.

Similar communication developments have taken place in road transport also. Through what is called Geographic Positioning System, worked with modern wireless telecommunications and Space department's orbiting satellites, transport authorities can track their moving vehicles across the country. Mobile phone networks have been laid along major highways. This enables truck drivers to be in touch with headquarters and customers to be reassured of the state of the goods they have dispatched through the trucks, provided transporters have installed wireless equipment or given mobile phones to their

drivers. Countrywide roaming services over mobile phones became operational by 2003. These mobile services are all set to cover more towns and more roads in the next phase of their growth enabling all vehicles anywhere in the country to be in touch with others. Even before that, with a little investment in wireless equipment, transporters can use satellite phones to keep in contact from anywhere.

Location Identification

Already several mobile phone companies are providing location identification. That is if you are on street that you cannot identify your mobile phone will do it for you. This enables you to work in new cities where you may otherwise have to enquire at all points to get to your destination. With dashboard phones you could access lot of information about your location like eating places nearby, specific offices, institutions etc., without having to enquire from strangers and other unreliable sources.

Research and Development

In the context of rapidly changing technologies in telecom and IT, the NDA Government took up several initiatives. One was to strengthen the C-DoT, the Communication Ministry's R&D institution. A Rs. 100 crore programme for C-DoT has backed work in developing larger telephone exchanges, work on optical fibre based transmission systems and mobile phone networks. Yet another initiative was Media Lab Asia, initially begun with Media Lab of Massachusetts Institute of Technology as partner. Media Lab Asia has funded several projects in achieving translation software from one Indian language to another, a computer placed on a *thela* and moved around from place to place to provide Internet connectivity on a mobile platform. This project being developed in IIT Kanpur is only one of the several such schemes. Imparting multi-lingual capabilities to computer operating systems is a major issue. Several projects in this area have already developed such capabilities along with keyboards in Indian languages. In our multi-lingual environment development of software for translation systems and for text-to-speech and speech-to-text should lead to widespread increase in computer use in the rural interior. C-DAC, the Information

Technology Ministry's research institution based in Pune with R&D centres in many other cities, is working on software for automatic translation from one language to another.

Growth of a Private Sector in Telecom

Between 1999 and 2004 the Indian telecom industry grew to be one of the country's largest enterprises with revenues exceeding Rs. 50,000 crores annually and growing at around 17 to 20 per cent annually. A telecom professional Dr. D.K. Ghosh in his book The Great Digital Transformation has quoted industry analysts to claim that the revenue would grow to be Rs. 63,000 crores by 2007. But recent growth projections seem to put this figure behind us. The people who ruled the country between 1998 and 2004 could take justifiable pride in the spin-off achieved in the form of several Indian telecom companies coming up in the private sector and becoming industry leaders on their own strength. These are in addition to the two public sector service companies BSNL and MTNL. Bharti Televentures set up by Sunil Bharti Mittal and his brothers has become a two billion dollar revenue company. It has virtually doubled its revenue from one billion to two billion dollar within three years. Reliance Infocomm came on the scene only in 2002 and burst into a star performer within two years. Its investment in 2002 was Rs. 20,500 crores (quoted in Dr. Ghosh's book). Tata Teleservices, Hutchison-Essar, IDEA, BPL Communications, have emerged as the major force in private sector telecom service companies in addition to Bharti and Reliance. What helped their emergence was the liberal view taken by the then Government in regard to mergers and acquisitions, cutting out many a bureaucratic hurdle. Equipment manufacturing companies increased their output to nearly Rs. 15,000 crores (a global slump in telecom in 2002-03 reduced the production from Rs. 15,000 crores to Rs. 14,000 crores in 2003-04). Production in India was less than Rs. 10,000 crores in 1997-98 (as per annual report of the DoT 2004-05) and Rs. 5,500 crores in 1993-94. Beginning 2003 special steps were taken to raise competitiveness of indigenous output and resolve the conflict of interest between service providers, who wanted cheaper equipment (imports) and local manufacturers, who could not match the competitive power of the global companies. These are beginning to have an impact.

From the announcement of the then Prime Minister Atal Bihari Vajpayee in 1998 on making India an IT superpower to the beginning of 2004 when he demitted office, India has grown to be the star among IT majors of the world and the second fastest growing in telecommunications. From the position of Indians going to US and elsewhere to establish their talent, India has become the recipient of global companies investment in India with Indian talent inside that investment. From a 17 million line telecom network India's communications structure rose to over 70 million lines during this period with number of wireless phones crossing the level of landline phones. New telecommunication services rose on the back of falling telecom tariffs. The reliability of communications brought back offices of global companies in UK, Europe, Japan and US to Indian shores creating lakhs of jobs. The mobile phone revolution itself is stated to have created 3.6 million additional jobs as we have seen earlier. Many a political critic of the Vajpayee Government mocked at his Government's claim of 'India Shining'. But one year after Vajpayee left office, the CII president and one of India's most successful industrialist Sunil Kumar Munjal, Chairman of Hero Honda, declared in May 2005 that "the world views India now differently." He also added "India clearly seems to have moved to the centre stage". It certainly was not about any addition only in one year but the growth process boosted by the right fundamentals since 1998.

Something that went unnoticed in the heat generated by the 1998 Pokhran-II demonstration of India's nuclear capability was its talent at putting together its own indigenous IT, telecommunication and space achievements to stun the world into recognising the country's capabilities. But 1998 Pokhran did not remain a flash in the pan. The government that ruled from early 1998 to early 2004 created the Information Technology-Communication infrastructure of world quality to integrate these capabilities to the benefit of the economy. That integration and accompanying liberalisation ensured that India is on the front ranks of globalising world and will remain there. That explains why from the post-Pokhran-II rejection by the leading powers of the world, India moved to 'the centre stage' of recognition by them within a five-year span despite attempts at terrorism-led disintegration of the country.

The then Prime Minister's declaration that "IT is India's tomorrow" was an announcement of a country's determination to ride the technology path to progress.

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