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SERVING UNDERSERVED SEGMENTS OF SOCIETY USING ICT INFRASTRUCTURE

CHALLENGES IN SERVING THE UNDERSERVED MARKETS

ICT solutions, if applied wisely, can increase the success of organizations and the efficiency and transparency of governments. Developed countries have facilitated the vast potential of ICT and the Internet in every stratum of society. This has led to extraordinary results in reducing costs and increasing the life standard of their citizens.

Yet many developing or less developed countries still cannot leverage all the potentials of ICT due to various reasons, some of which include:

- Legal & policy framework deficiencies
- Weak technical infrastructure
- Lack of knowledge and Skilled Human Resource
- Funding
- Sustainability and scale
- Cyber Security
- Politics

LEGAL & POLICY FRAMEWORK DEFICIENCIES

- Developing countries, as late adopters of technology, often do not have the necessary rules and legislation to resolve technology-related issues. This leads to complications when verdicts should be reached on disputes pertaining to privacy, content ownership, security breaches, etc.
- Another common problem in developing countries is the slow trial process.
- In some cases, pursuing a simple legal suite might take up to a couple of years.

WEAK TECHNICAL INFRA-STRUCTURE

- Technical infrastructures, especially electricity and communication networks, are essential prerequisites for ICT deployment and development. For example, identify power disruption as one of the primary reasons for depressing adoption and returns to ICT expenditures in developing countries.
- Poor communicational infrastructure such as internet bandwidth and penetration can also hinder effective application of ICT in general and make a reliable and fast access to web and online resources difficult.
- Furthermore, developing countries sometimes have a larger rural population (in percentage) when compared to developed countries. This imposes additional difficulties in providing technical infrastructure to support initiatives on a national scale.
- Procurement of high-tech facilities and certain technologies is another common impediment for ICT-related advancements.

LACK OF KNOWLEDGE AND SKILLED HUMAN RESOURCE

- Many Organizations are not well equipped internally to support and nurture the effective exploitation of ICT to benefit development. They simply do not have the knowledge, expertise, or organizational capacity needed.
- The use of information technology is often seen as a thorny, problematic issue relating to back office systems. Furthermore, ICT often has a questionable reputation as a result of previous unsuccessful or costly initiatives.
- Similarly, in developing countries that enjoy and rely on natural resources such as oil or diamond, the value and importance of human resources is often neglected or underestimated. Instead of acquiring the necessary knowledge to develop technology and foster innovation, such systems tend to acquire ready products or technologies.
- Possessing high-tech technologies and facilities sometimes creates the illusion of independence and modernization, which intensifies the ignorance towards human resources including experts and the elite, culminating in a faster and wider brain drain.

FUNDING

- There also is a significant challenge in adequately planning and financing the use of ICT in development programs.
- With cyclical donor funding and pressure to minimize administrative and management costs, it is often difficult to properly plan and resource financial and human investments in ICT as a core capacity for development programs.

SUSTAINABILITY AND SCALE

- The use of ICT in development programs, to date, have been relatively ad hoc, with many examples of small initiatives or pilots but very few large-scale, sustainable, ICT-supported programs.
- To unleash the full potential of ICT in development programs, a new level of collaboration, both internally and with other organizations, and a new approach to scaling solutions to achieve a really material impact are needed.
- This will necessitate significant coordination between technology companies, private sector organizations, universities, and government entities (central and local), as well as with traditional development partners.

CYBER SECURITY

- Cybersecurity has become one of the significant security concerns in many developing and least developed countries. Some of the factors contributing to poor cybersecurity are poorly secure networks, lack of cyber laws and short of well-trained IT security experts both in private and government agencies.
- Unlike in developed countries, IT security education and awareness are not included in the academic curriculum. Many countries also lack the practice of sharing.

POLITICS

- Decision makers in more corrupt developing countries may deem information transparency, an inherent consequence of introducing ICT, as a threat to their very existence. This paranoia makes such regimes reluctant to fully adopt ICT for government-related systems and processes. Without the support of the highest authorities, the full capacity of ICT can never be achieved.
- The unfamiliarity of authorities (higher-management) with complications and ICT projects is an important counter productive factor when managing big projects. This unawareness leads to underfinancing of projects or setting unrealistic deadlines. As a result, projects either fail to be completed or the outcomes are drastically different from the defined goals.

Some measures to tackle these challenges

POLICY FRAMEWORK ……..

- Software Export
- ICT for Girls
- **Local Languages Content Development**
- Persons with disabilities (PWDs)
- Open Source
- Local Manufacturing of Hardware
- **e-Governance, Agriculture, Health, Energy, Commerce, Justice**
- ICT Education
- **IoT, FinTech, Artificial Intelligence & Robotics**
- Cloud Computing and Big Data
- **Fiscal and non Fiscal Incentives**

Roles and Responsibility Matrix issued for implementation

TODAY'S SITUATION

Area	Department	Status
Policy Framework	Ministry of IT&T	
Regulatory Framework	Various Authorities	
Infrastructure Development	Universal Service Fund	
Research & Development	Government R&D Fund	
Software Development	Software Export Board	
ICT HR Dev & Education	Various Institutions	
Digitalization & e-Initiatives	Various Sectors	
Entrepreneurship & Start-ups	Various Incubators	
Fiscal & Non-Fiscal Incentives	Regulatory Agencies	
Global Institutions Assistance	UN Agencies, ITU, Corporates, Dev Banks etc.	

HOW DID WE GET HERE?

Year	Milestone
1947	T&T Company
1996	Telecom Reorganization Act
2000	Telecom & IT Policy
2003	Deregulation Policy
2004	Award of LL, LDI, WLL & Cellular licenses
2018	Digital Pakistan Policy
2020	Implementation Phase of New Policy

FORMATION OF A SEPARATE MINISTRY TO HANDLE ICT AFFAIRS

To Promulgate necessary policy frameworks, laws and rules to enable creation of a sustainable IT environment, an independent Ministry of IT (MoIT) is required with the goal to:

- Protect personal data and online privacy for improved transparency and security of sensitive and confidential information through appropriate Data Protection law.
- Develop a framework for cloud based services and its regulation which include data classification mechanism, standards for access, data privacy & transparency, ownership and security to promote the adoption of cloud services for better & agile delivery of services to end users.
- Continue cooperation with Ministry of Commerce to formulate e-Commerce framework/policy guidelines in consultation with relevant stakeholders in e-commerce.
- Promote the use of digital signatures to augment data security and authentication.
- Amendment of relevant rules/laws related to e-Governance such as “Rules of Business”, “Secretariat Instructions” etc. to accommodate electronic workflows, processes and e-Approvals/e-Submissions etc.

INFRA-STRUCTURE DEVELOPMENT & DIGITAL INCLUSION

- Enable cross-sector collaboration with a strategic shift towards a Digital Ecosystem for maximum economic impact by establishing Software Technology Parks (STPs) and engagement models to promote digitization, Research and Innovation in new emerging technologies within the ICT as well as other socio-economic sectors.
- Establish state-of-the-art Software Technology Parks (STPs), in the federal and provincial capitals and devise a framework for development of STPs in secondary cities that provide relevant world class data and network facilities to SMEs and MNCs.
- Establish National Technology Incubation Centers across the country. Software Technology Parks should also house an 'Accelerator' and 'Incubation Center' with attached Investment fund to help entrepreneurs and emerging technology startups find stable support and access to the resources they need.
- Promote an Open Digitization infrastructure for shared services including cloud technologies to achieve synergies and economies of scale in both the public and private sectors.
- Provide access to subsidized workspaces, shared services, funding, promotional and accreditation agencies, R&D facilities and professional training.
- Coordination with relevant stakeholders for interoperability to enable any-to-any settlement amongst various existing mobile banking systems specifically with respect to e-Payment Gateway.
- Establish 'Tele-centers' to encourage the usage of digital services, promote innovation and help bridge the digital divide. Facilitate IT related innovation through developing smart cities and help solve local problems through use of Technology.

HUMAN RESOURCE DEVELOPMENT

- Utilize the power of IT to enhance the outreach and quality of education, at all levels, across the country through HRD programs to enhance requisite digital skill set of individuals that are of relevance and value to the IT industry. Initiate programs to train young graduates, freelancers and professionals on market intensive skills through both classroom and virtual training sessions.
- Collaborate with relevant stakeholders, including International Universities, to advance e-learning for the educational and other strategic sectors to improve our knowledge economy.
- Bridge the gap between Industry and Academia through a 'Structured Gap Analysis' program by engaging with key stakeholders. Periodic advisories to be issued to all respective stakeholders for implementation with set timelines

ENTREPRENEURSHIP, R&I AND FREELANCING IN IT

- Support Startups and MSME sector through IT skills training & usage, sponsorships, national level competitions, certifications, facilitation for Mergers & Acquisitions (M&A), equity sale and connecting these startups with relevant funding organizations.
- Advance entrepreneurship and Research and Innovation (R&I) by implementing a paradigm shift towards the strategic exploitation of traditional as well as emerging technology sectors such as Robotics, FinTech, Augmented/Virtual reality, Internet of Things (IoT), Big Data and Artificial Intelligence etc.
- Encourage international collaboration to develop partnerships to promote relevant research and innovation.
- Promote a culture of entrepreneurship through technology incubators within the IT community. Invest in creating the ecosystem that is needed for entrepreneurs to successfully compete in global knowledge economies.
- Promote sector-wise digitization and entrepreneurship by developing viable and cost effective next generation services, applications and content that is relevant to key economic sectors for mass adoption and commercialization. Promote smart IT applications to facilitate health, education, energy, commerce, agriculture and entertainment sectors.
- Launch digital skills training programs for freelancers.

LOCAL MANUFACTURING OF HARDWARE

- Promote the local manufacturing of IT hardware (Desktop PCs, Laptops, Mobile Handsets, Network equipment, LEDs, Microprocessors, etc.) to augment measures already in place to incentivize local manufacturing of handsets, if so required.
- Transfer management control of existing manufacturing concerns in the public sector to the private sector through equity participation or long-term lease, or any other public private partnership modes.
- Work with relevant stakeholders regarding accession to Information Technology Agreement (ITA) under the framework of WTO in-line with necessities of local hardware manufacturing industry.

E-GOVERNANCE

- Enable delivery of public services to citizens through innovative use of ICT. Assist relevant department in developing technology solutions and platforms for greater productivity & effectiveness in service delivery and its standardization.
- Establish holistic enterprise architecture through the creation of data center clusters at essential sites. Facilitate integration of government databases and software systems to share requisite data and knowledge within the government and with citizens through e-government service portals.
- Enable implementation of e-procurement in all areas of the public.
- Enable efficient governance focused platforms for identity/transaction management, payment mechanisms, digital documentation etc.
- Encourage placement of dedicated IT human resources in government organizations for ownership, change management and successful implementation of e-Government initiatives/programs.
- Establishment of G-Cloud to integrate different databases and to provide a resilient and secure ICT environment.

Thank you