

**Fourth Session**  
**Committee on Information and Communications Technology,  
Science, Technology and Innovation**

**Agenda Item 4**

**Fourth Industrial Revolution Technologies for Sustainable Development**

## Introduction

- Fourth industrial revolution (4IR) technologies
  - ▶ Artificial intelligence (AI), Internet of things (IOT), machine learning, big data, nanotechnology among others
  - ▶ Encompassing digital, physical and biological spheres
  - ▶ Rapid growth in development & utilization of 4IR technologies is being witnessed, corroborated by increase in their market size
    - ▶ Global market for 4IR technologies is expected to grow at a CAGR of 20.6% from 2021 to 2026
    - ▶ Market for blockchain in Asia Pacific is expected to grow at a CAGR of 54.4% from 2021 to 2026
  - ▶ Faster development, diffusion and transfer of 4IR technologies can be harnessed for environmental, social and environmental benefits

## 4IR technologies and sustainable development: Opportunities

- 4IR technologies are key for sustainable development
  - ▶ At the current pace, Asia Pacific will not achieve SDG goals until 2065 (*Asia and the Pacific SDG Progress Report, 2022*)
  - ▶ Significant potential for sustainable development: 70% of 169 targets can be enabled by existing 4IR technologies (WEF study)
  - ▶ Examples: Enhanced efficiency ('integrated manufacturing'; delivery of public services), resource conservation (precision agriculture), better safety (use drones and unmanned vehicles)

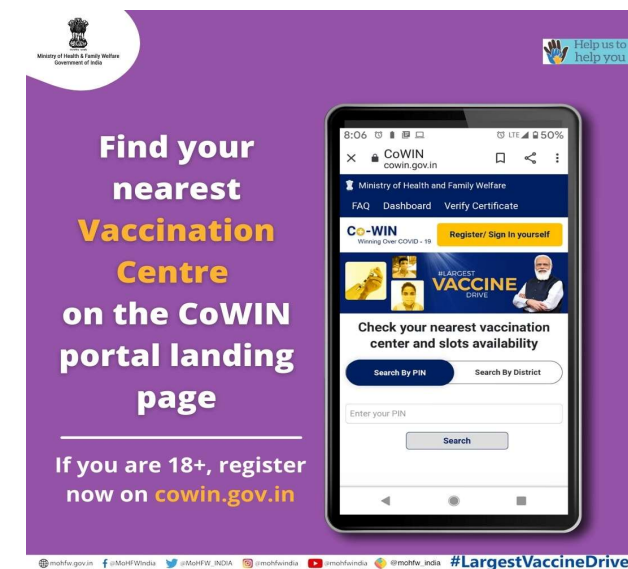
At the current pace, the region will not achieve the SDGs until **2065**



(*Asia and the Pacific SDG Progress Report, 2022. ESCAP*)

## 4IR technologies and sustainable development: Healthcare

- 4IR technologies are strengthening healthcare systems
  - ▶ New methods of treatment & vaccines
  - ▶ New monitoring techniques
  - ▶ Improved access to health care
  - ▶ Improved management
    - ▶ COVID-19 test kit developed in 2 weeks using AI based algorithms (Korea)
    - ▶ CoWIN: eVIN leverages internet of things & provides real time data system for monitoring and storage of vaccine (India)
    - ▶ Personalized medicines and improved monitoring using AI
  
- Considerations
  - ▶ Data safety & sharing, medical ethics, standards & regulations



Ministry of Health & Family Welfare  
Government of India

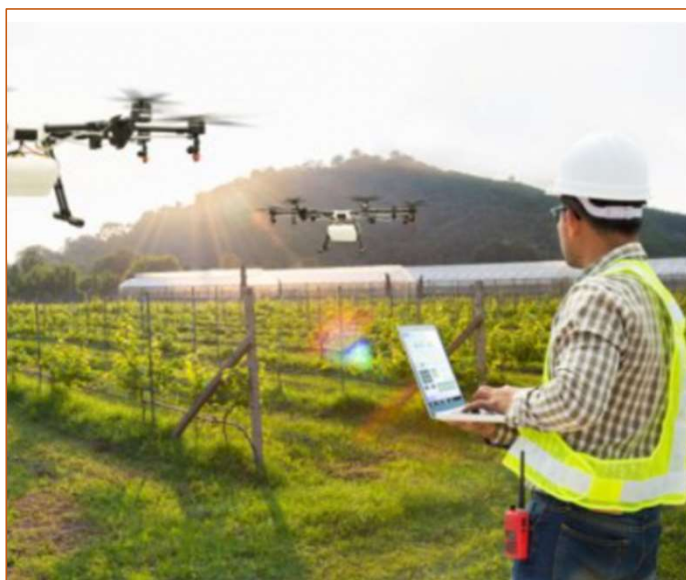
Help us to help you

**Find your nearest Vaccination Centre on the CoWIN portal landing page**

If you are 18+, register now on [cowin.gov.in](https://cowin.gov.in)

#mohfw.gov.in @MoHFW\_India @mohfaIndia #LargestVaccineDrive

## 4IR technologies & sustainable development: Addressing climate change



### ■ 4IR technologies for addressing climate change

- ▶ Improved energy efficiency, reduce emissions, enhance reliability, minimize costs
  - ▶ AI enabled smart solar energy systems, intelligent motors, 5G wireless systems networks, cloud-based control centres
- ▶ Enablers of mitigation and adaptation mechanism
  - ▶ Smart city built on IOT (e.g. Songdo)
  - ▶ Machine learning techniques for accurate rainfall and climatic predictions, Drone-based solutions for sustainable agriculture; Smart sensors to improve efficiency of post-combustion carbon capture
- ▶ Business models
  - ▶ Use of digital and precision technologies & platforms to connect stakeholders for value added services
- ▶ Considerations: cost effective, social acceptance, innovative financing & business models, skilling, standards & regulation

## 4IR technologies and sustainable development: Challenges

- 4IR technologies are key for sustainable development
  - ▶ Challenges associated with digital divide, issues related to data capture and use, data safety and ethics, potential impact on employment.
  - ▶ Development and diffusion is impacted by inadequate research and development spending, digital infrastructure and access gap, policy and regulatory limitations, skills gaps.
  - ▶ To effectively harness 4IR technologies for sustainable development, it is important to have
    - ▶ Enabling ecosystems
      - conducive policy and regulatory frameworks
      - adequate capacities and skills to absorb, adapt, deploy technologies
      - adequate technology access and know-how
      - appropriate finance and investment
      - cooperation at all levels
    - ▶ Regional cooperation



## Strategies to harness 4IR technologies for sustainable development

### ■ Enabling ecosystems

- ▶ Putting in place adequate digital infrastructure
- ▶ Establishing incentive mechanisms and financial models
- ▶ Capacity building and interdisciplinary research
- ▶ Fostering collaboration between stakeholders (academia, governments and private sector)
- ▶ Empowering workforce through knowledge, skill development and entrepreneurship



# Strategies to harness 4IR technologies for sustainable development

## ■ Regional cooperation

- ▶ Jointly enhance understanding and harness the benefits of 4IR technologies
- ▶ Address issues of data safety and set related protocols
- ▶ Address common concerns and build the enabling environment
- ▶ Learn from each other's good practices
- ▶ Work together to reduce the digital divide
- ▶ Use South-South cooperation and triangular cooperation to accelerate the adoption of 4IR technologies

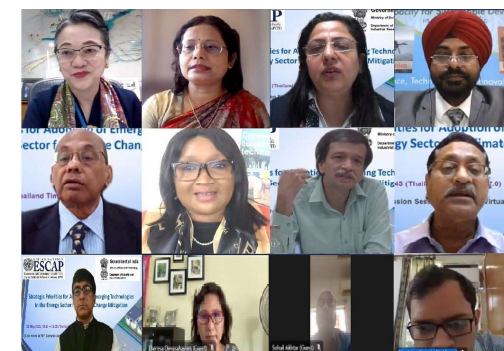




# Work of the Secretariat

## ■ Series of conferences and capacity building events

- ▶ International Conference on Innovation, Transfer and Diffusion of 4IR Technologies, June 2022, Guangzhou, China
  - ▶ Strategic Priorities for Adoption of Emerging Technologies in the Energy Sector for Climate Change Mitigation (side event at 78th session of the Commission), May 2022, Bangkok, Thailand
  - ▶ International Conference on 4IR Technologies for Sustainable Development, November 2021, New Delhi, India
  - ▶ Regional workshop on emerging technologies to respond to climate change, September 2021, Kunming, China
  - ▶ Asia Pacific Digital Transformation Forum, 9 November 2022, Seoul
  - ▶ Asia-Pacific Digital Ministerial Conference 2022 with the Ministry of Science and Information and Communications Technology of the Republic of Korea, November 2022, Seoul
  - ▶ Thematic working group on innovation and technology for sustainable development of the United Nations Special Programme for the Economies of Central Asia, July 2022, Almaty, Kazakhstan
- ▶ These provided recommendations: on knowledge sharing, capacity building, collaborations & partnerships for regional cooperation
- Support governments in design of policy and regulatory frameworks to support effective adoption of 4IR technologies
  - Support to identify and address policy challenges related to 4IR technologies - to use AI for social good



**Strategic Priorities for Adoption of Emerging Technologies in the Energy Sector for Climate Change Mitigation (side event at the seventy-eighth session of the Commission), 24 May 2022, Bangkok,**



**International Conference on Fourth Industrial Revolution Technologies for Sustainable Development, 30 November 2021, New Delhi**

## Matters for consideration by the Committee

- Indicate the types of support that may be required from the secretariat to promote development, adoption and diffusion of 4IR technologies and their innovative applications for sustainable development
- Make recommendations to advance promotion of 4IR technologies for sustainable development in the region
- Identify new and priority policy issues related to fourth industrial revolution technologies for sustainable development that may be addressed through regional cooperation

