



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

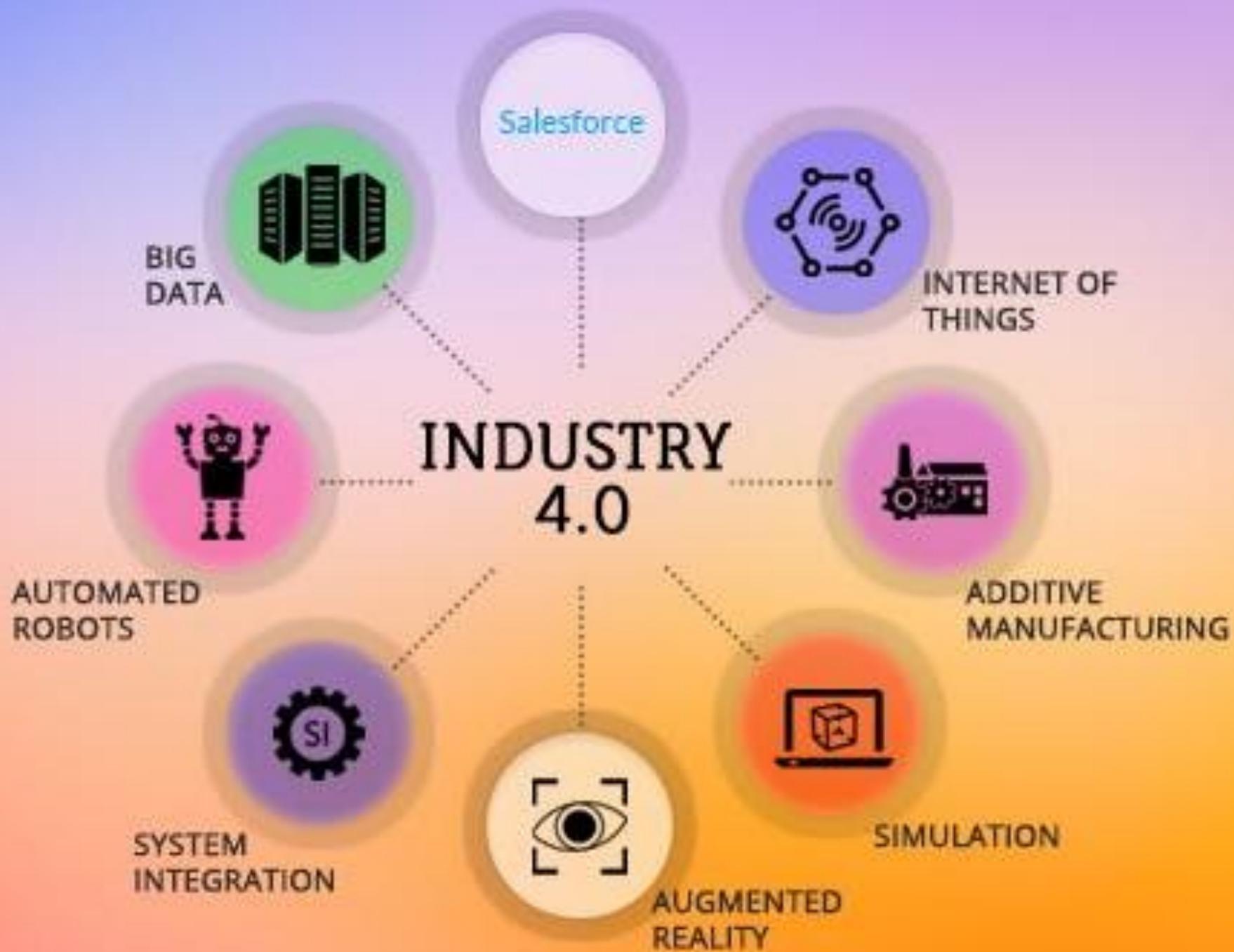
Ir Prof Dr Wai-Yie LEONG
Chairperson
IET Industry Revolution 4.0
Technical Network

waiyie@inwes.net

**“Women Engineers in
Industrial Revolution 5.0”**



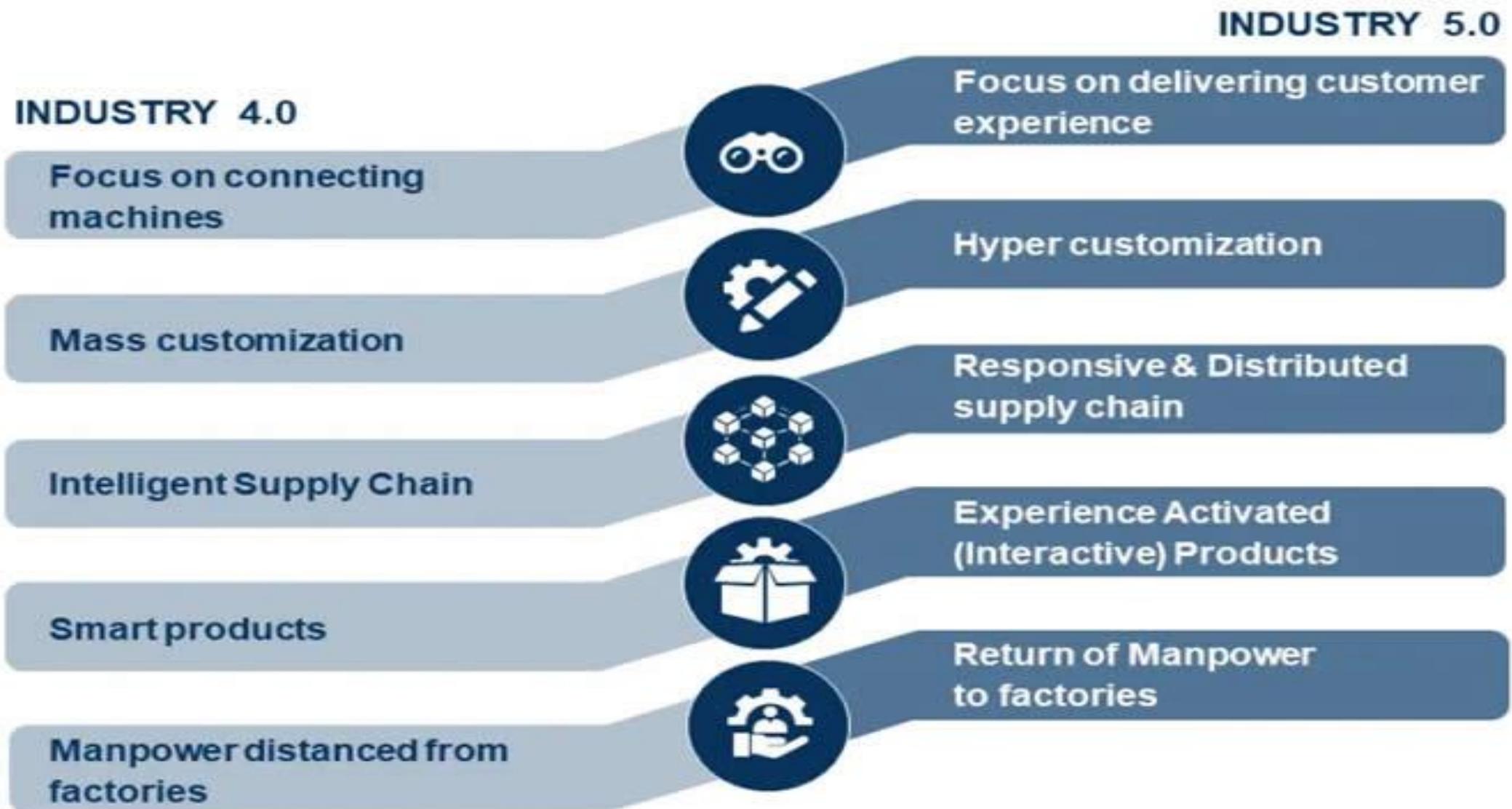
The Institution of
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Industry Revolution 5.0



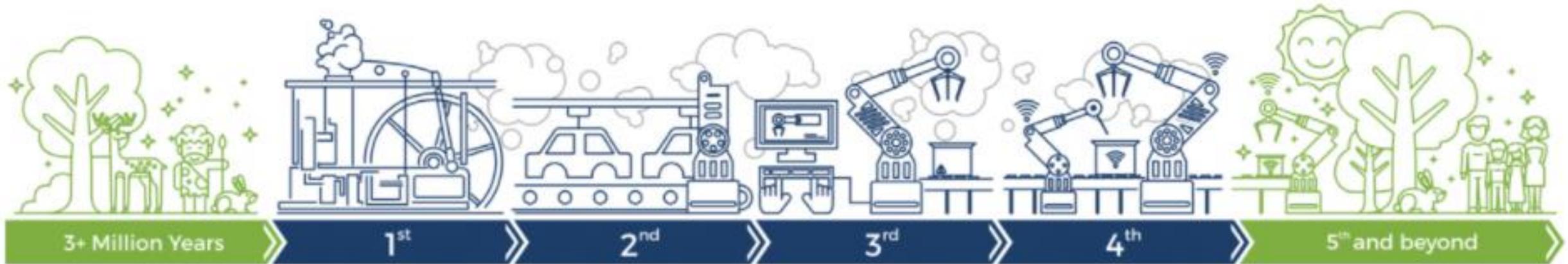
Highlights of Industry 5.0 compared to Industry 4.0



| 1 st Industrial Revolution | 2 nd Industrial Revolution | 3 rd Industrial Revolution | 4 th Industrial Revolution | 5 th Industrial Revolution |
|---|---|--|---|---|
| Mechanisation | Electrification | Automation and Globalisation | Digitalisation | Personalisation |
| Occurred during the 18 th and 18 th centuries, mainly in Europe and North America | From the late 1800s to the start of the First World War | The digital revolution occurred around the 1980s | Start of the 21 st century | 2 nd decade of the 21 st century |
| Steam engines replacing horse and human power | Production of steel, electricity and combustion engines. | Computers, digitisation and the internet, | AI, robotics, IoT, blockchain and crypto. | Innovation purpose and inclusivity. |
| Introduction of mechanical production facilities driven by water and steam power | Division of labour and mass production, enabled by electricity. | Automation of production through electronic and IT systems | Robotics, artificial intelligence, augmented reality, virtual reality | Deep, multi-level cooperation between people and machines. Consciousness. |

Industrial Revolutions:

A Natural Progression and Return to Our Core



**Sustainable,
Diverse
Ecosystems**

**Steam
Based
Machines**

**Electrical
Energy
Based Mass
Production**

**Computer
Based
Knowledge**

**Artificial
Intelligence,
IT, Data
Analysis**

**Relationships
Based:
Humanity,
Planet and
Purpose**

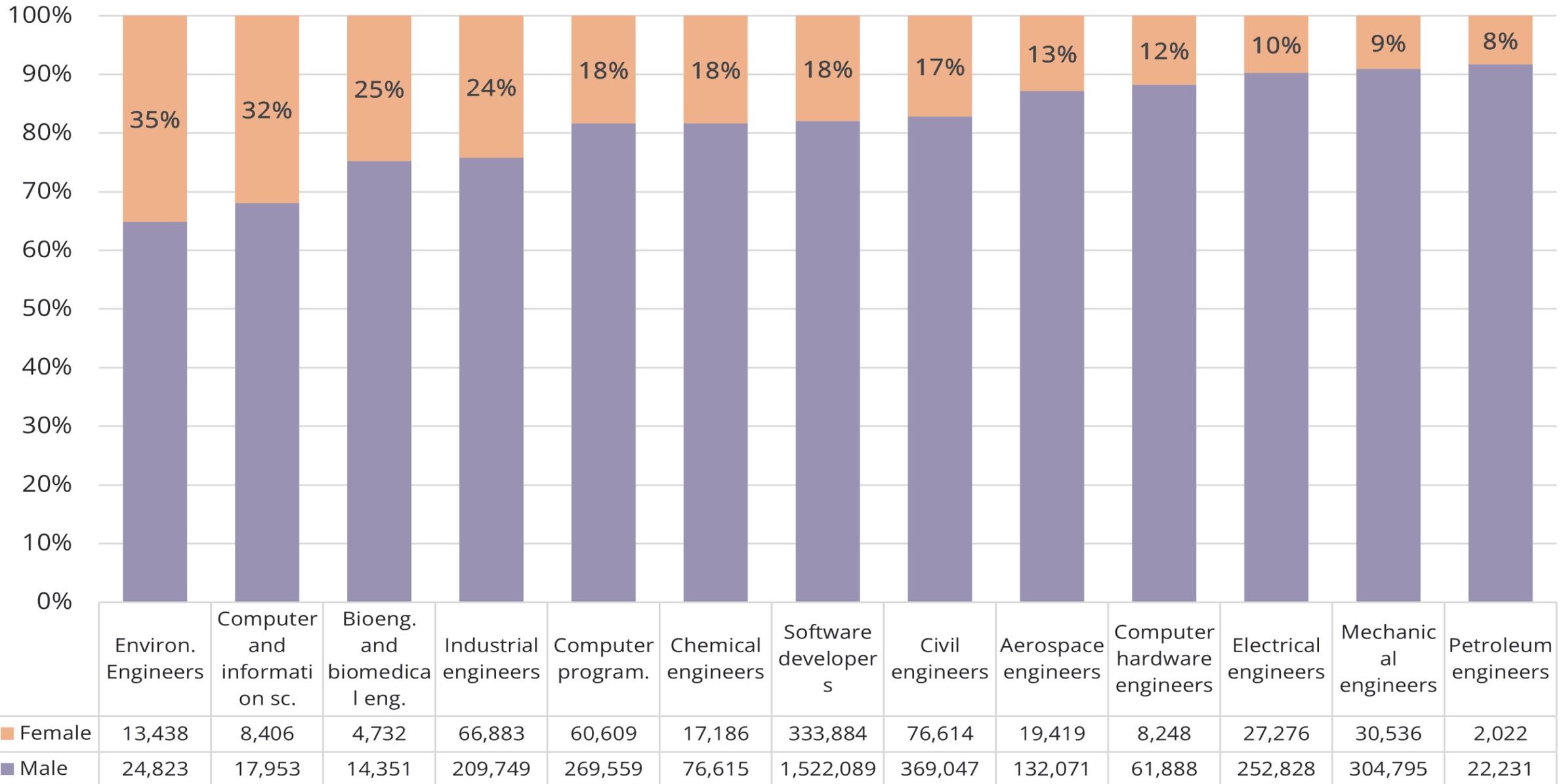
What skills do we need in the 4th Industrial Revolution?

What skills will we need in the 5th Industrial Revolution?

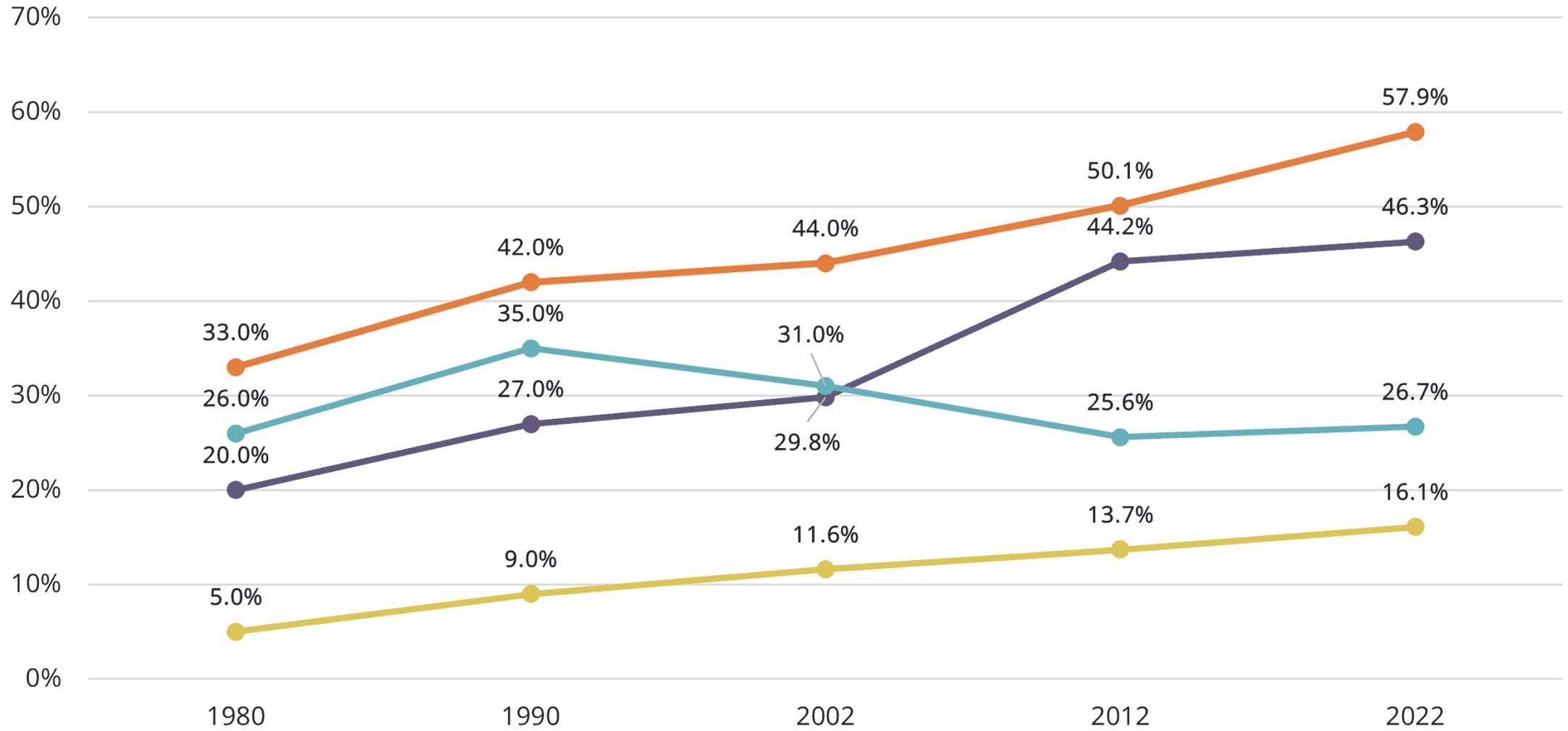


The universal framework for essential skills

Full-time Employed Engineers and Computer Professionals by Gender 2021



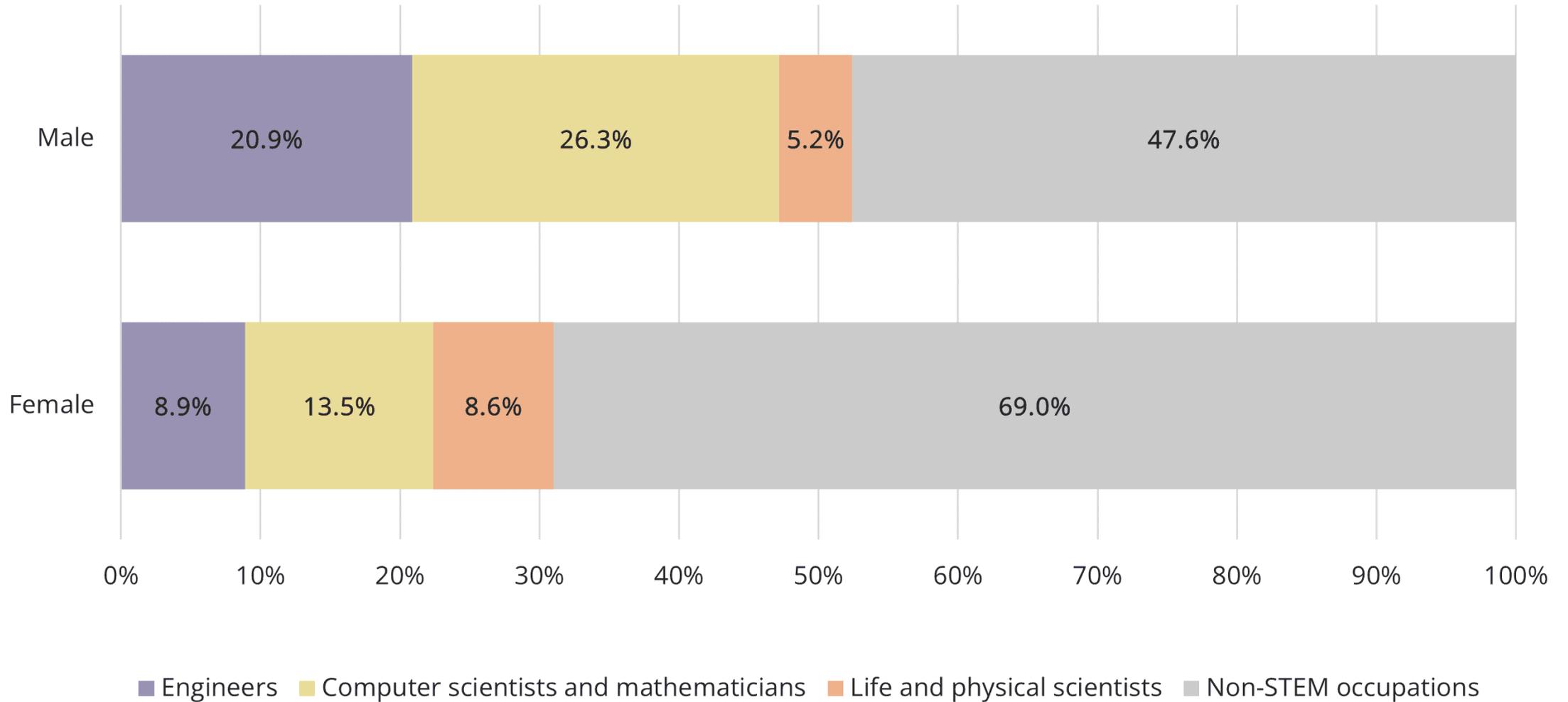
Women in Select STEM Occupations 1980 to 2022



—●— Architecture and Engineering
—●— Chemists and materials scientists

—●— Biological scientists
—●— Computer and mathematical occupations

Proportion of 25- to 34-year-old Men and Women Employed with a Bachelor's Degree in STEM, by Occupation, 2019



WOMEN IN TECH

TIME TO CLOSE THE GENDER GAP

Only 3% of girls consider a career in tech

The gap starts at school and continues through every stage of a woman's career

VISIBLE ROLE MODELS are very important

3 KEY FACTORS

- Not given enough info at school
- Not encouraged
- Too male dominated

School is the best time to inspire

WHAT CAN WE DO TO AMPLIFY THINGS THAT ARE WORKING?

- Share stats between companies: what works well?
- Show how creative you can be in tech
- Male as well?
- Girls should have the right role models to show they can go anywhere

WHAT WOULD SUCCESS LOOK LIKE?

- It doesn't have to be PINK to be for girls
- We need to show school children what options are available
- Educate parents on tech careers
- CODE IS COOL! change the conversation
- We need to support women in the work life balance

50:50 split

WHAT CAN WE BRING EVERYONE TOGETHER TO DO?

- Increase access to the tech sector and mentors
- Film plays a big role in changing perceptions
- Engage with schools to break down barriers
- Work with science teachers in schools

We need a common dialogue

ACTION! Let's take these ideas forward to **MAKE A DIFFERENCE**

DigitALL: Innovation and technology for gender equality



The universal framework for essential skills



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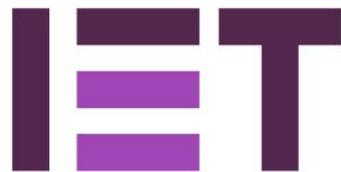
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