Ministry of Higher Education of Afghanistan

ZiiK-Report No. 54

**Conference "Information Technology in Afghanistan"
Part XV: Measures and Implementation of the Digital Strategy
for Afghanistan**

December 16 - 18, 2019
Kabul, Afghanistan
Ministry of Higher Education

IT Competence
Center of
Afghanistan

ITCC

Organized by

Ministry of Higher Education (MoHE)

Ministry of Communications and Information Technology

IT Competence and Research Center Afghanistan (ITCC)

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DAAD Deutscher Akademischer Austausch Dienst
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Imprint

Introduction

This conference, held from December 16th through 18th, was the fifteenth in a series of annual Information and Communication Technology (IT) conferences in Kabul, Afghanistan, since 2005. The conferences are hosted by the Ministry of Higher Education (MoHE) and the Center for International and Intercultural Communication (ZiiK) of the Technische Universität Berlin (TU Berlin) in cooperation with the Ministry of Communication and IT (MoCIT) and with technical support from the IT Competence Center Afghanistan (ITCC). As in the previous years, the conference is funded by the German Federal Foreign Office and the German Academic Exchange Service (DAAD).

The topic of this year's 15th IT conference is "Measures and Implementation of the Digital Strategy for Afghanistan".

During the 14th IT Conference in 2018, representatives from science, politics and the industry discussed IT strategies for **IT education**, **IT infrastructure, IT management**, **IT law** and **IT regulation**. The participants agreed that the technological progress is an engine for the Afghan economy, science and society. Furthermore, they stated that the progress of modern technology also depends on basic requirements such as skilled IT professionals, stable IT infrastructures (power and Internet, building services), modern management structures, IT laws and IT policies, extensive and solid demographic data and statistical information on Afghanistan as well as financial resources. The aim of this 15th IT conference in 2019 was now to discuss measures for a digital strategy and propose a roadmap for its implementation.

On the first day of the conference, a short summary of the Digital Strategy was presented after the opening speech. On the second day, three workshops were held on topics like **digital education**, **digital infrastructures, digital management, and laws and regulations**. The results of these workshops were presented on December 21st to H.E. State President Excellency Dr. Ghani at the ARG Palace.

Two days before the IT conference, on December 14th, 2019, students from various Afghan universities presented their projects within the scope of the 4th IT exhibition at the ITCC Afghanistan (see ZiiK-Report No. 53). The best five of these IT projects were selected by a jury of representatives from science, economy and politics, and the winners were announced and awarded a prize on the first day of the IT conference.

First day: Monday, December 16th, 2019

Reception and Opening

Prof. Azim Noorbakhsh, Head of Public Relations and Strategic Planning of the ITCC Afghanistan

Prof. Noorbakhsh welcomed all contributors and guests to the 15th conference on Information Technology in Afghanistan. He stated that the conference will be opened with the recitation of a few verses of the Holy Quran, followed by the national anthem of Afghanistan. Mr. Noorbakhsh then gave the words to Prof. Baray Sidiqi, Deputy Ministry of Higher Education.

Prof. Dr. Bary Sediqi, Deputy Minister of Higher Education

Prof. Baray Sidiqi welcomed all honorable guests to the 15th IT Conference. He said that this conference is the outcome of 15 years of academic effort that has been made in the field of IT in Afghanistan, for which he thanked TU Berlin, Dr. Peroz, and the IT Department of the Ministry of Higher Education of Afghanistan. He continued his speech with pointing out the main goals of the Ministry of Higher Education which are providing access to standard and qualified education under consideration of the job market in Afghanistan, and training of professional and specialist staff. He also said that achieving these goals without the use of technology is impossible. He then listed the plans which the Ministry of Higher Education has prioritized for achieving the mentioned goals:

- Revising and development of universities' curricula; 50% will be completed for 65 different departments till the end of this year (1398).
- Capacity building for university lecturers and administrative stuff; 1200 people have received their MSc or PhD degrees this year.
- Evaluation of the quality of education in governmental and private universities and other higher education institutions, and accreditation of governmental and private universities as a result of continuous evaluation; 5 universities have been accredited during this year.

- Applying changes in organizational structures and revising and development of curricula of universities; 15 bills and procedures in different fields and departments have been finalized this year.
- Establishment of the center for research, publishing, and translation, and special attention on performing researches in universities.
- Special attention to Digital Education and the IT Strategic Plan and offering online courses on credible sites.
- Creation of educational and management infrastructure, dormitories, and laboratories for practical programs.
- Special attention to student services in universities, and establishment of a student affairs office at the Ministry of Higher Education.
- Simplification of procedures and insuring transparency and accountability in offices.
- Special efforts on avoiding corruption.

Dr. Hamdullah Mohib, National Security Adviser of President of the Islamic Republic of Afghanistan and computer scientist

Dr. Mohib began his speech with a warm welcome to all participants of the 15th IT Conference. He expressed his pleasure to attend this conference for the second time. To highlight the positive outcome of the efforts in the IT sector by Dr. Peroz and his team of the TU Berlin, he pointed out that at the time of his first attendance at this conference, the IT situation in Afghanistan was quite different; Internet was much more expensive, and there were many problems. But now, things had changed very much; different universities have IT centers, and the way for IT training and education has been paved for many students; 100 Afghan students have finished their master's studies at TU Berlin, and are now part of the highly qualified workforce that is needed in order to improve IT and e-government in Afghanistan.

Dr. Mohib added that Afghanistan currently has a bad security situation, but still he is happy and optimistic when looking at the improvements that have been achieved here. The young generation wich has been trained during the past 18 years is providing the power to be optimistic and to move towards a developed and stable country which will stand on its own feet.

He stated that IT has positive impacts on the overall security situation; for example, a lot of research and investigations that previously could only be done manually, are now supported by IT tools and methods, and it can be said that a lot of lives have been saved and a lot of attacks have been detected and neutralized since.

Dr. Mohib identified the lack of data and application integrity within different organizations as a serious problem, and he kindly asked the organizers and the Ministry of Communication and Information Technology to provide solutions for integrating all the individual systems which are used in different organizations. He added that, for having a

digital government, capacity building and infrastructure would be needed, and considering the expected improvements and developments it should be made possible to move faster towards e-government. As final words, Dr. Mohib thanked the Ministry of Higher Education, Dr. Peroz, the Technical University of Berlin, the Ministry of Communication and Information Technology, and all attendants of the 15th IT conference.

Message from Mr. Prügel, Ambassador of the German Federal Republic in Kabul

Subsequently, **Mr. Naweed Rahmani**, Director of the High Technology Development department of the Ministry of Communication and Information Technology of Afghanistan, and MSc graduate of TU Berlin read the following message from **Mr. Prügel, Ambassador of the German Federal Republic in Kabul**, to the guests of the 15th IT Conference in Afghanistan:

„Excellencies, Esteemed guests from academia and beyond, and especially Dr. Nazir Peroz, Director of the IT Competence Center of Afghanistan and the Center for International and Intercultural Communication at Berlin Technical University, it would have been a great honor and pleasure to be here today at the opening of this year's conference on Information Technology in Afghanistan and to address you in person. While I cannot be with you physically, I would not want to miss this opportunity to say a few words. I am thus very grateful that one of the bright young Master graduate of Computer Science will read and convey these words to you.

The German commitment to knowledge exchange and capacity building in Information Technology in Afghanistan dates back to the very early days of postwar support, and it has become an integral part of our efforts here. It began with the Bonn Conference of 2001, when Germany committed itself to support the rebuilding of academic structures in Afghanistan. Two exploratory trips to Kabul in the spring of 2002, which Dr. Peroz joined as the representative for the field of Information Technology, led to the first project – the creation of an IT Center at Kabul University, the first of its kind in the country.

Over the years, German support through Dr. Peroz and the Berlin Technical University intensified and broadened. Together with Kabul University, Kabul Polytechnical University and the Universities of Herat, Balkh, Nangarhar and Kandahar, new Bachelor Programmes in Computer Science were developed and additional IT Centers and libraries of Computer Science were built in these locations.

To date, Afghan staff that was trained by Berlin Technical University has in turn trained more than 30,000 university members in the basics of IT and computers in the five IT Centers that are part of the project. More than thousand students have graduated with Bachelor degrees from the Computer Science Programmes, developed with special regard to the needs of the country, offered by the ten Faculties of Computer Sciences in Afghanistan. This has been made possible by the 100 Afghan Graduates of Master

Programmes in Informatics at the Berlin Technical University that now teach in Afghanistan – in Kabul, Herat, Kandahar, Nangarhar, Balkh, Khost, Kunar and Faryab.

Currently, there are 25 Afghan graduate students enrolled at the Technical University of Berlin – from various Afghan institutions and parts of the administration – that will finish their Master's Degrees in 2020.

And the project has not stopped there. In recent years it has extended into research, with the aim of raising the quality of the IT environment in Aghanistan up to international standard. Since 2014 the Berlin Technical University has been working on a PhD-Programme and the creation of an IT research platform as part of the Afghanistan IT Competence Center. This Competence Center supports lecturers as well as IT projects by students, focusing on issues such as sustainability, the environment, development, and the transfer to digital and IT security.

The past two days marked another important event for IT in Aghanistan: the fourth IT exhibition, in which students presented their projects to a jury. The best five of these projects will be selected and awarded later today and I would like to already now extend my heartfelt congratulations to the bright students that created them.

Today's Conference on Information Technology in Afghanistan is testimony to our longstanding commitment to support the afghan IT sector. It is the fifteenth conference of its kind, and it has taken place yearly since 2005.

I would like to express my thanks in particular to Dr. Peroz and the Center for International and Intercultural Communication of Berlin Technical University as well as to the Ministry of Higher Education, the Ministry of Communication and the IT Competence Center Afghanistan for making this conference possible, to the Ministry of Higher Education for hosting it. On the background of what has already been achieved over the past 18 years, this conference will be about defining the future digital strategy for Afghanistan and a roadmap for its implementation.

I therefore wish all participants interesting presentations and fruitful discussions over the coming days and I am confident, that also this conference will further strengthen Afghanistan's IT sector and contribute to building a more modern, efficient and prosperous Afghan economy and society.

Thank you

Mr. Fahim Hashimy, Minister of Communications and Information
Technology of Afghanistan (MoCIT)

Mr. Hashimy welcomed all guests and began his speech with mentioning the following points:
First, he especially thanked Dr. Mohib, as the digital revolution would not be possible without his political support and holistic view of the issue in the government. He said the participation of Mr. Mohib shows that there is political support, and this will expedite the digital revolution in Afghanistan.

Then he thanked Dr. Peroz for his long-term support and hard work, the results of which are visible as a stable foundation of the IT sector in Afghanistan. He is still working hard and the students that graduated from his programs are now training the next generations of IT-experts in Afghanistan. There are already two TU Berlin graduates employed at the Ministry of Communication and Information Technology. And more are needed to work for example in the fields of Big Data, Artificial Intelligence.

He went on and stated that the most important keys to a successful digital revolution are a clear vision, a clear mission, as well as a clear understanding of the digital revolution. We would not be able to achieve the digital revolution until it is set as a national priority, and we are not united enough for that. When we understand the importance of the digital revolution, it wouldn't remain specific to only one sector and it wouldn't remain an IT-only revolution. During this process, technology will help us to achieve progress faster and easier. So, implementation of the digital revolution is not only specific to the Ministry of Communication, or the ITCC. It's a generic and national agenda and revolution, and all involved parties have to implement it together.

During this process, people and human resource management are very important. Mr. Hashimy expressed his believe that the development of an IT strategy is also a shared process between the IT sector, the academic sector, the government and the private sector. When the strategy is developed as a shared process, then its implementation will be easier. So, as he explained, for developing an IT strategy, all affected parties should be in involved, including the users, the academic sector, the infrastructure development team, and the policy team. And the strategy should be developed based on the current situation and the specific requirements of the society, and with inspiration from comparable and successful international projects. Also, the required infrastructure should be assassed, and the required technical knowledge should be specified.

To highlight the importance of the involved staff during the policy and strategy development process, he mentioned that the percentage of roles in a strategy are as follows: 70% people, 20% technology and the remaining 10% for algorithm and procedures which are used. He presumed that this conference will be helpful since it brings the different parties together to propose a useful IT strategy.

Mr. Hashimy then mentioned some of the achievements of his Ministry. The digital agenda has been proposed, other plans and strategies have been developed, and for each strategy, a specific policy has been made, and a clear vision and a clear mission has been defined.

He expressed his hope that other parties join them soon and that they can move forward together. The sector of IT affects all other sectors, and it can be said that IT is the future of all other sectors, and that the economy depends on it. As an example for this, he pointed out that the economy of most nations world-wide has turned digital and makes use of data and new technologies, even in fields like agriculture. Not only telecommunication tools and devices can be used, but the process and analysis of the data that we find in social media and other resources, lets us move towards an electronic government.

He added that he is optimistic about moving forward towards a digital and electronic government, but this is impossible without support and cooperation. Finally, he again thanked Dr. Peroz and his team.

Dr. Nazir Peroz, Director of the ZiiK at TU Berlin

Dr. Peroz welcomed all participants of the IT conference and expressed his thanks to the ministers, deputy ministers, national security advisor of the President, deans of computer science faculties, lecturers, students and representatives of other organizations for their participation.

He stated that the topic of this conference is the Digital Strategy 2020, and tha as Mr. Hashimy also stated, a strategy always needs a plan. He further specified that the strategy itself is a vision for which a plan is required to make that dream come true. He then introduced four main phases of that plan:

- 1. Initialization
- 2. Strategic Analysis
- 3. Strategic Development
- 4. Strategic Implementation

Dr. Peroz went on to explain that after the initialization phase, the strategic analysis process begins, which is followed by a strategic concept, and ends with a strategic implementation.

In the initialization phase, usually, the leading board which includes several ministers and the presidents plan to have a new strategy. For this purpose, an interdisciplinary team consisting of technical, social, and academic members is needed. The competence of the staff should be well considered, as he stressed. When this team is formed, the leadership should grant them the needed responsibilities as well as the needed authority, and they should be introduced formally as the responsible team.

The second phase is a strategic analysis, for which the past and present should be studied, and based on the existing problems, a solution should be proposed. Then, a mission with a well-defined goal needs to be developed, as Dr. Peroz stated. The next phase is an implementation, which needs to have a clear plan. Part of that plan is to manage and control the project time. Another important issue is the project completion, which is a serious issue, since there are a lot of projects that were run but never got completed due to a lack of time, budget, and resource management. As example of these shortages, he mentioned that the IT Center at the University of Nangarhar has been closed due to a lack of financial support, and also experienced staff from the IT Center at Kabul University already left their jobs for the same reason.

Dr. Peroz then mentioned risk management as a crucial issue, and he pointed out some examples where the possible risks were not considered and where the projects ended up unsuccessfull. Those projects are examples of management failure that should be considered during the concept phase.

He added that, after the 13th IT conference, when President Ashraf Ghani asked the participants to create an IT strategy for Afghanistan, he, together with Mr. Ayobi, Mr. Khwaja Omary, and Mr. Rasuli started with an analytical process. During this process, some critical issues were discovered, for example a lack of technical staff, infrastructure, differences between the structures of IT centers, and the economic situation.

Dr. Peroz stated that one of the outcomes of the 14th IT conference of 2018 was that the most important thing for a successful strategy is to have reliable infrastructures including technical staff and proper management.

He went on and stressed that for a successful implementation of services like e-government, e-commerce, e-learning, e-health, etc. the basic requirements and effective IT structures have to be established first.

Dr. Peroz also mentioned that the topic of Big Data should be considered, and that cloud systems and storage should not be used carelessly because of security and privacy issues. As a solution he proposed the establishment of data centers in Afghanistan and storing the data locally. He also counted sustainability and security as the two most important issues while working on data centers.

He then listed the requirements for an IT strategy for Afghanistan as having technical staff, proper documentation, modeling and understanding of responsibilities, responsiveness, laws and regulations, and stable electricity.

He went on to propose that until the end of 2020, all involved organizations should create a clear strategy, and in the end, all of those strategies should be put together to form an overall IT strategy for Afghanistan. Having such a strategy will enable the country to implement all of those IT services in Afghanistan. He also pointed out that it should be kept in mind that if only one of the partial strategies is failing, the overall strategy will fail in the end.

Dr. Peroz finished his speech by thanking once again all participants of the 15th IT conference in Afghanistan.

Presentation of the five winning IT projects and Prize Ceremony of the Exhibition of Student's IT Projects from computer science faculties of Afghan universities

Project Title: Lie Detector
Name: Mursal Azizi
University: Herat University

Introduction:

Afghanistan's criminal activities are high and getting higher every day. Terrorist groups are getting stronger and even taking influence in governmental offices which can result in catastrophic incidents and which is jeopardizing national security. At the same time, other criminal activities such as kidnapping, robbery, murders, raping, homicide, conspiracy and solicitation are increasing everyday threating social life, business and development. When suspects are questioned by the authorities, there is often uncertainty if the person tells the truth. A lie detector or polygraph will help government agencies to detect if a criminal tells lies. The secret behind it the measurement of changes occurring in the body such as heart rate, blood pressure, respiratory rate, electro-dermal activity, skin flexibility and arm and leg motions. The detector will compare the results to trained values during true and lied statements and then decide if statements are true or a lie.

Aim of the Project:
During the project, a polygraph device using an Arduino device and two sensors is to be developed. A galvanic skin sensor measures the subject's skin reaction, and an electrocardiogram measures movements of the person's heart. The device is attached to the person's hand and chest to monitor his/her body activity while beeing qustioned by police or in court.

Project Title: Shkolaa
Name: Samira Ahmadzai
University: Kandahar University

Introduction:

This project is about creating a marketplace for valuable handicrafts made or manufactured by Afghan women. A website is to be created which provides all information about the handicrafts. Products can be bought through an online shop, and items will be delivered to the buyer.

Aim of the Project

Women play a crucial role in the development of Afghanistan's economy. Fortunately, an increasing number of women are currently being educated and participate in the economic cycles of the country. Yet there are still thousands of women who would be able to manufacture products of large value. But due to the lack of proper marketing and advertising, they either are not producing at all or producing less than they could. Also, they receive low prices for their products. This website will advertise their products nationally and internationally and will enable them to support their families and the economy of the country.

Project Title: Student Affairs Management System
Name: Muhammadullah Adil
University: Kabul Polytechnic University

Introduction:

The Student Affairs Management System (SAMS) developed in this project is a web-based management system for the computer science faculty of Kabul Polytechnic University and covers all administrative tasks of faculty registration, all kinds of forms generation, attendance management, exams manage-ment, feedback management, report generation, monograph management, transcript generation

and further activities.

All these tasks are currently performed paper-based or file-based on desktop computers, and there is no centralized system for connecting students with the administration and the teachers. As a result, every educational record is stored in separate files. Storing and searching information, and the work with official and unofficial forms like transcripts is a very time consuming task. Therefore, with this project, a central database is proposed and implemented that provides a student affair management system as a web-based application to store all information of the faculty and perform all above-mentioned activities in an automated, fast and accurate manner, according to global standards and under consideration of administrative policies.

Aim of the Project

The main goal of the proposed project is to develop and implement a reliable and scalable management information system with high performance using free and open source software solutions for controlling and maintaining all information of the faculty.

The system is to be secure, reliable, and easily updateable, and teachers are to have online access in order to perform tasks that are currently done manually. It will give students online access to their data and to management functionalities, and it will generate reports for faculty, students and staff.

Project Title: Towards a system to aid communication with the deaf (Ava)
Name: Mehreen Najm & Ahmad Zai
University: Kabul University

Introduction:

In this project, a system has been developed to communicate with hearing impaired persons. It is an interactive translation system to assist in the completion of a conversation between an ordinary person and a deaf person. The system translates the ordinary person's speech into American Sign Language (ASL) and displays the signs using a specially-developed avatar. A comprehensive approach to the task of enabling humans who are not proficient in ASL to communicate with hearing-impaired people requires the development of a general-purpose speech-to-sign language converter. This in turn requires the solution of the following problems:

- Automatic speech to text conversion (speech recognition)
- Automatic translation of English text into a suitable representation of sign language
- Display of this representation as a sequence of signs using computer graphics techniques

Aim of the Project

An efficient mechanism is suggested to aid deaf people to easily communicate with hearing people. This will allow hearing-impaired persons to better participate in society and to better connect with the people surrounding them.

Project Title: SmartFire Control System
Name: Abdul Sami Ameri
University: Nangarhar University

Introduction:

This project proposes a fire protection system to detect smoke and automatically send messages or calls the the fire department and the owner of the affected building, shop, house, vehicle, etc..

When a fire is deteced, a buzzer is triggered, and a message or call with information about the alarm and location of the fire is sent out. Also fire extinguishing systems are triggered, which use water or gas to fight the fire automatically. If the fire could be extinguished successfully, another message will be sent accordingly.

Aim of the Project:

- This project aims at protecting people from injury or death from fire, as well as other damage. And it can support the fire attendance with additional information.

- It is to be implemented throughout Afghanistan. People should be made aware of the importance of this system and technology.

Awarding ceremony for the winner projects of the 4rd IT exhibition of faculties of
Afghan universities at the ITCC Afghanistan

End of the first day

Second day: Tuesday, December 17th, 2019

Workshop: Digital Education

Moderated by: Dr. Hassan Adelyar, Dean of the Computer Science Faculty at Kabul University

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Introduction

Dr. Hassan Adelyar presented the schedule of the workshop on "Digital Education" and stated the main objectives. Participants of this workshop came from the Ministry of Higher Education (Higher Education leadership, lecturers of computer science faculties from public and private universities, and IT administrators), the Ministry of Education, the Ministry of Communication & Information Technology, and the Institute for Technical & Vocational Training (TVETA). The main aim of the workshop was to discuss the key measures for digitalization of higher education schools, technical and vocational training institutes, as well as raising awareness about digital education. The workshop activities were divided into two sessions: the first session was dedicated to presentations.

The second session of the workshop was reserved for a discussion. During this session, the participants of the workshop shared their ideas regarding the measures to implement a digital strategy. Altogether, 45 persons participated in this workshop.

Keynotes

Measures for Digital Education in Higher Education
Shukria Jamal, Director of the IT Department of the MoHE

Ms. Jamal began her presentation with the introduction of MoHE's efforts of the development of quality teaching and learning and the development of higher education, and continued with an overview of the achievements of the IT Department in 2019.

She continued to talk about the e-learning progress in higher education and the definition of the

MoHE on e-learning in Afghanistan: e-learning is the use of ICT for supporting teaching and learning not to provide online degrees. She also mentioned local courses in local languages, i.e. Pashto and Dari, and international (AfghanX) courses.

Furthermore, she pointed out the completion of nine public universities recording Studios and that the MoHE is continuing to build these facilities at other public universities as well. Additionally, she gave information on the colaboration bewtween the MoHE and the IITB, the MoU, the MHRD, and the Indian Government (SWAYAM, Capacity Building Program, Virtual Labs). She also talked about the increasing Internet bandwidths (management still is a challenge), and the IT projects of the ATRA (PC labs, campus fiber networks, Internet, eduroam projects, ICT Centers).

Finally, she explained the future plan for digital education development of the IT Department of MoHE in 2020, in particular providing Internet access, establishment of IT labs, ICT centers and Wifi access zones.

Measures for Digital Education in Schools
Irfanullah Safi, ICT Director, Ministry of Education

Mr. Safi began his presentation by explaining the importance of ICT in education, the relation of his Ministry of Education (MoE) to each family in the country. He also mentioned the capacity building programs, infrastructure, Internet access and ICT facilities to support teaching, learning, and educational management procedures. He the highlighted the completion of an ICT policy development, and then explained the plans and programs of the MoE for digital education development.

Mr. Safi then described the current situation and capacities for starting an IT in Education program. The challenges in Afghanistan, as he went on, are mostly the lack of electricity, the poor IT infrastructure and Internet facilities at schools, the lack of teacher's capacity to use IT equipment in teaching practices, and the lack of awareness of the importance of IT.

In addition, he mentioned the completion of 35 e-training centers in the provinces and he named a few points of the 10-year plan of the MoE in digital technology: to connecting 10,000 schools to electricity, establishing 10,000 computer labs, Training 150,000 teachers, training 6 million students on the use of ICT in education, and raising digital awareness for 10,000 communities.

Measures for digital education in TVET Schools and Institutions
Mr. Obaidullah (Head of TVET-MIS)

Mr. Obaidullah began his presentation by stating that TVET targets students of both formal and informal education. TVET offers trainings in eight sectors including agriculture and animal sciences, technical studies, engineering, oil and gas sciences, industrial studies, management and business studies, special education, art and literature studies and IT studies. He then continued to speak about the current education-relevant challenges of TVET, being that students are not having access to computer labs and Internet facilities.

He then explained the future plan of TVET with the following objectives:

- What IT skills have to be developed?
- How could the learning processes in TVET be digitalized?
- How will IT enable accountability?
- Capacity building programs
- Development of concept notes for spoken tutorials (supporting e-learning, A/V contents development in local languages)

Measures for raising awareness of digital education in society

Mr. Qudrattullah Omerkhel Lecturer at Shaheed prof. Rabani Education University

Mr. Omerkhel started his presentation by emphasizing how digital technologies can enrich learning in a variety of ways and offer learning opportunities that are accessible to all. It opens up access to a wealth of information and resources.

While there are many opportunities arising from digital transformation, the biggest risk today is a society that is not prepared for the future. If education is to be the backbone of growth and inclusion in Afghanistan, a key task is to prepare citizens to make the most of the opportunities and meet the challenges of a fast-moving, globalized and interconnected world.

Digital advances also bring new challenges for Afghanistan's pupils, students and teachers. Algorithms used by social media sites and news portals can be powerful amplifiers of bias or fake news, while data privacy has become a key concern in the digital society. Young people as well as adults are vulnerable to cyber bullying and harassment, predatory behavior or disturbing online content. Everyday exposure to digital data driven largely by inscrutable algorithms creates clear risks and requires more than ever critical thinking and the ability to engage positively and competently in the digital environment. We face a constantly evolving need for media literacy and a wide mix of digital skills and competences including safety, security and privacy, but getting them to the wider population and more advanced professions and sectors remains a challenge.

Discussion: Proposals, measures and implementation

In the second session of the workshop the 45 participants discussed about **digital education** development at the MoHE, the MoE and the TVET and shared their ideas and suggestions regarding the appropriate digital education development. The results of this discussion were to be presented and discussed on the third conference day.

Workshop: Digital Infrastructure

Moderated by: Ass. Prof. Zia Sana, Dean of the Computer Engineering and Informatics Faculty at Kabul Polytechnic University

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Introduction

Mr. Zia, Dean of the Computer Engineering and Informatics Faculty at Kabul Polytechnic University, presented the schedule of this workshop to the participants. He announced that there were four keynotes in the morning.

Participants of this workshop came from the Ministry of Higher Education (Higher Education leadership, lecturers of computer science faculties from public and private universities, and IT administrators), and the Ministry of Communication & Information Technology. The main aim of the workshop was to discuss the key measures of infrastructure. The workshop activities were divided into two sessions: the first session was dedicated to presentations.

The second session of the workshop was reserved for discussions. During this session, the participants of the workshop shared their ideas regarding the measures to implement a digital strategy. Altogether, 30 persons participated in this workshop.

Digital CASA: Challenges, Opportunities and the Role of SMEs
Omar Mansoor Ansari, President TechNation Vice Chairman, Internet Society Afghanistan

In the beginning, **Mr. Ansari** introduced the CASA project which is a joint project between 13 countries from central Asia. Digital CASA is a World Bank funded program with the following objectives:

- Increase access to affordable Internet services
- Improve government's capacity to deliver digital public services

- Facilitate opportunities for a digitally-enabled future generation
- Enhance regional collaboration
Subsequently, the following challenges for the Digital CASA project have been discussed:

- Security
- Skills
- Employment
- Policy/regulations
- Connectivity (cost/QoS)
- Limited ICT use
- Private investment
- SME/ startup support
- Integration/collaboration
- Landlocked (CA)

Also, the following opportunities for the Digital CASA have also been discussed:
- Open economy
- Competitive telecom sector
- Eurasia/ EU
- Links to China, Central and South Asia
- Qualified IT professionals
- Access to cheap green energy
- Strong political will

He ended the presentation by adding some recommendations regarding this project:
- SME/Entrepreneurship support
- Skills/ leadership building
- Infrastructure/ sharing
- Policy
- Regional collaboration

Intelligent Transportation Systems
M. Saleem Nezami, IT Director of the Ministry of Transportation

Mr. Nezami began his presentation by introducing intelligent transportation systems (ITS) which are based on the following technologies:
- car navigation
- traffic signal control systems
- container management systems
- variable message signs
- automatic number plate recognition
- speed cameras for traffic control
- RFID

Mr. Nezami mentioned that the Ministry of Transportation (MoT) is already in the phase of ITS implementation. The services that are ready to launch are driver license, vehicle registration and toll gates. These services are waiting for the order of H.E. State President to be operated.

Information Technology in Afghanistan: DABS
Said Hussain Yosufi, IT Director of Da Afghanistan Breshna Sherkat (DABS, Afghanistan National Power Utility)

Mr. Yosufi started his talk by introducing the IT systems of the DABS:

- SCADA (Supervisory Control and Data Acquisition): National Load Control Center & Telecommunications through OPGW cables
- Data Center: primary site of DABS
- Disaster Recovery Site
- Storage Area Network (SAN)

He added that DABS uses information systems for two particular purposes, customer and staff management.

He then presented the business plan of the DABS:
- Using existing Optical Ground Wire (OPGW) cable, replacing current multiple ISP from DABS for cutting internal cost
- Providing Data, Voice, Cable services for households

Discussion: Proposals, measures and implementation

In the afternoon, all 30 participants of this workshop discussed the issues that have been presented in the keynotes and the topic of "**Digital Infrastructure**". The results of this discussion were to be presented and discussed on the third conference day.

Workshop: Digital Management Strategy, IT Law, and IT Regulation

Moderated by: Assistant Prof. Rahimdad Faisal Safi, Dean of Faculty of Computer Science, Balkh University

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Introduction

The workshop was moderated by **Mr. Rahimdad Faisal Safi**, Dean of Computer Science Faculty, Balkh University.

Participants of this workshop were lecturers and students from Afghan universities, ATRA, the National Security Council, and the MoCIT. The main aim of the workshop was to discuss the key measures for Digital strategies, laws and regulations. The workshop activities were divided into two sessions: the first session was dedicated to the presentations.

The second session of the workshop was reserved for discussions. During this session, the participants of the workshop shared their ideas regarding the measures to implement a digital strategy. Altogether, 30 persons participated in this workshop.

Keynotes

Measure for Regulatory Compliance in the Telecommunication Marketplace in Afghanistan

Ata Mohammad Yari, Technical Advisor, ATRA

Mr. Ata Mohamad Yari, began his presentation by providing some numbers on existing mobile network operators in Afghanistan (5), Internet Services Providers (62), Value Added Services (103), WiMAX (2), Optical Fiber Connectivity Network (5800Km, in 25 Provinces, with 5 Operators), 3G Subscribers (7.6M) and 4G (518K) and others. ATRA, as he went on, was established in 2005 under the Ministry of Communication and Information Technology and became an independent authority in 2017 by the decree of H.E. State President.

Mr. Ata further provided information on regulatory compliance in the telecommunication market under the Open Access Policy. In the first stage, as he explained, the Open Access Policy was developed, and in the second stage areas were defined such as Open Access Regulations, Fiber Optic Licensing, and 4G Spectrum Licensing. In the third stage, Open Access Regulations were further divided into Infrastructure Sharing Implementation and Local Content Development. Similarly, Fiber Optic Licensing is divided into the use of Universal Access Fund and establishment of IXPs, and the 4G Spectrum Licensing is extended to Mobile Quality of Service Enforcement. The Open Access Policy's Implementation regulations are defined as:

- Interconnection Regulation
- Price Cap Rules and Procedures
- Reference Interconnection Offer
- OFC Interconnection and Tariff Procedures
- OFC Right of Way Guideline
- OFC Quality of Service Procedure
- MNP Procedure, License, RFP
- Quality of Services Procedure
- 4G Frequency Auction Policy Documents

Last but not least, as he stressed that ATRA also supports the public domain such as education, higher education, and health through universal funds like the Telecom Development Fund (TDF). In this regard, they already connected 43 Afghan Universities via OFC for Internet access, plus a number of achievements like 115 IT Labs and 18 OFC for Schools. 58 hospitals are in contracting process. 8 IT labs plus Internet Services are established in Religious centers.

He concluded that ATRA is contributing for the regulatory compliance in the telecommunication marketplace by defining regulations and procedures that bring transparency and equal opportunities in the telecom market-place. They also participate in

the development of digital infrastructure and provide internet services to the public domain.

Cybercrime and e-Transaction/e-Signature Laws of Afghanistan

Zmarialai Wafa, General Director for the evaluation of cyber threats in the National Security Council office

Mr. Wafa began his speech by quoting the definition of cybercrime as "any crime that involves a computer and network. The computer may have been used in the commission of a crime, or it may be the target".

In general, he defined two types of crime, the conventional crimes and modern crimes. In conventional crimes nearly all crimes are local and evidence is mostly found at the crime scene. Modern crimes are often committed remotely and are boundary-less. Fighting such kind of crime requires specialized procedures, forensics, cooperation and legal assistances across borders. Additionally, he mentioned to have a distinction between Electronic-Crimes and Cyber-Crimes. Electronic-Crime is a crime within an intranet while Cyber-Crime is a crime outside the intranet, it is global (over Internet).

Furthermore, he mentioned the impact of cyber-crimes according to recent research done by Juniper which said, by 2019, the cybercrime cost for business will be over 2$ Trillion. He also mentioned that by 2021, global cyber-crime damage costs will be 6$ trillion.

He then listed the state of cybercrimes in Afghanistan:
- Financial Cases: False transactions of money from account to account for the purpose of theft
- False Transactions: People are not regularly checking their accounts which may results in losing their balance and when the check they notice unknown transactions. It may happen through technical errors as well.
- Identity Theft: Creating fake accounts by using others' identity
- Email Spoofing: There are a lot of spoofed emails that target people
- Hate-ism: People use social media to propagate hate in communities
- Skiddies (Script Kiddies): There are a lot of young people who learn scripts and try it out with different organizations' applications.

For the prevention the above points, law enforcement is compulsory, as he stressed. A workshop conducted in Istanbul, Turkey titled "law enforcement" was held in May 2015.

In the following, Mr. Wafa pointed out some of the drafts laws which are:

- Cyber Law
- Cybercrime Law
- Offenses
- Power and Procedures

- International Cooperation
- E-Transaction and E-Signature Law
- Electronic Transactions
- E-Payment
- Public Key Infrastructure (PKI)
- Certification Authority (CA)
- Registration and Verification Authorities

Measures for the involvement of the Private Sector in IT Management

Naweed Rahmani, Director of the High Technology Development, Ministry of Communication and Information Technology of Afghanistan

Mr. Rahmani began his presentation by defining the importance of the private sector in IT management. He mentioned that the the role of the private sector is to generate revenue, have better up-to-date human resources, and deliver best quality products to the market place.

Furthermore, he mentioned that IT plays an important role for a digitalized economy in Afghanistan, of which the private sector is a part of. He said, according to digital economy report by UNCTAD in 2019, digital economy has three scopes: core (digital IT/ICT sector), narrow scope (digital economy), and broad scope (digitalized economy). The core scope contains hardware manufacture, software and IT consulting, information services, and telecommunications. The narrow scope of a digital economy is digital services and platforms for the digital economy, and the broad scope contains e-Business, e-Commerce, Industry 4.0, precision agriculture, algorithmic economy and so on.

Mr. Rahmani then highlighted that two countries (USA and China) run the overall digital economy in different areas of technologies. He mentioned that 75% of all patents related to blockchain technologies, 50% of global spending on IoT, and more than 75% of the cloud computing market belong to the USA and China.

Moreover, Mr. Rahmani described the importance of data in the digital economy. According to a report, he explained that in 1992 the total amount of data generated per day was (100GB/Day), while in 2022 the total amount will be (150700/sec). So, data and information is wealth, therefore MoCIT aims to define different job positions towards the digital economy. Mr. Rahmani said, that the MoCIT plays an important role to encourage and motivate the private sector and he stated that the MoCIT aims to allow different start-ups/entrepreneurs, create a technology park for innovation, create infrastructures for IT development, and works on capacity building of technical staff.

Mr Rahmani further explained that the digital economy in Afghanistan has not yet been considered and discussed on a national level; however, the core scope of the digital economy has been active in Afghanistan since 2001, when the first mobile network (MNO)

company (Afghan Wireless Communication Company) was established. The core ICT sector in Afghanistan had exponential growth taking into account the MNOs penetration and use of ICT in different sectors.

Currently, the government of the Islamic Republic of Afghanistan focuses on this phenomenon by introducing a general directorate in Organizational Structure of the Ministry of Communication and Information Technology and promoting e-payment systems as well as the e-business in the country. The aim is to create an ecosystem for the digital economy in the country consisting its five major pillars; digital government, infrastructure, digital skills & values, innovation-based entrepreneurship and digital business.

Also, as Mr. Rahmani concluded, the Government of the Islamic Republic of Afghanistan aims to promote and facilitate the digital transformation in order to establish transparency and efficiency in terms of service delivery as well as creating an economic corridor which can generate revenue sources by creating and capturing values of the digital economy. It is certain that the future of the world will be shaped by the digital economy, and Afghanistan aims to be part of that and wants to contribute to the development of this phenomenon in order to establish the foundations for further growth of the digital economy in national and international levels.

Measures for Cloud Computing: Legal and Regulatory Issues
Aziz Taqwa, Director General of ICT, Ministry of Communication and Information Technology of Afghanistan

Mr. Taqwa started his speech by defining what cloud computing is and talked about cloud computing models, types of cloud computing, and benefits and legal issues. Cloud computing allows organizations to access a pool or network of computing resources that are owned and maintained by a third party via the Internet.

He explained that there are three different cloud computing models defined: software as a service, platform as a service and infrastructure as a service. Cloud Computing is divided into four: private cloud, public cloud, hybrid cloud and community cloud. The benefits of cloud computing are reduced costs, resource sharing, consumption based cost, faster time to roll out new services, and dynamic resource availability. Mr. Taqwa explained that, despite all benefits, there is also a number of challenges:

- For liability, he mentioned that cloud providers can be held liable for illegal data they may be hosting. Secondly, he mentioned that the majority of cloud service providers believe that security of data is the customer's responsibility, while customers often only think about the lowest costs.
- Data Protection is a challenge to keep the data save.

- Data Portability can be loosely described as the free flow of people's personal information across the internet, within their control.
- Compliance: The Cloud service provider shall publish the rules and regulations, privacy policy and user agreement for access or usage of the intermediary's data. Cloud compliance is about complying with the laws and regulation that apply to use the cloud.
- Copyright: The main concern with cloud computing services with regard to copyright is whether the law is able to address copyright issues arising from this technology
- Laws and regulations typically specify who within the parties should be held responsible and accountable for data accuracy and security.
- Cross-border legal issues: The data centers and servers are located in various locations all over the world. This raises questions of legal governance over the data. In case of a conflict between the cloud service provider and the customer which country's court system will settle the dispute?

At the end, Mr. Taqwa mentioned some of the services that are already provided by the Afghan National Data Center (ANDC):

ANDC Cloud Services			
No	Types of Services	Government Sector	Private Sector
1	Co-Location Services	18	3
2	Dedicated Server	1	0
3	Web and Email Hosting	138	0

Discussion: Proposals, measures and implementation

In the afternoon, all 30 participants of this workshop discussed the issues that have been presented in the keynotes and the topic of "**Digital Management Strategy, IT Law, and IT Regulation**". The results of this discussion were to be presented and discussed on the third conference day.

End of the Second day

Moderation:
- Dr. A. Seyer Mahjoor, Deputy Minister of Higher Education of Afghanistan for Finance and Administration
- Prof. Dr. Osman Babury, former Deputy Minister of Higher Education of Afghanistan
- Dr. Hadi Hedayeti, Deputy Minister of Communication and Information Technology of Afghanistan
- Dr. Nazir Peroz, Director of the ZiiK at TU Berlin and Director of the ITCC Afghanistan

Dr. Peroz began his speech by welcoming everyone to the third day of the conference. He stated that there were many discussions during the workshops of the previous day, and that the results are going to be presented and discussed today. He then briefly presented the schedule of this day.

Prof. Dr. Mahjoor, Deputy Minister of Higher Education of Afghanistan, welcomed all guests and said there are four key elements of modern technology which play an important role today:

1. Our modern society cannot live without technology today.
2. Technology and Good governance can fight corruption.
3. Technology plays an important part for academic education and vocational training.
4. A healthy competition will push the young generation to further develop technology.

After his speech, the results of the workshop "Digital Education" were presented by **Mr. Qudratullah Omarkhel**, Kabul Education University. The outcome of the workshop "**Digital Infrastructure**" was presented by Mr. Kasra Habib, Balkh University, and the conclusion of the workshop "**Digital Management Strategy, IT Law, and IT Regulation**" was presented by Mr. Shukraulla Waseeb, Nangahar University.

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Results of the Workshop: Digital Education
Mr. Qudratullah Omarkhel summarized the results of the workshop

Mr. Omarkhel gave a short summary of the presentations from the workshop activities. The topics of this workshop were measures for Digital Education in Higher Education, Measures for Digital Education in Schools, Measures for Digital Education in vocational trainings and Measures for raising awareness of Digital Education in society respectively.

Mr. Omerkhel stated that during the second session of the workshop, the participants discussed and agreed on the following tasks for all three participating organizations (MoHE, MoE and TVET):

- Joint Digital Education board
- Computer labs, Internet connectivity, LMS (Learning management system)
- Teacher capacity building (TTC, Non-Computer)
- Update curricula (Computer concept)
- Content digitization in local language (PDF, A/V & simulation)
- Online resources (MOOCs, YouTube, Digital library, khan academy)
- Learning APPs (Edu-games, Analytical, Digital kankor prep, Adult)

For schools, he listed the following recommendations as result of the workshop:
- Computer Lab
- Basic digital literacy (for both teachers and students)
- Typing, simulation

For vocational training, he listed the following recommendations as result of the workshop:
- Fulfill technical market needs
- Practical aspects of both software and hardware

For Higher education, he listed the following recommendations as result of the workshop:
- Fostering academic research
- Adapting emerging technologies
- Increase the number of computer science faculties

Results of the Workshop: Digital Infrastructure
Mr. Kasra Habib, Balkh University

Mr. Habib gave a short summary of the presentations from the workshop on Digital Infrastructure:

- **Establishing an ICT Council:** an independent and authorized standardization and implementation council which is responsible to control and conduct assessments of the government organizations
- **Resource Sharing (Services):** collaboration of the government organizations for sharing their IT resources among each other
- **Simplifying the application process in government departments:** this has two aspects; 1. legal procedures should be shortened and 2. IT systems should be developed in a way that is user-friendly and easy to use.
- **Involvement of the private sector:** the government is responsible for making policies and regulations and IT projects should be outsourced
- **Decentralized solar energy systems for all organizations of the government:** Solar power as a renewable energy source should be used for governmental organizations, but organized and managed centrally
- **System integration:** currently, most IT systems in governmental organizations are isolated and operated independently, and hence data exchange between organizations is difficult. Therefore, all systems should be integrated and made compatible.

Results of the Workshop: Digital Management Strategy, IT Law, and IT Regulation
Mr. Shukraulla, Nangahar University

In the beginning, **Mr. Shakirulla** stated that during the workshop, there was an intensive discussion based on the presentations and experiences of the participants from the various institutions. It became clear that plans and policies are already in place, the missing part is a proper mechanism for digital strategy initiation, development, and imple-mentation. Accordingly, some areas were identified that need improvement:

- Responsibilities and accountability
- Measures
- Sustainability issues
- Alignment with international standards and experiences
- Risk assessments procedures
- Budget reliability and sustainability
- Political interference
- Expertise involvement (existence of monopolies)
- Communication & coordination
- Proper independent quality assurance and control mechanism

The discussion participants determined and proposed the following digital strategy procedure for a successful digital transformation, based on Dr. Peroz' presentation on the first conference day:

Discussion

After this summary, questions were asked by the audience to Mr. Omarkhel, Mr. Habib and Mr. Shukirulla.

With the presence of strategic procedures for a digital transformation, the participants recommended that government institutions (Ministries, ATRA, MoCIT etc.), the civil society, donors, and the private sector should provide a 5-year strategic plan for digital transformation.
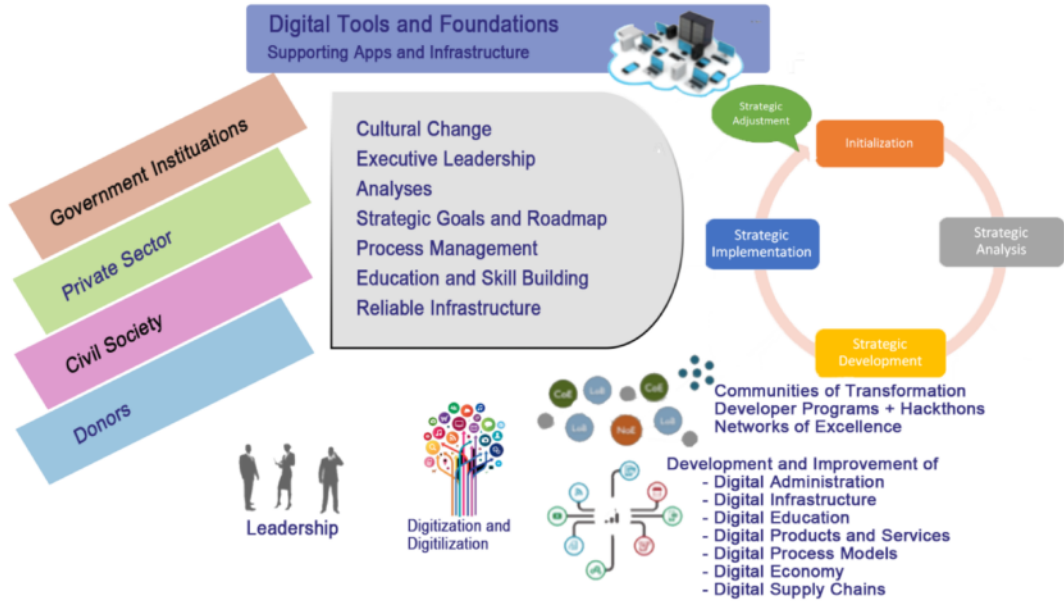

Similarly, an observer entity is required to facilitate and coordinate this digital transformation process. Hence, participants proposed the establishment of an independent platform named "National Digital Transformation Forum of Afghanistan" under the supervision of H.E. the State President. This forum should comprise of interdisciplinary and competent teams (national/international) in different areas such as administration (policy makers, procurement specialists, process management specialists), infrastructure (construction, power supply, mechanical, environmental, etc.), finance (budget, revenue, expenditures, economists, etc.), technology (enterprise software development, cyber security, Industry 4.0, IoT, big data, machine learning, cloud computing, etc.), legislation (laws, regulations, procedures, etc.) etc. This team is to ensure a smooth digital transformation operation.

Eventually, a draft framework was proposed which is to support the successful digital transformation process:

Proposal: National Digital Transformation Forum of Afghanistan (NDTFA)

Supervision: H.E. President
Digital Transformation Framework

Digital Tools and Foundations
Supporting Apps and Infrastructure

Government Instituations
Private Sector
Civil Society
Donors

Cultural Change
Executive Leadership
Analyses
Strategic Goals and Roadmap
Process Management
Education and Skill Building
Reliable Infrastructure

Strategic Adjustment
Initialization
Strategic Implementation
Strategic Analysis
Strategic Development

Leadership

Digitization and Digitilization

Communities of Transformation
Developer Programs + Hackthons
Networks of Excellence

Development and Improvement of
- Digital Administration
- Digital Infrastructure
- Digital Education
- Digital Products and Services
- Digital Process Models
- Digital Economy
- Digital Supply Chains

After the discussion, there were concluding speeches by Prof. Dr. Babury, Dr. Hadi Hedayeti and Dr. Peroz:

Prof. Dr. Babury emphasized again the importance of the conference topic this year. Much debate has been going on in the past about various strategies, but only little about measures and implementation.

Even though this topic has not been sufficiently discussed in the workshops, the participants came up with concrete results in the end.

Prof. Babury thanked the workshop presenters and stressed that IT has become a vital part of day-to-day life. Public authorities, universities and the entire society can benefit a lot from this.

Dr. Hadi Hedayeti expressed his thanks that the MoCIT was co-organizing this IT conference. He also thanked the workshop participants for the results.

He offered the support of the MoCIT for the implementation of this proposal. Afghanistan has a lot of catching-up to do in this field.

In his speech, **Dr. Nazir Peroz** emphasized that based on his experience and analysis of the situation in Afghanistan, the following strategies are required:

- Digital infrastructure strategy, which includes Internet connectivity and power supply, and building services engineering
- Digital education strategy, which includes school education, vocational training and higher education
- Digital management strategy, which determines roles and responsibilities
- Digital law and regulations
- Digital security strategy

Each of these strategies should be developed in cooperation with the responsible organizations. Once this is achieved, a foundation for a sustainable IT development in Afghanistan will be created.

Dr. Peroz closed his speech by giving thanks to the MoHE, the MoCIT, and ATRA for the smooth cooperation, the security advisor of H.E. the President for his participation at the conference as well as the speakers from the universities for their contributions. He also thanked the German Federal Foreign Office and DAAD for the funding.

End of the third day and of the 15th IT Conference

Presentation of the results of the IT Conference at the ARG Palace

On December 21st, Dr. Peroz presented the results of this year's IT Exhibition and IT Conference to **H.E. State President Dr. Ghani** at the ARG Palace. The event was attended by the German Ambassador, Mr. Prügel, the Minister of Higher Education, Mr. Balakarzai, two representatives of the Ministry of Higher Education, the Head of the Central Statistics Authority, Mr. Rasuli, lectures from computer science faculties of Afghan universities, and students. At first, Dr. Peroz briefly described the goals and scopes of the two events:

The fourth IT Exhibition took place on December 14th and 15th at the ITCC Afghanistan, and computer science faculties of 16 public and private Afghan universities were invited to participate. Altogether, 54 student's IT projects were nominated, and a professional jury with five lecturers from the Universities of Kabul, Polytechnic University Kabul, as well as ITCC employees selected 20 of these to participate at the IT Exhibition.

Another jury with representatives from science, politics and the industry selected the five best of these projects.

The 15th IT Conference had the topic „Digital Strategy Afghanistan", and H.E. the State President of Afghanistan initiated the development of this strategy in December 2017. Meanwhile, two strategies have

been developed, one is the result of the 14th IT Conference in 2018 and was developed by representatives of science, politics and the industry. The second has been developed by Dr. Qayoumi, Mr. Rasuli und Mr. Hotaki.

The initial goal of the 15th IT Conference this year was to discuss both digital strategies with the invited IT experts from Afghan universities, corporations and institutions, and to develop concrete measures for the implementation of a common digital strategy for Afghanistan.

Dr. Peroz expressed his confidence that Afghanistan will only be able to make use of all the opportunities of the digital technologies (e.g. E-Government, E-Education, big data, cloud services, artificial intelligence, Internet of Things, Industry 4.0, Smart Technologies, etc.), when the Afghan government solves a number of issues and isolated IT solutions like e.g.:
- lack of sound data
- lack of qualified IT personnel
- lack of management systems
- lack of reliable IT infrastructures (power supply, Internet access, buildings, etc.)
- insecure and unreliable IT systems
- unreliable research, corporate, and government networks
- uncritical implementation of hard- and software from abroad
- lack of IT laws and regulations

Experiences from other countries show the consequences of such development and bad planning:
- high costs (additional costs to eliminate mistakes from the past)
- violation of privacy, availablity of personal data and information
- dependency from foreign countries
- digital backwardness

In the following, Dr. Peroz summarized the results of the IT Conference:

According to him, the more than 200 participants said that the availability of qualified IT staff, reliable and secure IT infrastructures, an effective management system, as well as the collection, processing, integration and protection of data are key for long-term and successful digital location Afghanistan.

These factors are the foundation for an effective employment and development of products of digital technologies. Dr. Peroz then stated that Afghanistan needs to ask itself what it wishes to gain from the digital development.

In order to counter the issues of the current situation, as Dr. Peroz finished his speech, the country needs a platform that takes care of the requirements of IT and digitization. For this platform, a „National Forum for digital transformation in Afghanistan (NFDTA)" should be proposed.

After this presentation, H.E. State President thanked Dr. Peroz, and said he knew him since 2006, when he was president of Kabul University. Back then, he and his wife didn't have Internet access, but the IT Center of Kabul University enabled them to connect to the Internet for the first time. H.E. praised Dr. Peroz for his commitment to Afghanistan and for supporting the country and for providing qualified IT staff to the entire country. Therefore,

he expressed his gratitude for Germany and the long-term friendship and support in this field.

H.E. continued that IT is the driver of the fourth industrial revolution. The development of these technologies can simplify many processes, provide employment for the poeple, and has many other advantages. H.E. commented on Dr. Peroz' presentation and suggested to speak of IT ecosystems rather than IT landscapes. According to him, this will be a central task. H.E. would like to develop Afghanistan with the help of IT. Most of all, he expects Internet technologies to improve the digital economy. The Ministry of Communication and IT has developed an extensive concept for this, as he stated. The plan of Kabul is a good example for this, and H.E. said he would also like to support the fields of import and export with IT. H.E. also announced to fight for lowering the costs of Internet connectivity for the people, as it is still way too expensive.

Then H.E. expressed his hope in the young men and women. He confirmed that Afghanistan lacks qualified IT staff and management, and that there were isolated IT solutions at the institutions. He also complained about the lack of data and information, and said he still didn't know exact numbers of pupils, students, teachers, and lectures. He also doesn't have data about import and export. He confirmed Dr. Peroz' statement that Afghanistan needs to ask itself what it would like to gain from IT.

Next year, as H.E. went on, the area of IT and Digitalization will be included in the government budget and receive more than 100 million Afghani.

Eventually, H.E. asked the MoCIT, the Central Statistics Authority, and Dr. Peroz to cooperate, and promised his support. He said he also counted on the Master's graduates from TU Berlin, and it is H.E. big request to develop a digital concept for the Ministry of Higher Education.

Pictures of the discussion and from the meeting with H.E. Dr. Ghani