# IT Industry Development Policy

# For

# Afghanistan
# (Draft)
# 2015-2020

*Prepared for the Government of the Islamic Republic of Afghanistan*
*Ministry of Communications and IT*

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## List of Acronyms

| | |
|---|---|
| AISA | Afghanistan Investment Support Authority |
| ANITIC | Afghanistan National Information Technology Industry Cluster |
| BPO | Business Process Outsourcing |
| CAGR | Compound Annual Growth Rate |
| CMMI | Capability Maturity Model Integration |
| DAB | Da Afghanistan Bank (State bank of Afghanistan) |
| DSL | Digital Subscriber Line |
| EITO | European Information Technology Observatory |
| FDI | Foreign Direct Investment |
| FOSS | Free and Open Source Software |
| GCC | Gulf Cooperation Council |
| GDP | Gross Domestic Product |
| GNI | Gross National Income |
| GNP | Gross National Product |
| GST | General Sales Tax |
| GTLD | Generic Top Level Domain |
| ICT | Information and Communication Technology |
| IDLG | Independent Directorate of Local Governance |
| IER | Information Economy Report |
| IPR | Intellectual Property Rights |
| ISP | Internet Service Provider |
| IT | Information Technology |
| ITeS | IT enabled Services |
| ITU | International Telecommunication Union |
| MCIT | Ministry of Communications and Information Technology |
| MENA | Middle East and North Africa |
| MNO | Mobile Network Operator |
| MoC | Ministry of Communications (old name for MCIT) |
| NICTAA | National ICT Alliance of Afghanistan |
| NISPAA | National ISP Association of Afghanistan |
| OECD | Organization for Economic Co-operation and Development |
| OSA | Open Source Afghanistan |
| OSACA | Open Source Alliance of Central Asia |
| PC | Personal Computer |
| R&D | Research and Development |
| SMB | Small and Medium-sized Business |
| SME | Small and Medium-sized Enterprise |
| TRB | Telecom Regulatory Board (old name for ATRA) |
| UN | United Nations |
| UNCTAD | United Nations Conference on Trade and Development |
| USD | US Dollars |
| UNDP | United Nations Development Program |
| USAID | United States Agency for International Development |
| VAT | Value-added Tax |
| VoIP | Voice over Internet Protocol |
| WEF | World Economic Forum |
| WB | World Bank |
| WITSA | World Information Technology Services Association |
| WIPO | World Intellectual Property Organization |
| WSIS | World Summit on the Information Society |

# Executive Summary

This deliverable is a fourth in the series of submissions by Trident, Inc. as part of the "Framing the Information Technology Industry Development Policy" project undertaken by the Ministry of Communications and Information Technology (MCIT), Government of the Islamic Republic of Afghanistan in collaboration with the World Bank. The objective of the fourth deliverable was to prepare a draft Information Technology Industry Development Public Policy after collecting the inputs and recommendations received through the consultations with relevant stakeholders identified in Deliverable 3 and meetings held during the period of January 2014. We are now presenting this draft Information Technology Industry Development Public Policy document for the review and approval of the Government of Afghanistan respectively.

The deliverable comprises of multiple sections in the form of two separate documents where the first carries the draft Information Technology Industry Development Public Policy document and the second document carries the input received by relevant stakeholders that participated in consultations and meetings held in lieu of the Consultative Paper on the IT Industry Development approved by MCIT and National ICT Council of Afghanistan. The draft policy has been formulated after receiving inputs from relevant stakeholders where it also includes data and information analysis provided as evidence for policy formulation deduced from the ICT and IT/ITeS firms survey.

The survey was carried out by selecting forty firms from a group of three hundred companies based on relevance of their business activities within the ICT sector. The survey included fifty-nine sections and/or questions that covered all areas of relevant IT/ITeS related public policy input and situation analysis covering firm level data, technical data, human capital, resource allocation, economic activity, technology, political, security and most importantly the market environment. The resultant analysis provides the first of its kind evidence indicating there is significant business and commerce activity taking place in the potential sector. This also creates the basis for giving the Information Technology sector an industrial classification and inclusion into national economic development plans where the sector receives significant support and backing from the Government of Afghanistan.

During the consultations with relevant stakeholders, various inputs and recommendations in support of interventions in the identified policy areas for discussions were received. An approximate of four hundred plus government representatives from various ministries, owners of firms, donor agencies and international organizations, members of civil society, trade associations, professional associations, faculty and students were consulted as part of the consultative process. The consultation participants' emphasized that the proposed vision was successful in identifying the way forward towards creation of a successful IT/ITeS industry. Overall there was a strong confidence in the Government's existing efforts in building and sustaining a successful ICT and Telecoms infrastructure where mobile connectivity was both critical for communications and the development of mobile-based applications. This would provide the necessary infrastructural basis for stimulating industry activity where firms and projects will have the means to connect and communicate with each other locally and globally.

Participants emphasized the need for the Government to give special attention towards the creation of the IT Industry and that an independent ministry or body should be established to manage the complexities of demand and supply creation, stimulating innovation through incorporating research and development at the core since the present structures were not able to accommodate the domestic needs while create firms and products to compete against global competition that is already very close to home in Pakistan, India

and the Middle East. ICT skills literacy and advanced skills development is also a key policy area emphasized during consultations where being able to communicate through the Internet and incorporate latest IT applications across all sectors of society and economy. General consensus was recorded amongst participants that key sectors including Government, Education, Agriculture, Mining, Finance, Health and Security would immensely benefit from investment in cutting edge ICT skills. Youth and Gender sensitivity was also highly emphasized urging the government to promote equal participation of women in the industry jobs market. The young citizens are the most precious human capital to stimulate a vibrant IT/ITeS industry while promoting innovation products and services led by young entrepreneurs, both male and female. Human development and improvement in quality of life was linked to the availability of jobs and opportunities for professional growth. Participants emphasized the need to encourage local investors to invest in local firms and businesses in order to strengthen the trust environment for sustainability of the sector.

The need to reform existing policies in these sectors to incorporate ICT and IT in particular was raised during the consultations. Literacy for all was stressed where the Government was suggested to take steps introduce ICT, Internet and applications usage literacy programs aimed at increasing online participation of Afghans so that the domestic need for IT/ITeS would be widely recognized. This would also help in increasing the participation of citizens in the industry and selection of IT/ITeS as a long-term profession. Members of academia and research emphasized the need to incorporate Free and Open Source Software (FOSS) across ICT and non-ICT educational programs in order to introduce low-cost ICT software applications and tools to develop a culture of technology usage that can help other non-IT sectors to benefit from technology while also introducing a culture of innovation-led research and development. Such efforts would lead to demand and supply creation of both skills and opportunities for business and commerce. The need to bridge academia and industry was highly encouraged from early stages.

However participants also emphasized the need for the Government to help in further reducing the cost of Internet bandwidth and connectivity while expanding its reach beyond Kabul and into rural regions. The need for providing accesses to low-cost physical infrastructure such as software technology parks and company incubation complexes that can help college students, entrepreneurs and innovators start-up businesses and be launched into the global marketplace. The need to adopt global best practices while keeping in view the complexities of the security and energy requirements of the country may be answered through the creation of public and private partnerships that can help in provision of these critical resources to emerging IT/ITeS companies and entrepreneurs. This would also help in encouraging Foreign Direct Investment and trust in the Afghan economy. The Government was also encouraged to provide tax holidays for domestically registered and operating firms as opposed to allowing the same for successful foreign companies. Foreign companies should be encouraged to invest in social

development efforts in order to carryout business and profit from the country's citizenry.

Various ideas were shared that have been duly incorporated into the policy document as project ideas for the Government to consider. While the general perception across all consultations was in favor of the creation of an IT industry, there was a strong emphasis on the need for the Government to create a "soft touch" regulatory environment to facilitate the growth of a nascent industry. Similarly, there was a need to have legislation developed in line with the international norms however such regulation and legislation should help facilitate the IT industry so that domestic business development efforts can evolve to compete with already existing software and technology platforms. The issue of building comparative advantage and promoting efforts to help local firms produce software, hardware and provide services at competitive rates in competition with global competitors is a key concern that can only be

managed through strategic intervention of the government. We hope the draft policy paper and associated material from the consultations will facilitate the Government to officially classify the marketplace as an IT Industry that will contribute as a high employment and revenue generating sector helping build a stronger and vibrant Afghanistan.

# 1.0. Introduction

The IT Industry Development Policy has been formulated after engaging through open consultations with the broader community of relevant stakeholders facilitated by MCIT and carried out by Trident Internet Systems Inc. These policy recommendations are the result of direct interaction and receiving critical input from all relevant stakeholders and representatives of multistakeholder groups from the public sector, private sector, civil society, international donor and intergovernmental organizations, academia, technical community and the citizens of Afghanistan. Through a consultative process, each policy intervention area is supported by objectives and strategies in order to overcome any challenges towards creating a highly productive, competitive and sustainable IT Industry.

## 1.1. IT Sector Potential

All stakeholders consulted during the open consultations and direct interviews have recognized the importance of the creation of an IT Industry in Afghanistan. This has been validated through the feedback received against the IT Industry Development Consultation Paper circulated and presented to all relevant stakeholders. The stakeholders have helped in identifying key areas for Government intervention within the context of local conditions and risks. The overall feedback from stakeholders indicates strong support for the creation of an IT Industry in Afghanistan the impact of which would be wealth generation, employment, sustainable domestic and export potential and improved productivity, efficiency and innovation in the public and private sectors.

(Feedback from the stakeholder: Strong support for the creation of IT industry – Impact of this new sector: Wealth Generation, Employment, Sustainable domestic and export potential, improve productivity, efficiency, and innovation in public and private sector)

The consultations feedback also identified that IT skills gap exists in the country as IT industry is a labor and skills intensive sector. Investment IT Industry will positively impact other industries through product and process innovation; resulting in removal and minimization of certain barriers such as lack of fiscal support, telecommunication and internet availability. There was a strong agreement among stakeholders that in order to create and promote the technology brand “Made in Afghanistan”, the country will have to take significant measures and undergo improvements in the areas of physical infrastructure, highly skilled human resource development, fiscal measures and support, legal and regulatory environment and reaching out globally.

(Consultation Feedback: Skills Gap exists as IT industry is labor and skills intensive industry, this industry will positively impact other industries through product and process innovation, certain barriers shall be removed or minimized – lack of fiscal support, telecommunication and internet availability. For Made in Afghanistan - lack of suitable physical infrastructure, human resource, fiscal support, legal and regulator environment)

## 1.2. Importance of ICT Industry and IT/ITeS Sub-Sectors Classification

The ICT Sector has the potential to become a sustainable source of high growth for Afghanistan, an issue that has been of great debate globally that how will the country ensure peace, stability, security and high levels of economic growth. IT/ITeS is defined as manufacturing of computer and electronics hardware; offshoring and participating in global software development (GSD) that spans out into call centers and business process outsourcing (BPO). The sector will need a strong domestic software development ecosystem including the provision of IT support systems for small, medium and enterprise organizations and firms across other sectors is established; while further enabling an industry sub-sector of localized digital content production in local languages spoken and understood by the citizens of Afghanistan.

In order to achieve success in development of these ICT sub-sectors, ICT/IT/ITeS must be declared as a high priority sector for national development and sustainable growth. There is potential for the Government of Afghanistan to generate social and economic growth in this space as it has a relatively up-to-date telecommunications infrastructure to provide Internet access and connectivity throughout the country. The necessary steps to be undertaken at this stage is to develop a pragmatic strategy that can help establish a national software and hardware development ecosystem.

Aligning ICT/IT/ITeS will have a significant impact on all sectors of society that will potentially generate direct and indirect employment, local and global investment trust in Afghanistan's economy and modern infrastructure availability, increase the capacity of advanced skills amongst the population and new sources of tax and revenue for the government that can be redirected towards strengthening the country.

## 1.3. IT/ITeS Impact on other National Economic Growth Areas such as Agriculture and Manufacturing

Higher levels of human skill development and lower costs of high-speed Internet access will help create the necessary economic factors for ensuring that the IT industry sector grows and warrants employment not only within the IT/ITeS sub-sectors but reaching out into all sectors of society and economy through the proliferation of IT products and services developed in Afghanistan. One important factor to note here is that ICT transformation and leap-frogging in human development is dependent upon the government's initiative, such as tax holiday, to invest and procure heavily in the ICT software and hardware services from domestic providers and suppliers thus incentivizing further investment in the industry and increasing competition leading to higher efficiency in its service provision, thus creating increased opportunities for improvement in critical sectors such as welfare, health information and provision, education, transport and utility.

The next most important step is to help other key industry sectors of the national importance increase their productivity and output by significantly using the appropriate technology as export markets rely extensively on technology. Such

sectors for Afghanistan include Agriculture and Mining that may experience higher levels of production output through the use of modern technologies. All stakeholders have expressed that if Afghanistan falls behind in using ICT/IT/ITeS extensively across all sectors and areas of society and economy, it will be unable to compete in the growing global markets.

Government should encourage other sectors to use ICT in order to compete in the growing global markets

## 1.4. Global Partnerships for Afghanistan's IT/ITeS Growth

The international community has played an important role in working with the citizens and the Government of Afghanistan to ensure that the country witnesses significant improvement in peace, stability, and security, social and economic growth. Such cooperation and support signify the opportunity for the Afghanistan to continue investing in these partnerships building the path for increased foreign direct investment opportunities in infrastructure development, technology transfer, human capital development, improvement in quality of human life and sustainable growth. International development and cooperation organizations can continue to collectively help Afghanistan evolve the ICT/IT/ITeS Industry into a productive sector.

This enhanced cooperation will ensure that both financial and knowledge support is sustainably available to Afghanistan during the course of implementation of this IT Industry Development policy. The Government of Afghanistan may explore in establishing a single interface point for promoting the ICT/IT/ITeS in the public sector with the cooperation of MCIT so that such cooperation can be strengthened and progressed towards national development goals. One way to achieve such development is by establishing an independent Ministry of Science and Technology with budgets allocated to carry out the mission of establishing the IT/ITeS industry. Through employing this approach, the Government of Afghanistan will be able to develop strong and efficient domestic software and hardware development industry that will further be able to generate a comparative advantage over other developing nations and compete within the global knowledge economy. This approach will also enable long-term growth in the sector and focused opportunities for international cooperation.

# 2.0. Policy Vision for IT Industry Development in Afghanistan

*"To exploit the potential of Islamic Republic of Afghanistan's present ICT and Telecoms infrastructure by developing a sustainable National Information Technology and IT Enabled Services Industry (IT/ITES) that will generate job opportunities and create national wealth and prosperity for Afghan citizens within the next five years"*

*IT industry: Job creation and wealth creation = prosperity, in next five years*

## 2.1. Policy Goals for IT Industry Development in Afghanistan

The goals of the Afghanistan National IT Industry Development Policy are to ensure the following transformative national developments within the next five to seven years:

1. Classify IT industry as a major economic growth sector in Afghanistan
2. Take leadership role to Ensure the provision of economic input and physical infrastructure to strengthen the IT industry

   Produce skilled work force to strengthen the IT industry

   Generate direct and indirect IT Encourage the Afghan residents outside the country to contribute in strengthening the IT industry by knowledge sharing and investment
3. Encourage the development of a domestic IT market.
4. Strengthen national institutions, within the framework of the WTO and other trade agreements, to adopt and promote the domestic products and solutions to strengthen IT industry
5. Encourage Public Private Partnerships (PPP)

## 2.2. Nine Principle Charter for IT Industry Development

The Afghanistan National IT Industry Development Policy Vision builds upon the following nine key strategy factors:

I. The Government of the Islamic Republic of Afghanistan (GIROA) recognizes the importance and impact of ICT and Telecommunications as a socio-economic growth vehicle.

II. The GIROA recognizes the importance of the Information Society to provide access to communication and internet as human rights for all Afghans.

III. The GIROA recognizes that over the past decade robust, resilient and scalable telecom infrastructure has been placed in Afghanistan.

IV. The GIROA recognizes that through its information and communication technology arm, MCIT has initiated programs of national importance that will help in establishing and growing a nascent IT/ITES Industry in the country.

V. The GIROA recognizes the importance of up-to-date education in general and in particular the IT related education to compete in regional and global market place

VI. The GIROA recognizes that in order to develop and nurture a nascent IT/ITES Industry, there is the need for ICT infrastructure measures and incentives to be in place.

VII. The GIROA recognizes that in order to facilitate IT industry development and growth requires special legal and regulatory environments in place.

VIII. The GIROA recognizes that in order to establish an efficient and growth oriented IT/ITES Industry, authority and funds need to be allotted to the governmental institution tasked with establishment of the IT industry and promotion of IT skills and Afghan brand.

IX. The GIROA recognizes the role of different association and independent bodies in the field of ICT.

# 3.0. National Information Technology Industry Development Policy

The ICT Industry is divided into two sectors, the Telecom Sector and the Information Technology (IT) Sector. This policy document addresses the Information Technology Sector that is further divided into three sub-sectors, Software, Hardware and IT Services respectively. This document uses the term IT/ITES to bundle these three sub-sectors and makes the differentiation between software, hardware and computer related services where necessary. At the global level, Computer and Related Services (CRS) is an emerging field in international trade in services

## 3.1. National IT Industry Recognition

***Policy Context:***

The Government of Afghanistan will classify and develop Information Technology and Information Technology Enabled Services (IT/ITES) under the existing ICT Sector Category as a key economic growth area and industry for the next five to seven years. In countries with thriving private sector, the IT Industry would be led by private sector and the Government role would be to provide necessary support through facilitating an enabling environment that encourages the stimulation of domestic demand and supply of IT services for both local and global consumption. However, in Afghanistan, due to decades of conflict and instability, the private sector is relatively weak and unable to lead the growth of a nascent IT/ITeS sector therefore, the Government needs to take a leading role to develop and enable a national ecosystem of knowledge and resource sharing that will bring all relevant stakeholders under one umbrella of industry activity and contribute to growth of the domestic IT related private sector.

To achieve this objective we believe that the Government of Afghanistan needs to create an independent Ministry that will focus solely on promoting and growing the IT/ITeS within the country. The reason we are proposing a Ministry rather than an independent agency is the fact that we believe that in an environment like Afghanistan, where private sector is dependent on government to provide leadership, a Ministry will have more authority and will be able to regulate the industry more forcefully than an agency would. Afghan Society accepts the authority of a Ministry much more readily than they would accept the authority of an agency. We believe a Ministry focused on Science and Technology (MST) would lead to faster growth and development of the IT industry as whole and the Government would be able to lead the IT industry growth and skill development leading to job creation.

## 3.2. National IT Industry Policy Implementation Role

I. The Government of the Islamic Republic of Afghanistan authorizes the Ministry of Science and Technology (MST) as the final authority that develops, promotes and realizes national policy on IT Industry development.

II. MST will determine the development strategy related to IT/ITES respectively and ensure its successful implementation while monitoring and evaluating the sector's growth on a yearly and long term basis in collaboration with all relevant stakeholders.

III. MST will be responsible for establishing domestic and global partnerships for the IT Industry with the International Donor and Development Community.

IV. MST will review the National IT Industry Policy with all relevant stakeholders through a semi-annual open consultation to identify and remove any barriers to its successful implementation.

V. MST will monitor, evaluate and report the development, progress and growth of the IT Industry on an annual, five year and seven year basis in collaboration with all the relevant stakeholders.

### *Policy Objectives:*

I. To recognize IT/ITES Industry as a key economic industry sector that requires government support in the areas of physical infrastructure provision, human resource development and job creation, fiscal measures and necessary regulation protecting intellectual property rights, securing privacy and property in order to promote fair competition in a free market economy.

II. To develop a computer related services marketplace in Afghanistan where the production and consumption of software and hardware related products and services takes place successfully.

III. To empower and equip Afghan citizens with the necessary Information Technology knowledge and skills both to produce and to consume information related products and services nationwide.

IV. To help develop and promote the brand Afghanistan and introduce software and hardware related computer products and services both locally and globally.

V. To support the proliferation of software and hardware related products and services developed in Afghanistan by its private sector directed towards the domestic Small and Medium Businesses at-large through IT/ITeS enabling them to trade locally and globally using electronic and mobile commerce facilities over the country's existing Internet and Telecoms infrastructure.

VI. To enhance Afghanistan's existing Internet and Telecoms infrastructure to support development of a sustainable IT Industry.

### *Policy Strategy:*

I. Declare the IT Industry as a key economic growth area for the next five to seven years that will receive key investment support and tax breaks attention by the Government of Afghanistan through its various relevant ministries.

II. Work with the International Donor Community to direct funds and investment into the Afghanistan IT Industry in all areas related physical infrastructure development, highly skilled human resource development, fiscal measures and investment support, regulatory mechanisms and access to global markets.

III. The Government of Afghanistan will establish the Ministry of Science and Technology (MST) as an autonomous Ministry that would cooperate with the private sector to promote the IT Industry locally and globally.

a. MST will be tasked to focus specifically on promoting the IT Industry through programs and projects directed at stimulating the production and consumption of software and hardware computer related products and services. It will achieve this through its domestic and international ties while facilitating access to highly skilled human resources, physical infrastructure, fiscal measures and the necessary marketing outlets and channels both domestically and abroad for the private sector.

b. Majority of employees of MST should have relevant experience in software and hardware products and services development, marketing, promotion and foreign market experience.

c. MST will work closely with the Ministry of Commerce and Industries (MoCI), the Afghanistan Investment Support Agency (AISA) and the Ministry of Finance (MoF) to reduce the barriers for doing business in the IT Industry Sector.

d. MST will work closely with the Ministry of Education (MoE), Ministry of Higher Education (MoHE) and all public and private sector universities to develop and incorporate the necessary IT curriculum and develop highly skilled human resource base to support the IT Industry.

e. MST will help ensure the proliferation of IT/ITeS products and services developed in Afghanistan through all national social and economic sectors including small and medium enterprise in the nation.

f. MST will reach out globally to the various global and regional IT Industry associations and authorities to promote the Afghanistan IT brand.

g. MST will encourage and facilitate the development of the necessary software and hardware standards to ensure quality product development and service offerings in the Afghanistan IT Industry. MST would achieve this by mandating the following:

    i. Make it mandatory for all IT Sector domestic and foreign firms to register with MST in order to receive special benefits specific to the IT Industry as described under Fiscal and Regulatory Measures. MST will update AISA on a regular basis about companies registered under the IT Industry category.

    ii. Companies failing to register under MST will not receive special benefits specific to the IT Industry as described under Fiscal and Regulatory Measures. MST will work with AISA, MoF, MoCI and other relevant government institutions to ensure that all companies registered with MST receive such benefits without discrimination.

h. MST will help entrepreneurs in evolving new startups by providing them access to domestic and global business development resources to expand companies in the region and globally.

i. MST will be the final authority for all information technology policy, as well as regulations, instructions, and procedures that regulate information technology in Afghanistan.

j. MST will be the governing body to issue regulations and manage the information technology industry.

k. MST will also establish the IT Dispute Resolution Panel that resolves IT issues among relevant stakeholders.

l. MST will develop domestic and global knowledge and resource sharing partnerships in the area of ICT and IT.

m. MST will act as a central point for communication with global IT associations, trade bodies, research institutions and mutual industry growth programs.

n. MST should establish an advisory Steering Board that would consist of successful IT Industry entrepreneurs selected through a transparent and competitive process and will be permanently chaired by the MST Minister or his appointee. This Steering Advisory Board could be called the Afghanistan National Information Technology Industry Cluster (ANITIC) and its role would be to advise MST on the existing issues and obstacles preventing growth of IT/ITeS sector and recommending practical solutions for creation of a national ecosystem of knowledge and resource sharing that will bring all relevant stakeholders under one umbrella and contribute to mutual growth of the domestic IT related private sector.

   - ANITIC will be an IT focused industry cluster formed by an alliance of MST with relevant Ministries, private sector companies, industry associations as well as public and private sector universities providing IT related higher education, research institutions, INGOs/NGOs, Donor Community and various development organizations promoting IT skills and employment in the country.

   - ANITIC will be meeting on a quarterly or semi-annual basis to discuss the current issues and recommend practical solutions for removing any barriers that may inhibit the progress of growing the industry.

## 3.3. Afghanistan IT Industry Infrastructure Support

### *Policy Context:*

The Government of Afghanistan will facilitate an enabling physical environment for the successful creation and functioning of a highly productive and sustainable IT

Industry sector in the country using and enhancing the existing Internet and Telecoms infrastructure and establishing new technology hubs.

### *Policy Objectives:*

I. To promote a liberalized free market economy environment for the IT Industry Sector and provide equitable access to all citizens and relevant stakeholders to produce and consume IT related software and hardware products and services.

II. To provide the necessary guidance and direction to the private sector for making investments in IT infrastructure development and expansion by establishing various incentives.

III. To ensure that human and property security, continuous electric power and necessary infrastructure utilities are readily made available for the IT industry with unaltered access and supply.

IV. To provide assistance for establishing IT Industry related businesses and services activities by creating free trade zones, industrial parks, and smart villages where various players within the IT Industry can establish their operations and benefit from the established and available infrastructure.

V. To provide the necessary Internet and Telecoms infrastructure and support to the private sector.

VI. To promote electronic and mobile commerce amongst all sectors of society and economy steered by the government and led by the private sector.

VII. To invest in the research and development of new software and hardware technologies and platforms.

### *Policy Strategy:*

I. Establish and support an IT Industry and open marketplace activity that will be functioning under free market economy principles led by the private sector and receive continuous investment, regulatory and legislative support by the Government for the next twenty years.

II. Enhance the existing Internet and Telecoms infrastructure to allow lower-cost access to Internet and Mobile communications services to the IT Industry, this requires in lowering licensing costs and barriers to operations nationwide.

III. Invest with the private sector in the creation of a national level redundant Internet backbone to ensure 24/7 quality Internet connectivity for stakeholders of the IT Industry.

IV. Open up the national optical fiber backbone access to the IT Industry stakeholders on low-cost and competitive pricing with easy to access policies and procedures.

V. Collaborate with the private sector to establish Software Technology Parks (STPs) as Public Private Partnerships in Kabul and adjoining cities.

a. STPs will be connected to the existing national Internet backbone as well as a redundant Internet backbone will be developed to ensure continuity of the Internet for the IT Industry.

b. STPs will provide space for incubating IT Industry startup firms and nurture and accelerate them towards growth.

c. STPs can be established in a Free Trade Zone in order to secure them, provide continuous power and electricity and to secure human lives and property.

VI. Collaborate with the Ministry of Economy (MoE) and the Kabul Municipality, taking into consideration the necessary social safeguards, to identify environmentally friendly land in the Kabul suburbs for the creation of Afghanistan IT Free Trade Zone and Smart Village to ensure customized infrastructure is made available at low-cost to the IT Industry backed by 24/7 quality Internet connectivity and electric power support on cost sharing basis.

VII. Collaborate with the Kabul Municipality to promote Municipality Tax holiday for STPs and land specifically dedicated for IT Industry functions for a period of one to five years.

VIII. Work with ATRA to declare the Industrial, Scientific and Medical (ISM) Band License Exempt for use by IT Industry private sector and relevant stakeholders to spur innovation targeted at improving the quality of life for the citizens of Afghanistan.

## 3.4. Highly Skilled IT Human Resource Development

### *Policy Context:*

The Government of Afghanistan will facilitate the creation of a large resource base of highly skilled and competitive human resources comprising equally of young Afghan male and female citizens equipped with the necessary IT Industry software and hardware development skills throughout the country. The Government will ensure that all citizens are equipped with the necessary skills to consume information services and participate in the information society as provided by the public and private sectors of the country.

### *Policy Objectives:*

I. To evolve a national culture of knowledge and understanding about IT related products and services production and consumption among all citizenry.

II. To create IT related direct and indirect employment as means to secure national wealth generation and improve quality of life across all sectors of society and economy including Government.

III. To ensure equity for participation of youth, women and disabled citizens with special needs as part of the national IT Industry human resource demand and supply ecosystem.

IV. To ensure the creation and availability of highly skilled knowledge workers for both domestic and global needs in advanced areas of knowledge intensive and creative industry segments, a specialized and highly skilled national workforce of 20,000 knowledge workers and 200,000 indirect IT aware human resource base in the next five to seven years need to be created.

V. Certification and accreditation of IT software and hardware literacy levels across the academic and training spheres.

VI. To ensure the quality of IT education and its reach across primary, secondary, tertiary and higher education across the nation supported by the access to freely downloadable high quality IT curriculum.

VII. To promote enrollment in educational fields in the areas of Information Technology Engineering, Technology Entrepreneurship, Leadership and Management, Marketing to create a highly skilled workforce needed for growth of the IT industry.

VIII. To regulate and enforce adherence to Intellectual Property Rights throughout the country in accordance with WTO and other Trade Agreements.

### *Policy Strategy:*

I. Treat IT skills as a critical field of education for all citizens of the Islamic Republic of Afghanistan and put in place programs to equip community centers, women training centers, technical education and vocational skills learning centers, schools, colleges and universities with IT computers through creation of Computer Laboratories well connected to high speed Internet that are open nine to five to provide free IT training and learning services to all citizens. This will help:

   a. Creating IT awareness, evolve an IT usage culture and promote the capability to consume public sector electronic-government and mobile-government services across the nation.

   b. Enabling the provisioning of basic skills in social media communication, chat, email and Internet browsing for all citizens.

   c. Expanding IT skills and learning for citizens in the country within five years.

II. Create an IT Skills Quality Control Department in MST to help develop standardized IT related curriculum to be delivered across primary, secondary and tertiary levels of education in collaboration with Ministry of Education (MoE), Ministry of High Education (MoHE) and Ministry of Labor, Social Affairs, Martyrs & Disabled (MoLSAMD). MST may need to request help from the International Donors active in Afghanistan to engage various International IT companies to assist with implementation and execution of this plan.

   a. Develop high quality basic computer education to advance IT skills curriculum so that standardized skills development can be achieved.

b. Make freely available all basic computer science to advance IT skills curriculum in downloadable form on the Internet as open content.

c. Allow citizens to recommend improvements, modifications, sharing and freedom of use beyond the classroom and educational environment.

d. Update the curriculum on a yearly basis reflecting the changes to technology on the global landscape.

III. Establish a model pilot IT University (ITU) in Kabul as a Public Private Partnership to promote IT skills based higher education in the fields of creativity, engineering, business and human development. Such a university model can become a central point for enhancing advanced IT education in all public and private sector universities and polishing the existing human resource base in advanced areas of IT management and research and development.

IV. Work with the Ministry of High Education (MoHE) to highly subsidize IT related higher education programs across public and private sector universities in the country for the next seven years to ensure the creation of a large highly skilled IT human resource base.

V. Establish a domestic and international Ph.D scholarship and grants scheme. This will include the provisioning of scholarships and study grants to outperforming students in IT education, engineering and related business educational fields. Make it mandatory for all such students receiving scholarship to demonstrate outstanding performance in IT related studies and practically demonstrate their learning by delivering training through the Train the Trainer programs.

VI. Establish IT Skills Boards consisting of public and private sector IT industry players in every province of the country under MST to ensure the development and delivery of IT related software and hardware development curriculum and education. Such IT Boards can be instrumental in distributing scholarships and funding to students and educational training centers across the country and monitoring the delivery of quality IT education.

VII. Declare IT skills mandatory for all teachers and students across all training centers, schools, colleges and universities and provide the necessary financial resources and technology tools to such institutions across the country. Establish a Train the Trainer program for all educational institutions to ensure that Teachers are well prepared in IT skills before teaching students.

VIII. Develop IT related curriculum for all levels of education provisioning including primary, secondary and tertiary in both local (Dari/Pashto) and English, to ensure the development of a competitive and well aware student body that can make future decisions to join the national IT workforce without barriers and access global markets without language hardships.

IX. Develop a “Each One Teach One” IT skills transfer program by declaring it mandatory for all students of IT higher education programs to deliver basic IT

skills training for a family, a community group/NGO or Small and Medium Enterprise company employees as part of fulfillment for degree awards. This will ensure that that every IT student has gained some form of experience in further transferring knowledge of IT skills to the citizens of Afghanistan.

X. Establish the National Tele-Center and Multipurpose Community Centre programs in collaboration with the local Internet Service Providers and Telecom MNOs across all provinces of the country in every district to ensure the provision of access to software and hardware and related learning. This can also be established through a national Income Generation Scheme and Public Private Partnership on an entrepreneurial and sustainable basis.

XI. Declare IT skills as a fundamental requirement for gaining access to employment and jobs across the public sector in the country and define a fundamental requirement list of necessary skills required by employers in collaboration with employers.

XII. Provide adequate training to all executive layers of Government and officials, including the Deputy Ministers, to enable leaders to make technology choices in their respective Ministries and delivery of public programs as part of governance.

XIII. Develop programs in close cooperation with the private sector to deliver IT related decision-making skills for entrepreneurs, owners of Small and Medium Businesses, Public sector leaders and management, managerial staff across the business commerce and industry sector.

XIV. Work with organizations in adjoining countries to develop and incorporate learning technologies for illiterate people.

a. Text to Speech and Speech to Text software technologies are available for Pashto and Dari scripts that can be help in bring IT skills to remote areas of Afghanistan beyond the remit of Kabul.

b. Local learning content can be developed and delivered through visual imagery, animation and voice for areas with very low-literacy levels.

c. Importing existing Dari and Pashto content can help in quickly disseminating Interactive Voice Response (IVR) technologies bundled with imagery can help fuel a sustainable learning revolution that can be supported through Public Private Partnerships.

XV. Remove all physical and financial barriers limiting access to quality IT education for all Afghan citizens by establishing a Virtual IT University distance learning network in collaboration with the Ministry of Higher Education (MoHE), Ministry of Information, Culture and Youth Affairs (MoICY) and Ministry of Women Affairs (MoWA).

a. Broadcast educational programs via the Virtual IT University of Afghanistan (VITU) through engagement of various channels including Internet, Mobile telephony and Satellite/TV Public Broadcast Airwaves/Channels without any cost to students.

b. Enable the Virtual IT University of Afghanistan (VITU) to establish physical satellite education centers in collaboration with public and private sector institutions to deliver programs through Women Training Centers and private sector-led Satellite Education Centers (VITU-SECs) across the country that will provide low-cost access to broadcasted lectures and Internet connectivity.

c. Provide special tax related incentives to private sector-led Satellite Education Centers (VITU-SECs) as well as grants to procure Television and Cable, Internet and Mobile connectivity equipment.

d. Ensure the national recognition of all such higher education programs and skill programs obtained through the VITU as nationally accredited degree and skills development certification programs.

e. Partner with the International Donor and Development Community to provide scholarship funding for the VITU in order to provide IT education access to the majority of the citizenry across the country irrespective of age, sect, income levels and gender.

XVI. Create a National IT Skills Development Fund under MST and make it mandatory for all foreign IT companies operating in Afghanistan to contribute 2% of their profits and or income from local projects towards IT skills literacy, scholarships and study grants to public and private sector schools, colleges and universities.

XVII. Provide further tax rebates, reduction in hardware import related customs levies incentives to domestic companies and entrepreneurs that partner with MST to provide specialized IT skills training and education across the remote parts of the country.

## 3.5. Domestic and Foreign Market Activity Creation

### *Policy Context:*

Support the IT Industry to establish a highly productive domestic market and help private sector grow to participate in foreign IT markets.

### *Policy Objectives:*

I. To ensure that all public sector procurements are made through domestic market software and hardware developers, manufacturers, assemblers and service providers, within the parameters of the international trade agreements.

II. To stimulate a domestic market providing competitive IT software and hardware related product and services.

III. To promote interoperability and fair technology use choice between Free and Open Source Software (FOSS) and Proprietary Software and Hardware systems across the public and private sector procurements, Small and Medium Businesses and development programs.

IV. To promote the brand name “Made in Afghanistan” and domestically produced software and hardware technologies and platforms both in the neighboring regions and globally.

***Policy Strategies:***

I. Ensure that all public sector entities procure IT related software and hardware procurements made through the domestic IT Industry through publicly available online tendering and procurement processes centralized across the government.

II. Ensure that all public sector procurements respect Intellectual Property Rights in their procurements giving due consideration to the potential benefits and disadvantages of Free and Open Source Software (FOSS) and Proprietary Software and Hardware technologies and platforms.

III. Provide funding, where necessary, to the private sector to develop FOSS based software and technology platforms to support employment of electronic and mobile government applications and invest in the creation of local IT skills in FOSS.

IV. Encourage the domestic IT Industry companies and providers to partner with foreign IT companies to provide software and hardware technologies and platforms not being produced or serviced by the domestic IT Industry. This would ensure that foreign companies could only participate in domestic projects by partnering with domestic companies. This will help in increasing the efficiency and productivity of domestic IT Industry companies and providers.

V. Promote through MST and ANITIC to establish contacts and develop partnerships with international IT markets and industries by supporting the participation of the domestic IT Industry in international IT fairs, exhibitions, conferences, meetings, promotional events, multilateral and bilateral negotiations and country level delegations.

VI. Reach out to Afghan diaspora abroad to invest in and contribute to the development of the domestic IT Industry through joint business and foreign company partnerships. Appoint relevant members of the Afghan diaspora abroad as Afghan IT Brand Ambassadors to help build the necessary linkages and partnerships for enabling a highly productive IT Industry in the country and access to markets abroad.

## 3.6. Legal and Regulatory Frameworks for the IT Industry

***Policy Context:***

The government will introduce basic legal and regulatory frameworks for the IT Industry in cooperation with various government ministries and relevant stakeholders to ensure the efficient functioning of the IT Industry marketplace while protecting participating individuals, companies and organizations. Such arrangements will also ensure the protection of Afghan IT Industry business interests globally.

***Policy Objectives:***

I. To secure data and communications carried out by IT Industry stakeholders using electronic and mobile communications networks.

II. To develop a basic legal framework that provides protection and arbitration on fair and equitable grounds for property rights and contract laws.

III. To promote the use of electronic and mobile commerce across all sectors of society and economy, and for the benefit of the Small and Medium Businesses in particular.

IV. To develop a regulatory framework for regulating and maintaining fair competition in the IT Industry.

V. To participate in International IT Industry related international agreements and institutional settings as means to ensuring the involvement of Afghan trade interests.

***Policy Strategy:***

I. Revise and/or create where necessary the relevant legislation that enables the harmonization of interconnectivity between financial banking and non-banking institutions to enable business and commerce activities using electronic, Internet and Mobile network platforms.

II. Harmonize existing or future legal frameworks for IT industry with international law exploring the possibility of establishing MLATs with foreign business entities for carrying out business in Afghanistan and having the necessary legal understandings in place prior to business activity creation.

III. Formulate the necessary legal arrangements ensuring classification of computer related crimes, documentation and punishment.

IV. Formulate necessary legal arrangements ensuring the protection of Intellectual Property Rights (IPRs), privacy of personal or customer sensitive data retained in electronic information systems

V. Build the regulatory capacity of MST to enable independent and effective regulatory measures for the IT Industry beyond the remit of the Telecom Sector Regulation. This will ensure that ATRA retains its focus on Telecom Sector.

VI. Choose an appropriate level of regulation in close consultation with the IT Industry stakeholders.

VII. Develop regulatory processes for IT industry related licensing and auctions, standards development and setting, dispute resolution and interconnection charges.

VIII. Participate and explore the potential opportunities in the WTO Information Technology Agreement for the liberalization of trade in goods related to IT and in particular the liberalization on the creation and trade of IT and related services as it intervenes on IT sector hardware related opportunities and issues.

IX. Participate and explore the WTO's **General Agreement on Trade in Services** (GATS) Computer Related Services (CRS) arrangements to ensure that the IT Industry is able to enjoy various modes of supply of CRS in regional and global markets:

a. Mode 1: Cross-border where services supplied from the territory of one Member into the territory of any other Member of the GATS.

b. Mode 2: Consumption abroad where services are supplied in the territory of one Member to the service consumer of any other Member.

c. Mode 3: Commercial presence where services are supplied by a service supplier of one Member, through commercial presence, in the territory of any other Member.

d. Mode 4: Commercial presence where services are supplied by a service supplier of one Member, through commercial presence, in the territory of any other Member.

## 3.7. Measurement and Monitoring National IT Industry Growth

### *Policy Context:*

The government will put in place efficient regulations to effectively monitor the growth of the IT Industry. Various indicators will be used as impact assessment tools.

### *Policy Objectives:*

I. To establish a Monitoring and Evaluation (M&E) framework to identify whether the IT Industry Development Policy implementation is on track at regular time intervals providing information on the effectiveness of the IT Industry Development Policy and its measures.

II. To generate valuable feedback, which can be used as lessons learned and as a basis for continuous improvement of the policy implementation before moving into the each phase of implementation.

III. To develop a "learning system" for IT industry promotion and facilitating institutional learning as well as the creation of organizational knowledge.

### *Policy Strategies:*

I. Use Monitoring and Evaluation (M&E) as means to create strategic response capabilities of stakeholders and the IT Industry towards changing market conditions and technology trends.

II. Develop and record various indicators base on international standards and in cooperation with relevant stakeholders taking into account quantitative and qualitative variables that will allow the changes caused by policy strategy implementation to be measured in a simple and reliable way.

III. Establish indicators for the measurement of but not limited to:

a. Job creation in the IT Industry.
b. Women employed in the IT industry from % of IT workforce.
c. Increase in export-led revenues.
d. Business opportunities for local IT companies.
e. Public tenders won by local IT companies.
f. Amount and type of software products and services provided by IT companies in both export market and domestic markets.
g. Number of MST member companies or the ANITIC clusters or networks.
h. Number of companies using ANITIC cluster services.
i. Number of companies and or persons participating in capacity development and training activities.
j. Number of international cooperation agreements signed including with IT clusters in other countries, universities, research institutes, and companies.
k. Number of companies certified according to international standards including CMMI and ISO certifications.
l. Companies eligible for Yearly National IT Industry Awards.
m. Number of companies benefiting from national WTO Information Technology Agreement and/or GATS CRS arrangements.

# Appendix 1

## Defining ICT and/or IT/ITeS Enabled Services

ICT comprises both goods and services. As used here ICT is defined as computing and communication equipment, software and services and communication services, including telecommunications, Internet connectivity, broadcasting and media. It includes among other things, the manufacturing of computers, electronic components, and telecommunication equipment and covers wholesale and retail services related to that equipment as well as telecommunications, consulting services, and other computer-related activities like Internet connectivity ICT services are often referred to as "computer and information services" and consist of computer programming and information services like data processing, hosting and related activities, and web portals..

***Box 1. Defining Information and Communication Technology and Information and Communication Technology-Enabled Services***

**Information technology (IT)** services refer to computing equipment and software products serving both external and domestic markets. Information technology outsourcing (IPO) refers to cross-border offshoring or outsourcing of software products and services.

**ICT-enabled services** (also called IT-enabled services or IT-based services) include business process outsourcing (BPO), knowledge process outsourcing (KPO), legal process outsourcing, and government process outsourcing among others. ICT-enabled services are normally not classified as ICT or IT services although the distinction is often blurred. Broadly speaking, BPO includes voice and non-voice services, knowledge and legal processing, and other ICT-enabled services. It should, however, be noted that these terms (and the term ITO) typically refer to cross-border outsourcing/offshoring and do not explicitly cover domestic market services. In view of this, Gartner and others also use terms such as business process management and knowledge process management to cover both international and domestic markets.

**Outsourcing/Offshoring/In-Sourcing** - The terminology relating to sourcing, outsourcing, offshoring, and in-sourcing has not been standardized. Generally the term “outsourcing” refers to the procurement of material inputs or services by a firm outside the original firm. Outsourcing can be domestic (onshore) or international (cross-border or offshore). Offshoring, or offshore (out) sourcing, is defined as procuring a service or material input from a source in a foreign country. It includes both non-captive offshoring (sourcing to a firm in a foreign country) and captive offshoring (global in-house sourcing to a subsidiary in a foreign country). The terms offshoring and outsourcing are, however, not always favored used as terms like “trade in services,” “globally distributed work,” “global service delivery” and “global sourcing” are perceived to be less contentious or more correct.

**Sources: Adapted from ADB 2013 and from OECD 2009, 2011; UNCTAD 2010, 2011, 2012; WITSA 2010; Gartner 2013.**

# Appendix 2

## Components of an IT/ITeS Industry

The IT/ITeS Industry Mobile and Internet and Networks can be further broken down in to the following:

1. **Hardware or IT Manufacturing**

   ICT hardware manufacturing sector is one of the largest and fastest growing manufacturing industry in the world where much of the growth has taken place in newly industrializing countries in Asia.

2. **Offshoring**

   a. *Global Software Development (GSD)*

   Offshoring is a trend where job functions are moved overseas to lower cost center, “software work undertaken at geographically separated locations across national boundaries in a coordinated fashion involving real time (synchronous) and asynchronous interaction”. . Forrester Research estimates that by 2015 as many as 3.3 million U.S. jobs and $136 billion in wages could be moved to such countries as India, China, and Russia. An estimated 40% of the Fortune 500 companies use GSD while up to 50 nations are participating in GSD. 80% of Irish software is exported.

   b. *Contact Centers, BPO*

   Business Process Outsourcing is "The contracting out of a particular non-core business function to a third party in order to add business value, increase flexibility and efficiency while reducing costs". The offshore outsourcing industry is experiencing significant expansion where India, the Philippines & Central & Eastern Europe are experiencing growth rates in the range of 25-60% CAGR (compared to 10-12% for global contact center outsourcing during last 3 years. India and Philippines are the leading offshore destinations for English language support where each location presents a different trade-off point between the cost, operating risks, maturity of the supply landscape & extent of fit with specific customer geographies.

3. **Domestic**

   a. Local Software Development

   b. IT Support Systems

4. **Digital Content Industry**

   Digital content benefits from the convergence of traditional content, media and entertainment, software and multimedia, and electronic hardware and telecommunications. It includes visual effects & animation (virtual reality & 3D products), interactive multimedia (websites, CDROM’s), computer & online games, educational multimedia (e-learning) & digital film & TV production & film & TV post-production where localized content can act as a key driver for social and economic growth.