ETSI The Standards People

IoT Conference 2023

Exploring the Intersection of Technology and Sustainability – To achieve the Global Goals

Presented by: Paolo Gemma, WP2/5 Chairman, ITU

ITU is Global

The International Telecommunication Union (ITU) is the United Nations specialized agency for information and communication technologies (ICTs)

193 Member states

+700 Private sector organizations

+150 Academia

Increasing Connectivity Worldwide

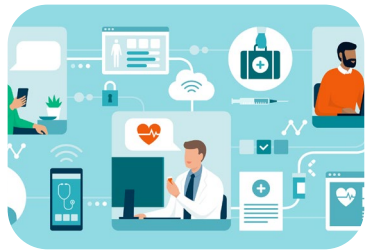
In 2022, Internet use grew to 66 percent of the population, reaching 5.3 billion people

Videoconferencing for Work

Online Education

Online Shopping

Public Services



Digital Health

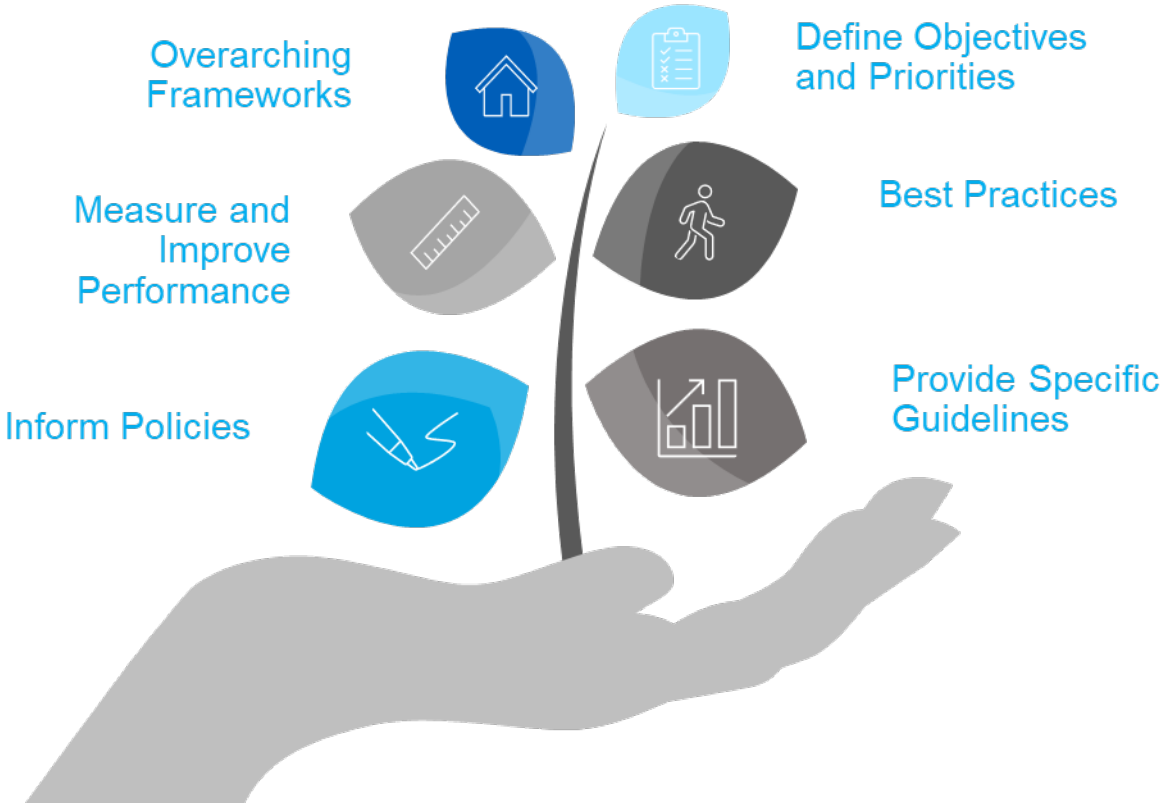
Importance of Greening ICTs

Digital technologies have direct and indirect effects on energy use and emissions, and hold enormous potential to help or hinder global clean energy transitions

Data centres and data transmission networks are responsible for nearly 1% of energy-related GHG emissions

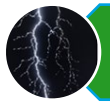
Efficiency improvements though international standards can significantly help limit growth in energy demand from data centres globally

How International Standards Can Help

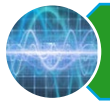


How ITU Supports a Sustainable Digital Transformation

ITU-T SG5: Climate change, EMF & circular economy



Electromagnetic compatibility, resistibility and lightning protection



Human exposure to electromagnetic fields

Soft error caused by particle radiations

Circular economy and e-waste management

ICTs related to the environment, energy efficiency, clean energy and sustainable digitalization for climate actions

ITU-T SG20: IoT and smart cities & communities

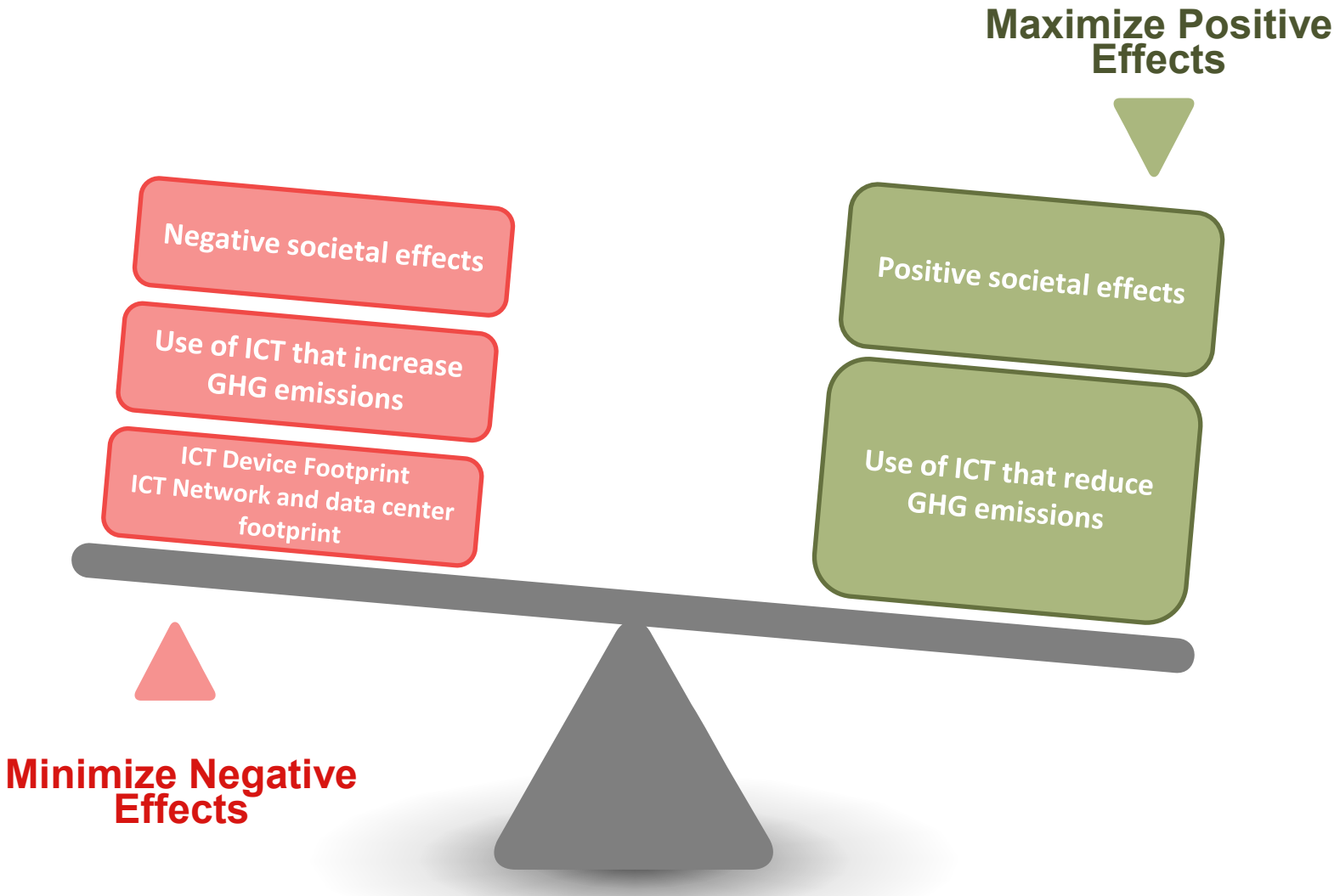
Internet of Things and its Applications

Smart Cities and Communities

IoT Identification

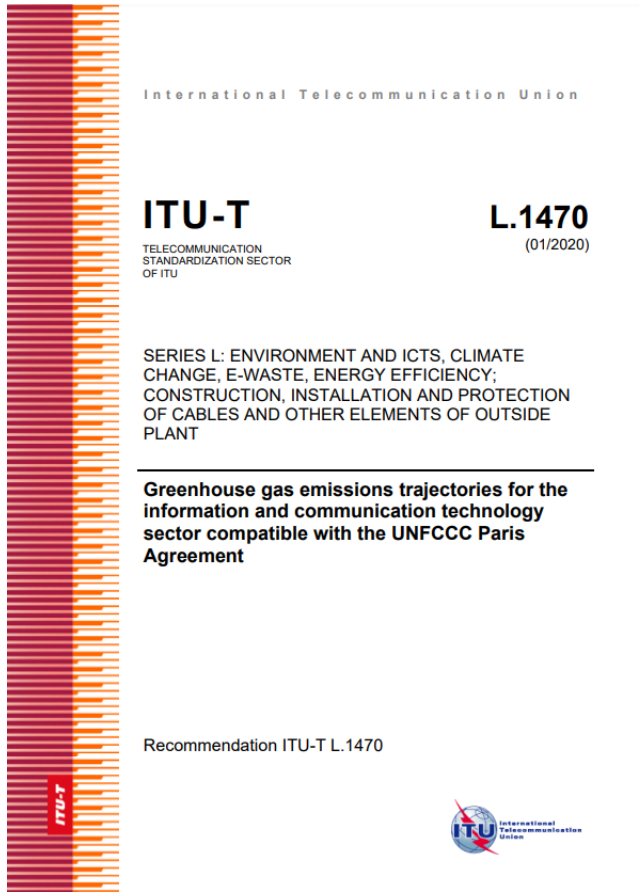
Digital health related to IoT and SSC

Double-Edged Nature of ICTs



ICT's current share of global greenhouse gas (GHG) emissions at 1.8%–2.8% of global GHG emissions

To reach the 1.5 C target
the ICT sector is monitoring and improving the efficiency and circularity of its goods and services



International Telecommunication Union

ITU-T
TELECOMMUNICATION STANDARDIZATION SECTOR OF ITU

L.1470
(01/2020)

SERIES L: ENVIRONMENT AND ICTS, CLIMATE CHANGE, E-WASTE, ENERGY EFFICIENCY; CONSTRUCTION, INSTALLATION AND PROTECTION OF CABLES AND OTHER ELEMENTS OF OUTSIDE PLANT

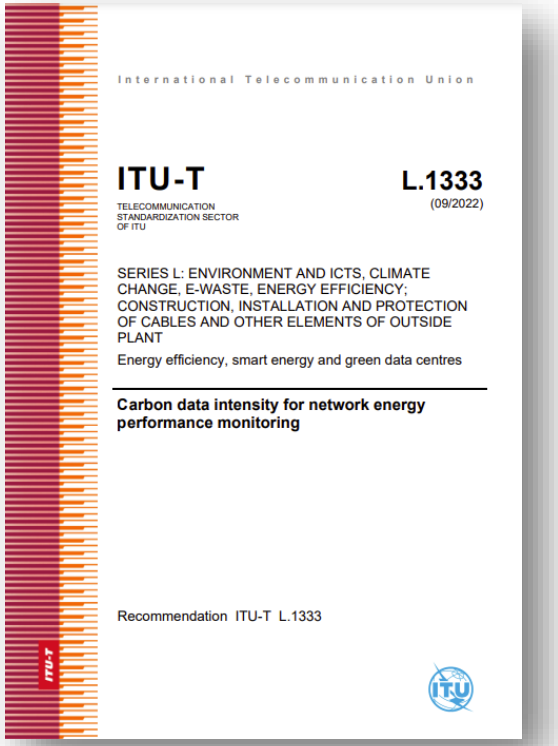
Greenhouse gas emissions trajectories for the information and communication technology sector compatible with the UNFCCC Paris Agreement

Recommendation ITU-T L.1470

ITU-T

ITU International Telecommunication Union

Standards can support carbon data intensity for network energy performance monitoring



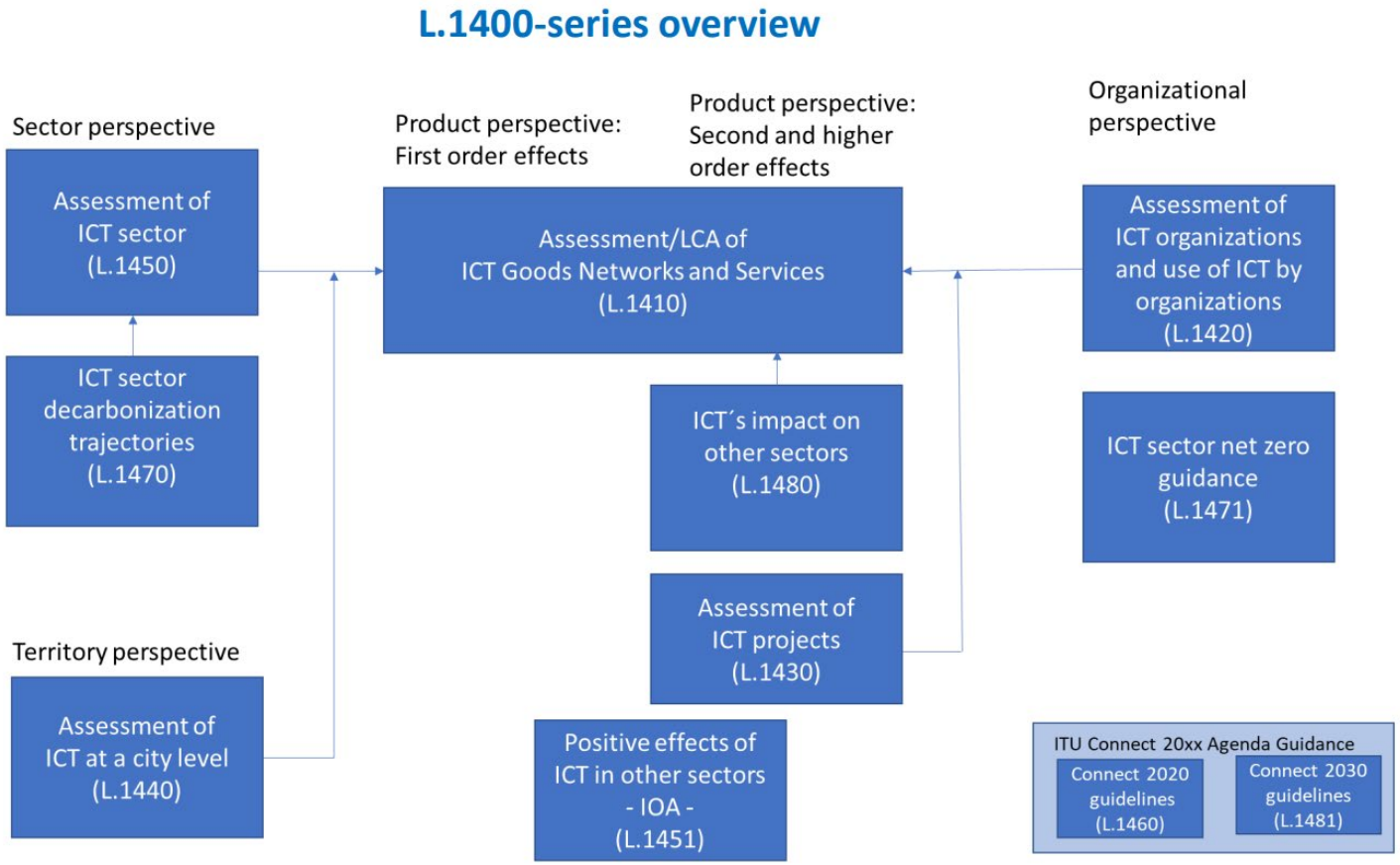
Identifies a KPI for the carbon emission intensity of a network focused on network energy consumption in relation to data traffic.

Maximizing the positive effect of ICTs and digital technologies

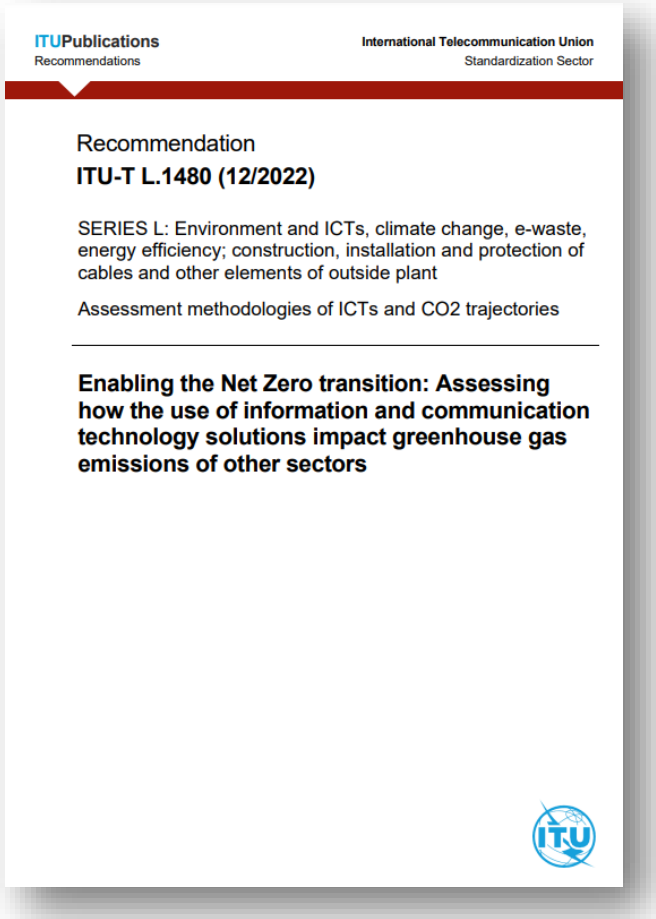
ICTs have the potential to slash global greenhouse gas (GHG) emissions by 20% by 2030

- Support climate change mitigation
- Better Health and Wellbeing
- Cleaner More Sustainable Environment
- Drive the SDGs
- Improved Quality of Life

Enabling the Net Zero transition

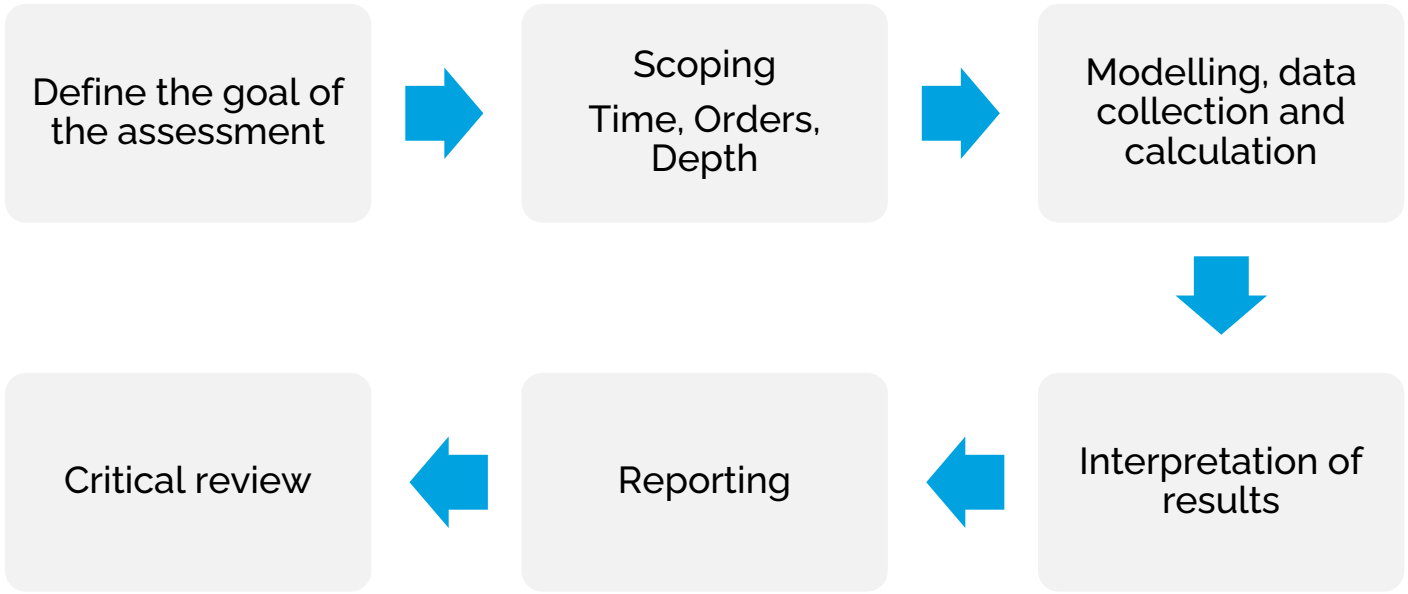


Measuring the impact of ICT and digital technologies solutions



Provides a structured methodological approach, that aims to improve consistency, transparency and comprehensiveness of assessments of how the use of ICT solutions **impact GHG emissions over time**.

Six steps to assess an ICT solution

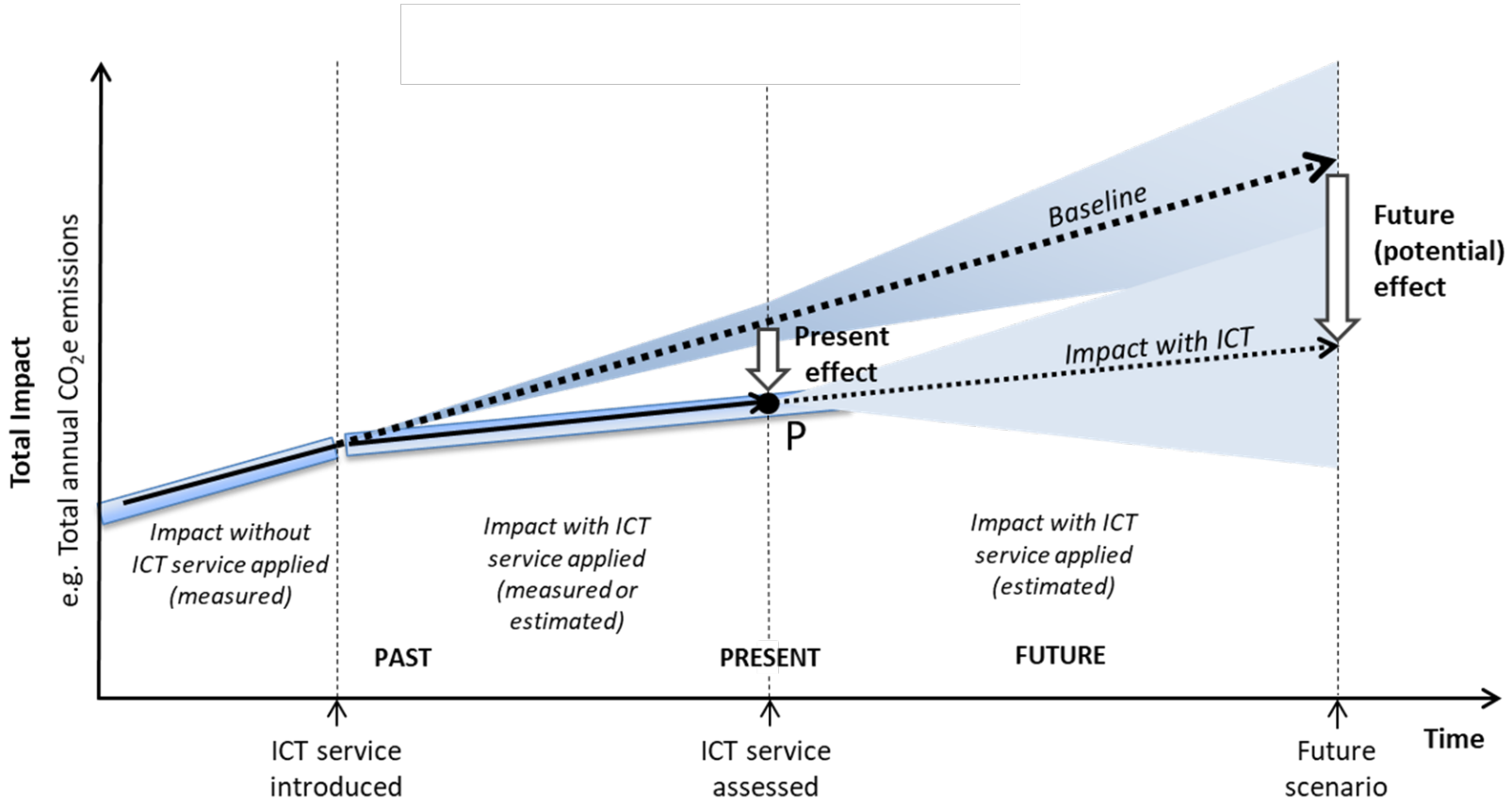


Applications of ITU-T L.1480

Assessment of one or several solutions:

- implemented in a **specific context by the user** of an ICT solution
- implemented at **different scales**, including at an organizational level, at a city level, at a country level or at worldwide level
- assessed **from the perspective of an ICT organization** contributing to the ICT solution(s)

Calculating the effect – a hypothetical comparison



Source: *A Methodology for Assessing the Environmental Effects Induced by ICT Services – Part I: Single Services*. (Coroamă & Bergmark et al, ICT4S2020)

ITU-T L.1480 assessment perspectives and depths

Three different time perspectives and three tiers of assessment

Three depths of assessment			
Sector	TIER 1	TIER 2	TIER 3
Full life cycle	YES	YES	YES
Higher order effects	Assess	Identify	(Identify)
Data	As specific as possible	As specific as possible	Screening
Context	Assess	Identify	(Identify)

ITU-T methodology evolution

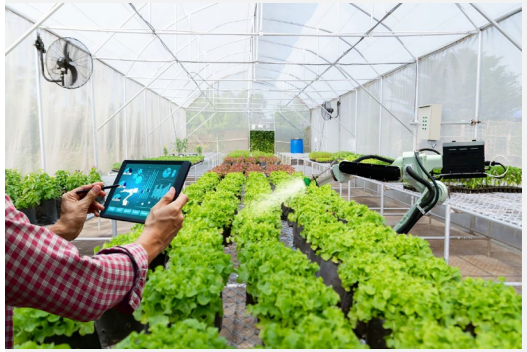
- L.1410/ES 203 199 revision
- L.LCA simplified /EE-EEPS62 (ES)
- L.1480 rev/ EE-EEPS66 (ES)

A joint effort between the two SDO

In collaboration with

Alliance for IoT and Edge Computing Innovation

How Digital Technologies can support Sustainability

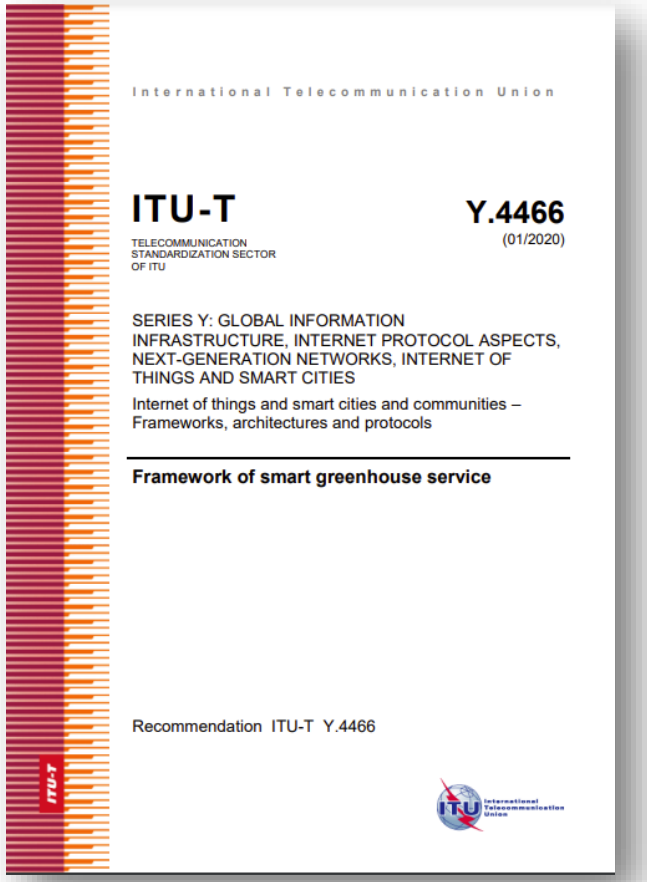


Smart Green House

Enables precision farming with the help of Internet of things (IoT) devices, such as sensors and actuators installed in a smart greenhouse.

USE CASE

Setting optimal growth model to describe how to adjust environment conditions during the life cycle of cultivating tomatoes.



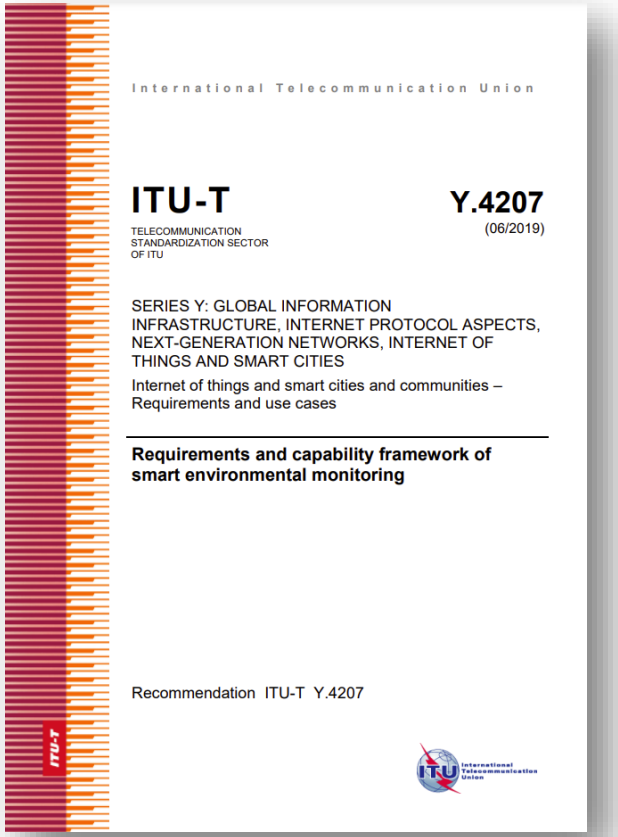
How Digital Technologies Can Support Sustainability

Smart Water Quality Monitoring

IoT can help enhance and provide real-time environmental monitoring systems.

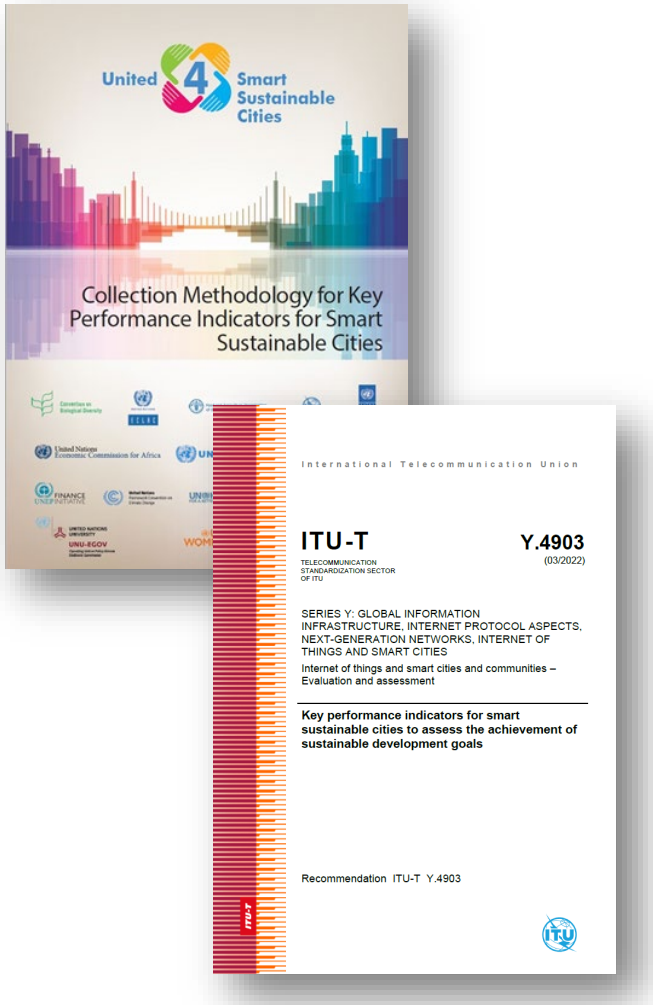
USE CASE

Smart water monitoring can help detect if pollutants are above the necessary thresholds sending warning information to protect human health.



How Digital Technologies Can Support Sustainability

U4SSC Smart Sustainable Cities



The U4SSC Key Performance Indicators support cities worldwide in evaluating the role and contribution of ICTs and digital technologies in enabling smartness and sustainability.

USE CASE

Cities such as Daegu, Republic of Korea along with 150+ other cities have implemented the U4SSC KPIs to drive sustainable digital transformation.

Thank you!

Email

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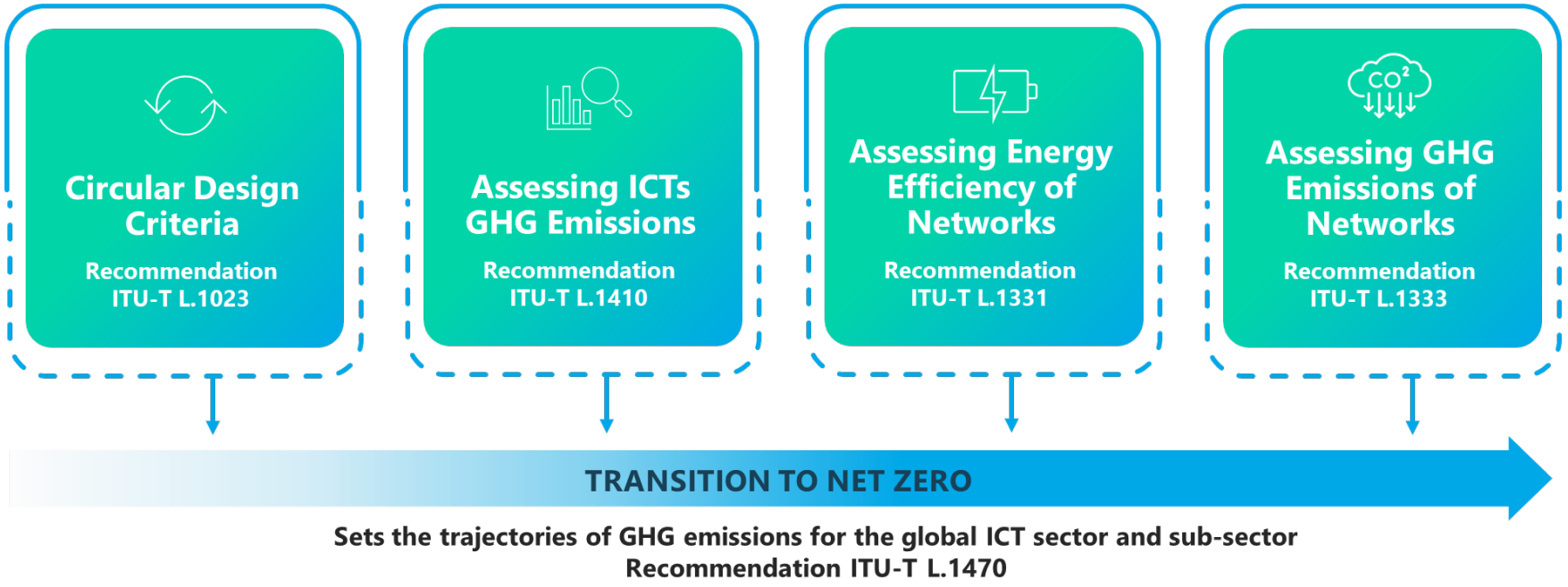
Website

SG5: Environment, climate change and circular economy

ITU-T Standards Driving Sustainable Networks



Creating Global Partnerships and collaboration with SDOs