

# Global Partnership in STI for Global Sustainability

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**Mohamed H.A. Hassan**

President, SNAS  
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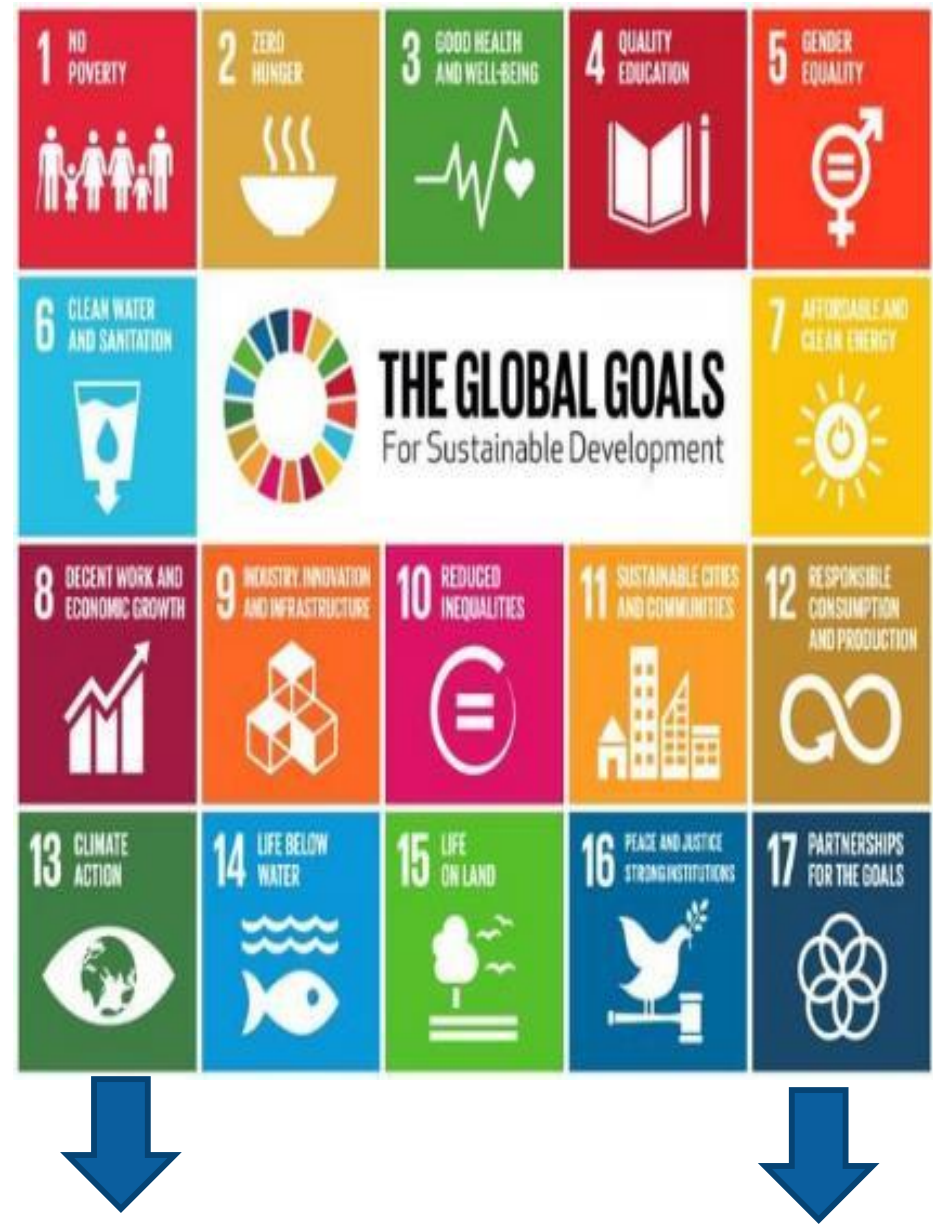
# Outline

- **Global Agreements related to SDGs**
- **Global Partnership in STI for SDGs**

# Global Agreements

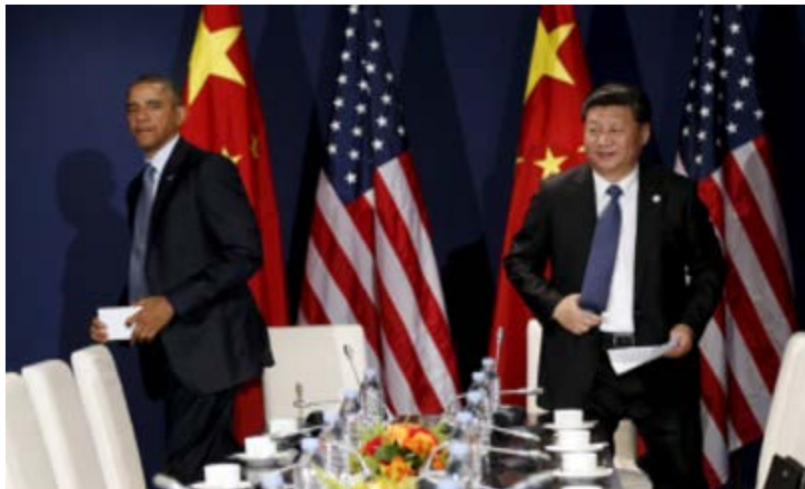
# SDGs (2015) :

- All countries adopted 17 SDGs and 169 Targets and agreed to achieve all SDGs by 2030
- STI and partnerships are Key means implementation (SDGs 9 & 17)
- Climate action (SDG 13) is essential for all SDGs



# COP 21 ( Paris 2015) : Climate Agreement

**195** Countries adopted  
universal agreement  
to limit global warming **two**  
**degrees Celsius**



## COP21: November, 2015



Global initiative to accelerate public and private financing for **clean energy Innovations** to achieve breakthroughs in cost reduction to power the World with clean energy and make it **affordable to consumers worldwide**, and create green jobs and commercial opportunities

Initiative spearheaded by **Bill Gates** and supported by **20 Countries** and **30 global billionaires**



# MISSION INNOVATION



**24**  
Members

Australia, Austria, Brazil, Canada, Chile, China, Denmark, European Union, Finland, France, Germany, India, Indonesia, Italy, Japan, Mexico, Netherlands, Norway, Republic of Korea, Saudi Arabia, Sweden, United Arab Emirates, United Kingdom, United States

Along with 23 other members, Canada has committed to supporting clean energy by:

**Doubling federal clean energy investment in R&D**



**x2**  
over 5 years



**Encouraging private investment**  
transformative clean energy technologies

**Increasing domestic and international collaboration**



## **COP22** *(November 2016)*

### **Global Action on Renewable Energy**

**Over 40 countries have agreed to use only renewable energy by 2050**

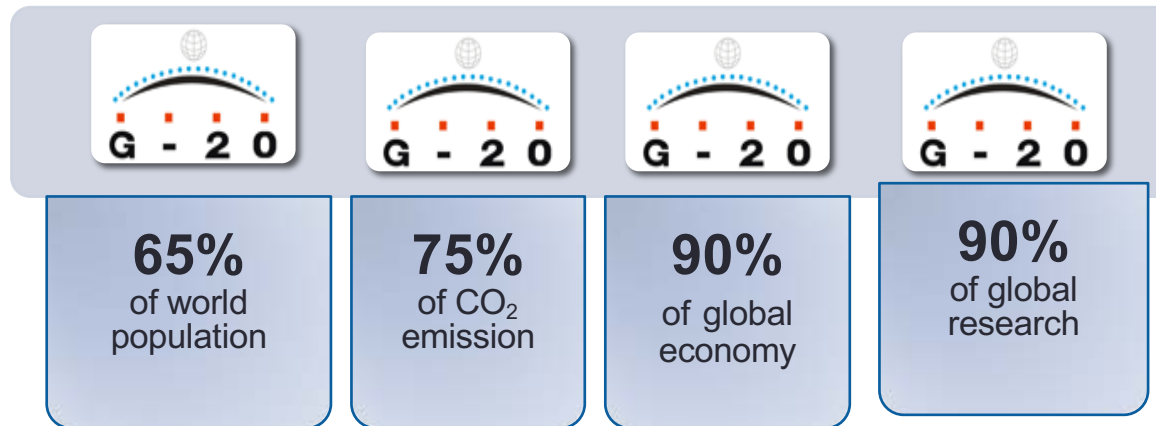


including Afghanistan, Haiti, Philippines, Bangladesh, Honduras, Rwanda, Barbados, Kenya, Saint Lucia, Bhutan, Kiribati, Senegal, Burkina Faso, Madagascar, South Sudan, Cambodia, Malawi, Sri Lanka, Comoros, Maldives, Sudan, Costa Rica, Marshall Islands, Tanzania, Democratic Republic of the Congo, Mongolia, Timor-Leste, Dominican Republic, Morocco, Tunisia, Ethiopia, Nepal, Tuvalu, Fiji, Niger, Vanuatu, Ghana, Palau, Vietnam, Grenada, Papua New Guinea, Yemen and Guatemala



# G20 leadership

- G20 has a special responsibility to lead global partnership for achieving the SDGs



- 10 of G20 countries are DCs: N-S
- **G20 Action Plan on SDGs**: *China 2016*
- Implementation Principles for SDGs
- Promoting global partnership for capacity building in DCs: N-S, S-S & Triangular for achieving SDGs



G20
Argentina
Australia
Brazil
Canada
China
France
Germany
India
Indonesia
Italy
Japan
SouthKorea
Mexico
Russia
SaudiArabia
SouthAfrica
Turkey
UK
USA
European Union

# Global Partnership in STI for SDGs

- **Developing, deploying and scaling cutting-edge technologies**
- **Building research, innovation and entrepreneurship capacities**

# Deploying and scaling frontier technologies

- *Information and Communication Technologies*  
( *Digitization, AI, IoT, Big Data, Drones, Robots*)
- *Biotechnologies and Genomics*
- *Nanotechnologies*
- *Renewable Energy Technologies*
- 2018 UNCTAD Technology and Innovation Report:  
*examples on how these transformative technologies  
can be instrumental in achieving SDGs by all countries*

# Information and Communication Technologies

Providing farmers with instant access to market information for informed decision on best place and time to sell products



**Satellite based** information on crop growth, moisture and minerals to selected farmers via mobile phone messages



**Drones** on the horizon: Transforming Africa's Agriculture

Drones for **precision agriculture** and collecting important Data to support decision making by farmers in Africa



Use of **Big Data** in Agriculture:

collect and analyze big agricultural data to support researchers, farmers and decision-makers

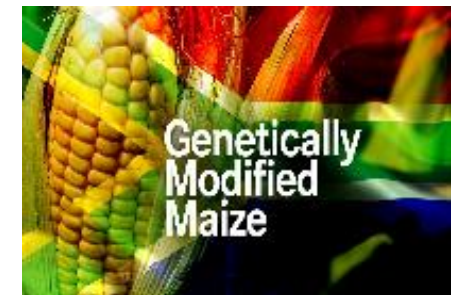


# Agricultural Biotechnology

## Benefits

Pest-resistant, drought-resistant and higher crop yields

- Reducing use of insecticides
- Increasing nutritional value and vitamin level of crops
- Domestication of indigenous and underutilized food crops



## Genetically Modified Crops

- *Bt Cotton economic success in South Africa, Sudan, Kenya*
- *South Africa: genetically modified maize*
- *Uganda: new varieties of Bananas resistant to bacterial Wilt*



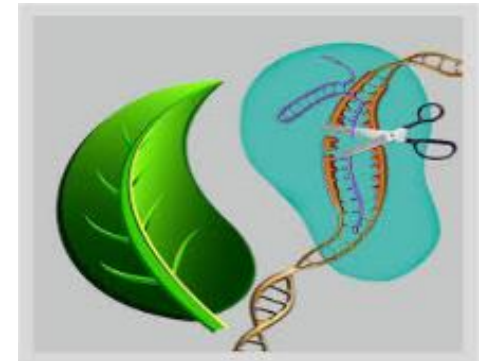
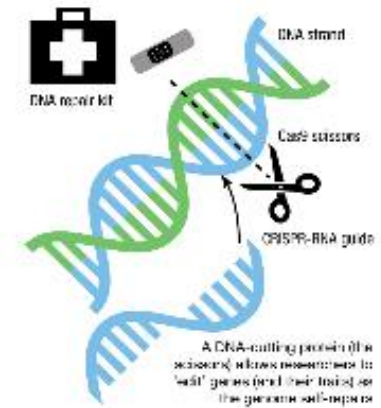


# Agricultural Genomics

- New agricultural revolution driven by bioinformatics, plant and animal genome sequencing and editing
- New breeding techniques, including gene editing technology, using **CRISPR-Cas9**, could transform plant breeding in Africa and help smallholder farmers to achieve food and nutrition security
- **It is simple, affordable and scalable**
- [Washington Post \(2016\) : CRISPR Is Going To Revolutionize Our Food System—And Start A New War Over GMOs](#)

The gene-editing tool could create drought-resistant grain or allergy-free peanuts. Will a society on edge about genetically modified food embrace this newest innovation?

- **USDA (2018) : CRISPR food as save as conventionally bred food**



# Rural Electrification: *Solar Energy*

## Solar-powered water pumps for drinking and irrigation



## Solar electricity for home, school and communications



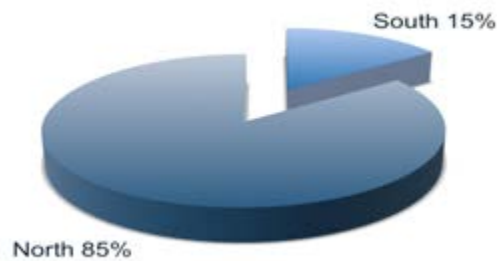
## Solar electricity for cold storage and food preservation



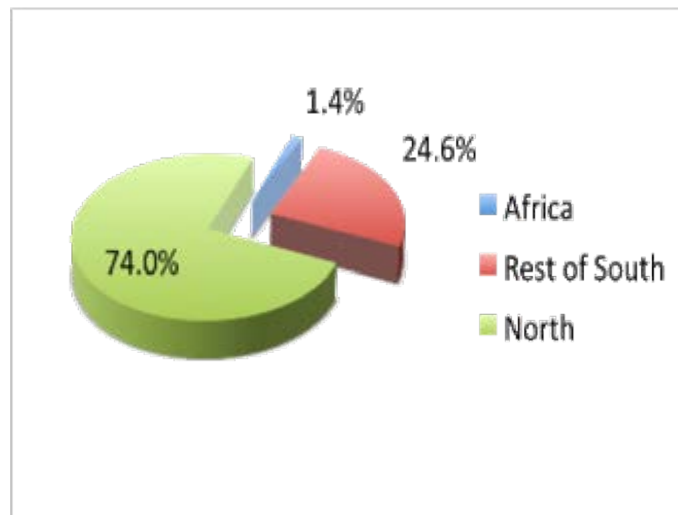
# **Building research, innovation and entrepreneurship capacities**

- **North-South Partnerships**
- **South-South Partnership**
- **North-South-South Partnership**

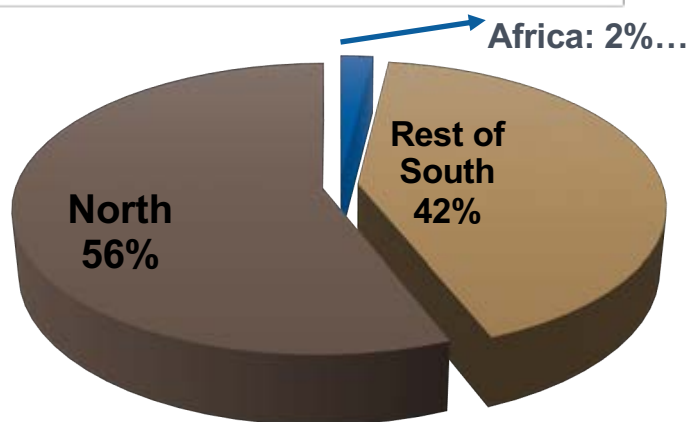
# Changing landscape of Global Science



World shares of ISI-listed S&E papers  
Average (1981-1994)



World shares of ISI-listed S&E papers  
Average (2003-2007)



World shares of ISI-listed S&E papers  
(2016)

Source: NSF, 2018

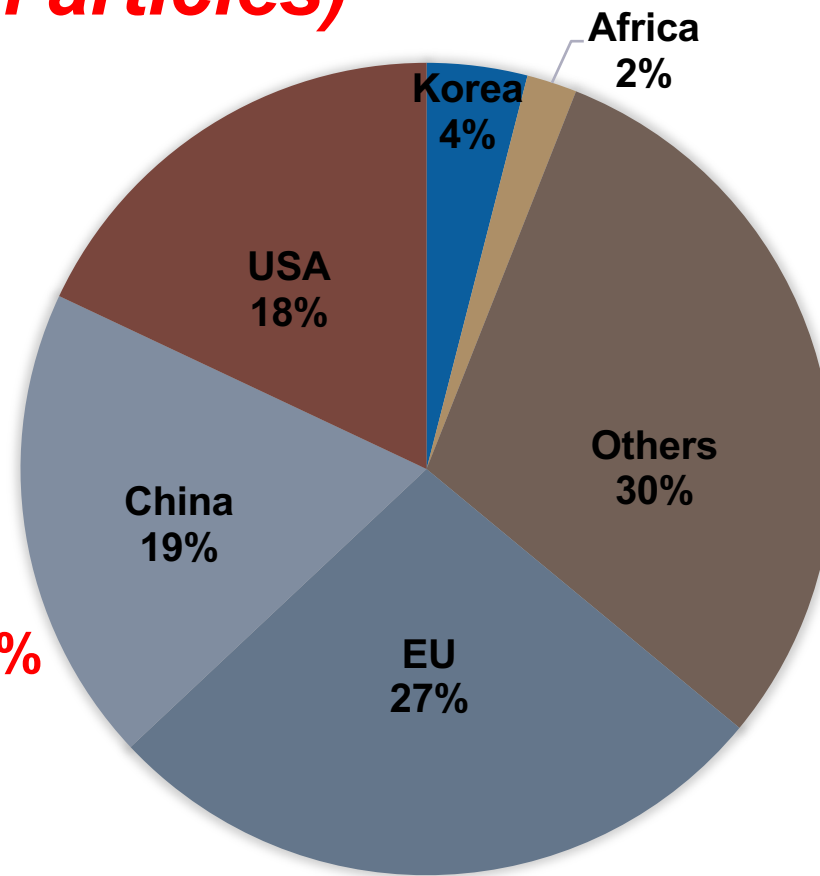
# Global Inequalities in R&D Capacities

## Global Production of Scientific Publications (*total in 2016: 2.3 million articles*)

EU : 27%  
China : 19%  
USA : 18%  
**Total : 64%**

**LDCs (48 Countries): 0.4%**

Source: NSF, 2018





# Building Future Leaders Through S-S Collaboration



## TWAS S-S Postgraduate Fellowships

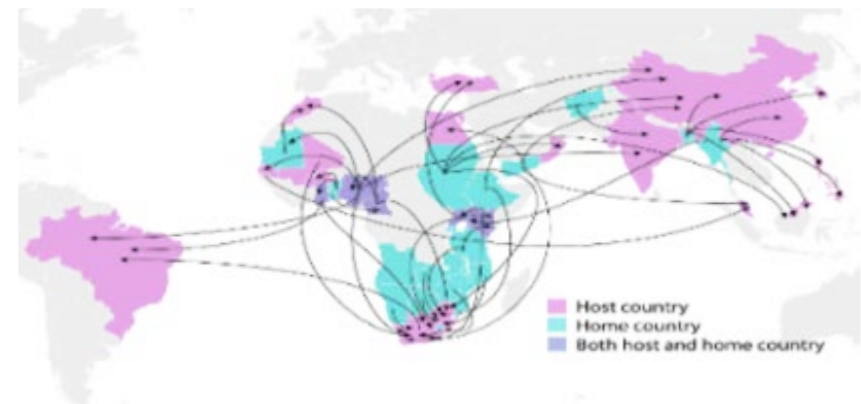
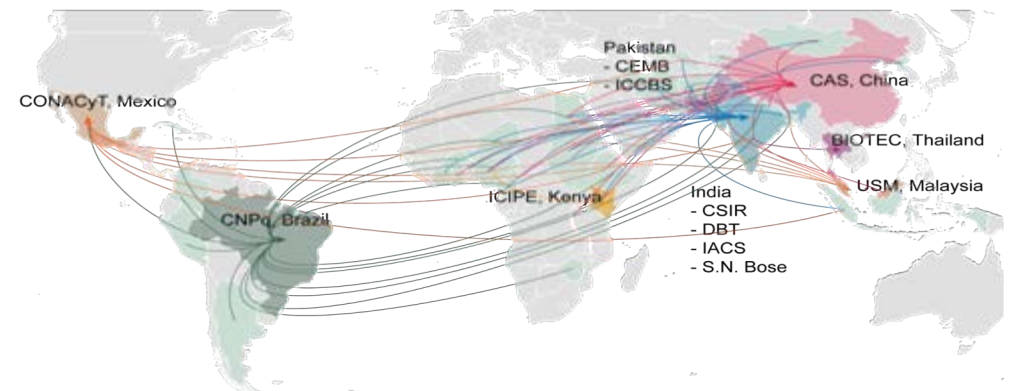
**650+ fellowships per year**

PhD fellowships + 460  
Postdoctoral fellowships + 150  
Visiting professors + 45

## OWSD S-S Postgraduate Fellowships



**50 Fellowships per year**





## **Sub-Saharan Africa to receive £25M in new program aimed at early career scientists**

**A new sub-Saharan Africa grant scheme, Future Leaders – African Independent Researchers (FLAIR) Fellowships, offers talented African early career researchers who have the potential to become leaders in their field, the opportunity to develop an independent research career in a sub-Saharan African institution**

**Each Fellowship provides up to \$ 200,000 per year for 2 years with opportunity for 3 year renewal**

## Africa Centers of Excellence (ACE)



- Launched by WB In partnership with African governments to develop and sustain excellence in postgraduate education
- 46 Centers working in health, energy, agriculture and ICT selected on basis of merit and competition
- Each Center offered \$8 million for strengthening research and postgraduate education



**WB- African Center of Excellence for CSA**  
*Haramaya University, Ethiopia*





Swiss TPH



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs,  
Education and Research EAER  
State Secretariat for Education,  
Research and Innovation SERI

- **Visiting Research Fellowships for Advanced PHD Students and Early Postdoctoral Researchers from sub-Saharan Africa or Switzerland in Advancing the Sustainable Development Goals (SDG's)**
- *Climate Change, Global Health, Migration, Nanoscience and Social Sciences*

## SWISS-SUB-SAHARAN BUSINESS DEVELOPMENT PROGRAM (SSABDP)

- **Aims to boost the entrepreneurial know-how and exposure of Sub-Saharan graduate students – entrepreneurs seeking growth opportunities by offering a unique program bringing entrepreneurs to **innovation hotspots** in Nairobi and Switzerland**
- **Advanced workshop in Nairobi, December 2018**  
**entrepreneurial bootcamp in Switzerland, 2019**

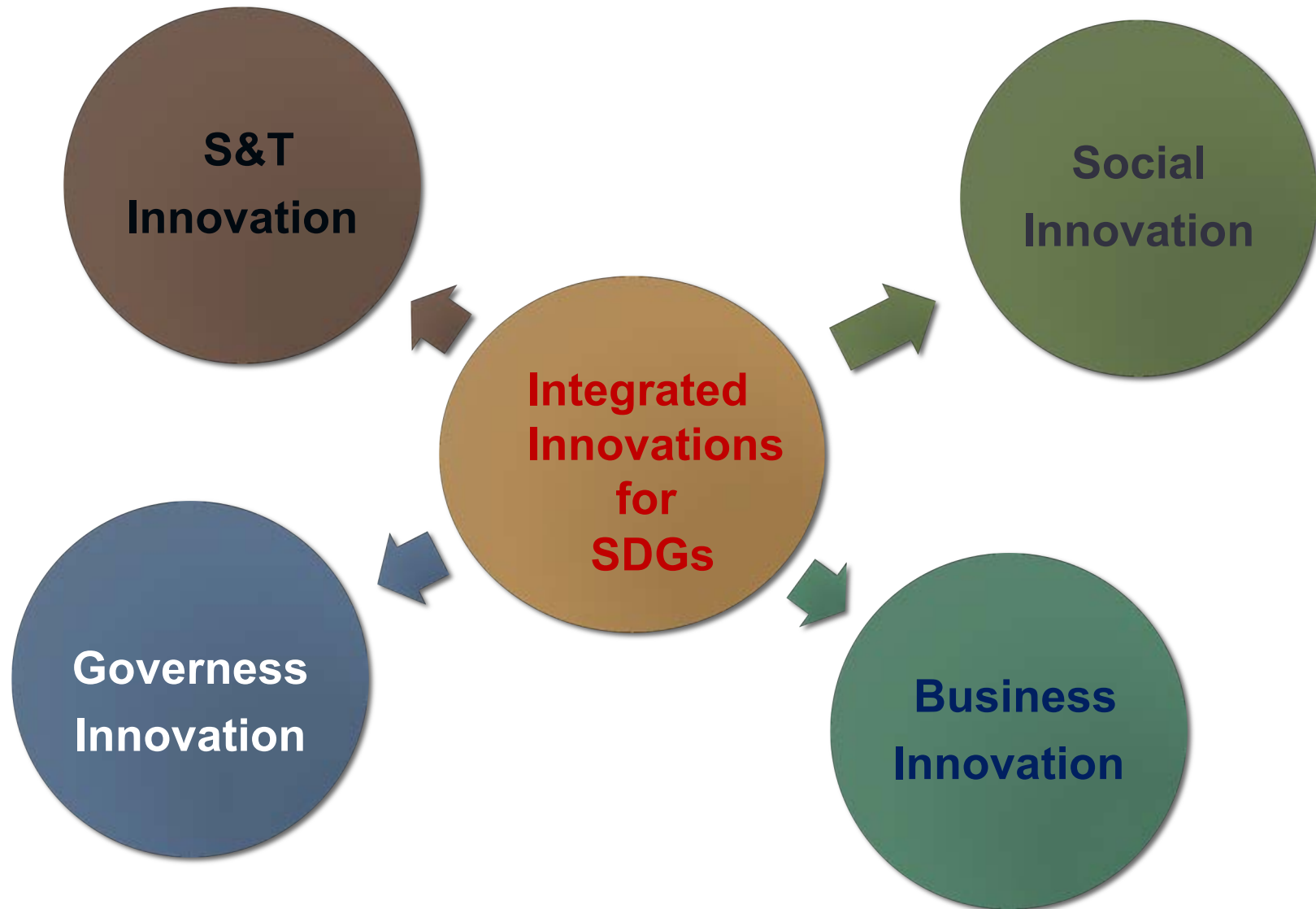


- ❑ UN-GA established a Technology Bank for LDCs
- ❑ UN-SG appointed **governing Council** of UN technology bank and established trust fund
- ❑ Inaugurated in June 2018 at Headquarters in Turkey
- ❑ Facilitating mechanism to help LDCs to:
  - *build robust human and institutional capacities in STI*
  - *upscale and market relevant LDCs research, protect and secure their IP at concessionary rates*
  - *Acquire, develop and commercialize technologies critical to achieving the SDGs*





# Scaling Innovations



**Thank you**

Mohamed H.A. Hassan  
hassan@ictp.it