Intersection of digital technologies and the environment

Leveraging standards for the Latin America region

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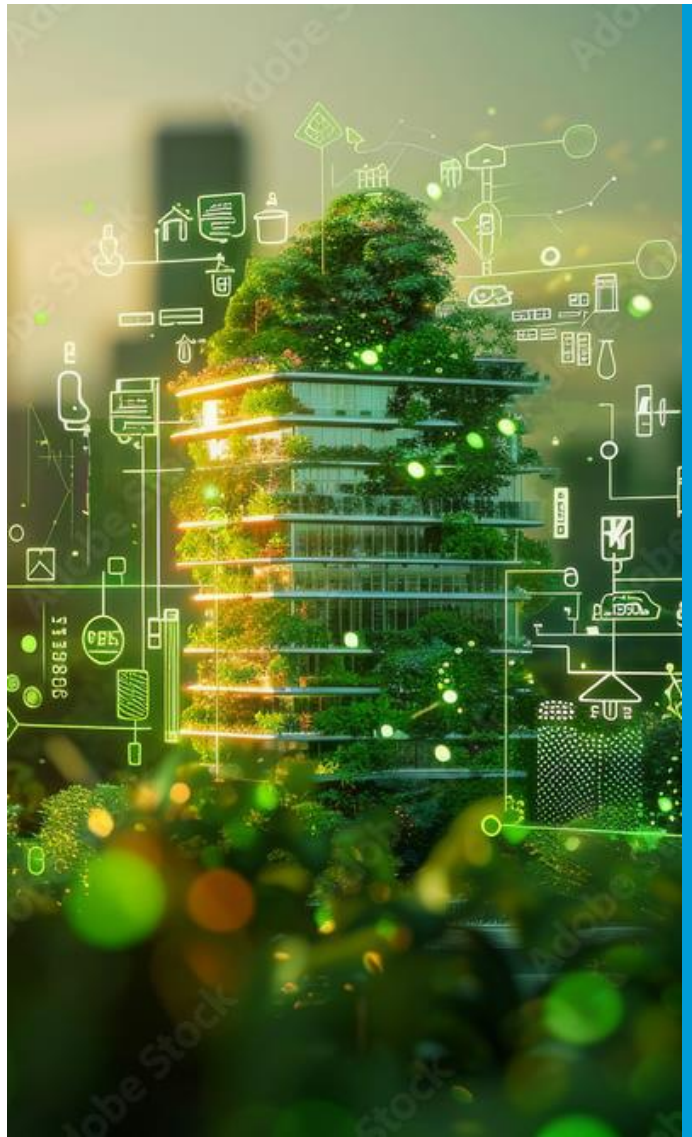
WP3/5 Vice-Chair

8 May 2025

Agenda

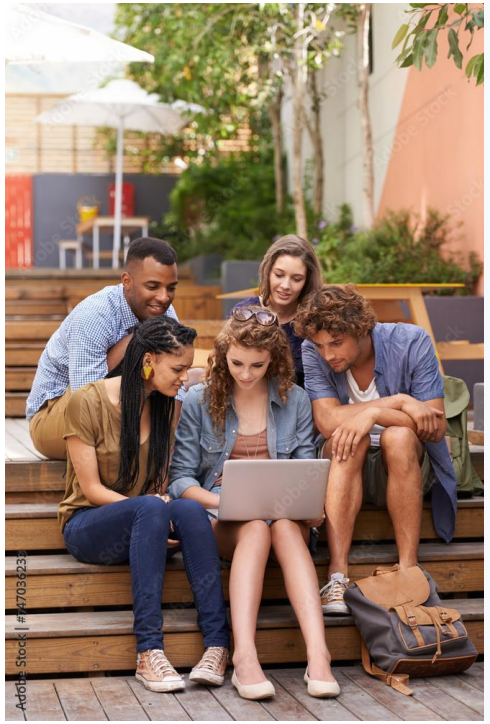
- Environmental impact of ICTs
- Standards development: ITU-T Study Group 5
- ICT sector commitment to fulfilling the Paris Agreement
- Collection of GHG and energy consumption data
- Diversity and ICTs
- Green Digital Action/COP 30
- Call to action

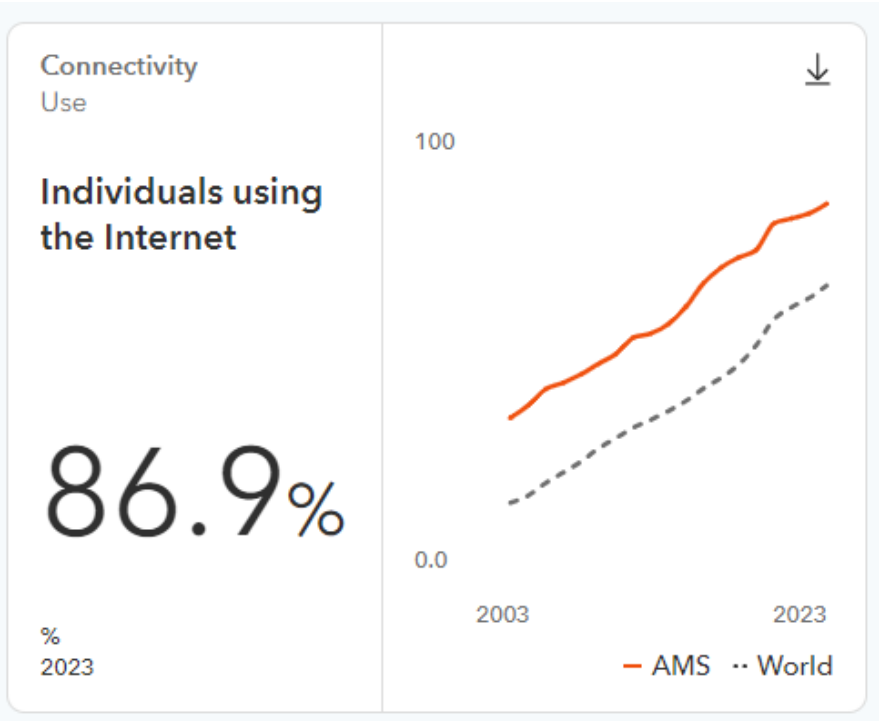


Digital transformation is a powerful force that is reshaping economies, societies and the environment in Latin America

86.9% of people in the region now have connectivity and access to the Internet

This rapid adoption presents both challenges and opportunities, in particular for sustainability.





(Source: ITU)

The adoption of digital technologies has a significant environmental impact

2%

of global GHG emissions are generated annually by ICT industries

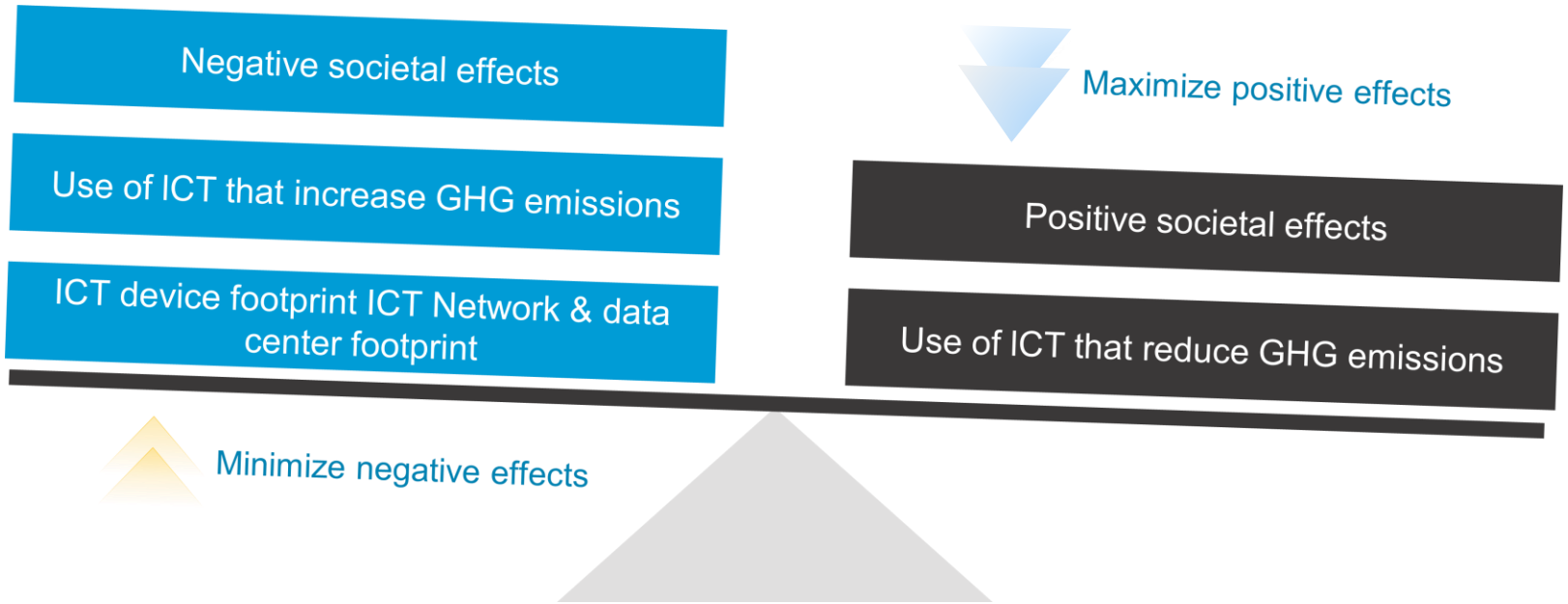
62 billion

kilograms of e-waste was generated globally in 2022

15%

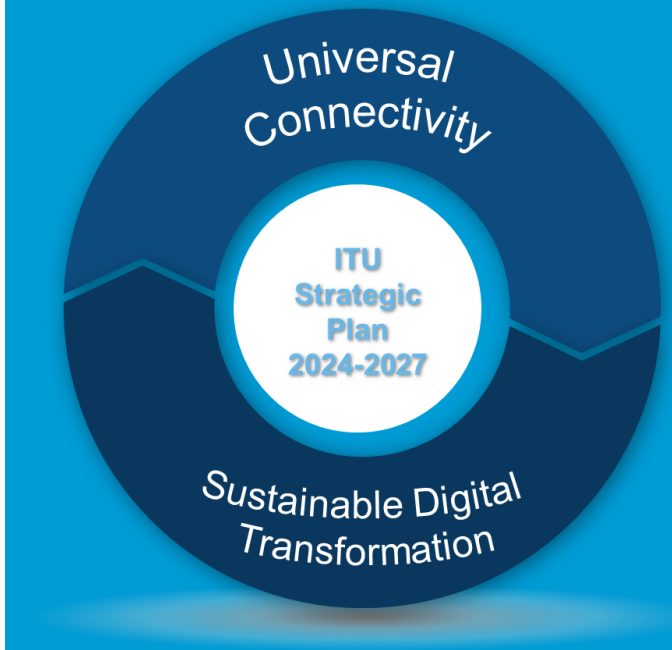
of global emissions could be mitigated by 2030 through the use of ICTs

Digital technologies can be part of both the solution and the problem



How ITU supports sustainable digital transformation

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



194 Member States

+1000 Companies, universities, research institutes and international bodies

How ITU supports sustainable digital transformation

ITU Telecommunication Standardization Sector (ITU-T)

Establishes international standards for green telecommunication sites and environmentally efficient infrastructure

ITU-T Study Group 5
Environment, EMF, climate action and circular economy

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

How can international standards help to drive sustainable digital transformation?

International standards represent the combined knowledge of experts from all over the world.

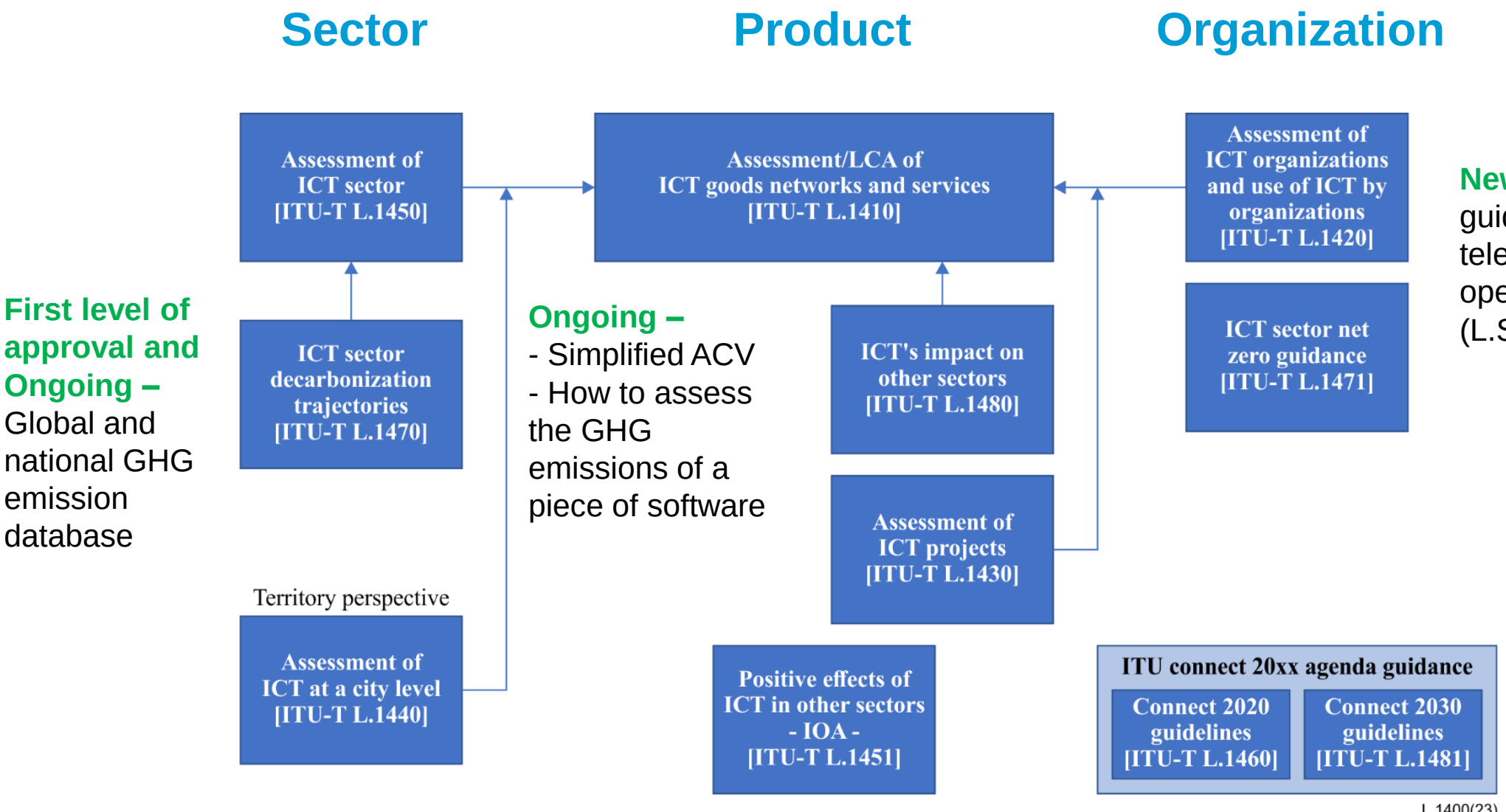
For cities and governments

- Reduce carbon emissions
- Achieve sustainable digital transformation
- Improve the adoption of green energy
- Achieve the goals set out in the Paris Agreement and the SDGs

For the ICT sector

- Provide technical guidance for implementation of green energy solutions
- Provide a means of measurement in order to assess progress
- Bring low-cost connectivity to rural areas
- Achieve net zero

Enabling the transition to net-zero emissions



First level of approval and Ongoing – Global and national GHG emission database

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

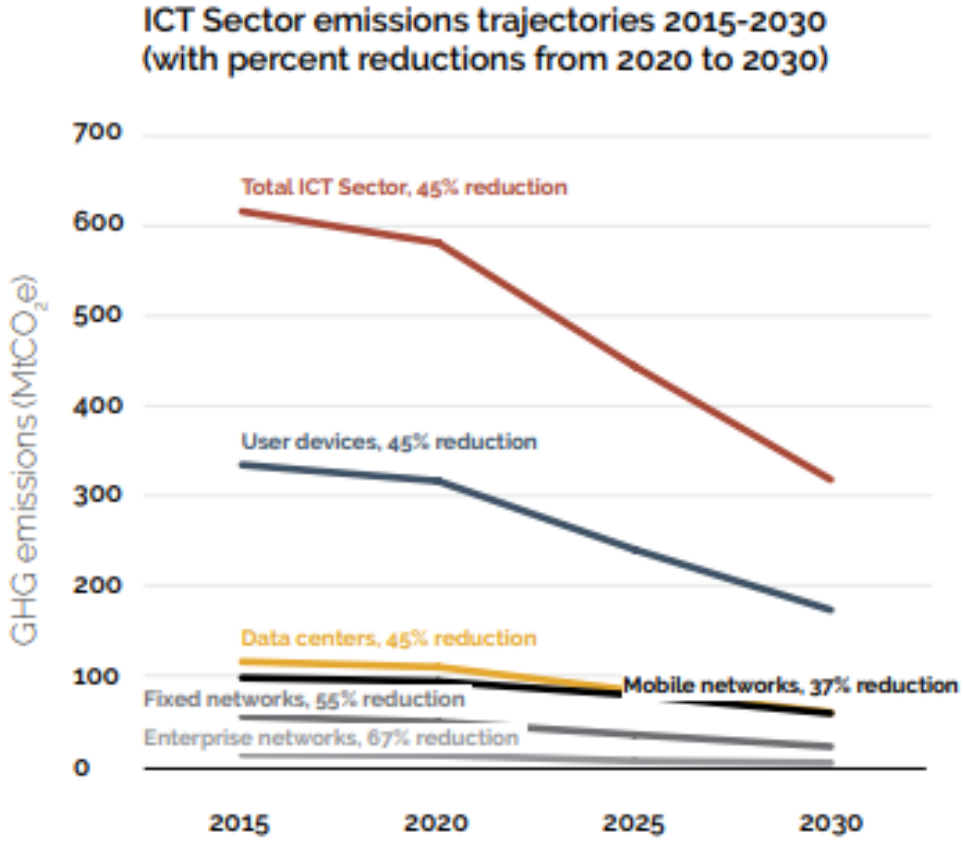
New – Scope 3 guidance for telecommunication operators (L.Suppl.57)

Exploring standards, reporting and internal monitoring

Setting 1.5°C trajectories for the ICT sector

GeSI ENABLING DIGITAL SUSTAINABILITY GSMA SCIENCE BASED TARGETS DRIVING AMBITIOUS CORPORATE CLIMATE ACTION iea ITU

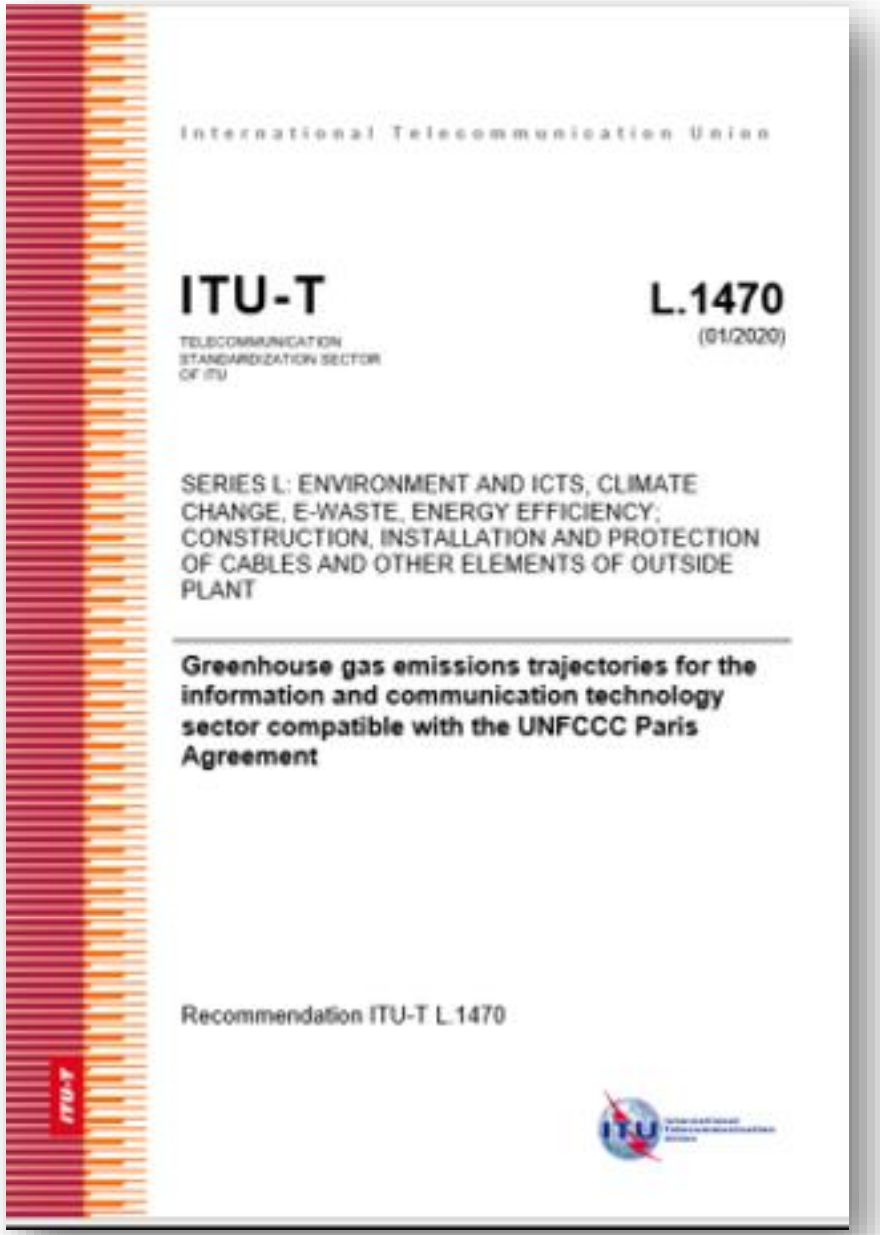
Figure 1: Summary of ICT sector and sub-sector trajectories including embodied emissions and operation



Exploring standards, reporting and internal monitoring

Several steps toward decarbonizing ICT activities:

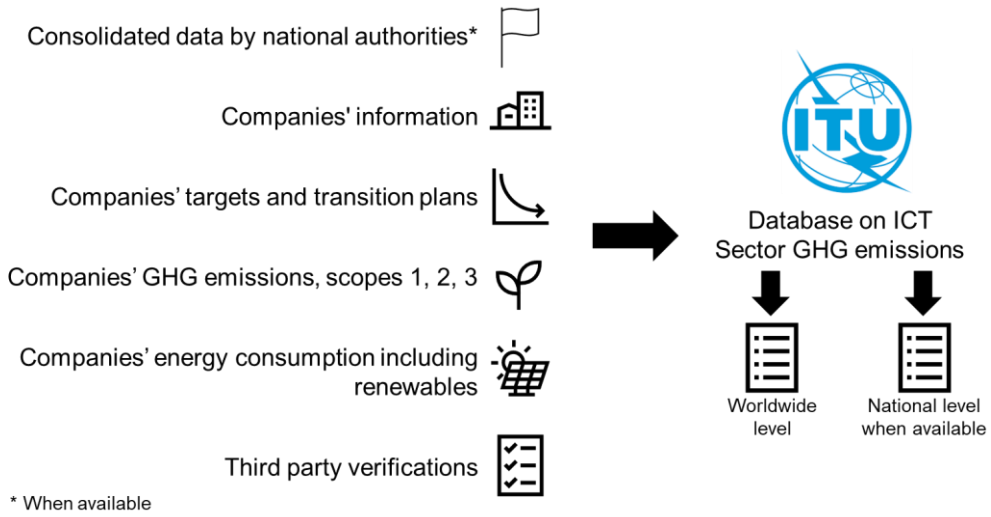
- Assess the baseline
- Set medium- and long-term objectives
- **Develop a transition plan that includes reduction and adaptation plans**
- Implement/adjust the plan



Pilot Project
Recommendation ITU-T L.1472 – Requirements for the creation of an ITU database for ICT sector energy consumption and greenhouse gas emissions

Draft Recommendation ITU-T L.1472 provides the necessary content for the future ITU database for global and national ICT sector energy consumption and GHG emissions.

- Data are already available for some 200 companies, according to ITU reports.
- We invite you to participate in the pilot phase, which will assess data collection against the full range of the content provided for in Recommendation L.1472.



Expected start date: 15 May 2025

Pilot Project
Recommendation ITU-T L.1472 – Requirements for the creation of an ITU database on ICT sector energy consumption and greenhouse gas emissions

Expected deliverables:

- Initial assessment of available data requested under draft Recommendation ITU-T L.1472, based on companies' existing data sources.
- A distinction will be made between "first-step" (basic) and "second-step" (deep dive) data sets, as indicated in draft Recommendation ITU-T L.1472, with particular focus on the second step.
- Initial feasibility assessment for the gathering of data not presently available, but requested under draft Recommendation ITU-T L.1472, through interviews with companies.
- Feedback for the revision of draft Recommendation ITU-T L.1472, based on the initial assessment.
- Complementary assessment of data gathered by countries, based on interviews and assessment of the feasibility of data requested from countries under Recommendation ITU-T L.1472.

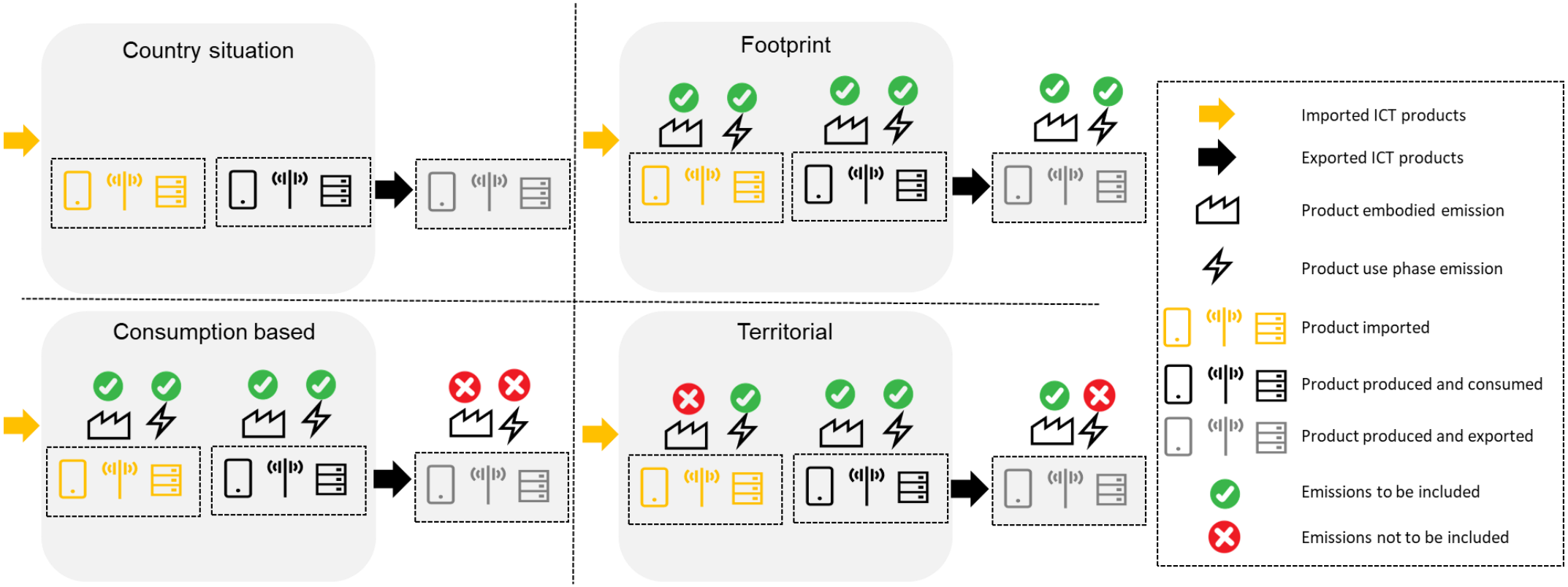
Contact us if your organization could participate in this pilot phase

First step: priority data collection

Table A.1: Data categories, sources and applicability, basic approach, priority data collection

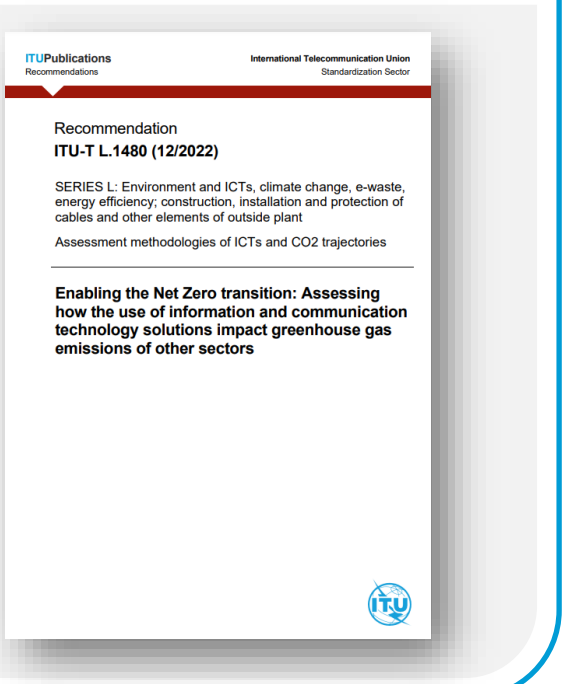
		Who					Type of data			
Data type	**Purpose**	**Telecom operator**	**Data center operators**	**Network goods provider**	**End-user goods provider**	**Other ICT actors**	**Worldwide organization footprint**	**National emissions from the organization when available**	**Database based on CDP reporting or sector member data collection**	**Preferred Primary data source**
Electricity and renewable energy (GWh)										
Total energy consumption, of which:	Basic data	X	X	X	X	X	X	X	X	Public company data*
Total electricity consumption, of which:	Basic data	X	X	X	X	X	X	X	X	Public company data*
Renewable electricity consumption, of which:	Basic data	X	X	X	X	X	X	X	X	Public company data*
Own renewable electricity generated consumption	Basic data	X	X	X	X	X	X	X	X	Public company data*
Electricity with Guarantees of origin	Basic data	X	X	X	X	X	X	X	X	Public company data*
Purchase contracts (PPA)	Basic data	X	X	X	X	X	X	X	X	Public company data*

Draft Recommendation ITU-T L.1472 – Various country-level approaches



Measuring the impact of ICT solutions and digital technologies

Enabling the net-zero transition
Recommendation ITU-T L.1480



It provides a structured methodological approach that aims to enhance consistency, transparency and completeness in assessing how the use of ICTs affects GHG emissions over time.

Moving forward:

Ongoing collaboration with other organizations, such as ETSI and AIOTI, in order to improve the standard by incorporating more examples.

ETSI World Class Standards

Alliance for IoT and Edge Computing Innovation

Develop standards that support biodiversity

Biodiversity adaptation

Biodiversity solutions

L.Biodiversity_footprint
Methodology for the assessment of the footprint of an ICT organization on biodiversity

L.Biodiversity_opportunities
Development of guidance on how to assess the second-order effects of ICT solutions on biodiversity, including positive effects

L.Bio-Adapt
Biodiversity adaptation to climate change

L.SMART
Impact assessment framework for evaluating how ICT-based subsea infrastructure could support climate, environmental and biodiversity monitoring in the oceans

Inaugural Digitalization Day

This year, for the first time in COP history, the Presidency recognized the importance of digitalization in climate talks and announced Digitalization Day.

Declaration on Green Digital Action

The roundtable concluded with the adoption of the first **Declaration**, which aims to accelerate climate-positive digitalization and emission reductions in the ICT sector and enhance accessibility of green digital technologies.

Green Digital Action

The objective of Green Digital Action is to **strengthen collaboration, accelerate industry-wide commitments** to address climate challenges and place **digital solutions** at the forefront of **climate action**.

ICT sector GHG emissions:

Commitment 1
Companies commit to:

- Setting (or having already set) science-based targets in line with the target of limiting global warming to 1.5°C
- Creating and publishing transition plans

Commitment 2
Companies commit to:

- Contributing to the creation of an ICT-sector product and service database.
- Invitation to participate in ongoing standardization work within **ITU-T SG5.**

Commitment 3
Companies commit to :

- Annually and publicly reporting data on all areas and categories of GHG emissions and submitting results to the ITU public database.

Green Digital Action @COP29

The objective of Green Digital Action is to **strengthen collaboration, accelerate industry-wide commitments** to address climate challenges and place **digital solutions** at the forefront of **climate action**.

Green Standards – Call to action:

From commitment to action: implementing standards for a sustainable future. The Green Standards pillar established a refined framework for categorizing standards and advancing their adoption.

IEC ISO ITU

Declaration of the World Standards Cooperation

As the world's leading developers of international standards, **we pledge to uphold the principles that allow sustainability to be built into their development by design**, and to delivering the standards that make both business and environmental sense.

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Call to action

Participate in the development of international standards within ITU-T Study Group 5

Participate in the pilot project under Recommendation ITU-T L.1472 and share **your transition plans**

Implement Recommendation ITU-T L.1480 on the assessment of the positive impact of ICTs on GHGs and energy consumption

Promote the implementation of ITU-T standards in your organization

Participate in multiple congresses and organization of **workshops and awareness-raising forums**

Thank you!

E-mail

tsbsg5@itu.int

Website

SG5: Environment, climate change and circular economy

Regions all over the world are facing environmental challenges

The digital era is having an impact on Latin America in various ways

E-waste management

Circular economy

Energy efficiency

GHG emissions

ITU-T Study Group 5 –

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

Leading on key issues

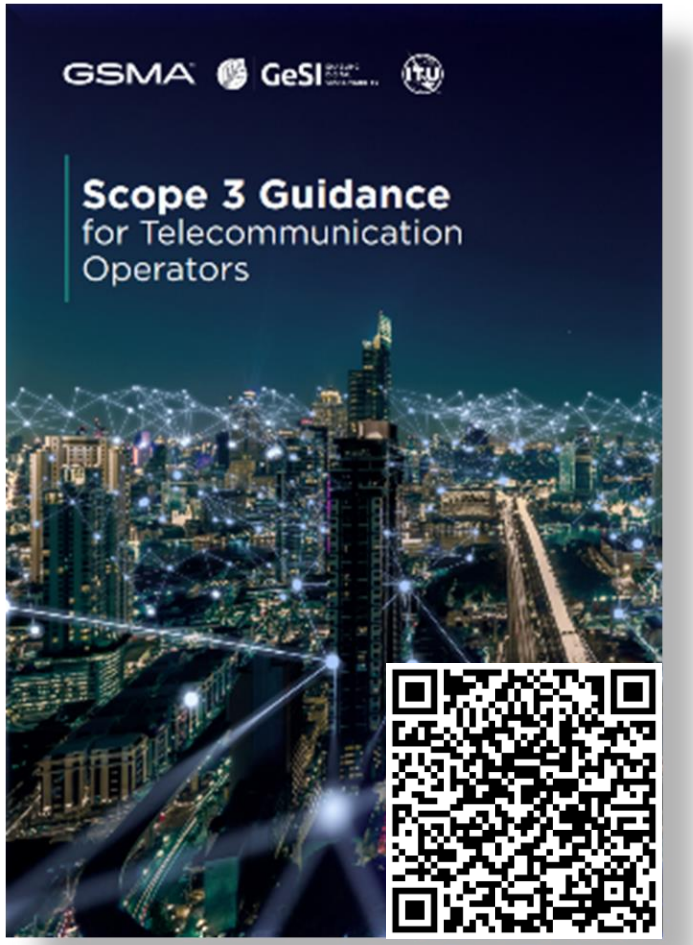
Energy efficiency and data centres	E-waste, circular economy and supply chain management	ICTs and the net-zero emission challenge	ICT impact on biodiversity	Circularity in cities

- Africa region
- Americas region
- Arab States region
- EECAT region
- Asia and the Pacific region

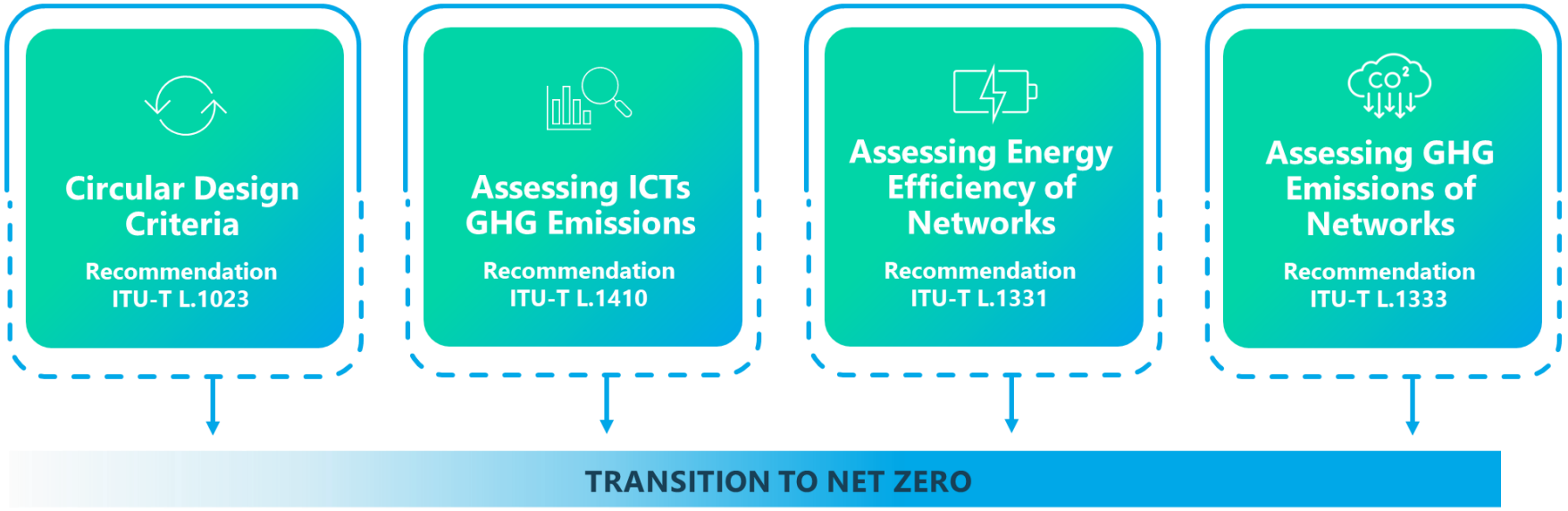
Assessment and reporting of Scope 3 emissions

Scope 3 emissions cover a wide range of economic activities, which are divided across 15 categories

Upstream activities	Downstream activities
Category 1: Purchased goods and services	Category 9: Downstream transportation and distribution
Category 2: Capital goods	Category 10: Processing of sold products
Category 3: Fuel- and energy-related emissions[92]	Category 11: Use of sold products
Category 4: Upstream transportation and distribution	Category 12: End-of-life treatment of sold products
Category 5: Waste generated in operations	Category 13: Downstream leased assets
Category 6: Business travel	Category 14: Franchises
Category 7: Employee commuting	Category 15: Investments
Category 8: Upstream leased assets	



ITU-T standards driving sustainable ICTs



Sets the trajectories of GHG emissions for the global ICT sector and sub-sector
Recommendations ITU-T L.1470 and ITU-T L.1471

Green Digital Action @COP29

Tapping into the environmental efficiency of AI

AI for Climate Action Innovation Factory

Winners:

Machine learning competition in **intelligent scheduling of power supply for green telecommunications**

Innovation Factory initiative on **ways of managing waste generated by digitalization to promote energy efficiency**

Green Digital Action pillar on Green Computing

Call to action:

Our objective is to formulate guiding principles, practices and replicable models for AI governance, constructions, training, operation and consumption.

By identifying current gaps, we can continue to build a sustainable future.

43 technology companies and organizations joined forces to drive forward Green Digital Action at COP28

Green Digital Action @COP28

The collective efforts resulted in nine key commitments across four thematic pillars during seven Green Digital Action sessions and 19 partner events

- Corporate agreements to set science-based targets aligned with the goal to limit global warming to 1.5°C, publish transition plans and enhance the transparency of emission data across the whole technology industry through a common database.
- Joint ITU, ISO and IEC declaration on the importance of **incorporating sustainability into the development of technical standards by design.**
- Launch of an action plan to **strengthen collaboration between industry and countries in the implementation of environmental sustainability standards**.
- Collaboration between countries to **develop e-waste regulation**.
- Commitment of the satellite and mobile communication industry to **support the Early Warnings for All initiative** through cellular and **direct-to-device transmission services**.

Thematic pillars

Reducing ICT sector **GHG emissions**

Promoting the adoption of international **green standards**

Fostering a **circular ICT industry**

Advanced **green computing**

Leveraging **emergency telecommunication** systems in order to provide life-saving disaster warnings

Advancing **climate** solutions through **technology and open environmental data**

Facilitating **green transition across all industries** through use of digital technology and skills development

Approach

Green Digital Action

Working groups
Shaping collaborative action and driving progress through a partner-led approach.

Action coalition
Supporting the common implementation and progress of planned actions

Webinars and workshops
Enabling knowledge sharing and peer-to-peer capacity building

Responsibility
Monitoring progress and establishing accountability mechanisms

Communication
Raising awareness and mobilizing others through impactful stories, joint messaging and branding in order to amplify shared goals

Events
Bringing together the Green Digital Action community, reporting progress and mobilizing additional commitments

Green Digital Action @COP28

Green Digital Action aims to enhance collaboration, accelerate industry-wide commitments to address climate challenges and put digital solutions at the forefront of climate action.

Green standards:

Call to action
From commitment to action: Implementation of standards for a sustainable future

Action plan and launch of a working group for peer-to-peer capacity building in order to strengthen collaboration between industry and countries in the implementation of **environmental sustainability standards.**

IEC ISO ITU

Declaration of the World Standards Cooperation

COP 28, Dubai, United Arab Emirates

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Commitment 3:
Companies commit to:

- Annually and publicly reporting data on GHG emission scopes and categories and submitting results to the public ITU database.

COP29 Ministerial Segment

Ministerial Roundtable on the Green Digital Action roadmap, 16 November 2024, Baku: on the first ever Digitalization Day in the history of COP, the roundtable will explore how technologies can transform climate action

The roundtable will conclude with the adoption of the first **Ministerial Declaration**, which affirms the vital role of digital technologies in climate action and outlines a framework for collaboration to promote sustainability

Key issues

- Integrating digital innovation into climate strategies
- Improving climate monitoring and adaptation through digital tools
- Addressing the environmental impacts of digitalization and the industry's own sustainability responsibilities
- Showcasing successful sustainability initiatives
- Setting the stage for future collaboration in order to align digital transformation with global climate goals

Key commitments

- Harnessing digital technologies for climate action
- Building a sustainable digital infrastructure
- Ensuring industry responsibility for mitigating the environmental impact of digitalization
- Promoting digital inclusion
- Fostering sustainable innovation

Green Digital Action @ COP29