Youth Workers 4 Global Goals

CAPACITY BUILDING IN THE FIELD OF YOUTH

MODULE 4: Technology, Innovation, and the SDGs

Introduction

Technology and innovation have been the mayor concepts driving humanity towards the future. During the past years these concepts have been gaining more and more importance as the world is going forward new industrial revolutions and technology improvements are in an exponential trend.

In order to reach the UN Sustainable Development Goals, we need to keep looking for new innovative ways of resolving current problems, find better solutions and use accumulate knowledge to tackle the challenges we have ahead as humanity.

It is very important also to rely in the new technologies as they connect us and enhance our capability to collaborate as humans. In the past decade we have lived the most incredible and disruptive change in our lifestyle. As new ways and new processes are developed, there is a need to limit the negative spoil and boost the positive mindset and good outputs coming from these changes.

In this module we are going to present some of the areas in technology and innovation in which the international organizations as well as the international community is looking towards in order to reach the SDGs. This module will give you some elements to build up your knowledge in this field and give you some tools to start building your own vision in the matter. Once again this is fundamental as one of the main purposes of these courses is to give you some insights and inspiration to follow your own path in changing the world.

The goals of science and technology have evolved from discovering the world around us and trying to control that world, to a new period of transforming the world. Today we live in a very different era—what the World Economic Forum has termed the Fourth Industrial Revolution. This technological revolution will fundamentally alter the way we live, work and relate to one another through an increasingly interconnected world where ideas, knowledge and data flow more freely than ever before. This flow of information can be used to fuel collaborative and open approaches to science and technology. Innovation has emerged as a key component of science and technology, broadening their accessibility and itself feeding back and informing the science and technology process. In this transformative era, the possibility of more effectively integrating broader societal goals beyond

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economic gain to encompass social and environmental objectives is, for the first time, within our grasp. While science, technology and innovation are inextricably connected, on an individual level they are profoundly different concepts with sometimes overlapping but often very different ecosystems and drivers. Science can be defined as the systematic study of the physical or material world (natural science) and of society (social science) that leads to the generation or creation of, knowledge from which data and information are drawn.

Technology can be defined as the application of scientific knowledge for practical ends, such as developing techniques to produce a product and/or deliver a service.

Innovation can be defined as the implementation of a new or significantly improved product (good or service), or process (such as a new marketing method), or a new organizational method (such as in business practices, workplace organization or external relations). The minimum requirement for an innovation is that the product, process or organizational method must be new to the firm (or constitute a significant improvement).

Social innovation can similarly be defined, with the caveat that it simultaneously meets social needs while creating new social relationships or collaborations. In other words, social innovations change society and enhance its capacity to act.

Afterwards it will be interesting to focus on innovation, going and seeking what the main organizations, involved people and leaders are doing in this field through new processes and ways of thinking the environment we live in.

As always, the main purpose is to inspire and give new some thoughts in order to have some background and information to start from a more solid base and build little by little his/her own vision about the situations and the possible way to tackle them in order to achieve the best possible solutions.

Technology and innovation at the service of sustainable development

Technology, science and capacity building are major pillars of the Means of Implementation of the Post-2015 Agenda and of the Rio+20 follow-up processes. The research, development, deployment, and widespread diffusion of environmentally sound technologies in the context of a Green Economy is also closely linked to other core elements and means of implementation.

In order to eradicate poverty and reorient current unsustainable development trajectories over the period 2015 to 2030, affordable technological solutions must be developed and disseminated widely in the next fifteen years.

In 2012, the UN Conference on Sustainable Development ("Rio+20") called for identifying technology facilitation mechanism. The Addis Ababa Action Agenda, decided to establish a technology facilitation mechanism

Background

Process

In 2012, the UN Conference on Sustainable Development ("Rio+20") called for identifying options for a technology facilitation mechanism, in its outcome document A/RES/66/288 - The Future We Want.

Member States continued discussions on the way forward, in particular in the form of eight "workshops" and "structured dialogues" convened by the President of the General Assembly in 2013 and 2014. In order to support the Secretary General's proposal, the Interagency Working Group on a Technology Facilitation Mechanism (IAWG) was initiated by the DESA and UNEP at the end of 2014. The group is open for participation by all ECESA Plus entities. At present it comprises DESA, UNEP, UNIDO, UNCTAD, UNESCO, ITU, WIPO, and the World Bank Group.

The group's work is structured around four work streams where it identified opportunities to collectively achieve greater impact within the scope of existing mandates:

- the mapping of existing the technology facilitation initiatives including support for policy formulation and strengthening of technological capabilities and innovation systems.

- identifying areas of synergy and areas of possible cooperation within the UN system on technology-related work.

- developing options for a possible online knowledge hub and information-sharing platform.

- cooperating with relevant stakeholders on building STI capacity building.

In this connection, two side events have been organized by the IAWG: one in June 2015 in New York during the Post-2015 Development Agenda negotiation, and one in July 2015 in Addis Ababa during the Third International Conference on Financing for Development.

Global Challenges

By 2050, the global population is forecast to reach 9 billion. The addition of 2 billion people in the next three decades is catalyzing an urgent need for new innovations. These challenges relate to our most basic physiological needs and are happening just as some traditional tools for meeting these needs are becoming less effective or are facing increasing demands. For example:

- Cities – more than half of the world's populations live in cities creating growing demands for sustainable infrastructure

- Climate – with 16 of the 17 warmest years on record occurring since 2001 (according to NASA)

- Energy – traditional fossil energy sources are harder to extract, and their consumption is damaging air quality and affecting the global climate.

- Food – chemicals used to maintain agricultural productivity are becoming less effective and the demand for food rises

- Health – bacteria once controlled with antibiotics are becoming resistant.

- Water – over 1 billion people lack access to safe drinking water and 2.6 billion lack adequate sanitation

- Biodiversity – global species loss is accelerating with attendant growing risks to vital ecosystems

UN Technology Facilitation Mechanism (TFM) in ten Work Streams

Paragraph 70 of the 2030 Agenda for Sustainable Development announced the launch of a "Technology Facilitation Mechanism" (TFM) in order to support the implementation of the Sustainable Development Goals (SDGs).

The TFM has three components:

1. A United Nations Interagency Task Team on Science, Technology and Innovation for the SDGs (IATT), including the 10-Member Group of representatives from civil society, the private sector and the scientific community
2. A collaborative Multi-stakeholder Forum on Science, Technology and Innovation for the SDGs (STI Forum)

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3. An online platform as a gateway for information on existing STI initiatives, mechanisms and programs
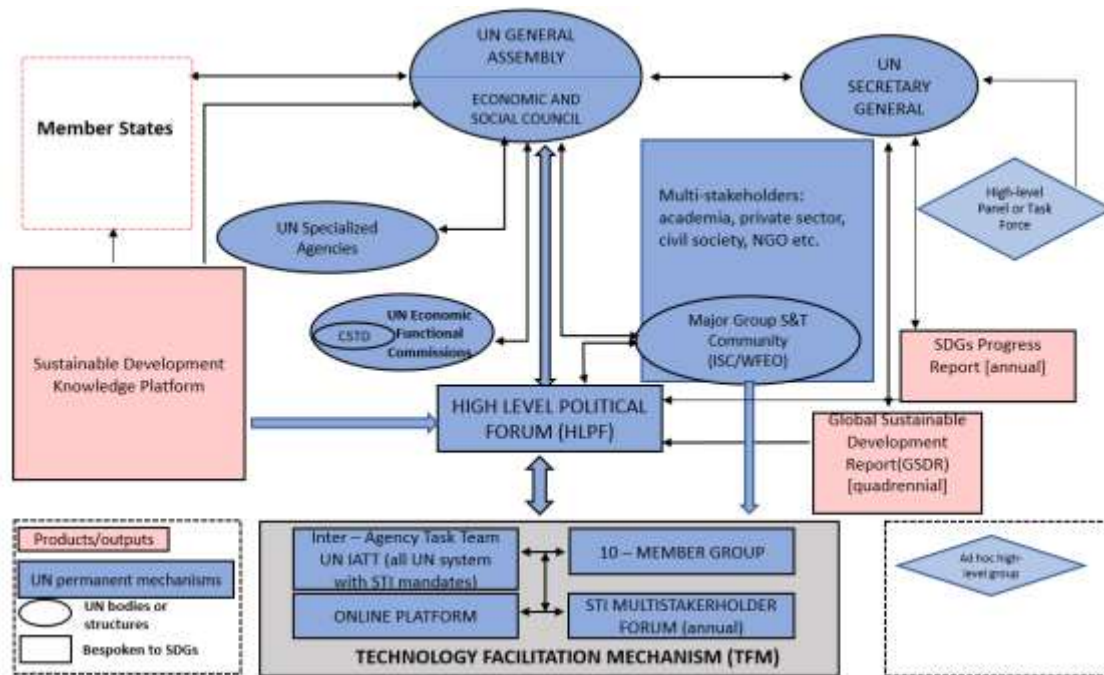
Mapping Key Mechanisms on Science, Technology and Innovation under the 2030 Agenda

UN Interagency Task Team

**Work Stream 1
Establishment and management of the Interagency Task Team**

The UN interagency task team on STI for the SDGs is initially composed of the Department of Economic and Social Affairs, the United Nations Environment Program, UNIDO, the United Nations Educational, Scientific and Cultural Organization, UNCTAD, the International Telecommunication Union, WIPO and the World Bank. It will be open to the participation of all United Nations agencies, funds and programs and the functional commissions of the Economic and Social Council.

Member States agreed that the "The mechanism will be launched at the United Nations summit for the adoption of the post-2015 development agenda in order to support the sustainable development goals. We decide that the technology facilitation mechanism will be based on a multi-stakeholder collaboration between Member States, civil society, the private sector, the scientific community, United Nations entities and other stakeholders and will be composed of a United Nations inter-agency task team on science, technology and innovation for the sustainable development goals, a collaborative multi-stakeholder forum on science,

technology and innovation for the sustainable development goals and an online platform."

The work of the team will be organized in the form of coordinated work streams. It will initially build on the existing work streams of the informal working group on technology facilitation (IAWG).

10-Member Group to support TFM

The group will participate in preparing the meetings of the multi-stakeholder forum on science, technology and innovation (STI) for the Sustainable Development Goals (SDGs), and support the development and operationalization of the TFM online platform, among other tasks. The UN Secretariat also issued the Group's terms of reference.

The 10-Member Group was called for by the Addis Ababa Action Agenda (AAAA) and the 2030 Agenda for Sustainable Development, which state that: as part of the TFM, the UN inter-agency task team (IATT) on science, technology and innovation (STI) for the Sustainable Development Goals (SDGs), "will draw on existing resources and will work with 10 representatives from civil society, the private sector and the scientific community to prepare the meetings of the multi-stakeholder forum on science, technology and innovation for the SDGs."

Multi-stakeholder Forum on Science, Technology and Innovation for the SDGs (STI Forum)

As requested by the General Assembly resolution 70/1 on 2030 Agenda for Sustainable Development, the President of ECOSOC will convene the meetings of the STI forum once a year to discuss science, technology and innovation cooperation around thematic areas for the implementation of the Sustainable Development Goals. The General Assembly also decided that the meetings of the forum will be co-chaired by two Member States and will result in a summary of discussions elaborated by the two co-Chairs.

Online platform

One of the three components of the Technology Facilitation Mechanism is to develop an online platform as a gateway for information on existing STI initiatives, mechanisms and programs.

The TFM online platform will:

- Be used to establish a comprehensive mapping of, and serve as a gateway for, information on existing science, technology and innovation initiatives, mechanisms and programs, within and beyond the United Nations

- Facilitate access to information, knowledge and experience, as well as best practices and lessons learned, on science, technology and innovation facilitation initiatives and policies

- Facilitate the dissemination of relevant open access scientific publications generated worldwide.

Independent technical assessment for the online platform

As mandated by the 2030 Agenda, the online platform "will be developed on the basis of an independent technical assessment, which will take into account best practices and lessons learned from other initiatives, within and beyond the United Nations, in order to ensure that it will complement, facilitate access to and provide adequate information on existing science, technology and innovation platforms, avoiding duplications and enhancing synergies."

The Interagency task team on STI for the SDGs ("IATT") and the 10-Member Group of representatives from civil society, the private sector and the scientific community in support of the Technology Facilitation Mechanism ("10-Member Group") undertook consultations and developed Terms of Reference for the independent technical asses. The Terms of Reference noted the IATT's initial mapping of existing STI initiatives within the UN system (undertaken by IATT) and the development of three broad options for an online platform. It called for an independent technical assessment to serve as the basis for the development of the online platform. The assessment was to include sections on:

a) architecture, functional requirements and user group.
b) stocktaking, benchmarking, best practices, and lessons learned from existing relevant online platforms, within and beyond the UN system.
c) recommendations on management and governance structure and regular quality control of the platform; and
d) assessment of the benefits and financial costs.

Mapping on STI Initiatives, background research and reports in support of TFM

The UN has, among its different Work Streams, the will to understand the different initiatives and have a summary if on technology-related initiatives that are currently in place in different institutional settings in the UN based on two UN surveys in 2015 by the Inter-agency Working Group on a Technology Facilitation Mechanism. It also examines the institutional arrangements, coverage, functions and the inter-linkages and coordination between these initiatives. It finds that these initiatives differ greatly in terms of their approach, content focus, target groups, working methods, and size. Hence, when mapped against these dimensions, gaps and "fragmentation" in the technology capacity development system become apparent. It highlights the urgent needs of better coordination within the UN system which may require a platform for content coordination and integration and a multi-stakeholder forum to assure the contribution of coordination within UN system to the desired outcomes.

Chapter 34 of Agenda 21 noted that "The availability of scientific and technological information and access to and transfer of environmentally sound technology are essential requirements for sustainable development" and that "There is a need for favorable access to and transfer of environmentally sound technologies, in particular to developing countries, through supportive measures that promote technology cooperation and that should enable transfer of necessary technological knowhow as well as building up of economic, technical, and managerial capabilities for the efficient use and further development of transferred technology".

UN Capacity Building program on technology facilitation for SDGs

The UN must have a real active role in this transformation, having a real strategy in order to have an important impact during this path. It is for that reason that it has thought about six points to tackle this need.

As a convener – The AI for Global Good Summit, the Broadband Commission for Sustainable Development, ITU's Global Symposium for Regulators, the WSIS Forum, the Multi-stakeholder Forum on Science, Technology and Innovation for the Sustainable Development Goals (STI Forum).

Providing a space for debating values and norms – the IGF, the Group of Governmental Experts on Developments in the Field of Information and Telecommunications in the

Context of International Security, Special Rapporteurs on the Right to Privacy and on the promotion and protection of the Right to Freedom of Opinion and Expression, UNESCO's Artificial Intelligence with Human Values for Sustainable Development initiative, UNICEF's efforts around children's online safety.

Standard setting – ITU's Telecommunication Standardization Sector, the UN Statistical Commission and its Global Working Group on Big Data for Official Statistics, WHO guidelines on digital health interventions, the Humanitarian Data Exchange – an open platform and standard for sharing data across crises and organizations.

Multi-stakeholder or bilateral initiatives on specific issues – EQUALS: The Global Partnership for Gender Equality in the Digital Age, the Emergency Telecommunications Cluster hosted by WFP, the UN Global Compact's Breakthrough Innovation for the SDGs Action Platform, the Famine Action Mechanism hosted by the World Bank and the UN in partnership with industry.

Developing the capacity of member states – UNDP's Accelerator Labs, the Technology Facilitation Mechanism, UN Global Pulse Labs, the United Nations Conference on Trade and Development's trainings, the Digital Blue Helmets initiative, the UN Office on Drugs and Crime's Global Program on Cybercrime.

Ranking, mapping and measuring – the annual E-Government Survey produced by the United Nations Department of Economic and Social Affairs, the United Nations Institute for Disarmament Research's Cyber Policy Portal, an online reference tool that maps the cybersecurity and cybersecurity-related policy landscape, ITU's Measuring the Information Society report and Global Cybersecurity Index.

Arbitration and dispute-resolution – The World Intellectual Property Organization's Internet Domain Name Process, the United Nations Commission on International Trade Law.

Partnerships and fund raising

From the beginning it was very clear that to achieve this huge project and idea they had to have the resources. It is for that reason that it was decided the Establishment of a Trust Fund, a "Trust Fund to Support the work of the High-level Political on Sustainable Development".

This fund was originally established by the Secretary-General to support follow-up of the implementation of Agenda 21 and the outcomes of the United Nations Conference on Environment and Development, UNCED.

The Trust Fund is intended to support various activities related to the follow-up of the Rio+20 outcomes, Agenda 21, the Johannesburg Plan of

Implementation, the Mauritius Strategy for the Further Implementation of the Program for the Sustainable Development of Small Island Developing States and more generally the implementation of the sustainable development agenda. It supplements the regular budget provided for effective implementation of activities of Subprogram 3 of Section 9 of the Proposed Program Budget of the United Nations (Sustainable Development), particularly as it relates to the work of the High-level Political Forum on Sustainable Development (HLPF) and its preparations as mandated by Member States in GA resolution 67/290.

The Trust Fund resources will be used for the implementation of the following broad range of activities under the subprogram:

I. To commission scientific, policy and research institutions, including in developing countries, to undertake specialized studies and analysis of issues under consideration in the High-level Political Forum on Sustainable Development (HLPF) and its preparatory processes.

II. To organize workshops, working parties and expert consultations and other preparatory events with a view to elaborating policy proposals and options for consideration by the HLPF and its preparatory processes and working groups.

III. To obtain the services of specialists and consultants, including scientists, for the development of studies and reports, including advancing options and recommendations, in particular, in areas where in-house expertise of tire secretariat is limited or does not exist.

IV. To enable the secretariat to provide an effective contribution to meetings and initiatives organized by countries and organizations to implement decisions and recommendations of the HLPF and enrich the preparations for its sessions.

V. To promote and mobilize support to sustainable development goals and objectives and the work of the United Nations in this area through support to, effective public outreach program.

VI. To continuously upgrade the knowledge management platform on the web as well as electronic networking and data processing and storage capacities of the secretariat to effectively handle and disseminate the broad range of knowledge and information related to follow-up to the Rio+20 outcomes, work of the HLPF and sustainable development in general, including information submitted by countries on their experiences in this field; and

VII. To support participation of developing countries, including the least developed countries and representatives of major groups and other stakeholders In the Forum and in meetings and conferences on sustainable development.

Gender and STI

It is essential that within this transformation we do not forget gender. This Work Stream is particularly important, and it is due to that we are going to explore the most important organizations and Initiatives within this framework.

Sub-Group of the IATT on Gender and Science, Technology **The IATT Group on Gender and STI Under the Interagency Task Team (IATT)**, a Group on Gender and STI was formed in 2018 with the purpose of increasing synergies and collaboration among the UN, its agencies, funds and programs on issues pertaining to STI and gender. By connecting interested entities of the IATT and allowing the sharing of information and experiences, the Group provides a timely impetus for enhanced collaboration and exploration of possible joint activities in support of UN Action on this important agenda. Within this framework it is value to notice that different agencies have brought gender equality initiatives.

ECLAC, which is headquartered in Santiago, Chile, is one of the five regional commissions of the United Nations. ECLAC promote the economic, social and environmentally sustainable development of Latin America and the Caribbean through international cooperation, by undertaking research, technical cooperation, as well as advisory services in support of regional development efforts. The ECLAC Division for Gender Affairs support the strengthening of Governments capacity to implement gender equality policies; to produce gender statistics and disseminates updated information particularly through the Gender Equality Observatory for Latin America and the Caribbean.

The **International Centre for Genetic Engineering and Biotechnology - ICGEB** – is an intergovernmental organization with the unique mandate of fostering research, capacity building and technology transfer in Life Sciences, with the ultimate purpose of promoting sustainable global development. With 65 member states and over additional 20 signatory countries, the ICGEB forms an interactive network of internationally recognized scientists and state-of-the-art laboratories in its Components in Trieste, New Delhi and Cape Town, and in its Affiliated Centers. ICGEB was established within the United Nations as a special project of UNIDO in 1983 and has been an independent international organization since 1994. Its Headquarters are based in Trieste, Italy.

The ICGEB Fellowship programs offer long and short-term fellowships for scientists who are nationals of ICGEB Member States to perform research in Trieste, New Delhi or Cape Town. Based on the principle of full equality of men and women, a large number of

female researchers receive scholarships each year. As a result, at ICGEB Trieste women constitute 65% of the workforce: comprising 31 PhD students currently on board, 103 research scientists and staff members, representing over 20 nationalities, who have made outstanding contributions to scientific research.

ITC is the joint agency of the World Trade Organization and the United Nations. It is the only development agency that is fully dedicated to supporting the internationalization of small and medium-sized enterprises (SMEs). This means that the agency enables SMEs in developing and transition economies to become more competitive and connect to international markets for trade and investment, thus raising incomes and creating job opportunities, especially for women, young people, and poor communities.

The International Gender Champions network brings together decision makers to break down gender barriers and consists of several thematic impact groups including one on trade, which is co-chaired by ITC, Sierra Leone, and Iceland. The Trade Impact Group (TIG) galvanizes the world community on issues related to trade, gender, and empowerment of women, focusing on issues including mainstreaming of gender in technical assistance strategy, including gender-related issues in trade policy reviews, and highlighting the link between trade and gender (for example, through the Buenos Aires Joint Declaration on Trade and Women's Economic Empowerment that received support from 120 + WTO Members and Observers).

ITU is the United Nations specialized agency for information and communication technologies (ICTs) committed to connecting all the world's people – wherever they live and whatever their means. We allocate global radio spectrum and satellite orbits, develop the technical standards that ensure networks and technologies seamlessly interconnect, and strive to improve access to ICTs to underserved communities worldwide.

EQUALS is a ground-breaking global network of over 55 partners who have committed to work together to improve women's access to technology, build relevant digital and STEM skills, and promote female leadership in the tech sector. Established by ITU, UN Women, the International Trade Centre, GSMA and the United Nations University, EQUALS provide a holistic, data driven approach to achieving gender equality in tech.

ITU and UN Women, in collaboration with the African Union Commission, launched the African Girls Can CODE Initiative to equip girls and young women in Africa with digital literacy skills. The AGCCI is a four-year program that aims to train and empower girls and young women aged 17 to 20 years old across Africa to become computer programmers, creators and designers – and in so doing, enable more girls and young women to take up studies and careers in the ICT sector.

ESCWA provides a framework for the formulation and harmonization of sectoral policies for member countries, a platform for congress and coordination, a home for expertise and knowledge, and an information observatory. ESCWA activities are coordinated with the divisions and main offices of the Headquarters of the United Nations, specialized agencies, and international and regional organizations, including the League of Arab States and its subsidiary bodies, and the Gulf Cooperation Council.

Harnessing Technology for Combating Violence against Women (VAW) and Creating Safe Cities. This policy brief analyses the linkage between the 2030 Agenda for Sustainable Development, the New Urban Plan and the Convention on the Elimination of All Forms of Discrimination against Women. Moreover, this organization made also a study called Technology as a Renewed Hope to Achieving Gender Equality in the Arab Region: A Fact or Illusion? (Study and Expert Group Meeting – 2018-2019). This study acknowledges the central role of technology in fostering women empowerment and gender equality. It builds on good practices tackling the different targets of Goal 5 drawn from international experiences and analyses their potential customization to the Arab regional context. It concludes with a set of policy recommendations for government and nongovernment stakeholders on how to harness technology to redress gender inequalities in the region. The study and its recommendations will be discussed in a meeting of international and regional experts on the issue.

MARIA DA PENHA
BRAZILIAN BIOPHARMACIST AND DEFENDER OF HUMAN RIGHTS FOR WOMEN.

UNCTAD is servicing the ECOSOC Functional Commission on Science and Technology for Development (CSTD). The CSTD actively promotes using "gender lens" in STI policies. The aim is to encourage member states to integrate a gender perspective during the entire STI policy-making process, from assessment, through policy design, to implementation, capacity building, monitoring and follow-up so that STI empowers women in addressing their development challenges. The CSTD is the only ECOSOC Functional Commission with a gender advisory board, established in 1995. The Science, Technology and Innovation Policy (STIP) Reviews aim to contribute to the development of national capacities in the field in order that national science, technology and innovation plans and programs better contribute to development strategies and to improve the competitiveness of the productive sectors. A focus of equal opportunities for women and girls in the realm of STI are an integral part of the STIP review process and its suggestions for action.

Since 1998, the L'Oréal Foundation, in partnership with **UNESCO**, has worked to improve the representation of women in scientific careers, upholding the conviction that the world needs science, and science needs women. In its first 20 years, the For Women in Science program supported and raised the profiles of 102 laureates and more than 3,000 talented young scientists, both doctoral and post-doctoral candidates, providing them with research fellowships, allocated annually in 117 countries. SAGA is a UNESCO global project focused on improving measurement and policies for gender equality in STI. The SAGA project offers governments and policymakers a variety of tools to set up, implement and monitor gender equality in STI policies to help reduce the current global gender gap in STI fields existing at all levels of education and research.

GLADYS WEST
MATHEMATICIAN. INSTRUMENTAL IN THE DEVELOPMENT OF THE GLOBAL POSITIONING SYSTEM (GPS).

An initiative that **UNICEF** supports in Lebanon through its Youth Innovation Lab. STEM careers are poised to be the jobs of the future, but discrimination and restrictive gender norms prevent many girls from entering those fields of study. The risk is that girls and women will remain marginalized in the global economy. Closing the gender gap in education is not going to be enough to achieve gender equality – we also need to close the gender gap in STEM education. This is precisely the goal of Girls Got IT. It targets 15- to 17-year-old girls from marginalized and disadvantaged communities, including Syrian refugees – girls least likely to be exposed to STEM right at the time when they are planning their future careers and deciding whether to pursue higher education. The *TechnoGirl* program was initiated in 2005 and is based on

a model of public–private partnership in which companies and organizations provide job-shadowing and mentorship opportunities for girls focusing on STEM careers. Through the *TechnoGirl* program, adolescent girls (aged 15–18) in Grades 9–11 at underprivileged schools with an aptitude for mathematics and science are identified and placed in a structured job-shadowing and skills development initiative in private and public companies.

UNOOSA works to promote international cooperation in the peaceful use and exploration of space, and in the utilization of space science and technology for sustainable economic and social development. The Office assists any UN Member States to establish legal and regulatory frameworks to govern space activities and strengthens the capacity of developing countries to use space science technology and applications for development by helping to integrate space capabilities into national development programs.

The 'Space for Women' project will facilitate the strengthening of the awareness, capacity and skills of individuals and institutions related to the importance of promoting gender equality in the space sector and its fundamental educational fields by:

- Facilitating access to the space sector education as well as the space sector itself
- Provide policy-relevant advice and awareness raising to institutions and governments on 'Space for Women' and 'Women for Space'
- Facilitating capacity-building/training of individuals on access to and use of space-technology
- Promote a mentoring platform on 'Space for Women' Champions

WFP is the food-assistance branch of the United Nations and the world's largest humanitarian organization addressing hunger and promoting food security. According to the WFP, it provides food assistance to an average of 80 million people in 82 countries each year, most of them in remote areas, directly serving the hungry poor.

H$_2$Grow, the expert for hydroponic solutions, adapted to the needs of development or emergency contexts is enabling vulnerable communities to grow food anywhere to improve food-security and build resilience. Since 2016, WFP has been testing hydroponic techniques in some of the world's toughest environments to understand what it takes to grow food there. H2Grow's vision for 2020

is to help implement best fit hydroponic solutions for 1 million vulnerable people in over 10 countries. Currently active in Algeria, Peru, Jordan, Chad and Sudan. In all areas, this is actively promoted as opportunity for female empowerment, also as the women are often in charge of sourcing either the foods for their family or the fodder for livestock, in case of small herds. The project also provides the opportunity of extra income for those involved by selling the surplus production. Current status of female involvement: Algeria (localized low-tech animal fodder production in Sahrawi refugee camps, Sahara desert, Western Algeria): tentative 73% women - 27% men (2017) Chad (localized low tech animal fodder production in Sudanese refugee camps, Iriba area Eastern Chad): 80% women - 20% men (2018) Jordan (medium tech animal fodder production in urban setting for Syrian refugees and Jordanian host communities, Azraq town): 50% women - 50% men (2018) Peru (simplified DIY vegetable production in urban slums, Lima Peru): 85% women - 15% men (2016 first phase), 74% women – 25% men (2018 second phase)

WIPO is the global forum for intellectual property services, policy, information and cooperation. It is a self-funding agency of the United Nations, with 191 member states. Our mission is to lead the development of a balanced and effective international intellectual property (IP) system that enables innovation and creativity for the benefit of all.

Encouraging WIPO member states to take action to bend the trend and make gender parity a reality through the participation of women representatives in WIPO meetings. WIPO and the <u>Korea Women Inventors Association</u> collaboratively developed and delivered this International Workshop for <u>Women Inventors & Entrepreneurs on intellectual property rights</u>, customized to women inventors and entrepreneurs of small- and medium-sized companies. The Workshop offers seminars on intellectual property rights and creativity, introduction of success stories and business strategies of women inventors and entrepreneurs, and training sessions for actual international business activities.

Announcement on the Global Pilot Program for STI Roadmaps for the SDGs

The United Nations Inter-Agency Task Team (IATT) is pleased to announce the launching of the first phase of the Global Pilot Program on Science, Technology and Innovation for SDGs Roadmaps with an initial group of five pilot countries. Under this first phase, roadmaps will be piloted in Ethiopia, Ghana, India, Kenya and Serbia. In addition, the European Union and Japan will join the Global Pilot Program to strengthen international partnerships on STI for SDGs roadmaps.

Work Stream 9
STI policy frameworks, action plan and roadmaps

The results of these pilots will be used to generate lessons that will improve the guidelines. The results of the first pilot phase will be presented at the Multi-stakeholder Forum on Science, Technology and Innovation for the SDGs, New York, 2021.

To date, more than 20 countries have expressed interest in joining the program.

Online Information Repository for the STI Roadmaps Work

I. *About the Information Repository for STI Roadmaps for SDGs:*

    As one of the key deliverables of the Roadmap workstream of UN Inter-agency Task Team, an online information repository platform below is created by compiling and making available a selection of STI or STI related roadmaps from organizations and agencies both within the UN system and beyond.

II. *Draft Guidebook for the Preparation of STI for SDGs Roadmaps*

    The primary focus of this work is to support the countries and exchange views on a common guidance, principles and possible frameworks/ methodologies for country and international level STI roadmaps for the SDGs.

    Following over one year's preparation and consultations, the latest version of the Guidebook on Development of Science, Technology and Innovation Roadmaps for the SDGs is available. To further facilitate the implementation of the Guidebook, DESA prepared the Operational Note based on the Guidebook on the STI roadmaps.

    Our near-term goal is to prepare the 1st Edition of the Guidebook and its Operational Note, reflecting comments and feedback received as well as incorporating lessons from early experiences of pilot countries, before the fifth Science, Technology and Innovation Forum, 12-13 May 2020 in New York.

III. *Proposed Global Pilot Program on Science, Technology and Innovation Roadmaps for SDGs:*

    The United Nations Inter-Agency Task Team proposes to establish a Global Pilot Program on Science, Technology and Innovation Roadmaps for the SDGs. Based on your involvement in the consultative process on the initiative, we would like to seek your interest to participate as pilot countries in this Program. The confirmed pilot countries will be invited to the next key events on the STI Roadmaps where the countries would present the 1st phase of the Global Pilot Program.

Analytical work on emerging technologies and the SDGs

New and emerging technologies – rapid technology change – frontier technologies' the fast pace of technological change in recent years in fields such as robotics, artificial intelligence, biotechnology and nanotechnology are having broad impacts on the economy, society and environment. Such disruptive technologies can be vital for breakthroughs in achieving the SDGs, but they can also have un-anticipated consequences, exacerbate inequalities, and constrain economic catch-up development. Calls for a more responsible and ethical deployment of such technologies must contend against those who fear that damping down on innovations may deprive people of many benefits. To harness the benefits and reduce any downside negative risks, countries need to be able to make informed decisions, while also building skills and capabilities for the future. Multi-stakeholder engagement is important, as many of these advances are initiated in the private sector and academia, but then have differentiated impacts across groups of people and societies.

Subgroup on new and emerging technologies of the Inter-agency Task Team on Science, Technology and Innovation for the SDGs ("IATT") The UN Technology Facilitation Mechanism (TFM) was created by the Addis Ababa Action Agenda and launched by the 2030 Agenda on Sustainable Development in September 2015. Another component of the TFM is the Inter-agency Task Team on Science, Technology and Innovation for the SDGs ("IATT") which brings together 42 UN system entities and more than one hundred staff at the expert level. They work closely with the "10-Member Group" representing science, civil society, and private sector, inter alia, in order to assess the impacts of rapid technological change on the SDGs. In the Task Team, this work has been led by a subgroup on new and emerging technologies in which staff has cooperated for several years.

The Task Team's analytical findings continue to evolve. They represent a collaborative and multi-stakeholder effort with more than 100 expert contributors, building on evidence from eight meetings and sessions under the TFM umbrella; ten recent UN system reports; written inputs from IATT and the 10-Member Group, and 50 science-policy briefs volunteered by expert contributors. Major contributors from the UN system include colleagues of DESA, UNCTAD, UNU, ECLAC, ESCAP, ESCWA, UNIDO, ITU, ILO, WIPO, World Bank, as well as the International Council on Science and the Major Group on Children and Youth.

Conclusion

During this module you gained more knowledge about the different activities and actors of the innovation and transformation. This variety of domains in which it is possible to make an impact should be an inspiring and forward-looking positive mindset that should create the will to change for the better. There are many other different ways in which STI can be used and SDGs can be achieved through technology and innovation.

STI is linked directly to productivity, which is the key to job creation and a rising standard of living. Further, STI can provide the means to help ensure growth is sustainable and socially inclusive. Through its ability to catalyze change, STI has the potential to increase the pace and effectiveness of the world's efforts to meet the ambitions of the 2030 Agenda. As such, it is seen to be one of the primary engines underpinning the achievement of the SDGs. However, STI is not a panacea. Its potential will only be harnessed through deliberate and committed action. This action should focus on creating an enabling environment, including innovative, cross-sectoral policy and funding; nurturing talent for the future; establishing high-quality institutions; and laying the infrastructure required to create a strong foundation for STI.

It will also be important to incentivize the private sector, research institutions and other actors toward even greater levels of sustainable innovation. With the help of digital technology, governments must enable a networked innovation system to foster collaboration and collective action to ensure the creation of an innovative knowledge economy. Dynamic STI action plans aligned to the SDGs and informed by the application of foresight across all line ministries will be critical for dealing with a rapidly changing and unpredictable world. It is only with a well-formulated plan that governments will be able to design policy environments that effectively integrate the three dimensions of sustainable development (economic, social and environmental) into STI strategies.