ITU-T Standards helping to achieve circularity and sustainability

Environment, Climate Change and Circular Economy

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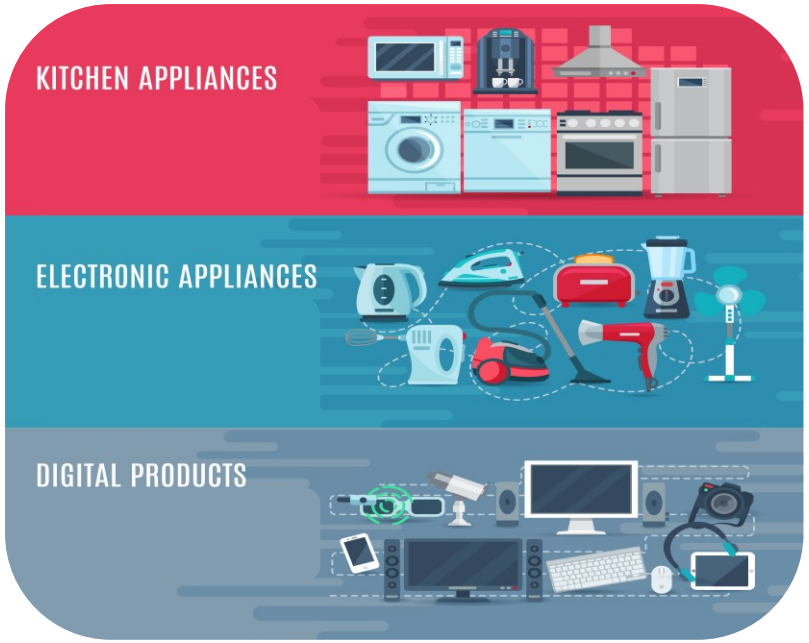
WP2/5 Chairman
ITU

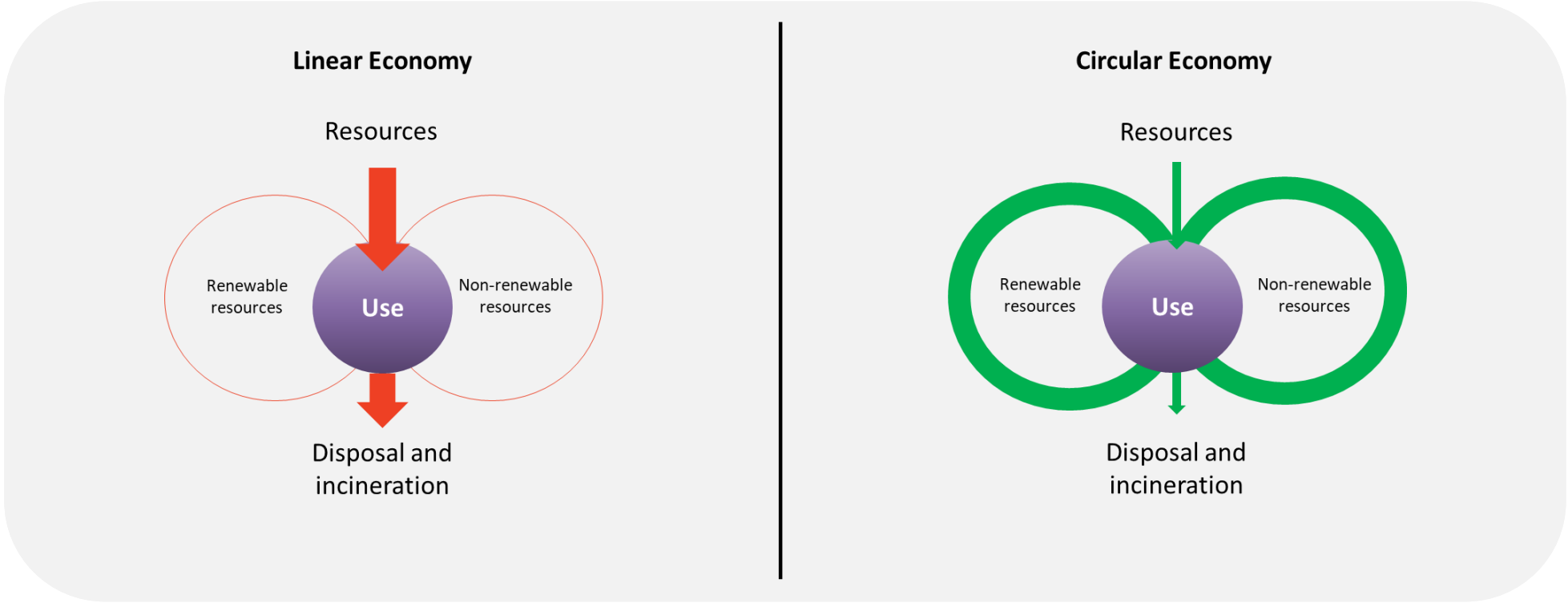
E-Waste Around the World



The world produces approximately 50 Mt of e-waste a year

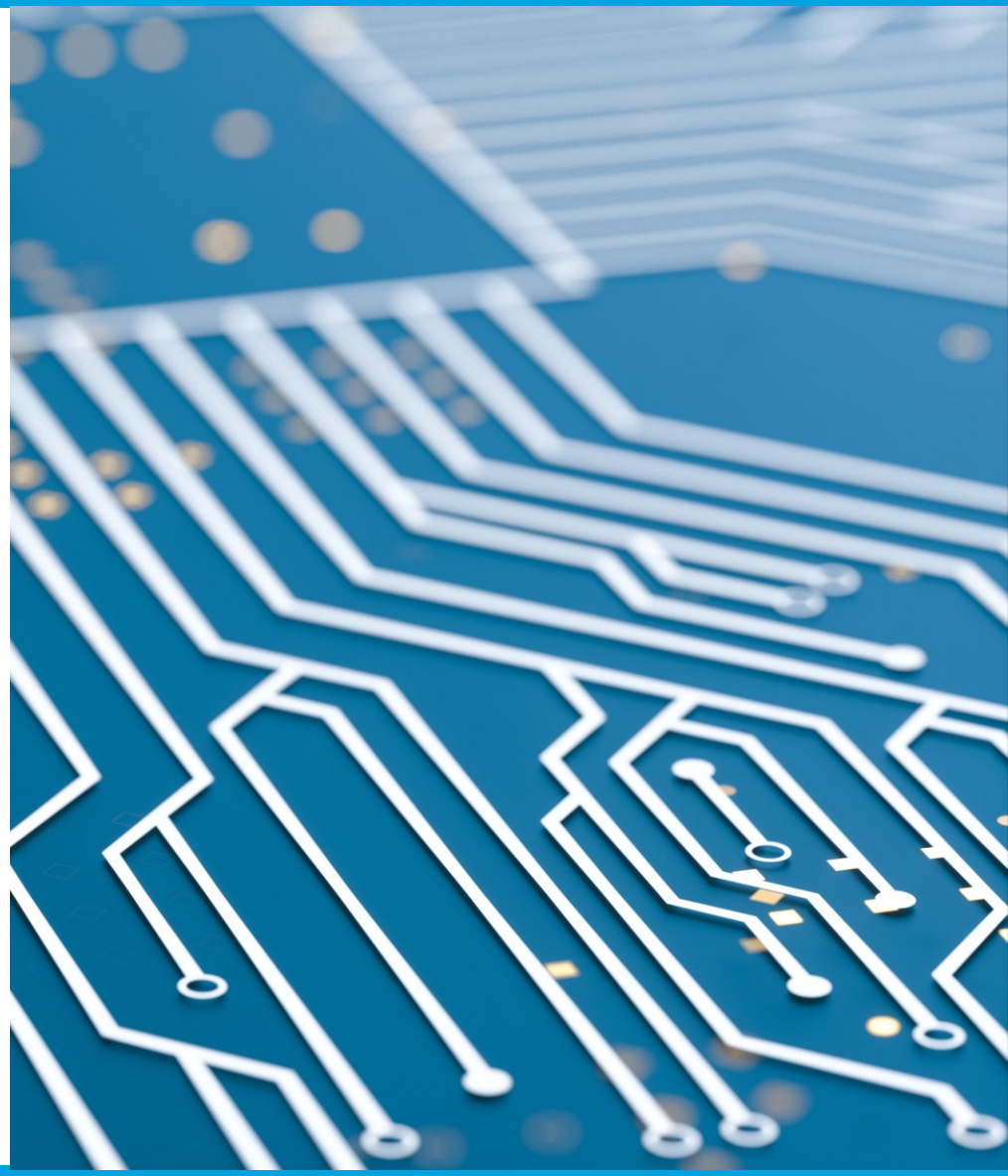
Global e-waste will reach 120 Mt by 2050

How Can a Shift to the Circular Economy Help?



ITU-T Study Group 5

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



ITU-T Study Group 5: Environment, Climate Change and Circular Economy

- **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

WP1/5 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

WP2/5 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
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

PLEN

Q8/5 Guides and terminology on environment

ITU-T SG5 Question 7:

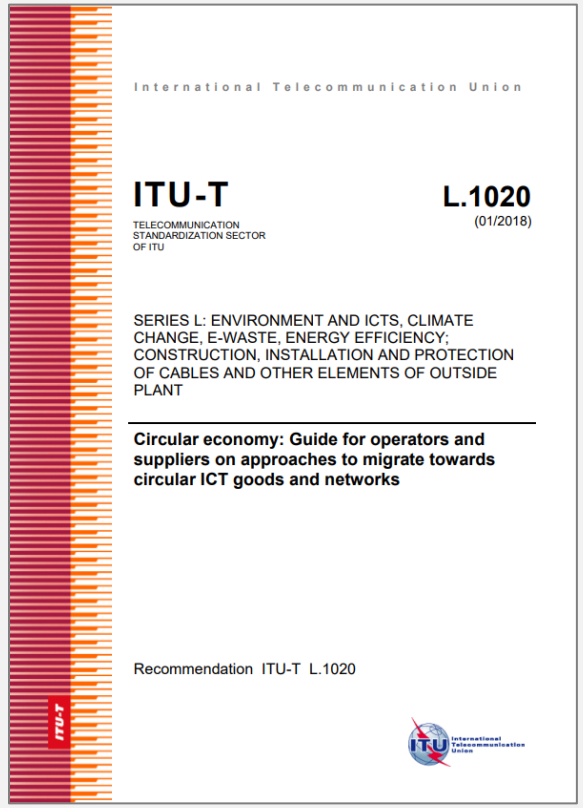
E-waste, circular economy and sustainable supply chain management

This Question seeks to address the e-waste challenge by identifying the environmental requirements of digital technologies including IoT, end-user equipment and ICT infrastructures or installations, based on the circular economy principles and improving the supply chain management.

Recommendation ITU-T L.1020

Implementing a Circular Business Model

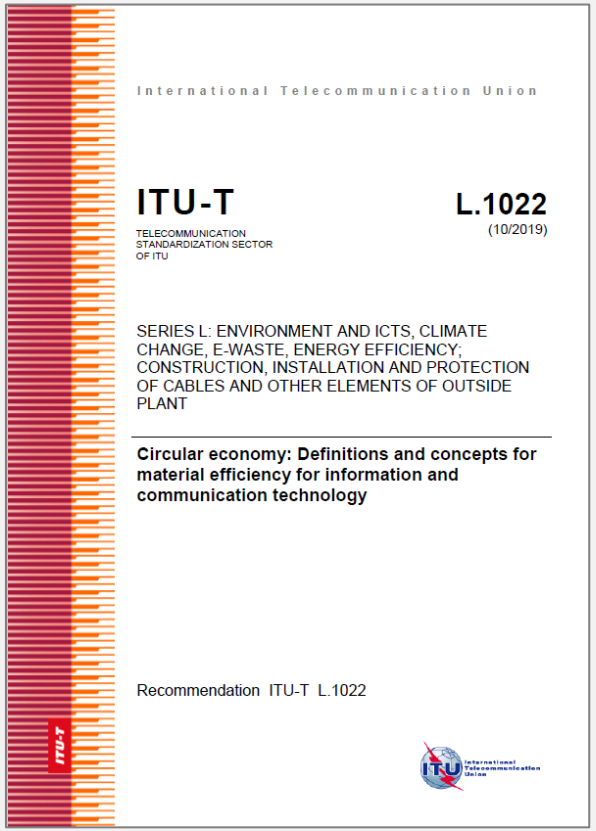
Reduce Extend Recycle Reuse Energy Efficiency



Recommendation ITU-T L.1022

Major Concepts

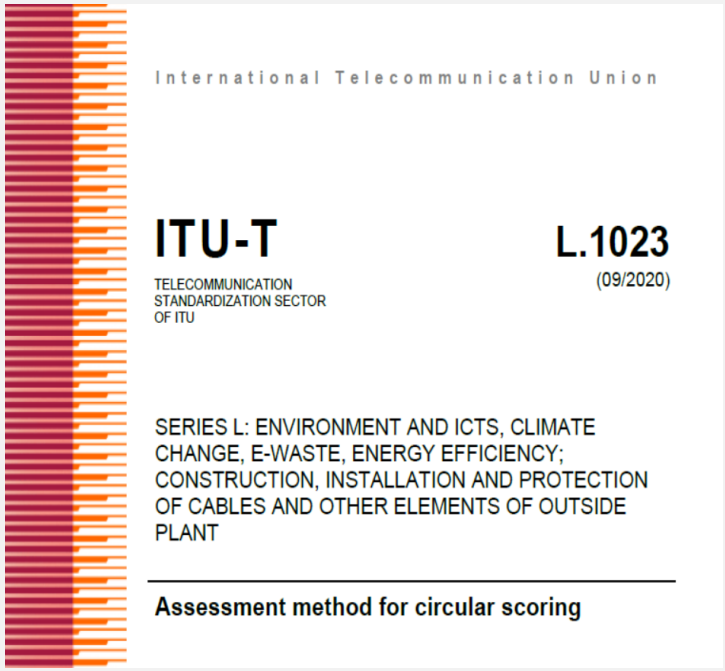
Circular Economy (CE) > Resource Efficiency (RE) > Materials Efficiency (ME)



Recommendation ITU-T L.1023

A three-step methodology to identify an information and communication technology (ICT) good's circularity in three dimensions via three circular design guideline groups (CDGGs)

Link HERE



3 Main Areas of Focus

1 – Product durability (PD):

- Promoting the life span and durability of products
- Adapting their design and studying the possibility of upgrading
- Service support for the first user or subsequent users

2 – Ability to recycle, repair, reuse, upgrade (3RUe) - equipment level

- Possibilities to refurbish;
- Possibilities to reuse product parts and components;
- Facilitate the identification, separation and recycling of materials.

3 – Ability to recycle, repair, reuse, upgrade (3RUm) – manufacturer level:

- Manufacturer ability (on company level) to facilitate recycling, repair, reuse and upgrade

Circular design guidelines groups and criteria for circular product design of relevance for circular ICT

Group	Code	Criteria
Group 1 Product durability	PD1	Software and data support
	PD2	Scratch resistance
	PD3	Maintenance support
	PD4	Robustness
	PD5	Battery for portable ICT goods
	PD6	Data security
Group 2 Ability to recycle, repair, reuse, upgrade – equipment level	3RUe1	Fasteners and connectors
	3RUe2	Diagnostic support
	3RUe3	Material recycling compatibility
	3RUe4	Disassembly depth
	3RUe5	Recycled/renewable plastics
	3RUe6	Material identification
	3RUe7	Hazardous substances
	3RUe8	Critical raw materials
	3RUe9	Packaging recycling
Group 3 Ability to recycle, repair, reuse, upgrade – manufacturer level	3RUm1	Service offered by manufacturer
	3RUm2	Spare parts distribution
	3RUm3	Spare parts availability
	3RUm4	Disassembly information
	3RUm5	Collection and recycling programmes
	3RUm6	Environmental footprint assessment knowledge available to improve the equipment material efficiency

3 – step Methodology

1 – Estimate the relevance (R) of each guideline to the product:

- The positive effect (for customer, environment, etc.) of incorporating the guidelines for the criterion at hand will be: **R4 (very high), R3 (high), R2 (Low), R1 (Very low), N/A**

2 – Evaluation of the margin of improvement (MI) for a product design

- The criterion in the product design is: **MI4 (Not met), MI3 (slightly met, MI2 (fairly met), MI1 (fully met)**

3 – Calculating the circularity score (Score) of the product:

- Score = combination of R and MI

Circularity Assessment

		R			
		1	2	3	4
MI	1	55	75	90	100
	2	50	60	70	80
	3	40	35	30	15
	4	25	20	10	0

L.1023(20)_F01

Best Score = Greater circularity

Draft Recommendation ITU-T L.1050: Methodology to identify the key equipment in order to assess the environmental impact and e-waste generation of different network architectures

This Recommendation will examine three types of network architectures and will suggest an appropriate set of equipment to be considered for each.

This Recommendation will begin to support network designers in determining the environmental and circular performance of different network architectures.

Draft Recommendation ITU-T L.GDSPP: Requirements for a global digital sustainable product passport to achieve a circular economy

- The Recommendation will define the requirements of reporting key aspects related to circularity and transparency of an ICT or digital technology product in digital format
- It can allow not only to facilitate and automate comparison of different ICT products based on circularity aspects, but also can facilitate preparation and reuse in the second-hand market and the reverse supply chain.
- It can help manufacturers, governments, users to implement voluntary reporting and monitoring mechanisms to assess these qualities and become an incentive to design and use more circular ICT devices.

ITU-T SG5 Question 13:
Building circular and sustainable cities and communities

This Question aims to develop standards, guidance, Supplements and/or Technical Reports on:

- identifying requirements and providing guidance, innovative frameworks and tools that support the transition to a circular city.
- Guidelines, frameworks and best practices require to improve sustainability of cities and communities
- How does circularity in city improve sustainability and climate resilience?
- Circular economy principles into different city assets (i.e. buildings, transport, water, energy, digital and public infrastructures, waste management, natural resource management etc.)

Join Us!

- 30 September 2021 (16:00 - 19:00 CEST): Sustainable Digital Transformation in Latin America

Thank you!

Questions? Interested in learning more?
Let us know!

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SG5: Environment, climate change and circular economy