Assessing the impact of the use of ICT solutions on GHG emissions in other sectors

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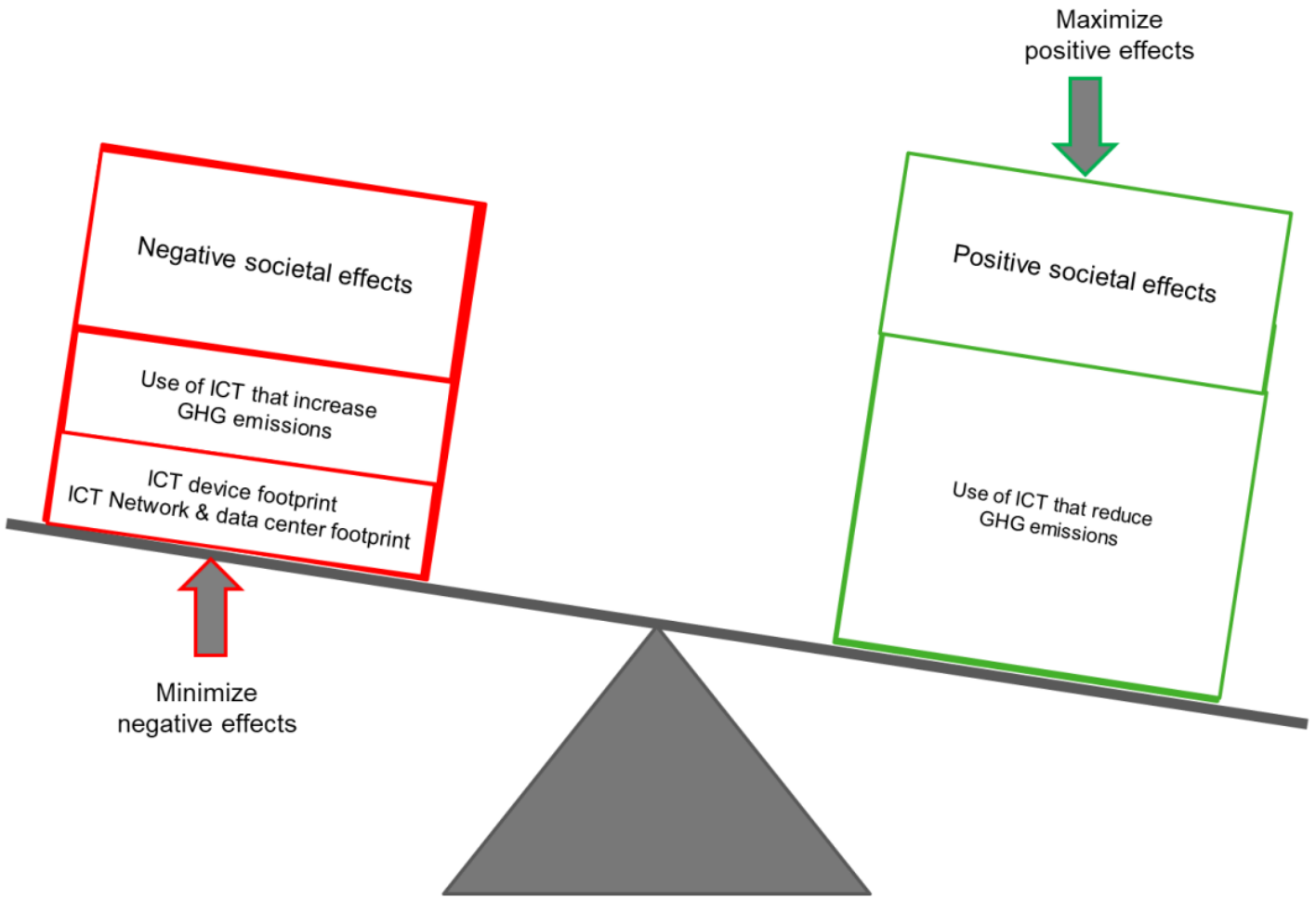
The double-edged nature of ICTs



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

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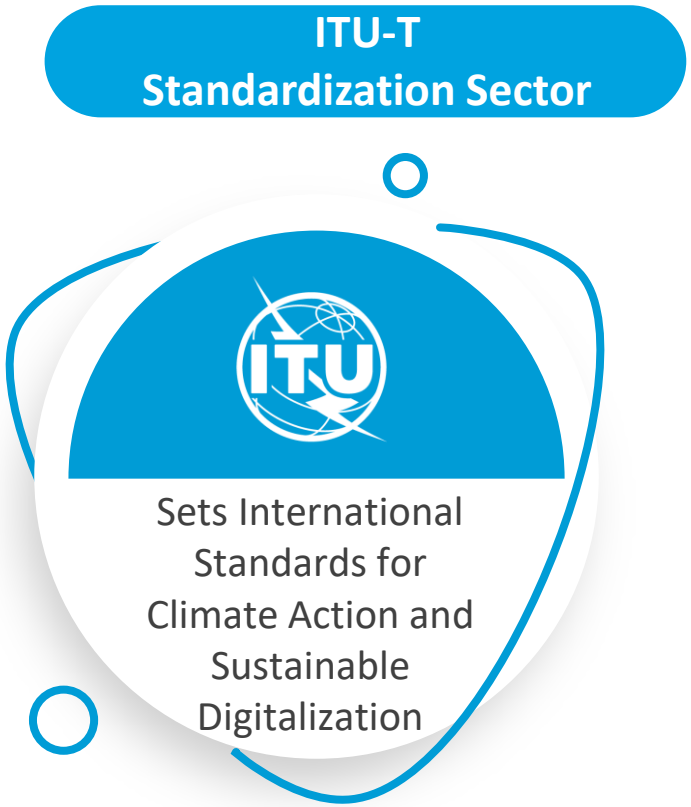

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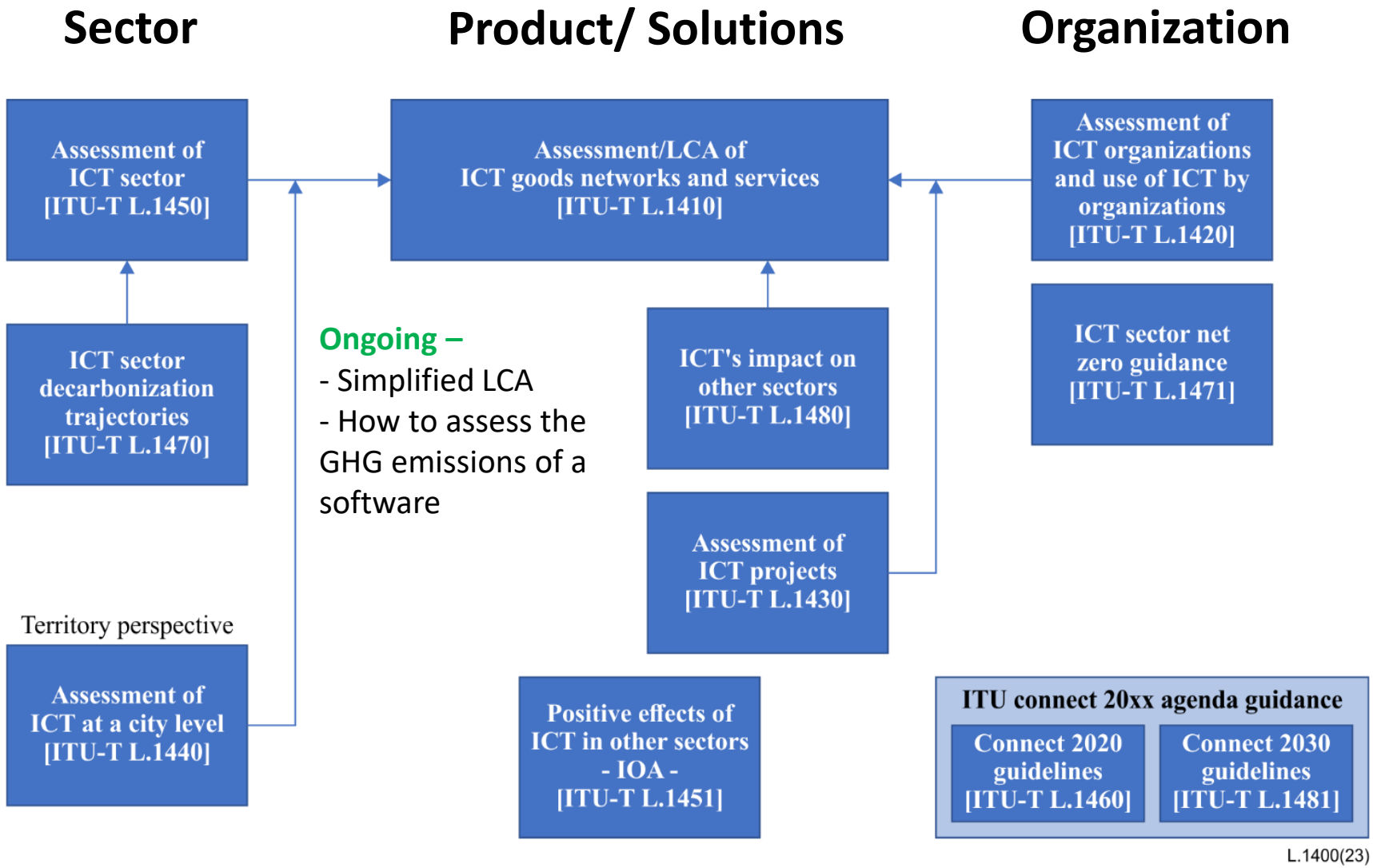
EMF, environment, climate action, sustainable digitalization, and circular economy

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



Ongoing –
GHG emissions database worldwide and national level

Ongoing –
- Simplified LCA
- How to assess the GHG emissions of a software

New Guidance on Scope 3 for telecom operators (L.Suppl.57)

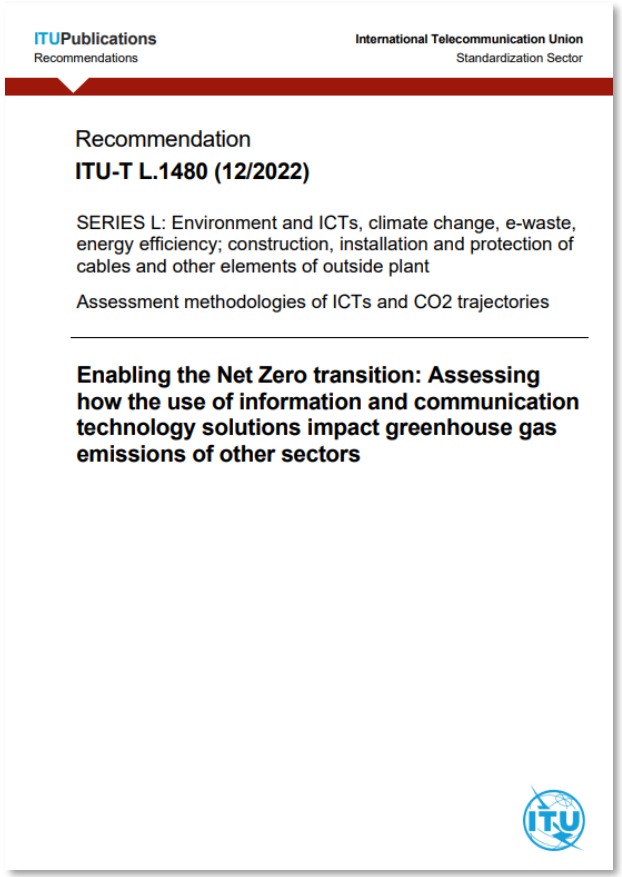
Some examples of ICT solutions that can bring GHG emissions reductions in other sectors

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

Reskilling and Upskilling

How to assess the impact of the use of ICT solutions in other sectors: ITU L.1480


ITUPublications
Recommendations

International Telecommunication Union
Standardization Sector

Recommendation
ITU-T L.1480 (12/2022)

SERIES L: Environment and ICTs, climate change, e-waste, energy efficiency; construction, installation and protection of cables and other elements of outside plant

Assessment methodologies of ICTs and CO2 trajectories

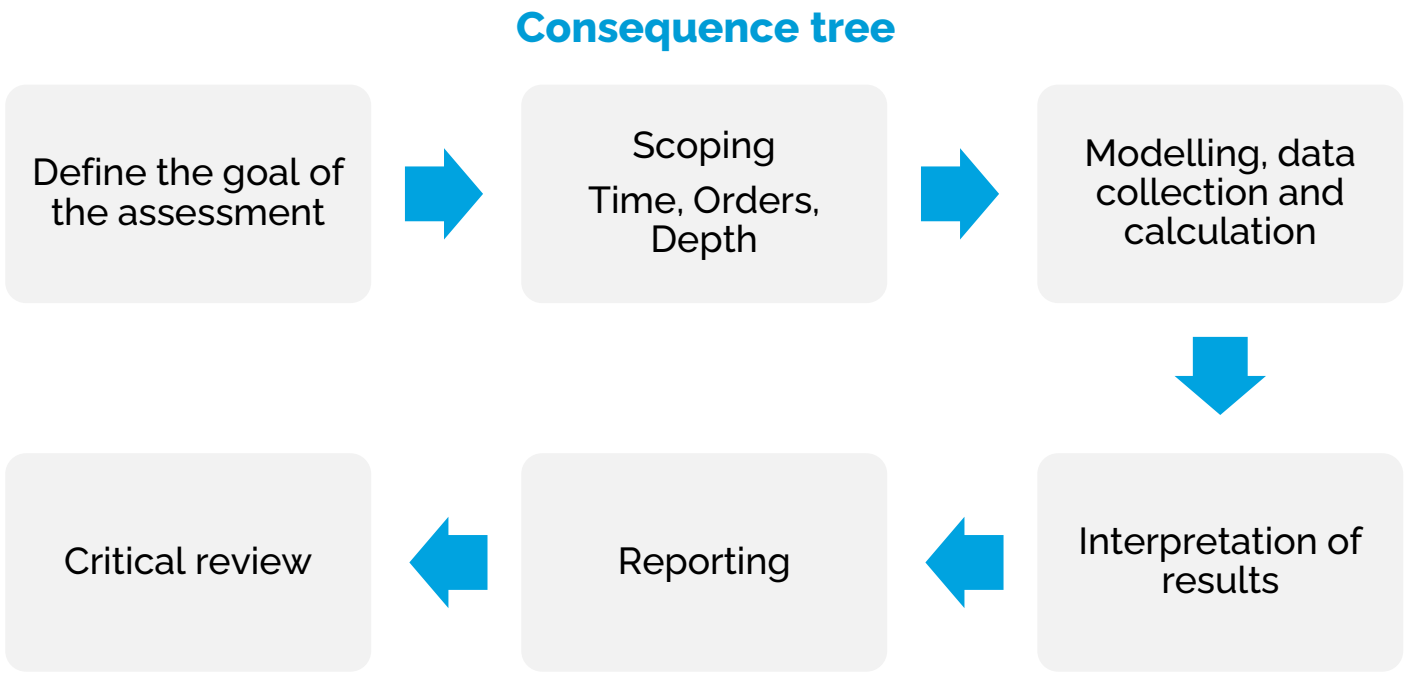
Enabling the Net Zero transition: Assessing how the use of information and communication technology solutions impact greenhouse gas emissions of other sectors

Available for free on the ITU website !

- ICT solutions implemented at different scales, including at an organizational level (whether private or public organizations), at a city level, at a country level or at worldwide level.
- ICT solutions seen from the perspective of users
- ICT solutions seen from the perspective of an ICT organization contributing to the ICT solutions. This includes:
  - Assessment of the effect of one or more specific ICT solutions implemented in an actual context for a specific customer.
  - Assessment of the aggregated effect of all ICT solutions provided by an ICT organization across some or all its customers

ITU-T L.1480 : How to proceed ?

Six steps to assess the impact of the use of an ICT solution

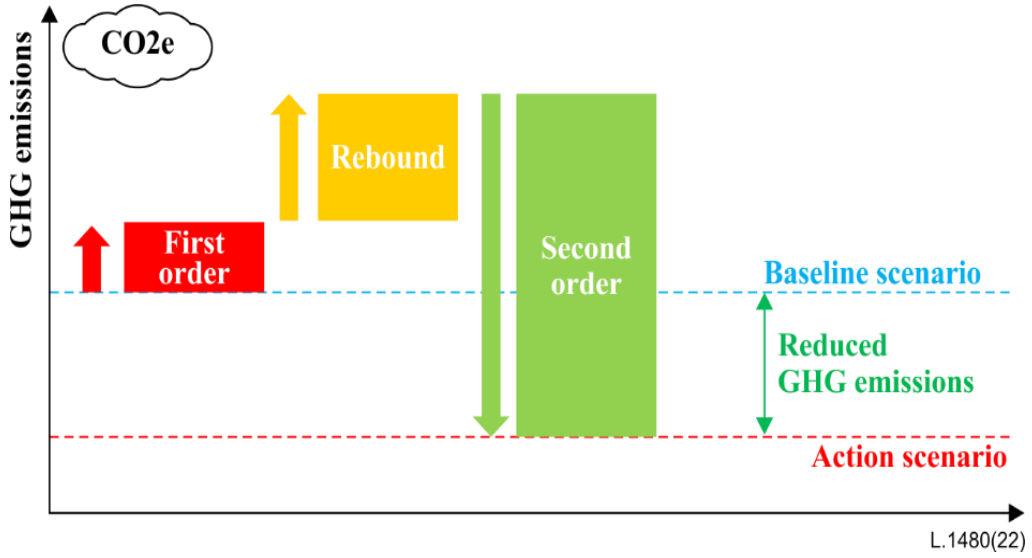


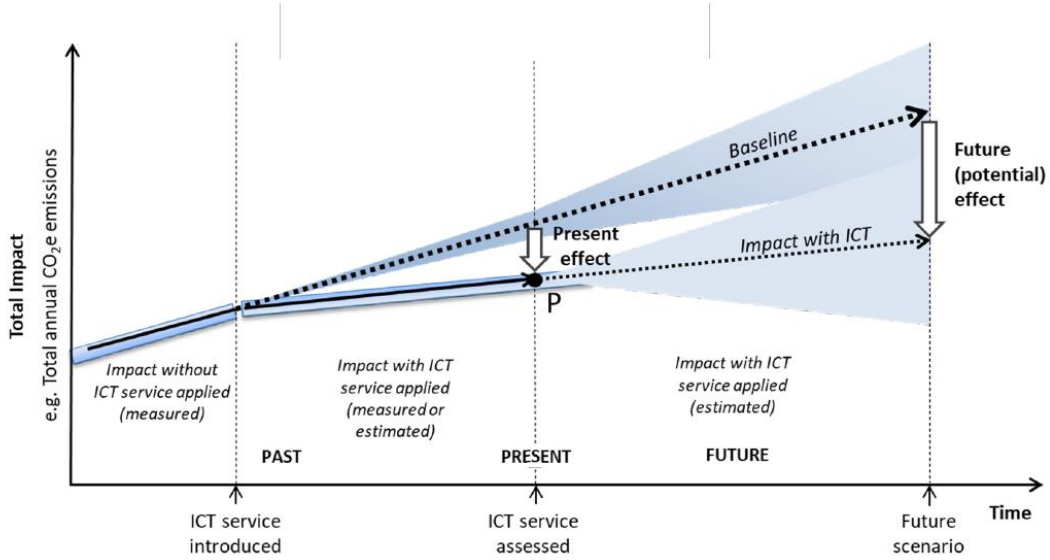
ITU-T L.1480 assessment depths

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)

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

Key definitions

First order effect

- Direct environmental effects associated with physical existence

Second order effect

- The indirect impact created by the use and application of ICTs.

Higher order effect

- The indirect effects other than first and second order effects occurring through changes in consumption patterns, lifestyles and value systems.

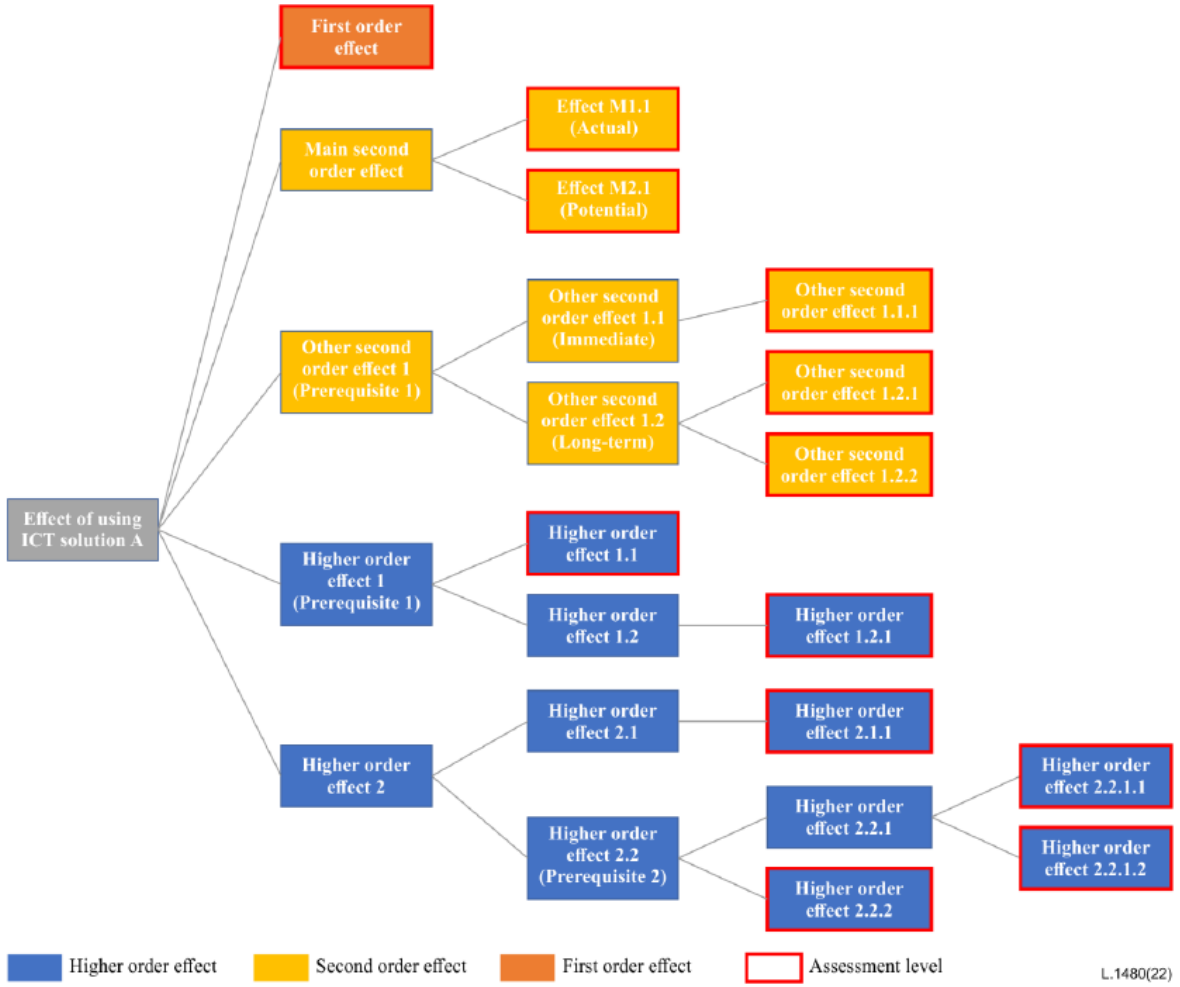
Net second order effect

- The resulting second order effect after accounting for the emissions due to the first order effects of the ICT solution

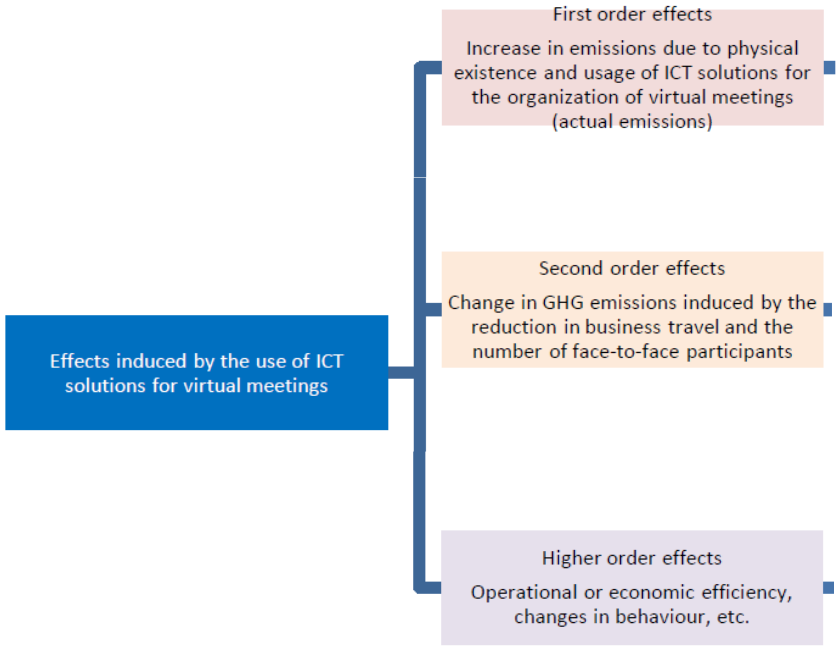
Rebound

- Increases in consumption due to environmental efficiency interventions that can occur through a price reduction or other mechanism including behavioural responses.

A key step in the assessment: the consequence tree



An example of a consequence tree for a virtual meeting



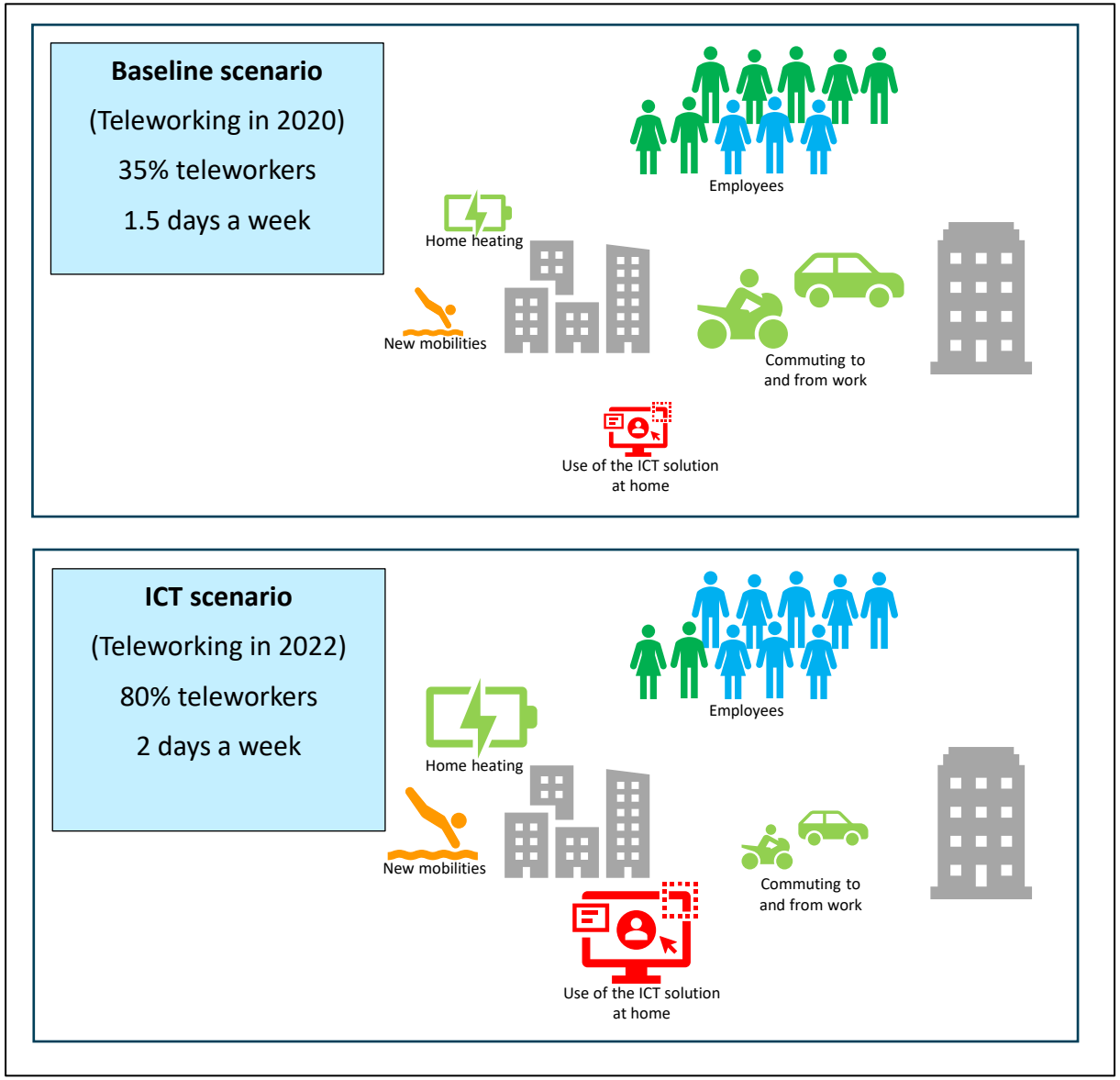
e.g. GHG emissions resulting from the creation, operation and end of life of networks and laptops involved in the solution

e.g. GHG emissions' reductions resulting from changes in transport use, not travelling (car/ plane)

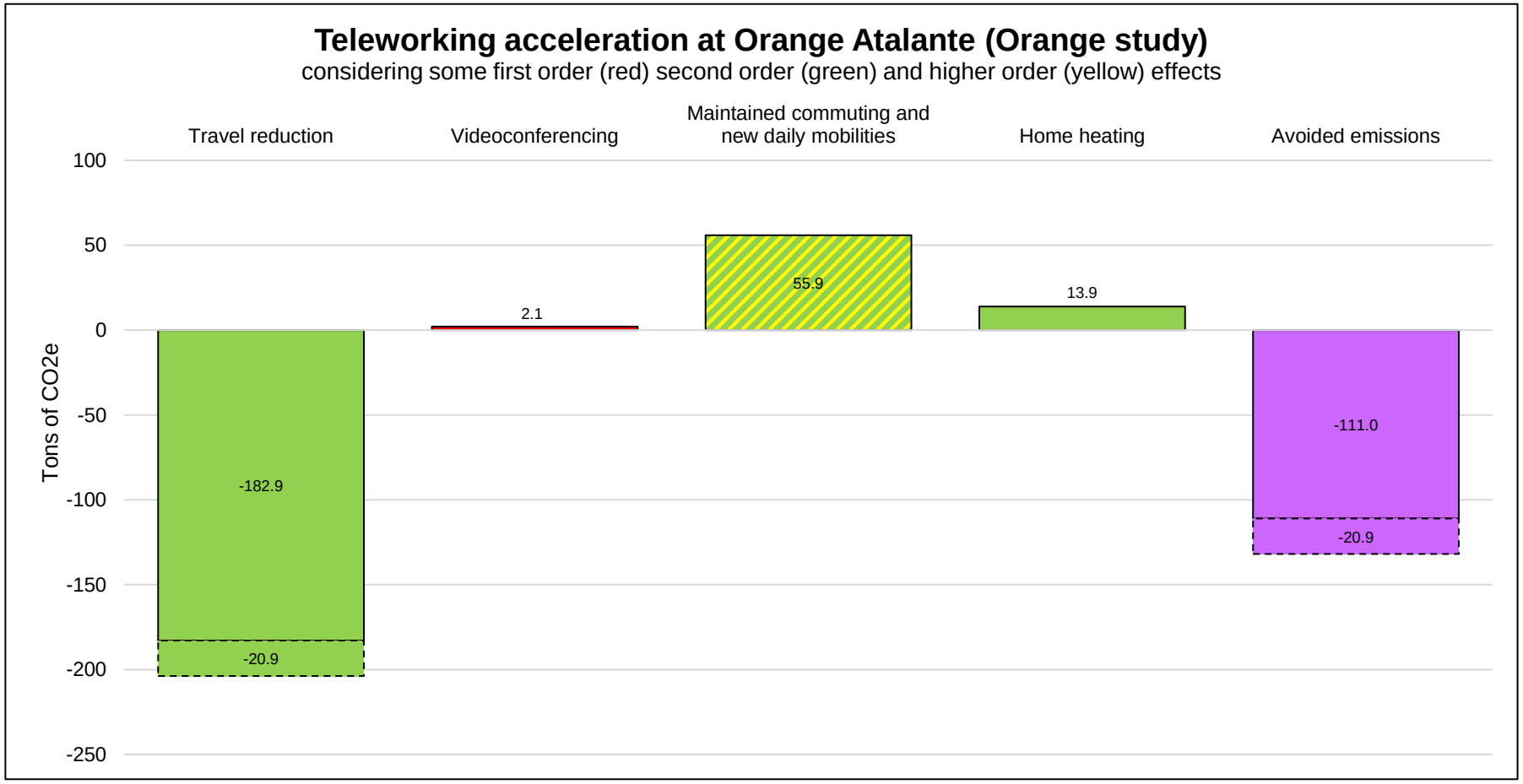
e.g. GHG emissions' increase or decrease resulting from time, budget savings etc…

Important to assess immediate versus mid-term effects

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



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



Main take Aways

1

ICT, unlike many other products and services, distinguishes itself by its double-edged nature, contributing both to environmental loads and emissions reduction opportunities.

2

The ITU-T Study Group 5 has developed a series of Recommendations to assess the environmental impact of ICT incl.:

L.1470 on 1.5°C GHG trajectories

L.1471 on Net Zero for ICT sector organizations

L.Database under development

3

The Recommendation ITU-T L.1480 provides a methodology to comprehensively assess the impacts of ICT solutions in other sectors and help enable the net zero transition.

Thank you!

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