

**INFORMATION TECHNOLOGY POLICY OF PAKISTAN – PROVIDING AN
ENABLING ENVIRONMENT FOR IT DEVELOPMENT**

1. BACKGROUND

The National IT Policy approved by the Federal Cabinet in August 2000 defined the role of the Government as an enabler for IT based future economy.

The salient features of the policy were:

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| Human Resource Development | <ul style="list-style-type: none">• Produce 50,000 high quality IT Graduates annually within 7 years to meet the multi billion dollar Export Target• Impart vocational training to over 100,000 Knowledge workers for IT enabled services within 2 years• Develop world class Institutions of Higher Learning in the field of IT• Strengthen Faculty and Infrastructure of Existing Universities |
| Infrastructure Development | <ul style="list-style-type: none">• Develop a modern countrywide Telecom infrastructure and make it affordable.• Encourage active participation of private sector through accelerated deregulation• Develop Pakistan into a regional hub for Telecommunication and Information flow• Launch a Geo Satellite to extend telecommunication-broadcasting facilities to remote areas within Pakistan and the neighbouring countries• Establish a chain of modern self-contained IT Technology Parks throughout the country• Increase Internet accessibility through the Universal Internet Access Program lowering of bandwidth prices |
| | <ul style="list-style-type: none">• Re-engineer the archaic Government Processes to |

**Efficiency and
Transparency in
Government**

- improve efficiency
- Introduce IT to speed up the flow of information and track the processing
- Convert data from paper to electronic form so that it is available on-line for improved transparency and accountability
- Measure the functional performance of the Government machinery in quantifiable terms

**Improve Services
to Citizens**

- Make Government Information and forms available to citizens on-line
- Bring significant improvement in services like Bill Payment, Agency Specific Applications, Complaint Handling, etc.
- Eliminate the time spent by the citizens waiting in long queues

**Stimulate the
Domestic
Economy**

- Create jobs and economic growth in the local economy by strengthening the IT industry.
- Apply IT to the traditional industry to increase its productivity
- Create environment to facilitate e-commerce
- Facilitate the automation of banks and other sectors to improve the general business climate

Increase Exports

- Generate a 50-fold increase in the direct export of IT and IT enabled services within 5 years
- Leverage IT to help traditional export industry become more competitive in the international market
- Widen the export base with the help of an e-commerce infrastructure

2. MAJOR PROGRAMMES

2.1 Human Resource Development

Many initiatives have been taken to increase the capacity of the existing institutions and to establish new Universities to impart education in the fields related to Information Technology. The quality of education is being improved by inducting new faculty and developing higher education programs.

2.1.1 New IT Universities

To meet the growing demand of IT professionals new IT universities are being established in the public sector. The buildings are being acquired through donations or by leasing at low rent. The IT campuses will be expanded to full-fledged universities when they acquire their charter. Establishment of 7 new IT universities and departments with improved faculty and resources has been initiated.

2.1.2 Virtual University

This exciting project is based on the concept of distance learning utilizing the latest web technologies and digital television. The most prominent feature of this program is that it would provide the top-class faculty from across the country to impart IT education. Though the broadcast of the lectures over Television would be free for viewing, the students enrolled for a degree would have to register, attend classes and undergo examinations. The classrooms will be setup all over the country in a public-private partnership. The intake of the Virtual University is expected to be 50,000 students in three years time.

2.1.3 Strengthening of IT Institutes

Thirty public sector degree-awarding institutes have been provided funds to start IT programs and to increase the intake of Bachelors and Masters candidates in IT. As a result of this program alone each institute will contribute to the national intake of BS/MS students by an additional 100-200 students per year. Thus, in 4 years, there would be the addition of over 5000 IT graduates.

2.1.4 International Faculty Hiring

Faculty of international calibre is invited to join local universities. The selected faculty member is matched with the most suitable institution based on the requirements of the institution as well as his/her preference. These faculty members are expected to introduce R&D culture as well as advance learning techniques in our universities. Salaries of between Rs 100,000 per month to Rs 300,000 per month are offered to competent foreign professionals on contractual appointments.

2.1.5 Scholarship Scheme (Scholarships are now being dealt by HEC)

1100 scholarships have been awarded for Bachelors and Masters courses in IT and Computer Science. The selection of the students is based on merit. A follow-on project is in the pipeline that will expand this scheme to accommodate a much larger number of students.

2.1.6 IT Education in Schools and Colleges

This project aims at promoting IT education at school and college level through setting of laboratories and training of teachers. Twelve thousand school teachers will be trained within one year in a joint programme with INTEL.

2.1.7 Professional Training Programs

The IT enabled services sector can be tapped by training the workforce for shorter duration skilled based training. Several projects have been launched to impart this type of training. These include the training of 20,000 government employees in basic IT education, 500 doctors and 200 graduates in Medical Transcription, 1000 Java Developers, 1400 Inter-Networking (Cisco) engineers, and 500 Legal Transcriptionists within the next 12 months.

2.1.8 Training Higher Level IT Professionals

Projects for training high level IT professionals (Ph.D.s) in the best national universities and abroad are under process. The objective is to create a pool of high level IT manpower to meet the growing needs of the universities and industry.

2.1.9. National Testing Service

The objective of setting up the National Testing Service is to provide an affordable, indigenous service similar to the Educational Testing Service, USA that offers Graduate Record Examination (GRE) and Scholastic Aptitude Test (SAT). The testing service can be used as entrance criteria by educational institutions, for the award of scholarship, an aid to employers in recruitment, or for any other situation where a widely accepted standard test is required. The project will be initiated shortly.

2.2. Infrastructure

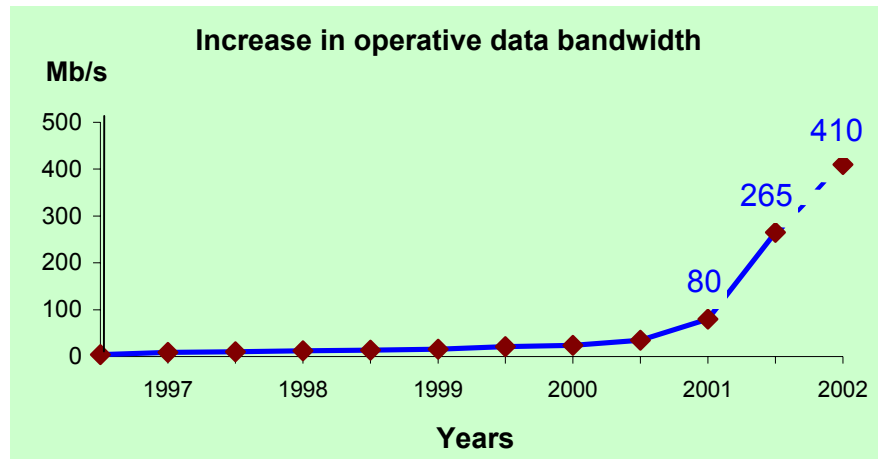
2.2.1 Fiber Optic Connectivity

Considerable progress has been made in the recent past to implement and enhance Fiber Optic Connectivity in all parts of Pakistan.

- ❖ During the past 1 year, fiber optic connectivity has been increased from 114 to 158 cities; it has been extended to Azad Jammu & Kashmir, as well as Baluchistan. It is targeted to reach 200 cities by the end of the year 2002.
- ❖ Activation of the alternate Fiber optic backbone from Karachi to Peshawar, providing 622 Mbps connectivity is targeted for completion by June 2002. This will be in addition to the existing fiber backbone that is to be upgraded with Dense Wave Division Multiplexing (DWDM) technology thereby increasing the capacity from 622 Mbps to 10 Gbps by January 2003.
- ❖ Project for establishing fiber optic rings in main commercial centres of Pakistan is in the pipeline, thus providing fault resilience and a self-healing backbone network.
- ❖ To setup a virtual POP in Pakistan. With this additional capacity the total bandwidth will go to 410 Mbps by May 2002.
- ❖ The private sector has not lagged behind in terms of infrastructure development. A project of installation of 165 KM fiber/cable network has been implemented in Lahore that would also provide Internet services. A project of much larger scope is being implemented now in Karachi.
- ❖ A fully integrated international standard fiber optic & fiber optic cable manufacturing facility is also functioning in Pakistan and a second company is about to start production.

2.2.2 Increase in Bandwidth

The Internet bandwidth availability in Pakistan has increased from 35 Mbps to 410 Mbps.

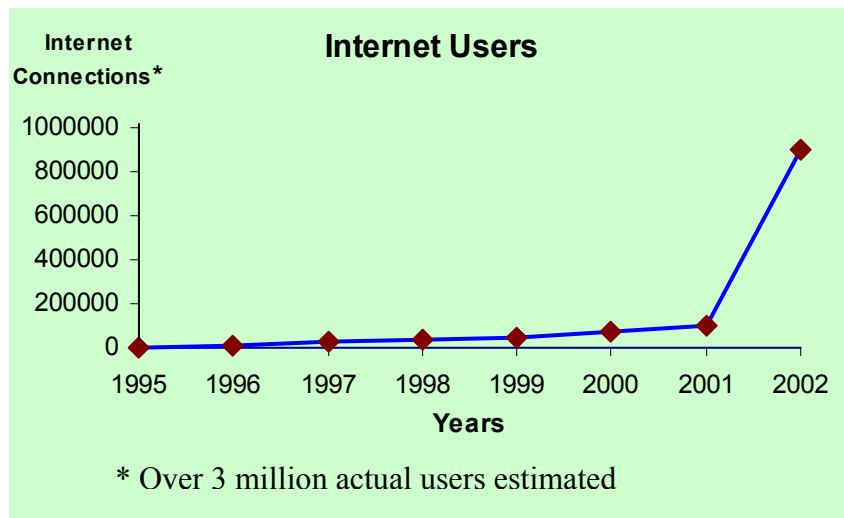
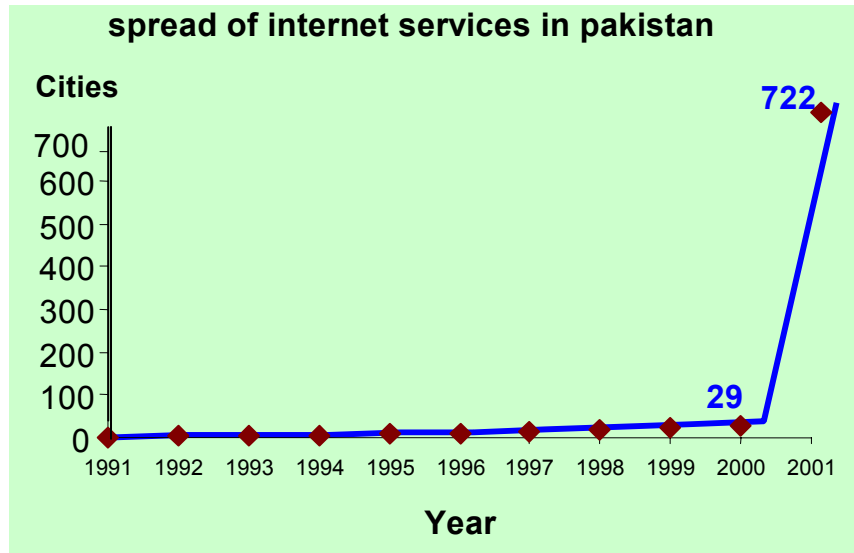


2.2.3 Reduction in Bandwidth Tariff

The bandwidth tariff for the entire portfolio of services provided by PTCL has decreased under an accelerated re-balancing plan. Accordingly the Internet tariff has been reduced to 1/16th in the past 2 years International E1 (2 Mbps) Internet connectivity is now available at USD 6000 per month as compared to the price of USD 83,000 per month prevailing 2 years ago.

2.2.4 Internet Growth

The Internet Services Providers (ISPs) became operational in the country in 1996. By June 30, 2000 the country had 0.1 million Internet Subscribers and coverage to only 29 cities. Now internet access spread to over 700 localities throughout the country including some far flung remote areas and internet usage has spread many fold.



2.2.5 Information Technology Parks

Government funded Information Technology Parks (ITPs) have been established in the public sector: 2 in Islamabad, 1 in Lahore, and 1 in Peshawar. In these ITPs, high-speed bandwidth is brought to the premises, the data network within the building is set up and managed, and space is rented at affordable rates. Now the private sector is also being encouraged to set up ITPs; 6 Parks are to be set up in a public-private sector partnership, where the Government will provide

optical fiber infrastructure and data connectivity up to the building, and the private sector operator will manage the ITP, pay for the bulk bandwidth and re-distribute the bandwidth within the ITP. The ITP operator will be free to set the rental rates but will have to guarantee a satisfactory level of data and allied services like lifts, security and backup power to the tenants, and ensure that the tenants are IT companies.

2.2.6 Multi-Services Data Network

With the planned privatization of PTCL, the government needs to have an Intranet that is isolated from the public network. Under this project the National Telecommunication Corporation (NTC) will provide multi-services data network, allowing ministries to be interconnected and also connected with their regional offices throughout the country. This will create an inter-governmental information highway which will be completed within 12 months.

2.2.7 Educational Intranet

An Educational Intranet ranging from 256Kbps to 6Mbps has been initiated for 56 accredited universities. In addition to the local content, an aggregate 4 Mbps international connectivity upgradable to 32 Mbps will also be provided. The implementation has started and is to be completed by the end of 2002.

2.2.8 Rural Areas Communications.

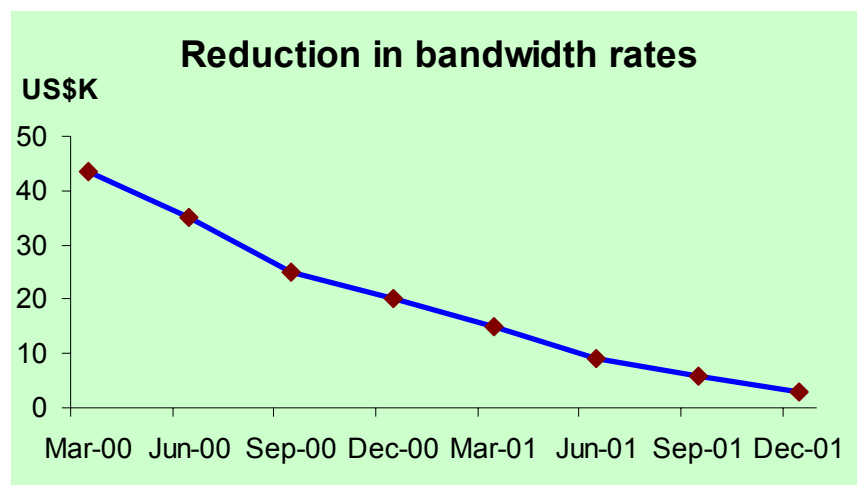
Many rural and far-flung areas which are thinly populated can now be connected with Very Small Aperture Terminals (VAST) using Demand Activated Multiple Access (DAMA) technology. Under this program 300 locations in all four provinces, will be connected to a base station via VSAT. The base station will be

connected to a Telephone Exchange via a landline and thus the remote area will become a part of the nation-wide telecommunication network. The configuration of the VSAT stations in the smaller remote locations would vary, depending on the size, from a single voice line to up to 4 voice lines. In the relatively bigger locations it would also include a data line.

2.2.9 Incentives for Investment.

The Government of Pakistan has been taking key measures to encourage Foreign Direct Investment (FDI) in the country. The aim is to make the proposition financially attractive and simplify the FDI process to open up the opportunities in Pakistan's IT sector. In this regard, several policy measures have been taken over the last year and half that include:

- ❖ A reduction in bandwidth rates from US\$ 43,500 per month per Mb/s to US\$ 3,000 per month per Mb/s, thus making bandwidth costs in Pakistan the lowest among developing countries.



- ❖ IT companies have been allowed a 15-year income tax exemption.

- ❖ 50% income tax rebate is offered on income of IT professionals.
- ❖ Software exporting companies are allowed to retain 35% of their earnings in foreign currency accounts.
- ❖ A reduction in royalties charged on Payphone companies from 4% to 1.5% and ISPs from 1.5% to 0.66%
- ❖ ISPs intending to start business in the under developed province of Balochistan get a reduction of 50% in their license fee for 5 years, commencing March 1, 2001.
- ❖ 0% import duty on computers and computer parts.
- ❖ Full repatriation allowed for capital gains, dividends and profits.
- ❖ Processing period for license applications in the deregulated sector has been reduced from 12 months to 7 days only.
- ❖ Tax relief: first year allowance @ 90% of machinery cost (50% on equipment for IT services).
- ❖ Rules for venture-capital funds (VCFs) have been approved. VCFs have been granted a seven-year income tax holiday and five VCFs were launched in the private sector in year 2000-2001. Additionally, banks have been allowed to invest in the form of equity in dedicated ventures.
- ❖ Lower bandwidth rates for universities, educational institutions, software exporters and ISPs.
- ❖ Deregulation of several financially attractive IT and telecom value-added services.

2.3 Enabling Measures

2.3.1 IT Law

To facilitate e-commerce and other on-line transactions requiring digital signature and authentication the IT Law has been drafted and reviewed with the Law Ministry. This Ordinance when promulgated will open the way for electronic transactions by providing it a legal cover. The draft ordinances for these laws and the Intellectual Property Law are expected to be finalized soon.

2.3.2 IT Accreditation

The proliferation of IT training institutes all over the country has been a good sign in terms of promoting IT education, however, it has introduced a varying degree of quality standards. To protect the students against enrolling in substandard institutions the government has initiated an IT Accreditation program. This program will be supported by an Ordinance that has been drafted and is currently being reviewed by the concerned Ministries. An accreditation body will be set up to accredit degree and diploma awarding institutions.

2.4. Electronic Government Programme

The aim of this programme is to embark upon an aggressive effort to improve efficiency within government and provide quality services to the citizens of Pakistan through induction of information technology at all levels of government. The main objectives which the government would like to achieve out of the implementation of this programme are the following:

- (i) Improve the internal efficiency of government operations of all divisions/departments of the government**
 - Improvement in productivity of government employees by automating functions like meeting management, decision tracking, diary, scheduling, E-mail and mail management

- Reduction in cost of operation of government in the long term by reducing time and effort spent in information search, retrieval and dissemination within the government
- Reduction in the cycle time for responsiveness to citizens
- Creation of synergies between various government functions through deployment of IT enabled applications and systems;
- Enablement of quick adoption of IT in government through enhancement of skills of government employees;

(ii) Improve quality of services delivery to citizens

- Reduction in the cost of service to citizen by providing general information e.g. Address / Contact Nos., Notifications, SROs, Rules & Regulations etc. to the public through government portal
- Improvement in delivery of information and services to the general public within and outside the country
- Provision of services like electronic payment of utility bills through a network of Kiosks
- Online availability and submission of all forms of the Government of Pakistan
- Provision of general information to the citizens like Educational Institutes Locator, Medical Aid Assistance, Information on Haj, Zakat & Ziarah
- Ensure transparency in government-public interactions