Workshop on Understanding and Reducing the Environmental Footprint of ICTs

Overview of the standards developed under ITU-T Question 9/5

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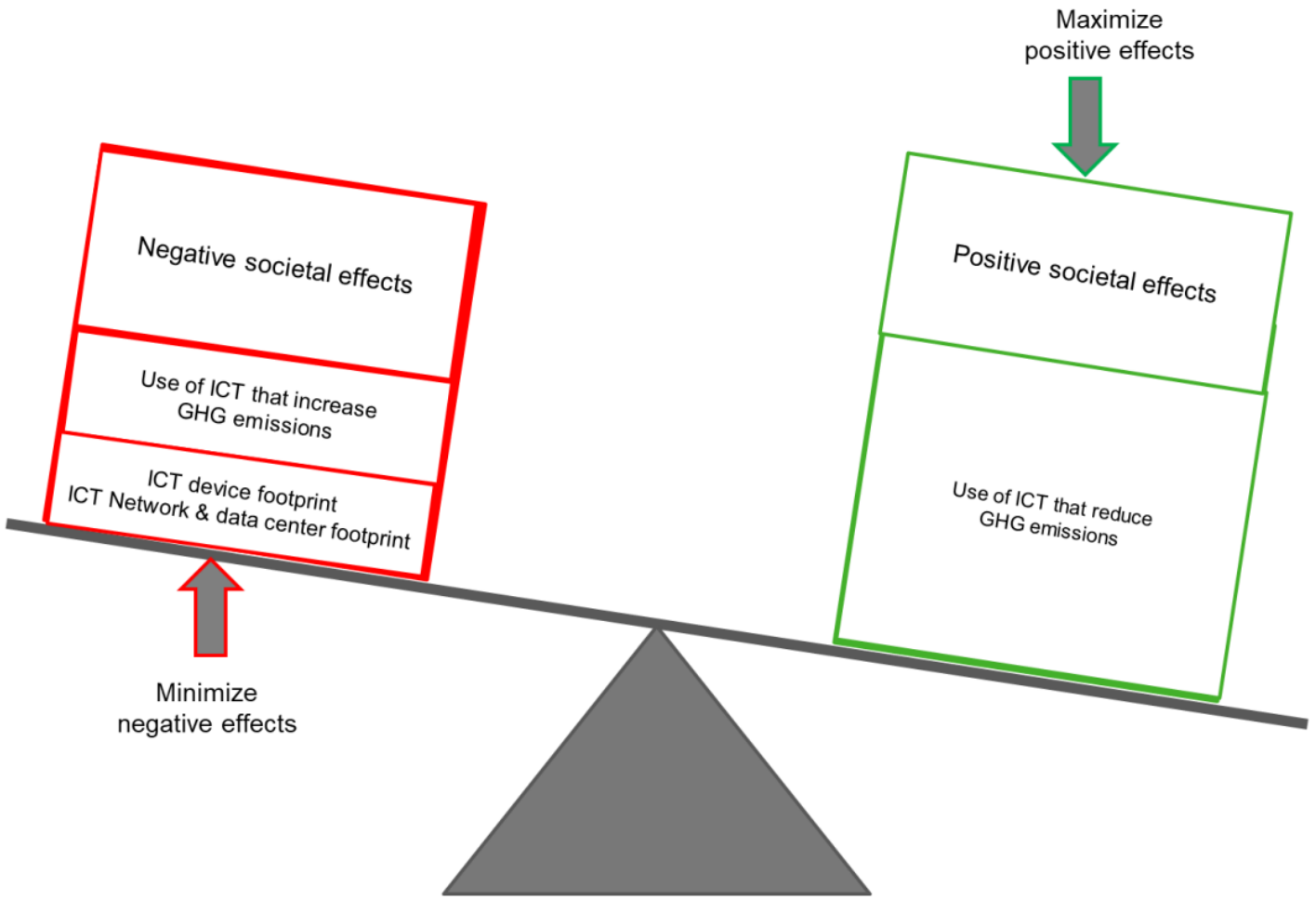
ITU-T Study Group 5

ITU-T Study Group 5

Environment, EMF, climate action, and circular economy

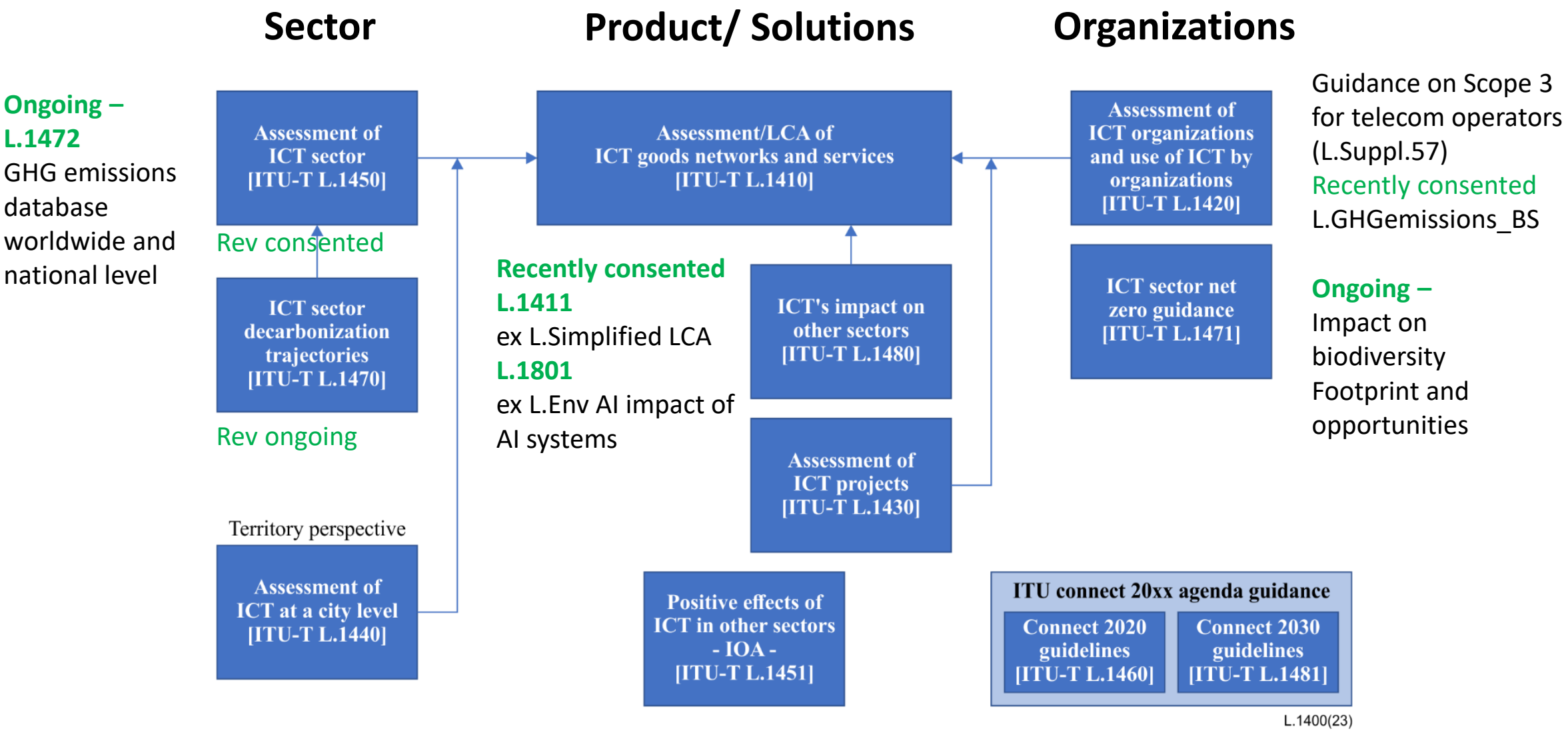
- Electromagnetic compatibility, resistibility and lightning protection
- Soft error caused by particle radiations
- Human exposure to electromagnetic fields
- Circular economy and e-waste management
- ICTs related to the environment, energy efficiency, clean energy and sustainable digitalization for climate actions

The double-edged nature of ICTs



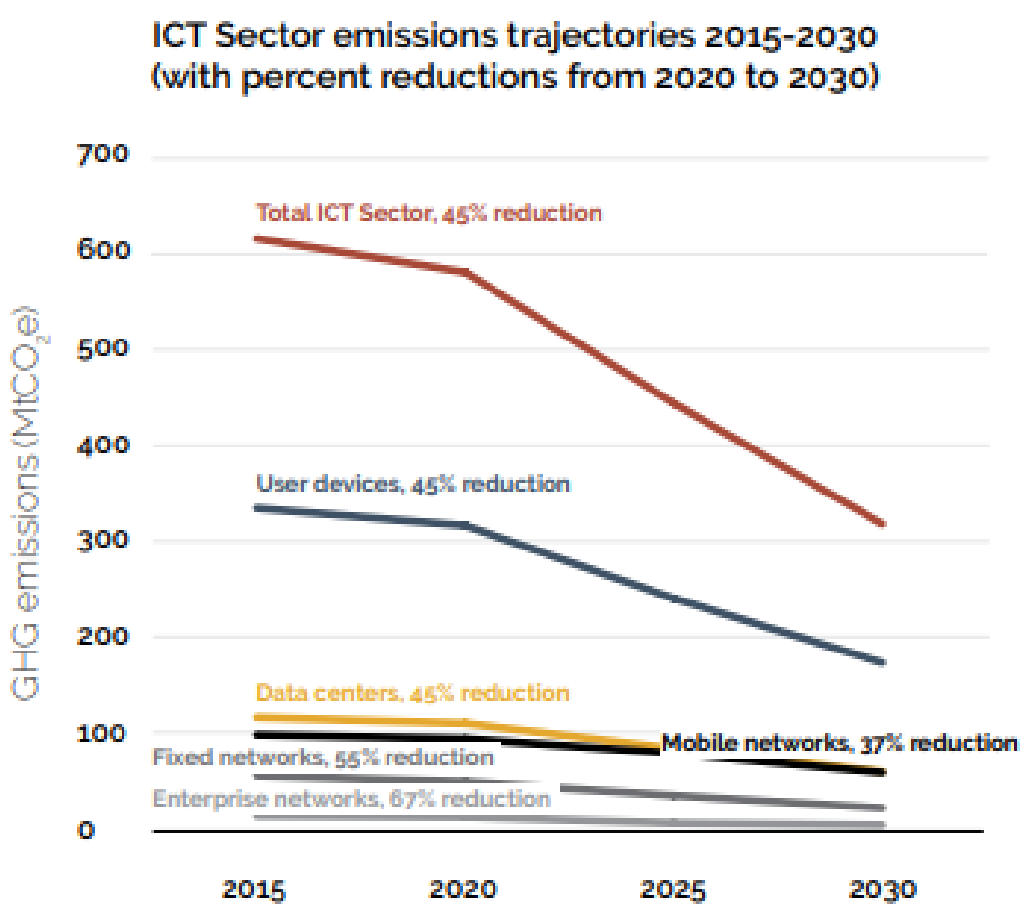
The challenge: to assess in the best possible way effects in other sectors !

The ITU-T L.14xx series Recommendations towards the Net Zero transition



Setting 1.5°C Trajectories for the ICT sector

Figure 1: Summary of ICT sector and sub-sector trajectories including embodied emissions and operation



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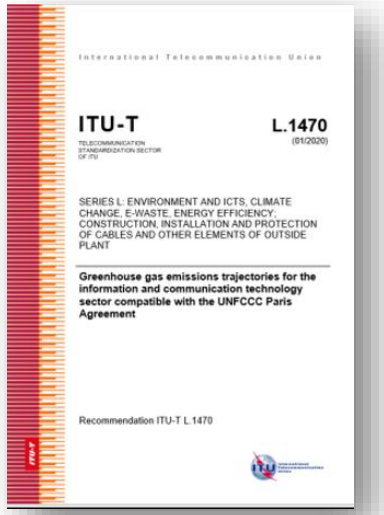
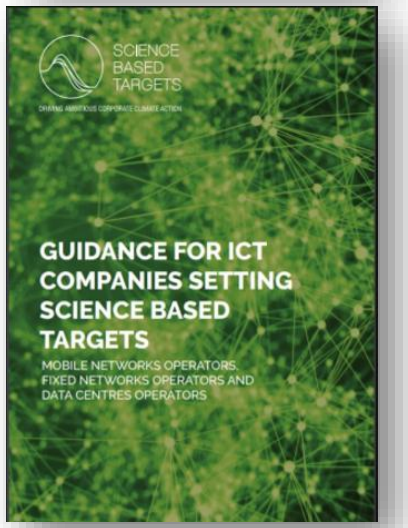
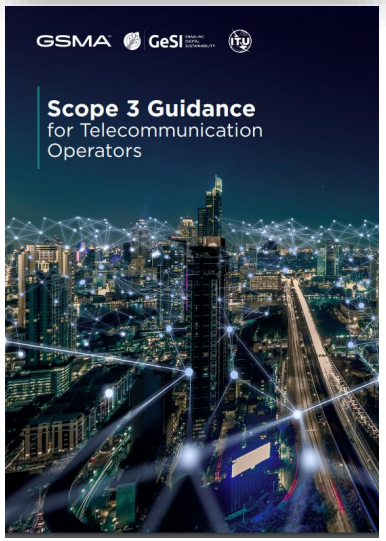
Several steps to decarbonize ICT activities

1. Assess baseline
2. Set medium term and long-term targets
3. Elaborate a reduction plan
4. Implement it / adjust it







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Overview of Scope 3 guidance document and key messages

Scope 3 emissions cover a wide range of economic activities that are divided into 15 Categories.
Estimating Scope 3 emissions is difficult since this refers to emission sources outside a company's direct control.

The document establishes guidance to harmonize methods for telecommunication operators to assess and report their Scope 3 Greenhouse Gas (GHG) emissions, and to increase coverage and transparency.

This guidance prioritises in particular:

- Categories 1-2 and 11 (which address the life cycle impact of companies' portfolios),
- Categories 8 and 13, related to leased assets
- Category 3 (which is closely linked to Scope 1 and 2),

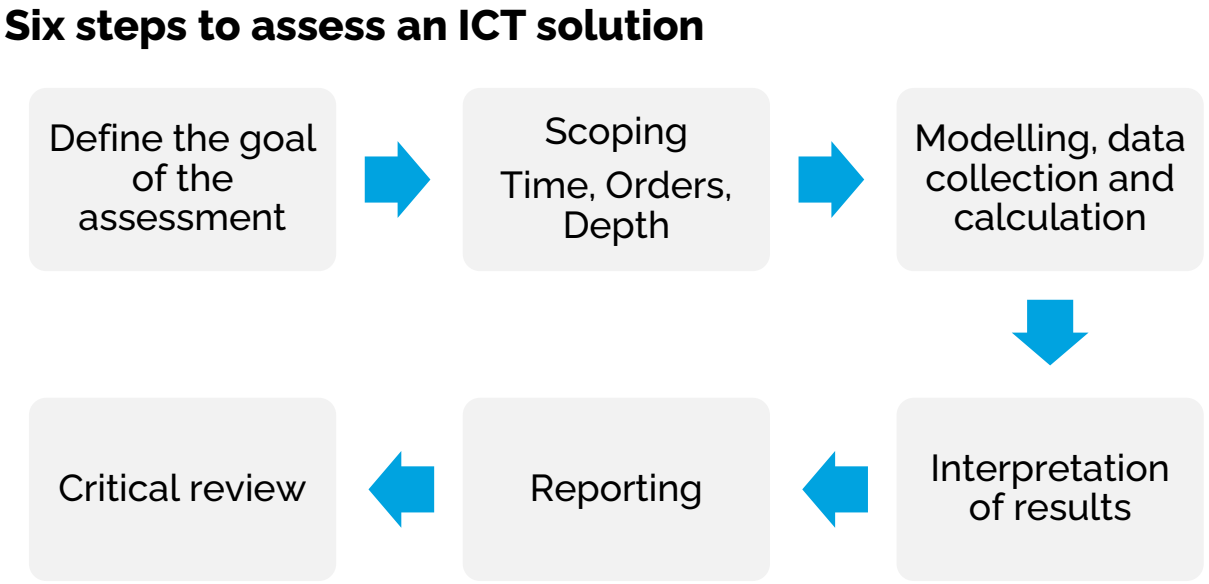
…although all Categories are addressed.

This document is intended to supplement, not supersede, existing standards.

In cooperation with ETSI

Enabling the Net Zero transition: ITU L.1480

- Provides a methodology on **how to assess ICT and digital technologies solutions impact GHG emissions**



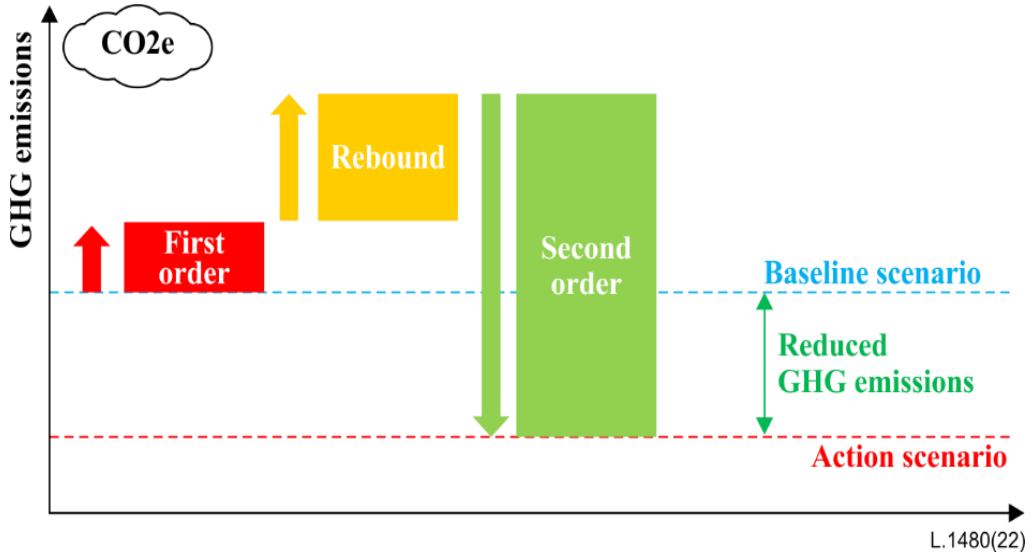
Some example of ICT solutions

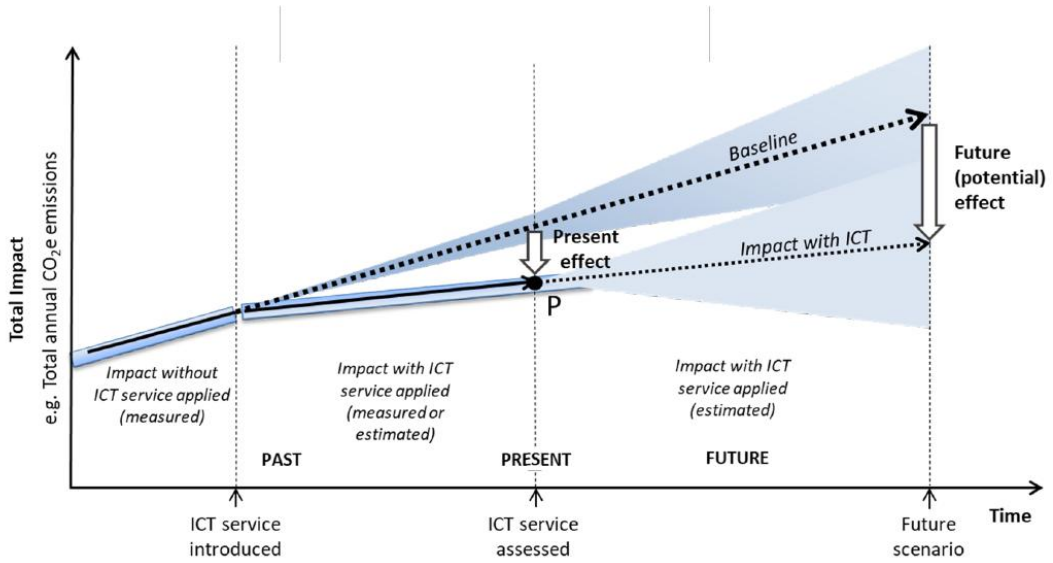
Sector	Solution	Mechanism
Energy supply transformation and consumption	Improved metering and forecasting of electricity supply and demand	Optimization
	Optimization of grids, including load balancing through demand response	Optimization
	Improved energy system through demand side management	Optimization
Industry	As-a-service and sharing solutions	Optimization and/or substitution
	Circularity	Optimization
	Production efficiency	Optimization
Buildings	Intelligent building energy and resource management	Optimization
	Optimized use and sharing of buildings	Optimization and/or substitution
Transport	Virtual meetings	Substitution
	Remote work	Substitution
	Route optimization	Optimization
	Fleet management and logistics	Optimization
	Ecodriving	Optimization
	Shared mobility	Optimization and/or substitution
Agriculture and forestry	Precision agriculture	Optimization
	Precision forestry	Optimization
Nature-based sinks	Forest protection	Providing information and managing data Facilitation, accessibility, affordability and rising motivation

Digital education and training for all sectors allowing a quicker and more efficient transition

Reskilling and Upskilling

The effects and perspectives considered in L.1480





Consider different effects:
- first order
- second order
- Higher order / rebound effects

Different perspectives:
- Before an ICT service is implemented: ex-ante
- During the implementation of an ICT solution: mid-way
- After an ICT solution has been implemented: ex-post

Standardization Scope of ITU-T L.1801 developed in cooperation with ETSI

Recently consented: first step of approval

Guidelines for Assessing the Environmental Impact of Artificial Intelligence systems

Based on **ITU-T L.1410** (LCA) and **ITU-T L.1480** (enabling effect)
applying the methods for AI systems

Comparative assessment
1) AI technology compared to not using AI or
2) comparing impact of two AI systems

Full life cycle of AI systems

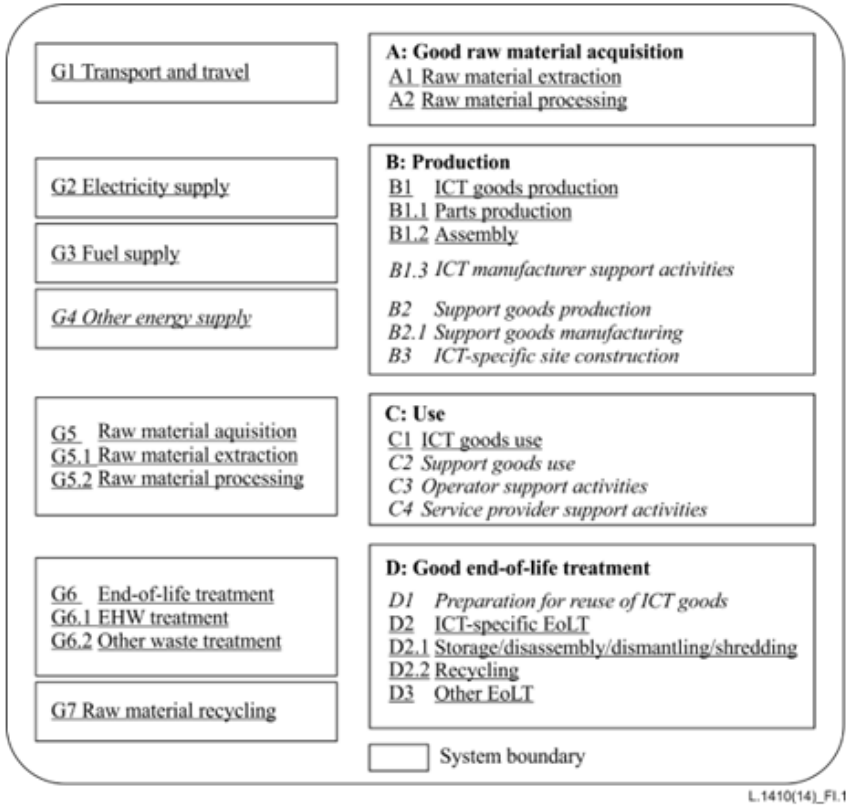
L.1410 "Methodology for environmental life cycle assessments of information and communication technology goods, networks and services"

L.1480 "Enabling the Net Zero transition: Assessing how the use of information and communication technology solutions impact greenhouse gas emissions of other sectors"

Applying existing methods for AI systems

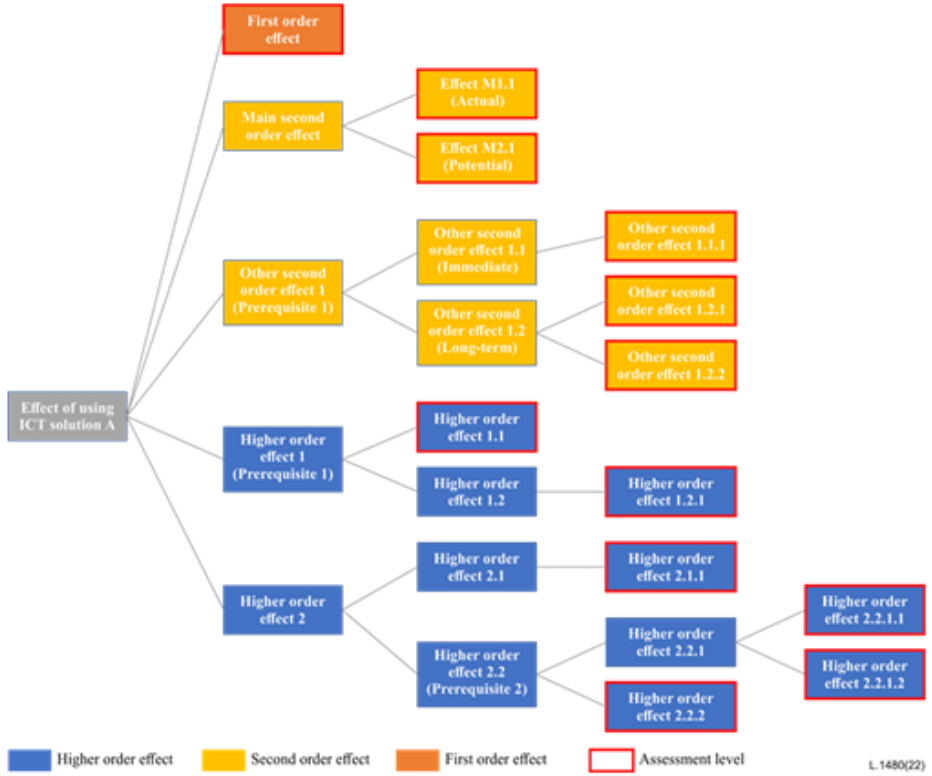
Based on ITU-T L.1410 and L.1480

In cooperation with ETSI



Full life cycle

Covering all life cycle stages in LCA



Consequence tree

for first order, second order, and higher order effects

Thank you!

Websites

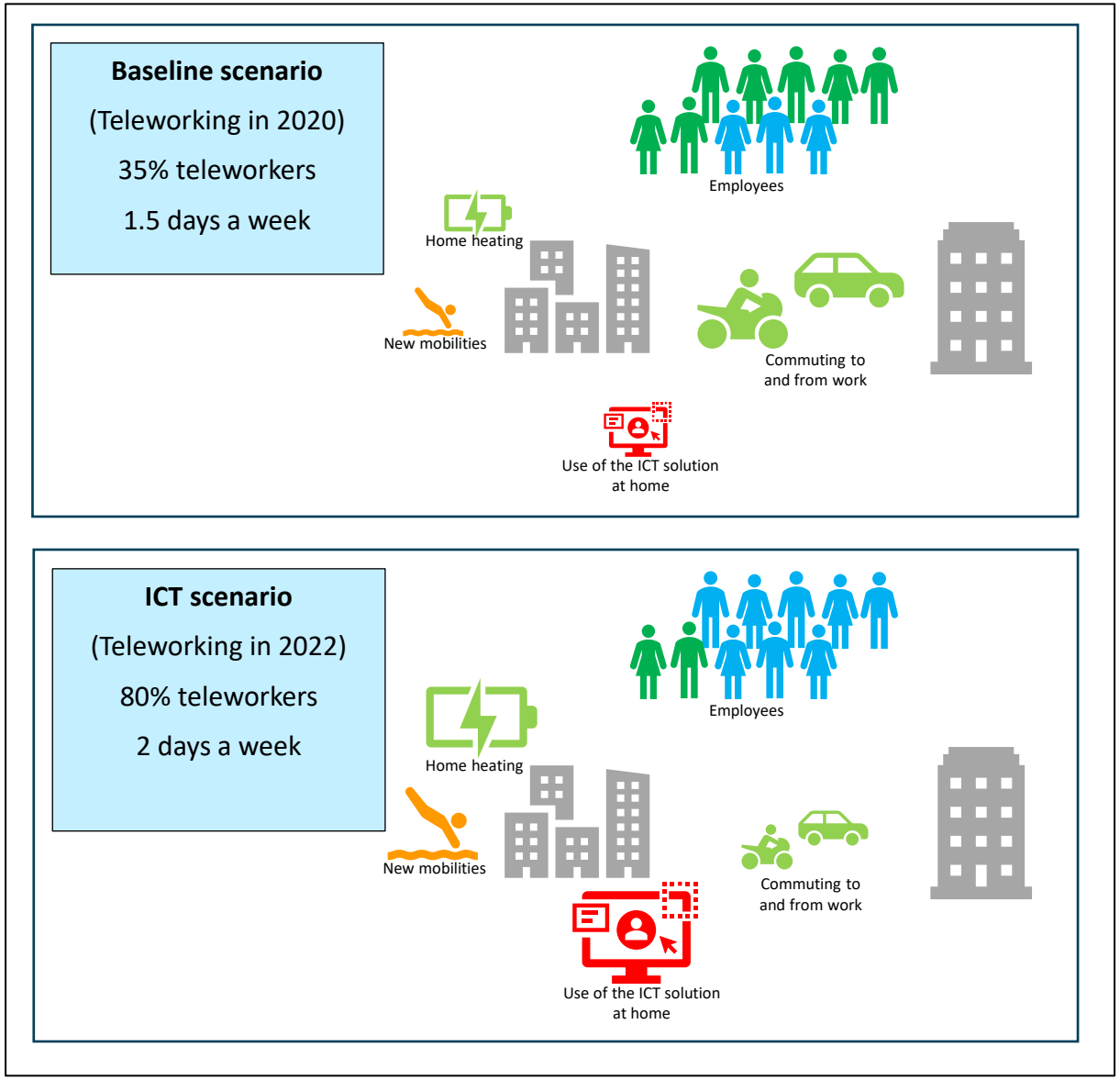
ITU Green Digital action

SG5: Environment, climate change and circular economy

Guiding principles

	Descriptions
Goal is reduction	• Estimating emissions should be used to drive reduction efforts
Hot-spotting	• Focus time and effort on largest emission sources
Keep it simple	• Use the simplest approach that will give required accuracy and best support reduction goals
Scale	• Covering more emissions can help with business decisions
Improve accuracy over time	• Data availability and quality are improving each year
Suitable for all	• Approaches for both beginners and those more advanced
Follow science-based principle	• Related to Net Zero standards from ISO [b-ISO 14064-1] or the Science Based Targets Initiative [b-SBTi] or ITU-T Recommendations [b-L.1470] and [b-L.1471]
Focus on mitigation	• Carbon offsets, whether purchased by the telecommunication operator or a supplier/customer shall not be considered as a valid means of reducing CO2e inventories.

An example of a detailed Tier 1 study by Orange (1/2)



An example of a detailed Tier 1 study by Orange (2/2)