Chapter 26 | INFORMATION & COMMUNICATION TECHNOLOGY

I nformation and Communication Technologies (ICTs) and research in life sciences and bioinformatics are now laying foundational blocks for hyper-communication technologies. There convergence will create new media of communication in the coming decades. Being aware of such developments can let us align our development priorities in the right direction. Ever increasing innovation and disruption of traditional ways to do work, requires us to prepare ourselves to embrace the next big wave of change. Vision 2025 is a step towards preparing for and embracing the next new wave.

The era of knowledge economy has already started, with inter-linkages between e-commerce, social media, augmented reality and personalized product manufacturing. Internet of Things (IoT) will be rapidly spreading into mainstream processes in almost all industries. In these circumstances, the definition of national development and national wealth will start transforming. Countries who rapidly adopt these changes will dominate the global economy in the coming times.

As ICTs are the prime enablers of this new wave, we have to put more emphasis on utilizing it on a massive scale. By next year, we will have traversed half way into implementing Vision 2025. Inspite of some very mentionable achievements in the last four years, we have to increase further our attention towards ICTs. For a high growth economy during the next half of Vision 2025, we have to use ICTs for inclusiveness on various dimensions, e.g. social, economic and technological inclusiveness. Governments can only perform better if they are responsive to improving citizens' quality of life. The future governments, thus, will have to rely more on ICTs to deliver as per the expectations of their citizens.
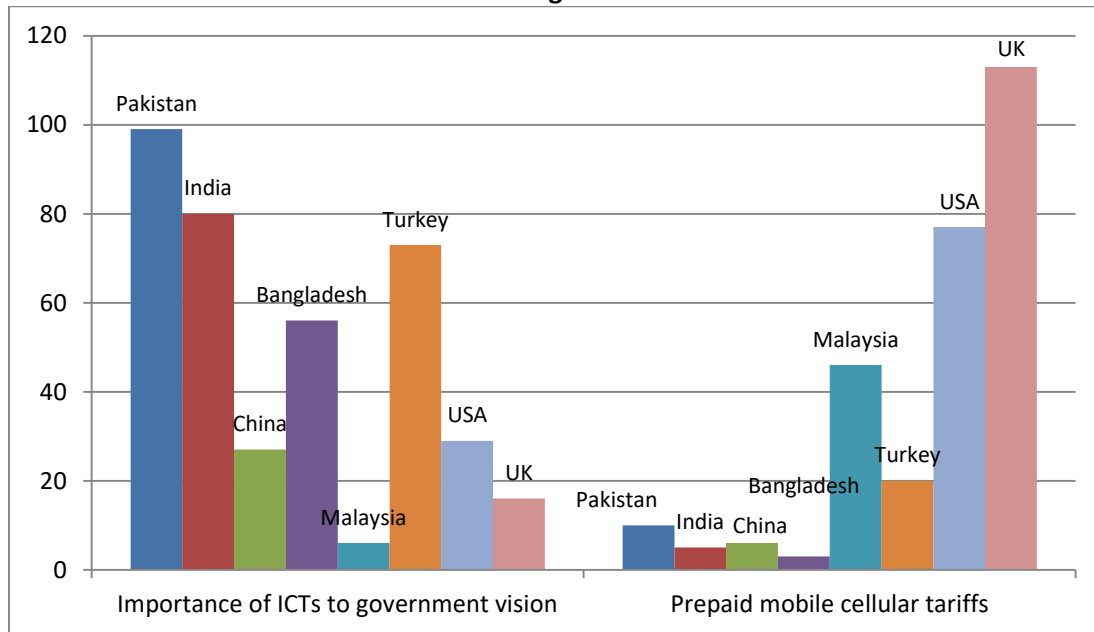
In Pakistan, ICT sector is showing promising growth in areas such as Financial Technology, Internet of Things and Robotics. However, to become an important player in ICT, a tremendous coordinated effort has to be made. A synergistic effort between government, academia, research, industry and businesses would be the only way to achieve the high mark of being a global player in the next decade. CPEC is being propagated as a trade corridor and a physical infrastructure initiative but in the long run, CPEC may become the harbinger of the much desired knowledge corridor for this region. This can only be made possible by putting ICTs as the front-running industry in Pakistan.

Performance review 2016-17

Pakistan's ICT sector continues to grow, however, the international arena is moving very fast thus posing a challenge for catching up. This is evident from the World Economic

Forum's Global Information Technology Report (GITR 2016) that Pakistan is still behind on most of the dimensions even in the regional context. However, some noticeable improvement (Fig-1) in importance of ICTs to government vision has been made (ranked 117, 2015 & 99, 2016). Also, Pakistan has very affordable telecommunication tariffs (ranked 10) due to tough market competition. As such, Pakistan is now ranked in top 10, whereas it was 15th last year.
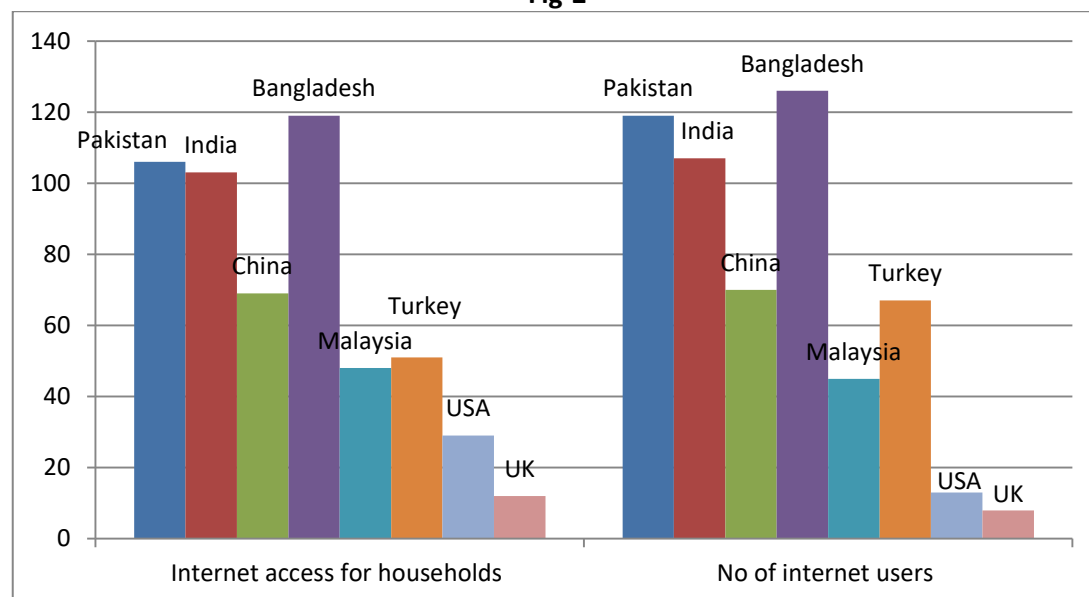
Fig-1

Source: *World Economic Forum's Global Information Technology Report (GITR 2016)*

Marginal improvement (Fig-2) was seen in other indicators related to Pakistan such as internet access for households (ranked 110, 2015 & 106, 2016), number of internet users (ranked 122, 2015 & 119, 2016). Therefore, continuous push in efforts will be required to substantially improve the rankings of various indicators in GITR 2016.

Fig-2

Source: *World Economic Forum's Global Information Technology Report (GITR 2016)*

On the policy level, formulation of Digital Pakistan Policy was initiated and extensive consultation with stakeholders has been undertaken during the year. To accelerate the growth of E-commerce various measures have been taken. The most significant being: formulation of regulatory framework to safeguard trust of users and merchants; approval of regulations regarding Payment System Operators (PSO) and Payment System Providers (PSP); and initiation of legal framework for data protection of personal data. These measures have helped improve Pakistan's ranking on the Financial Action Task Force (FATF) list from Grey to White, which will enable entry of credible international players like PayPal. In addition to these, the Internet Assigned Numbers Authority (IANA) has approved establishment of پاکستان.internet registry for Pakistan, which will boost web presence of local businesses in the national language.

Initiative to establish National Incubation Centres (NICs) has been started with establishment of NIC at Islamabad. The objective is to transform innovative ideas of talented young teams into viable and self-sustainable start-up companies by providing necessary training, mentorship and facilitation. The facilities are further planned to be established at Karachi, Lahore, Peshawar and Quetta providing infrastructure, mentorship and all allied facilities to the young innovators and entrepreneurs.

In addition to the above, policy level measures and initiatives, "Prevention of Electronic Crimes Bill" was enacted by the Parliament as "Prevention of Electronic Crimes Act (PECA) 2016". The Act aims to curb unauthorized access to critical infrastructure information system and data, while ensuring the confidentiality and privacy of citizens' information/data.

On the physical infrastructure level, in telecommunication sector, tele-density increased from 70 per cent to 72 per cent. The 3G/4G broadband services had another phenomenal year of rapid growth with subscribers increasing from 27.9 million to 39.88 million.

Key ICT indicators

Description	March, 2016	March, 2017
Tele-density	70%	72%
Mobile Cellular Tele-density	67%	71%
Broadband Subscribers	30.1 million	42.3 million
3G/4G Broadband Subscribers	27.9 million	39.88 million

Source: *Pakistan Telecommunication Authority*

In PSDP 2016-17, Rs3,500 million were allocated for ICT sector. Some of the major projects executed in the ICT sector during 2016-17 are:

- **Establishment of Software Technology Park in Islamabad** with the assistance of Korea. Feasibility of the project were completed during the year and boundary wall and other allied work such as design, consultancy etc., is in progress.

- **National Data Centre**: the centre was launched by National Telecommunication Corporation (NTC) which is providing better and secure hosting platform to various

Public sector entities including flagship project i.e. "E-Office" of Ministry of IT. Data Centre has also introduced the first cloud service in Federal Government.

- **Enhancing IT Exports through Industry Support Programmes:** IT Industry Support Programme is a multi-million rupee initiative in collaboration with IT industry. During the year, 12 companies were provided CMMI consultancy and 5 achieved CMMI level-2 certification too. Furthermore, during the year, 21 companies were provided consultancy and achieved ISO 27,001/ 20,000.

- **Internship Programme:** 3,000 Interns were placed in the IT/ Telecom Industry by Pakistan Software Export Board through its project titled "National ICT Internship Programme.

- **Optical Fibre Cable (OFC):** Construction of Cross-Border Optical Fibre Cable for Alternative International Connectivity: Under this project, so far, 520 km (out of 820km) of optical fibre cable has been laid by May, 2017.

- **3G/4G Services:** 3G/4G services were provided in the region of Azad Jammu & Kashmir by Special Communication Organization (SCO).

- **Automation:** In the "Automation of Central Directorate of National Savings (CDNS) Phase-II" project, out of 140 branches, 100 branches were automated by May, 2017.

Outlook 2017-18

The ICT sector is now at a very critical stage of growth. As such, up-scaling to the next level needs to be continuously nurtured and encouraged for high-paced development. In the 11th Plan, emphasis has been laid on software development, software and IT workforce export, in-country employment opportunities, e-governance for an effective service   delivery, m-governance and smart monitoring, FDI for IT and telecom hardware production, technology incubators and support for entrepreneurs, business expansion through e-commerce, e-learning and e-education and Business Process Outsourcing (BPO). Being the last year of 11th Plan, many initiatives started are expected to be completed aggressively, thus, setting a high growth condition for the next Five Year Plan.

During the last decade, there has been a consistent growth in IT remittances at a compound annual growth rate (CAGR) of around 23per cent. There has been an impressive growth rate of approximately 97per cent in IT remittances over the last four years. Hence, Pakistan's IT exports are estimated to have crossed $2.8 billion a year at present. Annual domestic revenue is estimated to be around $500 million. Hence, total revenue of IT industry is estimated to be around $3.3 billion a year at present.

> **China-Pakistan Economic Corridor (CPEC) Initiative**
> The game-changer CPEC initiative lays significant emphasis on ICTs. Strategic ICT initiatives include:
> - Construction of Cross-Border Optical Fibre Cable for Alternative International Connectivity;
> - Establishment of Khunjrab-Gwadar OFC Network;
> - National Broadband Satellite Programme;
> - Safe Cities Programme;

CPEC, being the game changer, will be getting ready to initiate activities for the next phase. This will open up new vistas for innovation, especially in ICT sector. Unavailability of

modern ICT infrastructure, hitherto, in the remote regions will be taken care off thus, further expanding ICT accessibility to achieve social inclusiveness. Resultantly, IT Industry can see another round of rapid growth in domestic consumption of ICTs as well as software exports. Improvement in national ICT infrastructure with linkages at multiple points with the regional and international systems will make the country an important transit route for international trade and services. In this regard, establishment of Khunjrab-Gwadar OFC network with international connectivity through China and Middle East is of strategic importance. These initiatives will facilitate innovators and talented youth in producing value added and innovative products and services.

Programmes

The PSDP earmarked for ICT sector for 2017-18 is Rs5,600 million. This allocation is aimed to improve capacity of our IT industry by further raising its standard to compete in the international arena, development of human resource with emphasis on skill development and accelerating the pace of e-government to facilitate the people in access to government services. Importance of public sector services also demand attention and a significant portion of the allocations will be used for enhancing efficiency and transparency in the government.

Major thrust in ICT sector for 2017-18 will be as follows:

- **Construction work of Software Technology Park in Islamabad** will continue during the year and will be completed by June, 2019.

- **Remote Sensing Satellite System (RSSS)** will be launched by Pakistan Space and Upper Atmosphere Research Commission (Suparco) in March, 2018.

- **Safe City projects** will be implemented in Gwadar and 6 major cities of Punjab.

- **National Data Centre** available with National Telecommunication Corporation (NTC) will host most of the public sector software/ web applications.

- **Through "Enhancing IT Exports through Industry Support Programmes"** 17 companies will be provided CMMI consultancy i.e. 10 CMMI level-2, 5 CMMI level-3 and 2 CMMI level-5 will acquire certification too. Furthermore, during the year, 16 companies will be provided ISO 27,001/ 20,000 consultancy.

- **Establishment of ICT Innovation Centres** holds paramount importance for achieving socio-economic development in the country. In this regard, measures have been undertaken to initiate preparation of RFPs for the following innovation centres:

    - *FinTech (Financial Technology)*– This innovation centre will have the potential to disrupt financial sector with innovative solutions like smart payments/processing systems, security solutions, P2P lending solutions and tax solutions based on Block chain technology, etc.

    - *Internet of Things (IoT)* -IoT Innovation Centre (ITIC) will enable start-ups in the IoT domain. It will provide access to state of the art infrastructure, commercialization support and indigenization and international collaborations, etc.

    - *Robotics*- Robotics Innovation Centre (RIC) which will be a cross-disciplinary innovation institute dedicated to innovation in products, services and end-user experience that maximizes the benefits of robotics across different verticals including Agriculture, Security, Biomedical, Industrial automation,

Automobiles etc. The main objective of this Robotics innovation centre is to enable start-ups to transform their ideas into commercially viable products.

- **3,000 Interns** will be placed in the IT/ Telecom Industry by Pakistan Software Export Board through its project titled "National ICT Internship Programme".

- **"ICTs for Girls"** programme is aimed at spurring the socio economic uplift of Girls through Digital Learning. As part of this programme, 150 Digital Labs are being established throughout Pakistan at the Women Empowerment Centres at a cost of PKR 300 Million.

- **Citizens Feedback System** will be launched by Cabinet Division.

- **Research Studies related to ICT Sector** will be updated and where required new statistics will be prepared by Pakistan Software Export.

- **3G/4G services will** be provided by Special Communication Organization (SCO) in the region of Gilgit-Baltistan.

- **Technical Training institute** will be established in Gilgit-Baltistan.