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Discussion on "Harnessing rapid technological change for inclusive and sustainable development"

Statement submitted by

H.E. Mr. Khaled Abdel Ghaffar
Minister of Higher Education and Scientific Research
Egypt

Excellencies, The Chair of the Commission on Science and Technology for Development (CSTD), United Nation

Honorable Bureau Members

Distinguished official representatives of the member states

Ladies, and Gentlemen;

Good Morning

- It is my great pleasure to join you in this important **meeting "24th session of the Commission on Science and Technology for Development (CSTD)"** and present Egypt vision and strategy and best practices towards harnessing rapid technological change for inclusive sustainable development.
- Egypt adopted ambitious plan and program in the field of education, training and human resources to meet the future challenges of new technology. In this context:
    - Ministry of Higher Education issued a new law to allow the establishment of technological universities for the first time in Egypt, these universities aim to develop a new integrated courses for applied technological education and training parallel to the normal academic education track. The graduates receive university degrees in post-intermediate, undergraduate and graduate diplomas. This will fill in the gaps of the future needs of the job market in the technology related requirements.

- In response to this law, Ministry of Higher Education and scientific research has a consolidated plan to establish 8 Technological Universities in Egypt within the period 2019-2024. These universities will be distributed on geographical balance to ensure national coverage and will cover all the newly evolved and emerged technologies for developing human capitals.

- Ministry of Higher Education and Scientific Research has issued some new legislations that encourage and promote research and innovation and Public Private Partnership (PPPs), with incentives to establish spin off companies in governmental research institutes and universities. This law is an enabling environment to innovate and develop frontier research for emerging technologies.
- Ministry of Higher Education and Scientific research of Egypt adopted new law on the provision of incentives to science, technology and innovation to higher education institutions and scientific research bodies. Such law setup the guidelines to promote research and innovation and create direct linkage with industry and allow higher education universities and research institutes to establish spin off companies to contribute to the industrialization and support SMEs.
- Egypt has recognized the role that artificial intelligence will reshape the future of the world and has to be prepared for the future of rapid technology change, the fourth and fifth generations of technology, and AI and therefore developed our own national strategy and implementation

plan of how to enter the AI industry and guide research and development to such new emerging technologies. It is anticipated that AI will contribute by 7.7% GDP by 2030.

- Ministry of Higher Education and Scientific research of Egypt developed science, technology and innovation strategy that promote and support research and development and innovation in emerging technologies that contribute to the future challenges, such as energy, nanotechnology, food security, and biotechnology.
- In cooperation with international community, 3 major center of excellences were established in the universities for research and development in renewable energy, water resources management and biotechnology.
- Egypt increased the research and development fund to be nearly 1%GDP to promote research and innovation for emerging technologies and rapid transformation. Such fund is an enabling environment to develop new frontier researches and products.
- Big data analysis and machine learning, biotechnology, nanotechnology, renewable energy, robotics, internet of things, and space are among the top priority areas for research and innovation in emerging technologies.
- Ministry of Higher Education and Scientific Research in coordination with the supreme council of Egyptian Universities has approved to launch a new postgraduate college of nanotechnology within Cairo university.
- Egypt allocated fund for research and development and innovation, for example in the time of COVID19 pandemic outbreak, 80M EGP

allocated for frontier research to diagnose, test and develop vaccine to COVID19. This has promoted many research bodies to innovate and develop new products of masks, sanitizing, oxygen masks, trial of vaccines, etc.

- To ensure that Egypt is getting into the world future of emerging technology, the Ministry of higher education and scientific research developed an ambitious plan on gathering list of new technologies and using them as benchmark and basis for all future analysis and thought leadership to bridge the gap between holders of technology and those to put it to work.
- Egypt invested in the ICT infrastructure, that supported the research and development in education, Ministry of Higher Education and Scientific Research promoted an enabling environment for high quality digital education including, online courses, unified platform for exams, connecting the unconnected students all over the country.
- Egypt submitted an initiative to the African Union Commission to develop an Artificial Intelligence strategy for Africa to ensure Africa is not behind the future technology.
    - The sustainable development strategy represents Egypt's vision 2030 as the main station in the comprehensive development process in Egypt, linking the present to the future and inspiring the achievements of the ancient Egyptian civilization, to adopt a clear development process for an advanced and prosperous homeland that

dominates economic and social justice and revitalizes Egypt's historical role in regional leadership.

- It also represents the road map aimed at maximizing the use of competitive advantages and works to implement the dreams and aspirations of the Egyptian people in providing a decent life.
- From this standpoint, the information technology sector will be the main pillar of all strategic axes, especially the economic and social axis, by raising the efficiency of services provided to the citizen. The vision is also concerned with creating a culture of science and innovation in the business and industrial community.

New approaches to development are needed, including bringing innovation to the forefront of development projects. Innovation is a new form of practice that contributes in building resilient infrastructure. Promoting inclusive and sustainable industrialization is also a key to enabling most - if not all - Egypt vision 2030, where science, technology, and innovation will play a key role in achieving these goals.

Allow me to share with you some of our success experiences in support of the innovation

Egypt established the Egyptian Innovation Bank, which is a national electronic bank that contributes to technological development based on innovation and invention while preserving all literary and intellectual rights for the bank's customers by the guarantee of the Academy of Scientific Research and Technology.

The Cairo International Innovation Exhibition is considered as an annual market for innovations in which entrepreneurs, inventors, technology transfer centers in universities, institutes, research centers, university students, sponsorships for innovators and emerging technology companies showcase their innovations to the exhibition's visitors, including scientists, researchers, businessmen, industry, investment, and scientific research funding.

Creativity Egypt is an electronic platform for innovation in Egypt, where it aims to shed light on Egyptian innovators locally and globally, create points of meeting among them, and build cooperative societies between representatives of the innovation environment and Egyptian entrepreneurship. In addition, the platform aims to educate innovators and companies emerging from technology and innovation management.

There are 55 offices were opened to support innovation, transfer, and marketing of technology in universities, research centers, and institutes. They were established with funding from the Academy of Scientific Research and Technology, with about 94 million pounds over a period of five years. The offices aim to activate the role of scientific research and link it to the industry and support trust between them to solve problems based on the request of the industry.

Egypt has realized the importance of Digital Transformation, so the supreme council of digital transformation was established by the decision of the Arabic Republic of Egypt in 2017. It aims to build a digital industry

with added value to support the national economy and to contribute in the growth of GDP. The council includes five permanent committees for information and institutional infrastructure, of the digital society committee, infrastructure, digital services, risk management and security, and digital industries development.

Allow me to share with you some of our success projects for digital transformation

The Egyptian state was keen to keep up with the latest technologies of the global financial technology, in order to shift to the digital economy and the consequent strengthening of the concept of financial inclusion, through the adoption of information technology and Big Data analytics in the banking sectors as well as the automation of all financial activities.

Egypt is currently completing the technological and digital system of the organizational and administrative structure of the new Egyptian health system through the comprehensive health insurance project, where the digitization of medical services is considered as an essential pillar for the success of this national project.

Considering higher education, to deliver high quality education, Egypt has harnessed ICT technology by establishing vital projects. The online assessment project aims at transforming the academic exams in universities from paper-based to computer-based exams. This project serves more than 2 million students in 27 public universities.

The connectivity infrastructure among all branches of public universities (~200 sites) is currently upgraded to fiber-optic cables and connected through VPN technology to the main datacenter of each university, which in turn connected to the datacenter of Egyptian Universities Network. This significant upgrade in the university connectivity will facilitate providing several digital services, including the Internet, at very high speeds. The electronic services in the Egyptian universities are considered a basic pillar in building digital academic society, where the number of students in Egyptian universities is about 2.7 million students and the number of faculty Staff members is more than 100,000 members.

Egypt is interested in building citizens' knowledge in the field of information technology, so Egypt started issuing the Fundamentals of Digital Transformation Certificate that aims with developing information technology skills for state employees and postgraduate students in universities in various disciplines.

Egypt has also started the establishment of the Next Technology Leaders program. This program aims to build capacities and train young people on recent developments in communications and information technology, in addition to supporting job creation and job opportunities for youth through paid work, or the startups creation.

Artificial Intelligence (AI) is radically changing the way we live and work. In fact, intelligent systems are now capable of thinking, learning,

perceiving, solving problems, and making intelligent decisions. As Artificial Intelligence will be the driving force for Egypt's Vision 2030, Egypt issued its AI national strategy (2020 -2025).

The strategy aims at unleashing the potential capabilities of Artificial Intelligence in different focus areas: Education, Research and Development, Healthcare, Transportation, Fourth Industrial Revolution, Precision Agriculture, Financial services, etc. Tackling the challenges of these areas using AI will lead to the sustainable development of the national economy and ensure inclusive growth in line with Egypt's vision 2030. To achieve this strategy, Egypt has established the National Council of Artificial Intelligence in accordance with the decision of the Prime Council Minister to follow and govern the strategy implementation through the coordination between the relevant authorities.

To cope with the Egypt Artificial Intelligence strategy, the Ministry of Higher Education and Scientific Research was interested in preparing a generation specializing in Artificial Intelligence and its applications. Therefore, two new faculties specializing in Artificial Intelligence have been established. In addition, a Department of Artificial Intelligence had been added to some colleges of computers and information science.

The Ministry of Higher Education and Scientific Research is currently cooperating with the Ministry of Communications and Information Technology to establish the Egyptian University of Information

Technology in the new administrative capital, which will graduate students specialized in data science, information technology, machine learning, etc.

Recently, Egypt applied data science and machine learning to build descriptive and predictive models in estimating the spread of the Corona virus in the different Egypt areas. Also, we are currently conducting virtual studies using Susceptible-Infectious-Recovered (SIR) and Susceptible-Exposed-Infectious-Recovered (SEIR) models to support the decision makers for utilizing both medical and financial resources effectively and efficiently.

Egypt believes in the role of information technology in building a better future for humanity and is ready to transfer its successful experiences to the world.

Ministry of Higher Education and Scientific Research has a large vision to serve the main objective of technological change based on digital transformation

This could be conducted through working in 6 directions to integrate the already running efforts beside developing new tracks and projects to support the global vision These tracks are as following:

1. Smart universities

Which include building management application of smart access control, smart software and hardware systems; smart classrooms with state-of-the-art technologies and technical platforms; smart pedagogy based on modern teaching and learning strategies; smart learning and academic

2. Applications
    I. SIS (Students Information System)

Availing professional tool for different and state of the art application for different student's service across different Egyptian universities

II. LMS (Learning Management System)

To manage educational process between universities and their students

3. Content initiative

   To develop and avail up to date competitive digital education content through national initiative, digital books, virtual labs and upcoming events.

4. Electronic exams

Which will be deployed in 154 center with more than 30000 clients machines

5. Platforms
   I. Unified universities portal to avail connectivity between all universities staff and enrolled students to operate E-learning system with online sessions and automatic scheduling and availing the educational content with all different formats
   II. Platforms to inter connect professors from both universities and (more than 60) and research centers (11)
   III. Portal for Funding agencies in Egypt to unified the fields of projects funding and create way of collaboration between different applied funded project
   IV. Internet of thing (IoT) platforms to go smart connected with all devices as monitors or wither (stations, energy control, utility meters, parking, students' allocation …etc)

6. Infrastructure

Intern connectivity to develop the previous mentioned projects this requires strong infrastructure and intern connectivity to all universities and establishing powerful datacenter

7. Educational Hospitals Application (١١٣ hospitals)
   I. Provide patients with all types of medical and therapeutic service (intensive care , adult and child care, blood banks…etc.) to reduce the time required to search for intensive care rooms available for patients
   II. Training, education and contribution to the treatment of citizens with the Ministry of Health.
   III. Linking service recipients to all Educational hospitals for easy follow-up and tracking of patients

Thank you very much,