



# **The way IoT and other frontier technologies protect the environment**

**Cristina Bueti**  
**Counsellor, ITU**

# The Internet of Things (IoT)



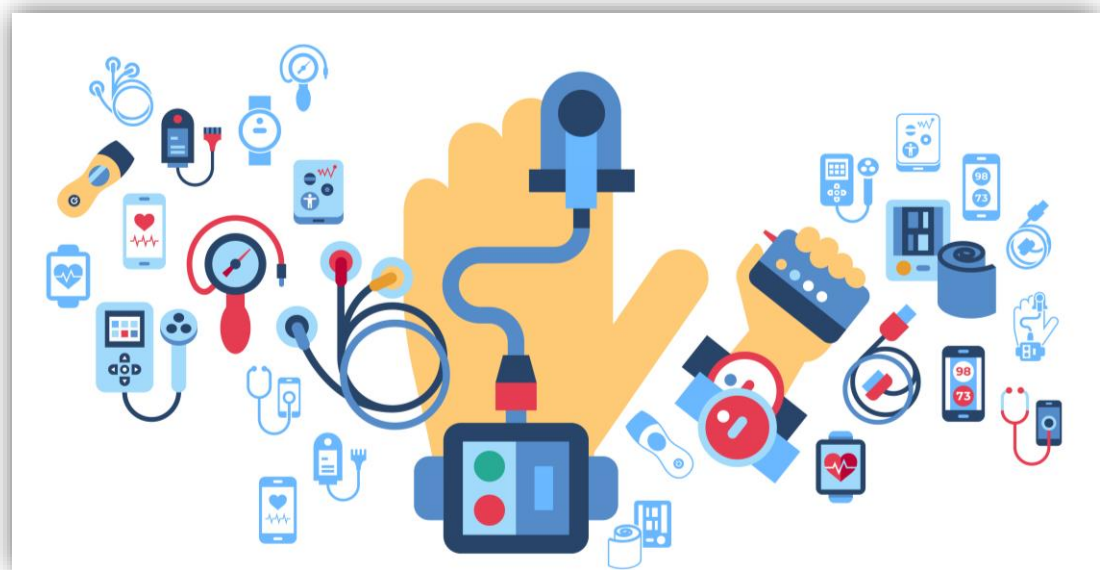
*“The Internet of Things (IoT) can be viewed as a global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information & communication technologies.”*

## Recommendation ITU-T Y. 2060

# IoT: Applications for SDGs

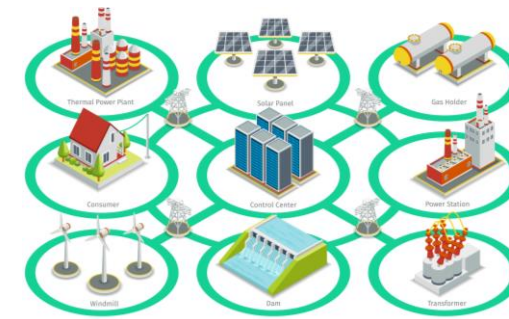


# IoT in healthcare

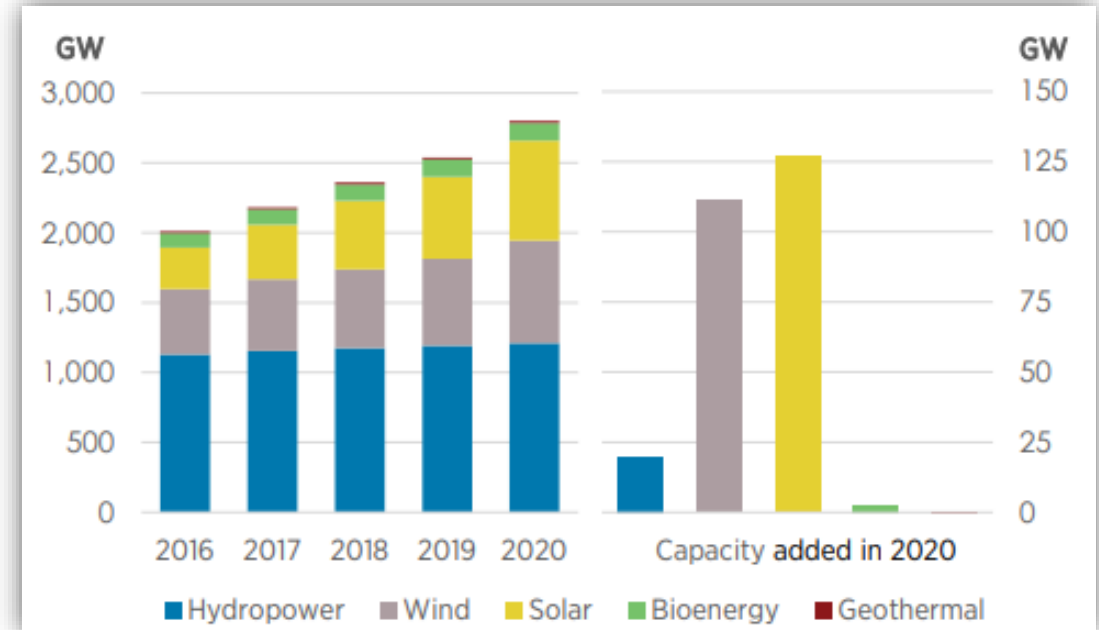




# IoT in energy



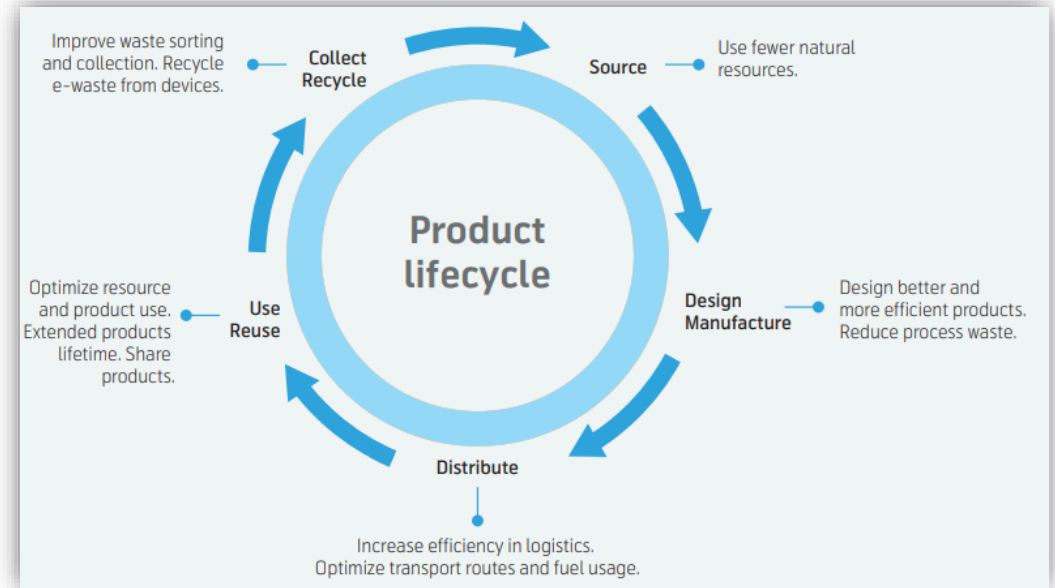
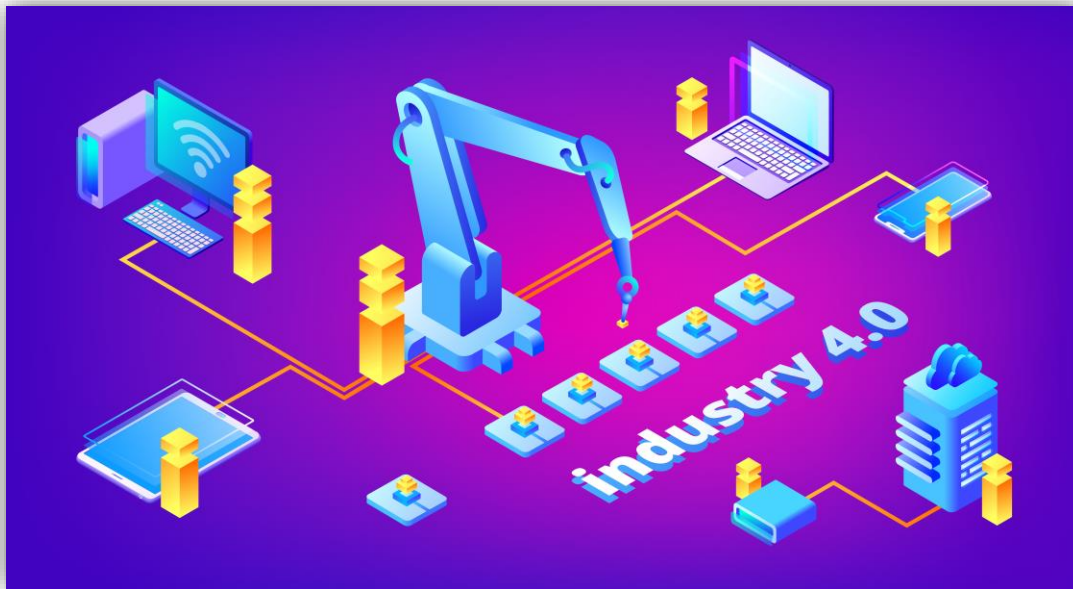
Cumbria offshore wind farm turbines



Renewable power capacity growth (2020)

# IoT in industry

9 INDUSTRY, INNOVATION  
AND INFRASTRUCTURE



# IoT in cities and communities



Smart homes



Smart services  
and infrastructure



Smart agriculture



Smart buildings



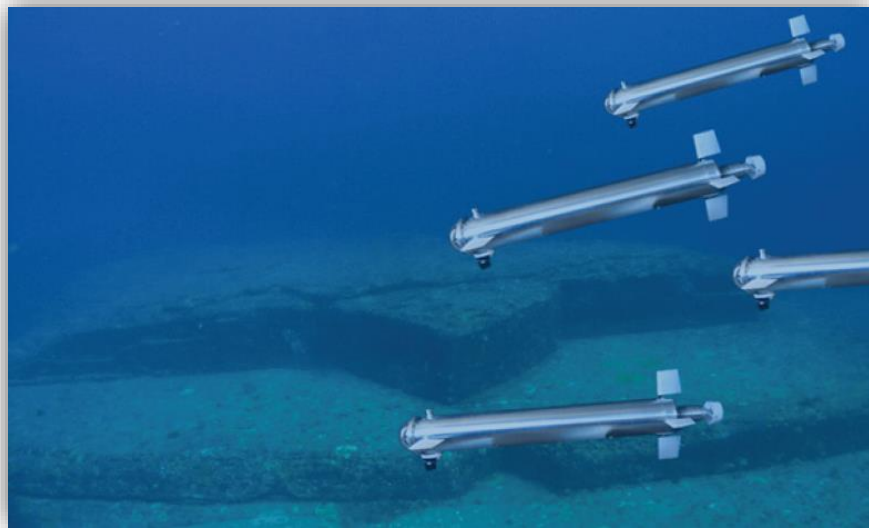
Smart water

# IoT in production and consumption





# IoT in environmental monitoring and adaptation



**Robotic fish being deployed to monitor marine pollution and measure its impacts**



**Space 2,0 technology used for monitoring weather patterns**

# ITU and IoT standardization



**ITU:**  
International Telecommunication Union –  
the UN specialized agency for ICTs



**ITU-T Study Group 5:**  
ITU-T Study Group on Environment, climate change and  
circular economy

**U4SSC:**  
United for Smart Sustainable Cities initiative

**ITU-T Study Group 20:**  
ITU Study Group on IoT and Smart Cities and Communities

# ITU's global portal on Environment & SSC

**Smart sustainable cities**

**Cities' actions to  
tackle COVID-19**

**Frontier Technologies**

**Energy efficient ICTs**

**E-waste and  
circular economy**

**Climate actions**



# Conclusion





# Thank you!

Questions? Interested in learning more?  
Let us know!



**Email**

[u4ssc@itu.int](mailto:u4ssc@itu.int)



**Website**

[ITU-T, Smart Sustainable Cities](#)

# Additional Slides

# ITU-T Study Group 20

- **Lead Study Group 20 Roles:**

- Internet of things (IoT) and its applications
- Smart cities and communities, including e-services and smart services
- Internet of things (IoT) identification

## **WP1/20**

**Q1/20** Interoperability and interworking of IoT and SC&C applications and services

**Q2/20** Requirements, capabilities and architectural frameworks across verticals enhanced by emerging digital technologies

**Q3/20** IoT and SC&C architectures, protocols and QoS/QoE

**Q4/20** Data analytics, sharing, processing and management, including big data aspects, of IoT and SC&C

## **WP2/20**

**Q5/20** Study of emerging digital technologies, terminology and definitions

**Q6/20** Security, privacy, trust and identification for IoT and SC&C

**Q7/20** Evaluation and assessment of Smart Cities and Communities

# ITU-T Study Group 5

- **Lead Study Group 5 Roles:**

- electromagnetic compatibility, lightning protection and electromagnetic effects
- ICTs related to the environment, climate change, energy efficiency and clean energy
- circular economy, including e-waste

## PLEN

**Q8/5** Guides and terminology on environment

**WP1/20** EMC, lightning protection, EMF

**Q1/5** Electrical protection, reliability, safety and security of ICT systems

**Q2/5** Protecting equipment and devices against lightning and other electrical events

**Q3/5** Human exposure to electromagnetic fields (EMFs) due to digital technologies

**Q4/5** Electromagnetic compatibility (EMC) aspects in ICT environment

**Q5/5** Security and reliability of information and communication technology (ICT) systems from electromagnetic and particle radiations

**WP2/20** Environment, Energy Efficiency and the Circular Economy

**Q6/5** Environmental efficiency of digital technologies

**Q7/5** E-waste, circular economy and sustainable supply chain management

**Q9/5** Climate change and assessment of digital technologies in the framework of the Sustainable Development Goals (SDGs) and the Paris Agreement

**Q10/5** Adaptation to climate change and low cost and sustainable resilient information and communication technologies (ICTs)

**Q11/5** Climate change mitigation and smart energy solutions

**Q12/5** Adaptation to climate change through sustainable and resilient digital technologies

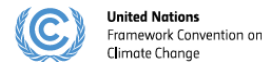
**Q13/5** Building circular and sustainable cities and communities



# United for Smart Sustainable Cities



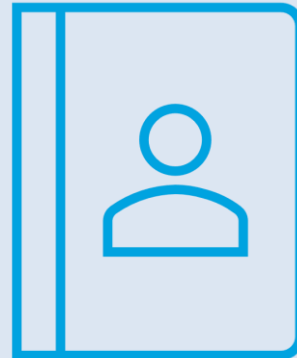
Empowered lives.  
Resilient nations.



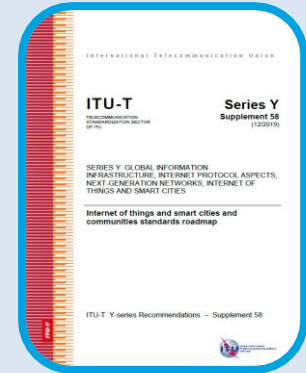
# Joint Coordination Activity on IoT and Smart Cities and Communities (SC&C)



**Coordinating ITU-T work on  
IoT and SC&C**



**Providing contact point for  
IoT & applications, including  
SC&C activities**



**Presenting the JCA-IoT and  
SC&C roadmap**

# Joint Smart Cities Task Force



# Publications

