



World Federation of Engineering  
Organizations  
Fédération Mondiale des Organisations  
d'Ingénieurs  
Federación Mundial de las Organizaciones de  
Ingenieros

WFEO – UNESCO Joint Meeting for Member States  
Paris, 27 October 2022

# THE IMPORTANCE OF BRINGING TOGETHER THE GLOBAL COMMUNITY OF ENGINEERS

José M.P. Vieira  
President of WFEO

27.10.2022

[www.wfeo.org](http://www.wfeo.org)



# Outline

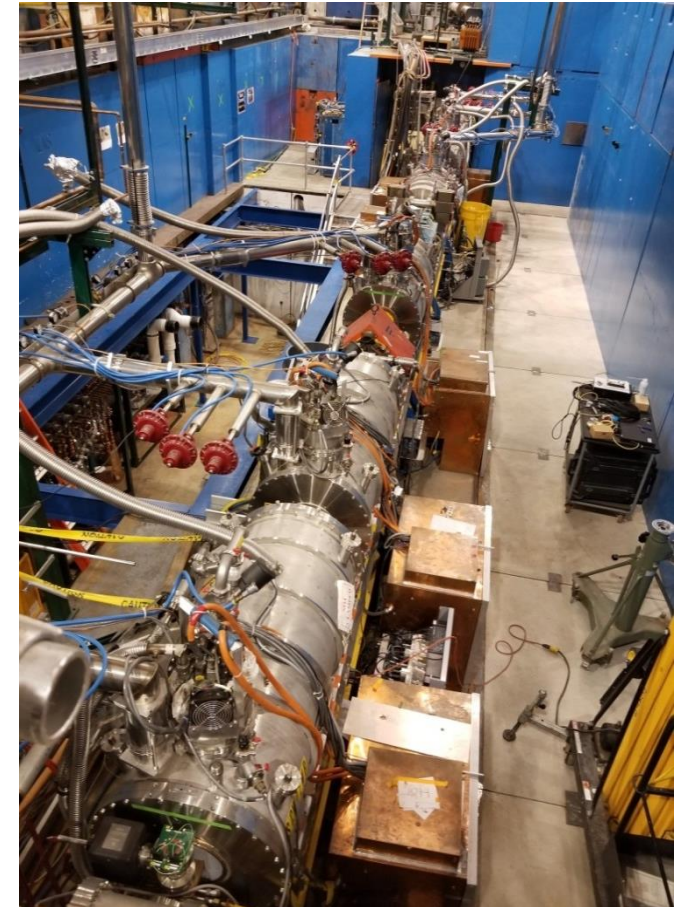
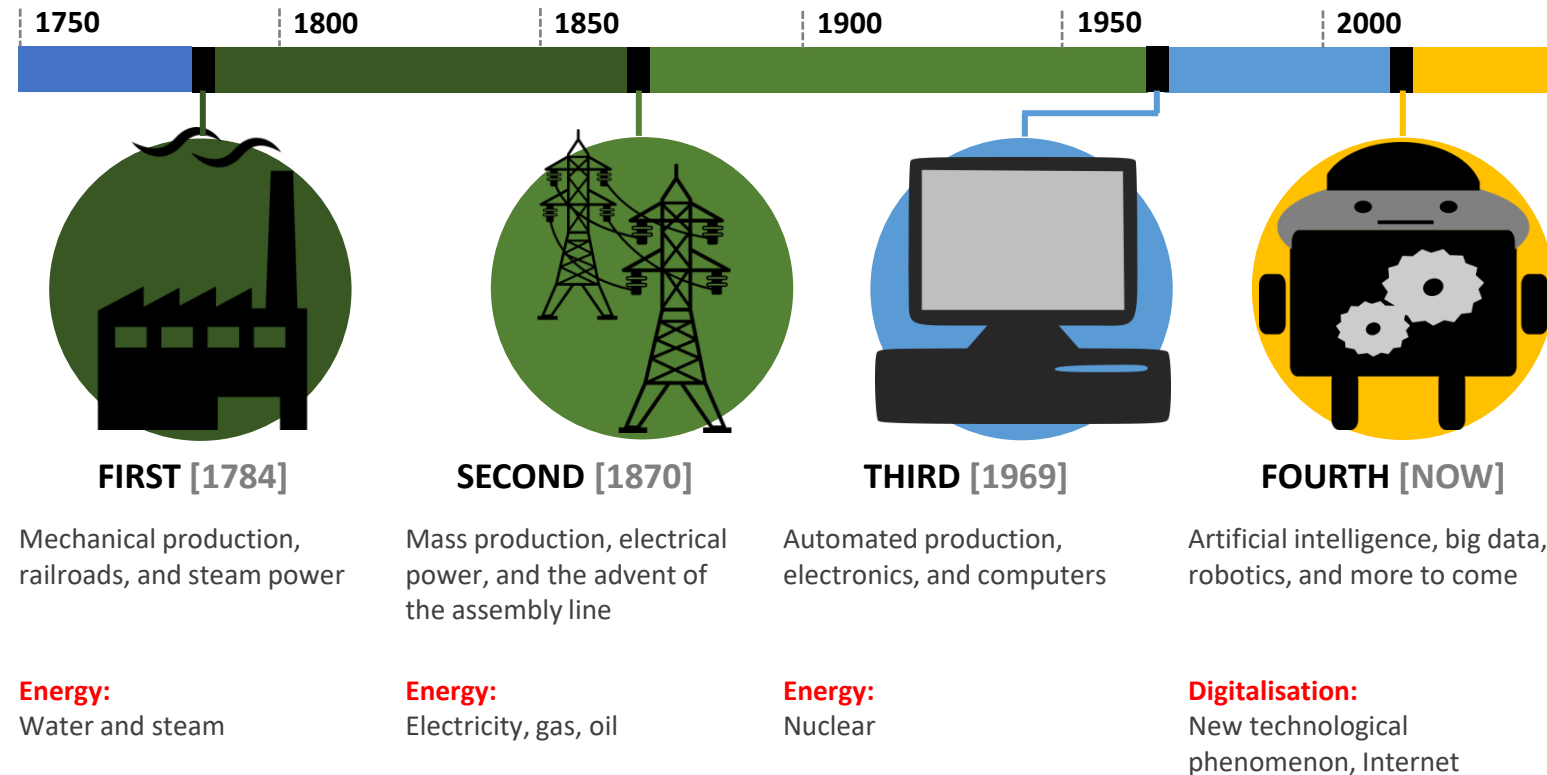
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- Engineering, economic growth and quality of life
- WFEO: a Federation for a Global Engineering
- The WFEO Engineering 2030 Plan



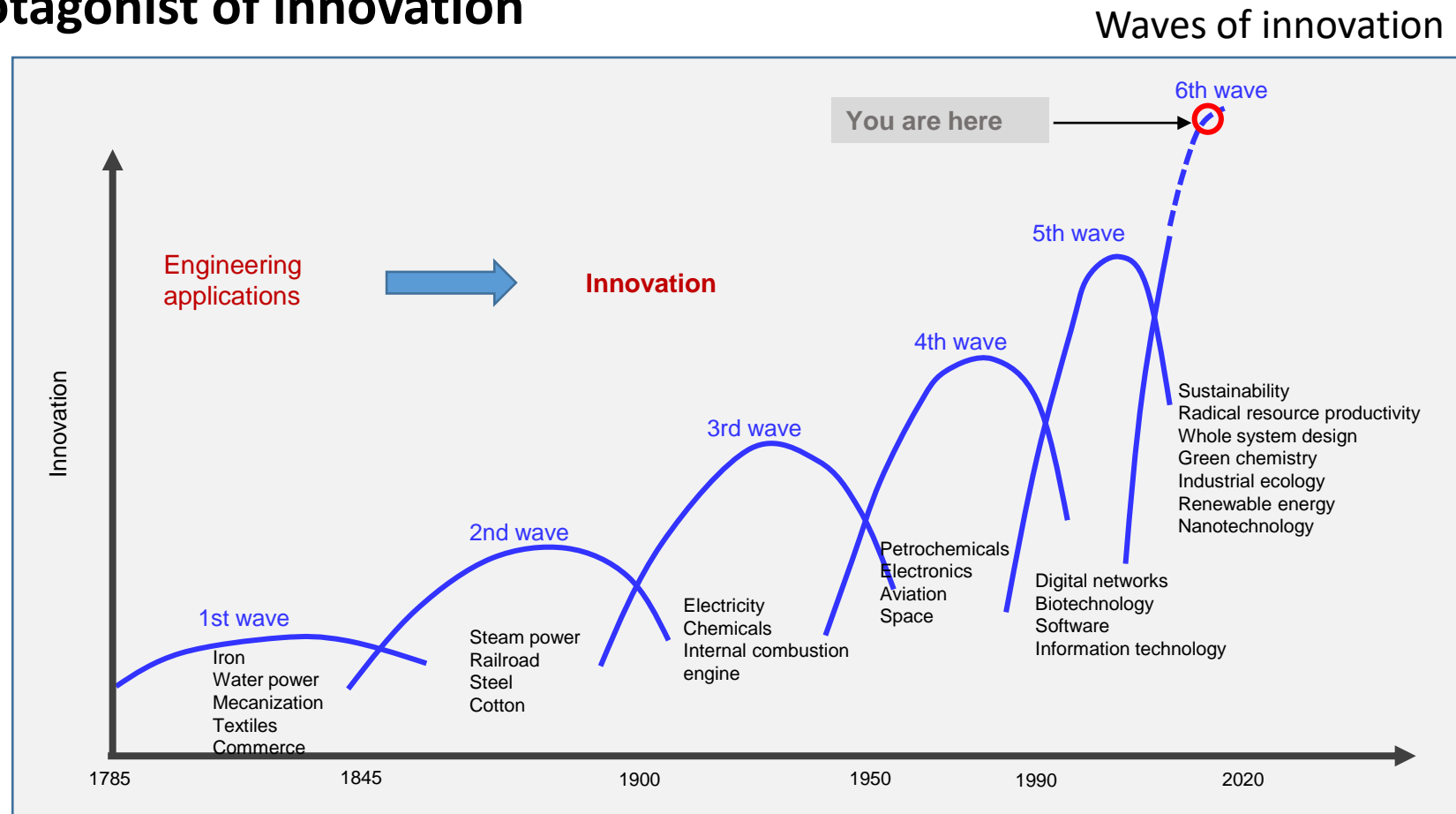
# Engineering, economic growth and quality of life

## Industrial revolutions timeline



# Engineering, economic growth and quality of life

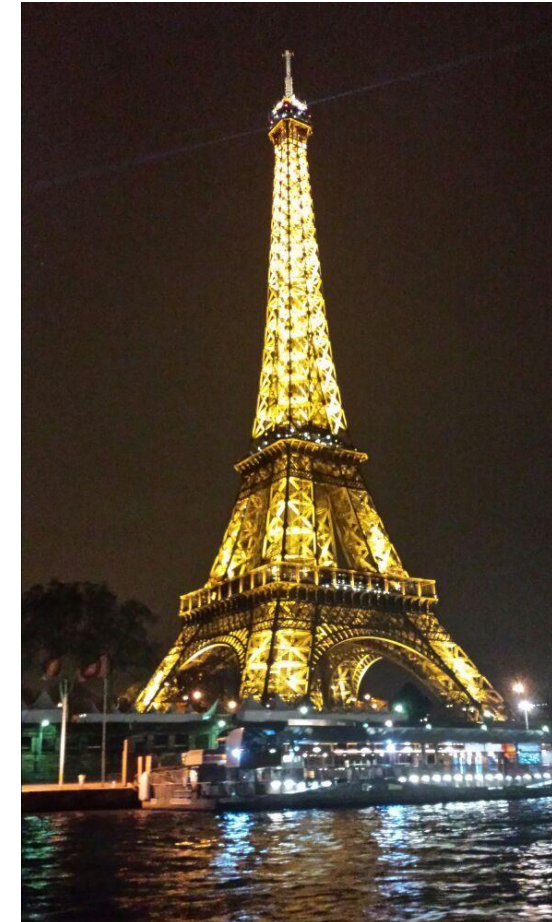
## Engineer, the protagonist of innovation



# Engineering, economic growth and quality of life

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creating striking innovations:

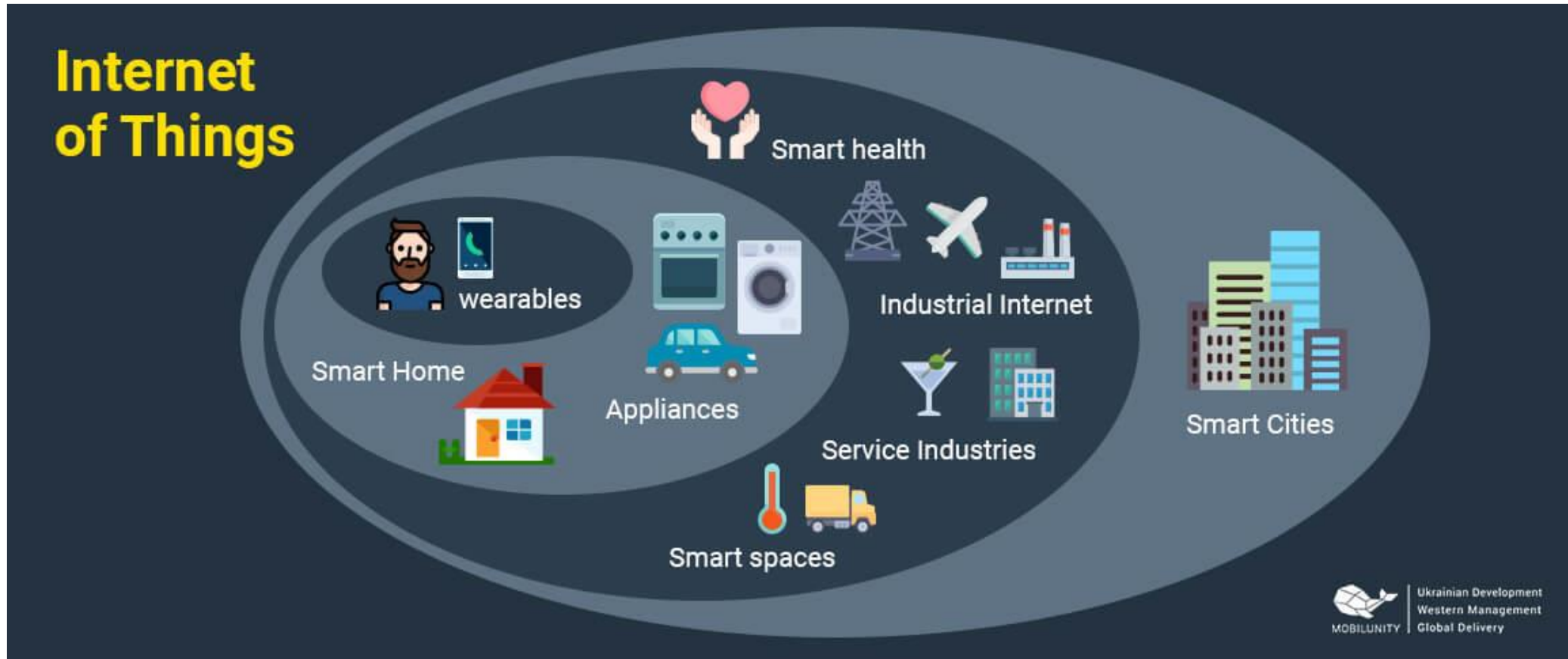


**Engineering** for Sustainable Development



# Engineering, economic growth and quality of life

Challenges of digitalisation: Internet of things, big data, robotics, artificial intelligence



# Engineering, economic growth and quality of life

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## Innovation and sustainability



“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Gro Harlem Brundtland (“Our Common Future, 1987”)



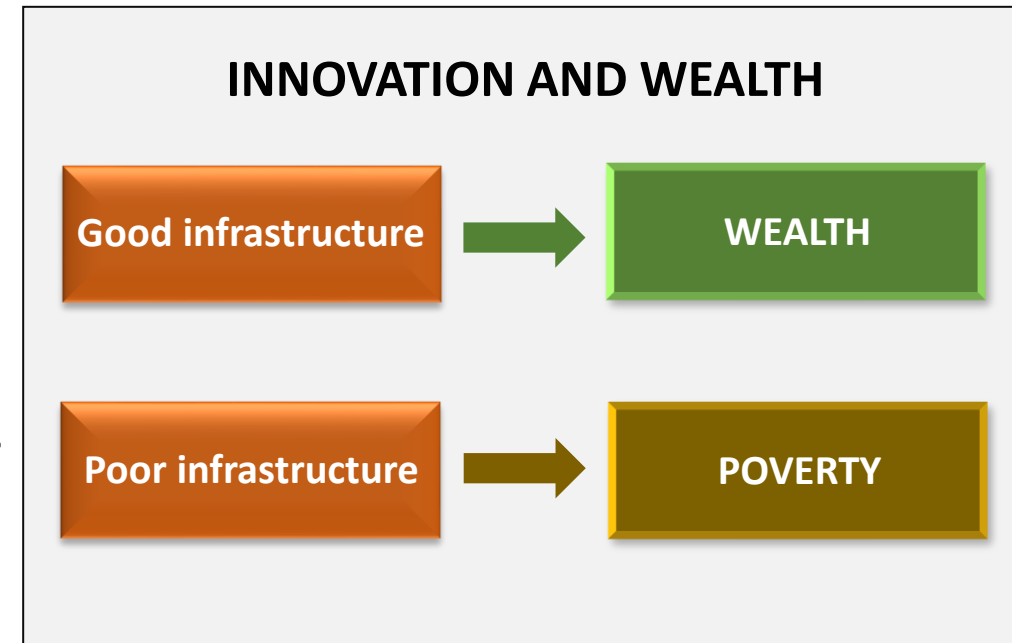
# Engineering, economic growth and quality of life

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## Innovation. The paradox of wealth and poverty

### Scaling Up and Improving Infrastructure for Poverty Reduction:

- High quality of Engineering Education
- Responsible and committed political governance
- Adequate planning
- Sustainable access to infrastructure facilities and services





# Engineering, economic growth and quality of life

Poor infrastructure  Poverty



**Engineering** for Sustainable Development



# Engineering, economic growth and quality of life

Good infrastructure  wealth

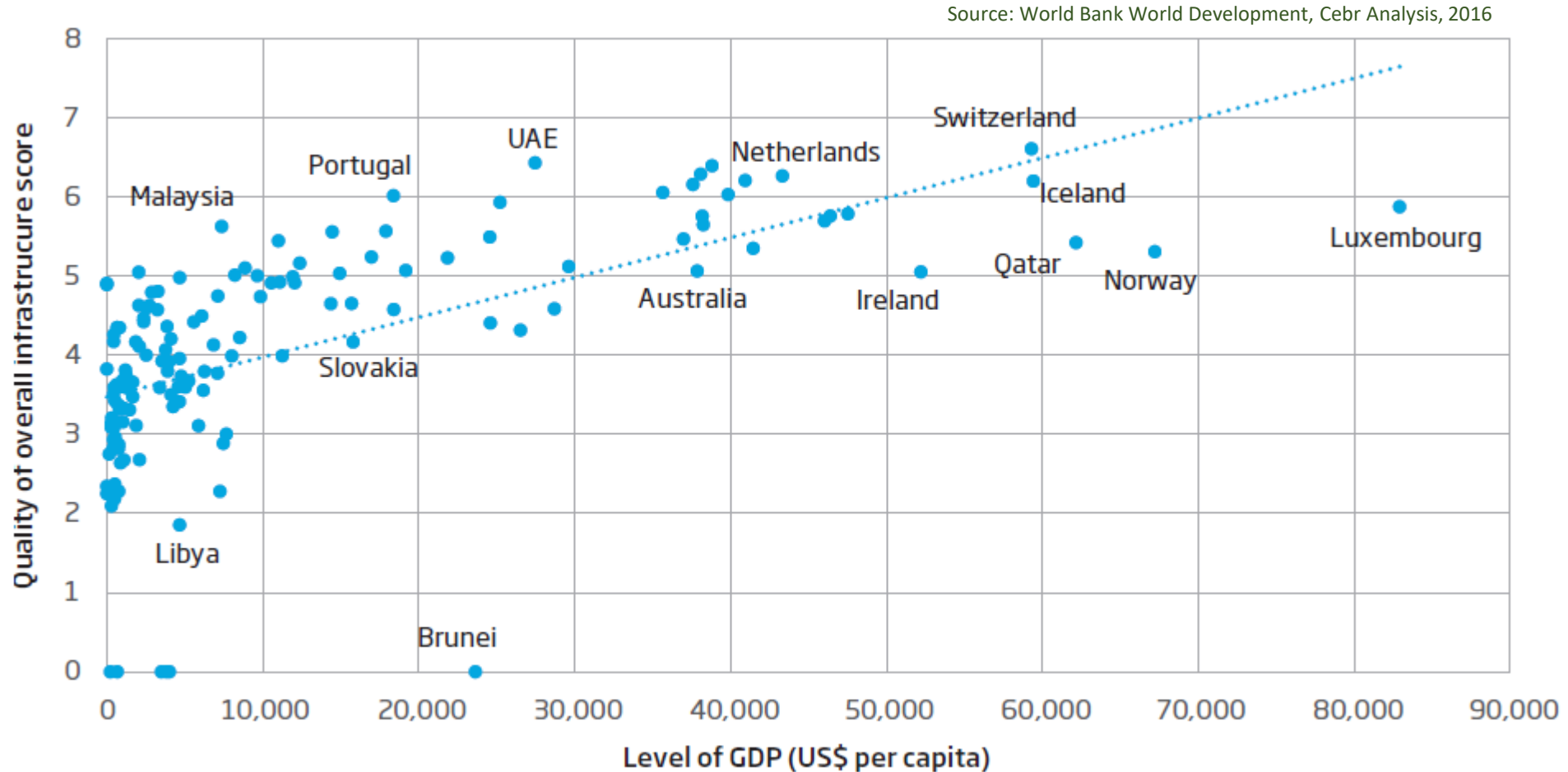


**Engineering** for Sustainable Development



# Engineering, economic growth and quality of life

Quality of infrastructure in a country *versus* the level of economic development



# Outline

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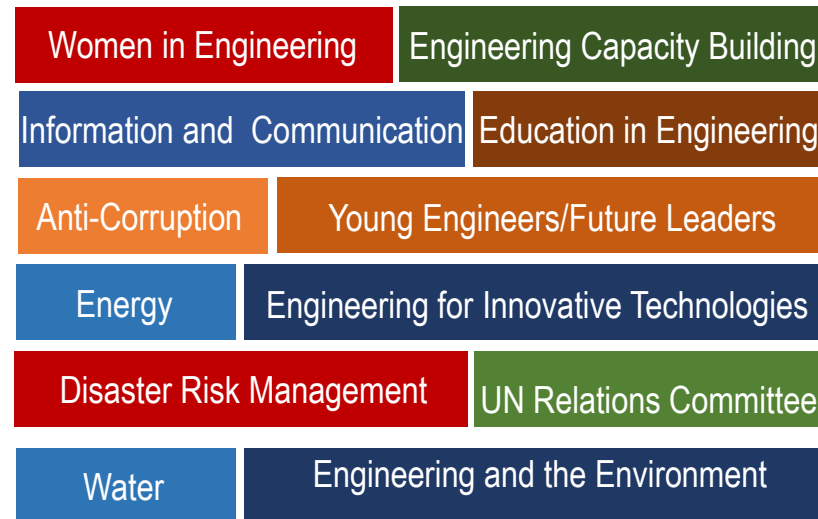
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# WFEO - World Federation of Engineering Organizations



- The peak international body for professional engineering institutions
- Founded in 1968, under the auspices of UNESCO
- 100+ national professional engineering institutions
- 12 international and continental/regional professional engineering institutions
- Representing 30 million engineers



Acts through ten Committees and Working Groups addressing key engineering issues



Cooperates with United Nations bodies and other international organizations

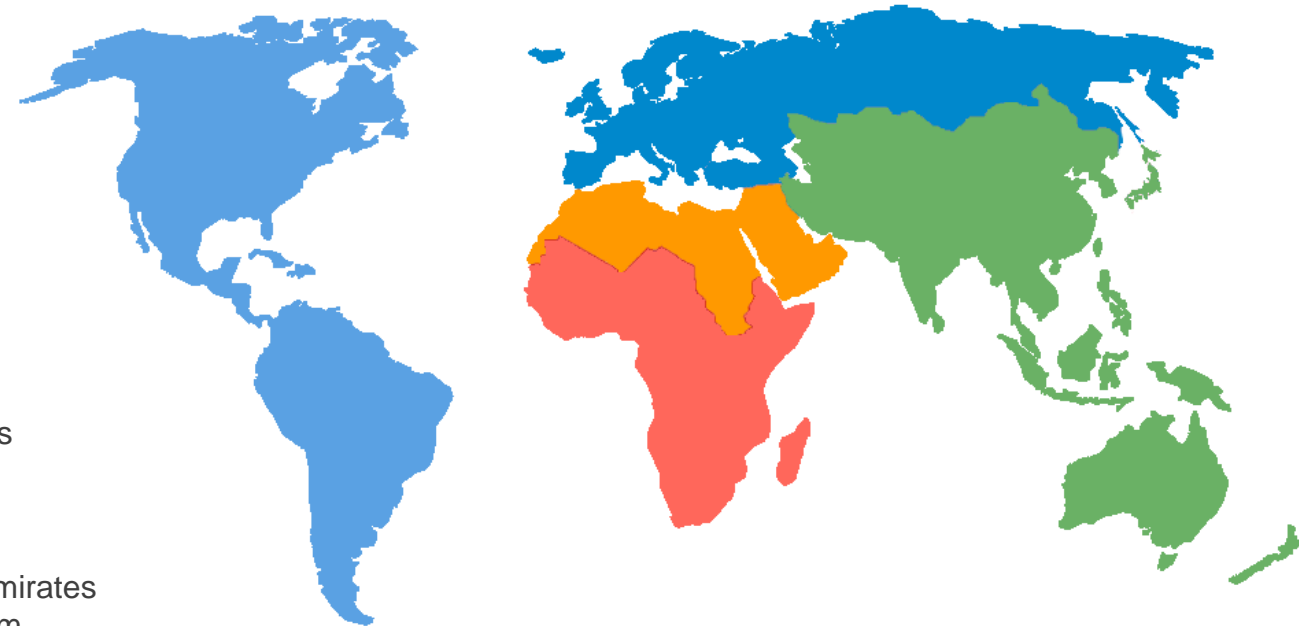
***Engineering* for Sustainable Development**



# WFEO - World Federation of Engineering Organizations

## National Members in all continents

Algeria	Eswatini	Malaysia	Senegal
Angola	Ethiopia	Malawi	Serbia
Argentina	Fiji	Malta	Sierra Leone
Australia	France	Morocco	Singapore
Bahrain	Ghana	Mauritius	Slovakia
Bangladesh	Greece	Mexico	Slovenia
Bolivia	Honduras	Montenegro	South Africa
Brazil	Hong Kong, China	Myanmar	Spain
Bulgaria	India	Namibia	Sri Lanka
Cabo Verde	Indonesia	Nepal	Sudan
Cameroon	Iraq	New Zealand	Switzerland
Canada	Italy	Nigeria	Syria
China	Ivory Coast	Oman	Tanzania
Chinese Taipei	Japan	Palestine	The Philippines
Colombia	Jordan	Pakistan	Tunisia
Congo DR	Kenya	Peru	Uganda
Costa Rica	Korea	Poland	Ukraine
Croatia	Kuwait	Portugal	United Arab Emirates
Cuba	Lebanon	Puerto Rico	United Kingdom
Cyprus	Libya	Qatar	United States of America
Czech Republic	Macau, China	Romania	Uruguay
Egypt	North Macedonia	Rwanda	Zambia
Ecuador	Madagascar	Saudi Arabia	Zimbabwe
			Yemen





## Committees and Working Groups

- **Engineering and the Environment** (Hosted by UK)
- **Energy** (Hosted by France)
- **Education in Engineering** (Hosted by Myanmar)
- **Information and Communication** (Hosted by India)
- **Engineering and Innovative Technologies** (Hosted by China)
- **Engineering Capacity Building** (Hosted by Zimbabwe)
- **Disaster Risk Management** (Hosted by Peru)
- **Anti-Corruption** (Hosted by Rwanda)
- **Women in Engineering** (Hosted by Nigeria)
- **Young Engineers/Future Leaders** (Hosted by Lebanon)
- **Water** (Hosted by Spain)
- **UN Relations Committee** (Hosted by USA)
- **Working Group on Global Infrastructure Report Card** (Hosted by South Africa)

***Engineering* for Sustainable Development**



# WFEO - World Federation of Engineering Organizations

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- **Work in collaboration with:**
  - **UN Economic and Social Council (ECOSOC)**
  - **UN Department of Economic and Social Affairs (UNDESA)**
  - **UN Development Program (UNDP)**
  - **UN Educational, Scientific and Cultural Organisation (UNESCO)**
  - **UN Industrial Development Organisation (UNIDO)**
  - **UN Environmental Program (UNEP)**
  - **UN Framework on Climate Change (UNFCCC)**
  - **UN Office for Disaster Risk Reduction (UNISDR)**
  - **The International Atomic Energy Agency (IAEA)**
  - **The World Meteorological Organisation (WMO)**





# WFEO - World Federation of Engineering Organizations

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- Methodological Approach:

**Influencing...** a respected source of advice & guidance on engineering and technology

**Supporting...** UN sustainable development goals

**Partnering...** with our international peers in engineering and science

**Growing...** engineering capacity and mobility

**Improving...** the ethical engineering practice and a diverse and inclusive profession

**Convening...** world engineers' events

**Recognising...** excellence in engineering

***Engineering* for Sustainable Development**



# Paris Declaration



**DECLARATION  
WFEO – UNESCO**

Signed in 7th March 2018

**Paris Declaration**

Advancing the United Nations  
Sustainable Development Goals  
through Engineering

**SUSTAINABLE  
DEVELOPMENT  
GOALS**

The World Federation of Engineering Organizations (WFEO) is the main body for engineering globally, representing nearly 100 nations and some 30 million engineers.

The members of WFEO are the national and regional professional engineering institutions of the world. WFEO is a member of the United Nations Scientific and Technological Community (UN STC) Major Group and has an official Associate status with UNESCO.

UNESCO, as the United Nations agency for education, science and culture, supports engineering through its Natural Sciences Sector, and acknowledges engineering as a powerful means to achieve sustainable development, capacity-building in engineering education and gender equality in developing countries, as well as the safeguarding of world heritage.

CELEBRATING 50 YEARS OF INTERNATIONAL ENGINEERING LEADERSHIP

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World Federation of Engineering Organizations  
Fédération Mondiale des Organisations d'Ingénieurs

UNESCO  
United Nations  
Educational, Scientific and  
Cultural Organization

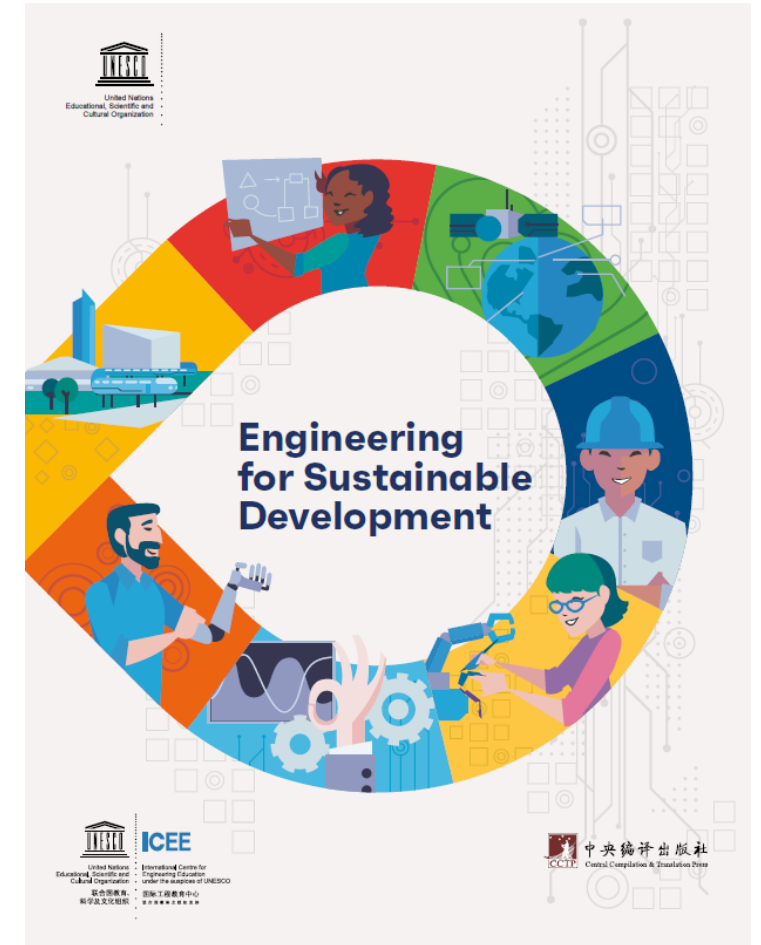
**Engineering for Sustainable Development**



# The UNESCO Engineering Report

## Key messages

- Engineering is of paramount importance in supporting economic growth and increase of human quality of life
- Engineering innovations are needed to achieve the SDGs
- There is a need to build capacity for more engineers, especially women, with the right skills to advance sustainable development, especially in developing countries



***Engineering* for Sustainable Development**



# UNESCO World Engineering Day (4th MARCH)



***Engineering*** for Sustainable Development



# WED 2022 – HACKATHON | 24HRS LIVE



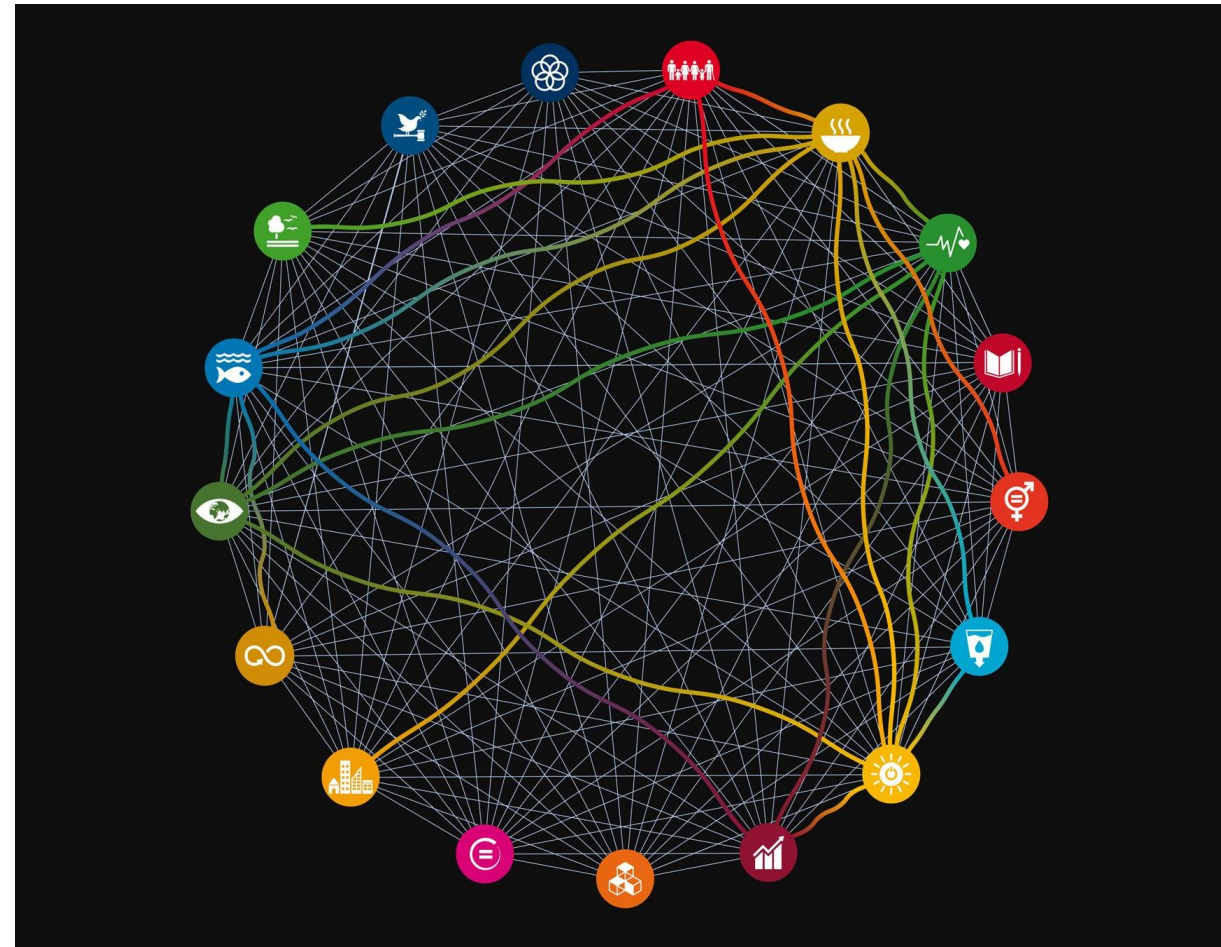
*Engineering* for Sustainable Development



# Outline

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# The WFEO Engineering 2030 Plan

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## Engineering Education and Professional Development:

- A Plan to develop engineering capacity for a sustainable world through partnerships with educators, government, industry and professional engineering institutions
- A strategic initiative to address the gap in engineering capacity and the quality of engineering professionals
- Recognises that:
  - engineers are essential for sustainable development
  - good engineering is essential achieving the UN Sustainable Development Goals
  - consistent with the mission and objectives of WFEO
- WFEO will be leading and co-ordinating the Plan with its international partners

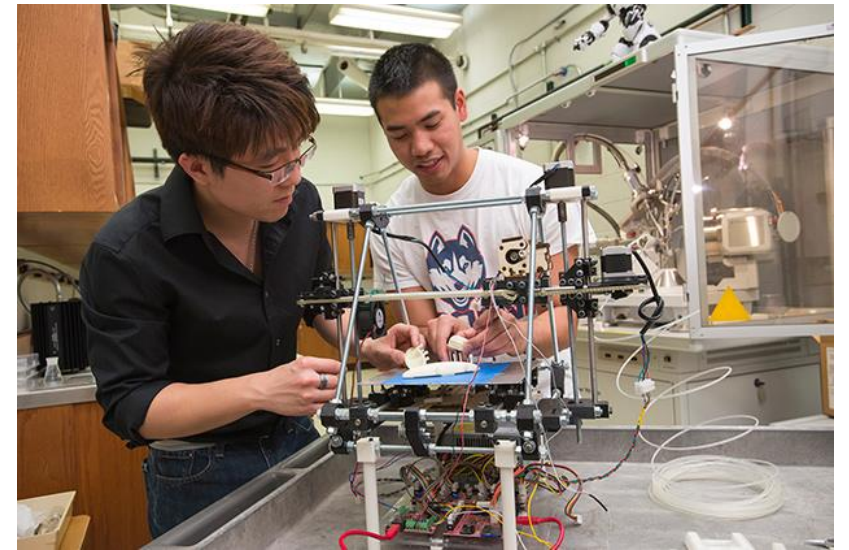


# The WFEO Engineering 2030 Plan

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## Principles for action:

- **Supporting** High Quality Education
- **Graduate Outcomes** that meet industry needs
- **Engineering qualifications** that are recognised nationally and internationally
- **Continuous professional development**
- **Capacity Building** – for professional engineering institutions
- **Support national and international registration** – for recognition of qualifications and experienced of practicing engineers
- **Liaise with governments** – to establish consistent regulation policies for engineers
- **Establish an international platform for engineering standards** – under auspices of WFEO and UNESCO





# The WFEO Engineering 2030 Plan

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## Capacity building for sustainable development :

- **Creating and enabling** environment with appropriate and legal frameworks.
- **Institutional development**, including community participation.
- **Human resources** development and strengthening of managerial systems.
- **Engineering education and professional experience** combine to a required level of engineering capacity.



# The WFEO Engineering 2030 Plan

WFEO Academy

(<https://wfeoacademy.com>)



***Engineering*** for Sustainable Development



# The WFEO Engineering 2030 Plan

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## Partnerships:

1. **UNESCO and other UN bodies** – Member major UN Science & Technology Group
2. **WFEO Standing Technical Committees** – support aspects of the plan, e.g. ethical engineering practices, diversity, youth leadership
3. **National and International Members of WFEO** – These are the professional engineering institutions that will both deliver and benefit from the Plan
4. **International partners of WFEO** – Key bodies for international standards in engineering education
  - International Engineering Alliance (IEA)
  - International Federation of Engineering Education Societies (IFEES)
  - Federation of International Consulting Engineers (FIDIC)
  - International Network for Women Engineers and Scientists (INWES)
  - International Centre for Engineering Education (ICEE, UNESCO Centre)
  - International Science Technology and Innovation Centre for South-South Cooperation (ISTIC, Malaysia, UNESCO Centre)
  - International Science Council (ISC)



# The WFEO Engineering 2030 Plan

## INTERNATIONAL ENGINEERING ACCORDS: *Facilitating engineering mobility – creating networks, sharing ideas*

Source: Owens D. 2022



E Taylor: data as at Aug 2020



# The WFEO Engineering 2030 Plan

A successful sustainable development agenda requires partnerships between governments, the private sector and civil society. These inclusive partnerships built upon principles and values, a shared vision, and shared goals that place people and the planet at the centre, are needed at the **global, regional, national and local level**.

**This is why it is important to bring together the global community of Engineers for the benefit of humanity and the environment**



Thank you for your attention



WFEO

José M P VIEIRA  
President

27 October 2022