

Advancing Circular Economy in Africa: **Assessing the Performance of ICT Goods and How a Digital Product Passport Can Help**

Leandro Navarro
Co-rapporteur Q7/5
ITU

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ITU-T Study Group 5: EMF, environment, climate action, sustainable digitalization and circular economy, develops standards on:

- 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

Question 7 in ITU-T Study Group 5:

“E-waste, circular economy, and sustainable supply chain management”

Technical alignment of standards with
European ETSI Environmental Engineering

Focus on circularity and transparency about
environmental and climate change aspects

International Telecommunication Union



ITU-T Q7/SG5: “E-waste, circular economy, and sustainable supply chain management”

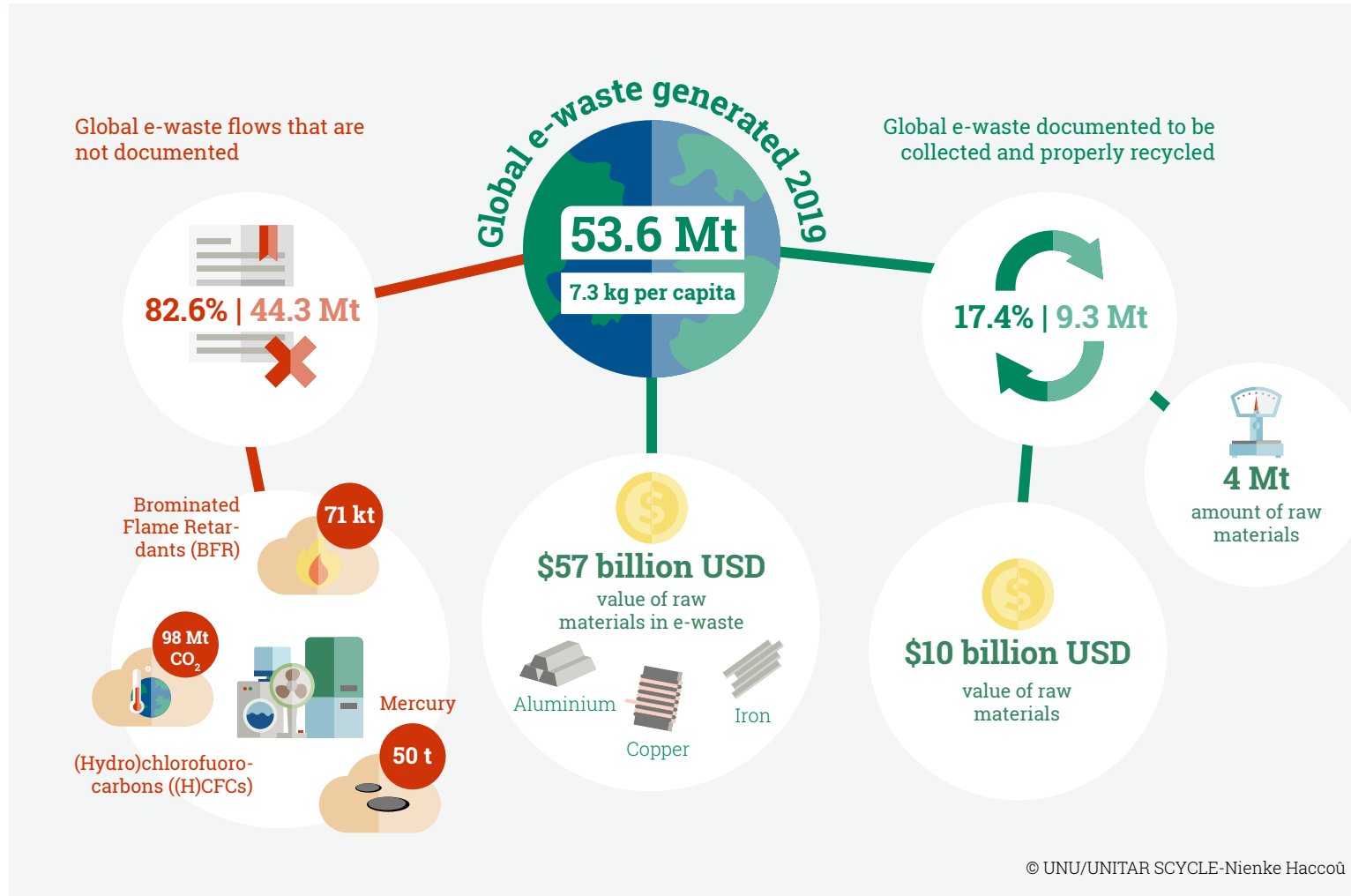
Digital product passport

- 2023 [ITU-T L.1070 “Global digital sustainable product passport opportunities to achieve a circular economy”](#) – Technically aligned with ETSI TC EE
 - Opportunities
 - High-level Requirements
- 2024 [L.D4PI “An information model for digital product information on sustainability and circularity”](#) – Technically aligned with ETSI TC EE
 - Focus on an information model that brings digital information details to facilitate sustainability claims verification for conformity or compliance checking with existing standards.

International Telecommunication Union



We produce every year as many e-devices as people alive!



Importance of circular economy



- **European Digital Product Passport – EU DPP (EU ESPR)**
 - Approved by European Parliament April 2024.
 - Specifies high-level information requirements, considers information in a DPP about environmentally sustainable products:
 - Product durability, reliability, reusability, upgradability, reparability; possibility of maintenance and refurbishment; presence of substance of concern (SoC); energy use/efficiency and resource use/efficiency; recycled content; possibility of remanufacturing, recycling, material recovery; environmental impacts, including carbon footprint and environmental footprint; generation of waste materials.
 - Additional delegated acts per product category: battery, electronics, ...
- **UN Transparency Protocol – B2B DPP (UNECE Rec 49)**
 - Issued by the shipper of goods is the carrier of product and sustainability information for every serialised product item (or product batch) that is shipped between actors in the value chain.
 - It contains links to conformity credentials, which add trust to the ESG claims in the passport.*
 - The UNTP DPP does not conflict with national regulations like EU DPP.

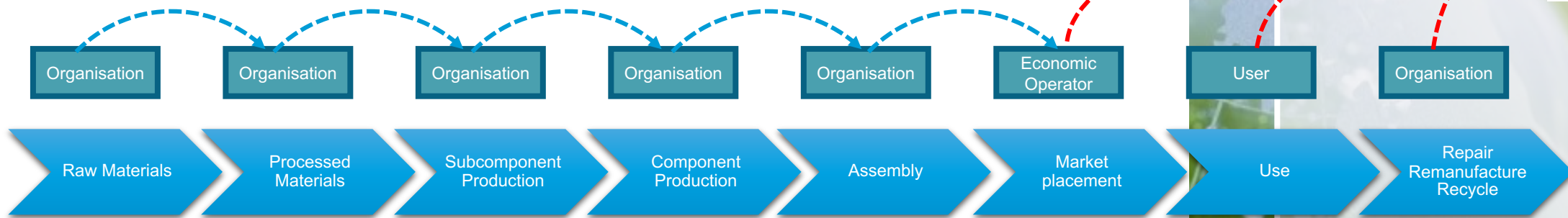
Related regional and global DPP specifications



* Inspired by the COP 27 statement by Secretary-General Guterres that the UN has “Zero Tolerance for Greenwashing”

UNTP B2B DPP

EU DPP



- Related Standards: material datasheets, databases, data carriers, storage, technical data interop protocols, etc.
- The EU CIRPASS project (2022-24) has explored the DPP concept considering:
 - Interoperability among EU DPP and UNTP DPP,
 - The role of the semantic web to link data and metadata,
 - The reuse of existing data models, vocabularies and ontologies.
 - Decentralized identifiers (DID), URI, verifiable credentials, linked data, resolvers ...

Digitalization and Products



- Elements (examples)
 - *A unique product identifier*: product, batch, item, part
 - *Data carrier*: scan code in the product
 - *Details*:
 - Codes, compliance, economic operators
 - Env. performance: materials (critical, hazardous), energy, weight, durability
 - Info for buyers and end-users (maintenance, repair, parts), treatment (end-of-life), operators (handling), market surveillance, customs
 - **Specific details for each product category (verticals)**
- Uses: **need to know basis; evolutionary: already needed, used**
 - More sustainable, circular products: design, reuse, ...
 - Traceability, transparency, verifiability: accountability
 - Informed choice: procurement
 - Incentives: EPR, reuse, return, recycling
 - Automation, smart decisions!

The Digital Product Passport



Information model (L.D4PI)

- Sustainability claims:
 - Topic, as a code or name from a list,
 - Related specification (standard or recommendation), specific criteria involved in the claim, as doc/resource reference (URI)
 - Claimed value as a metric.
 - Conformance:
 - Reference benchmark value,
 - Document reference to support the benchmark value,
 - Boolean indicator of conformance,
 - Evidence: reference to conformity evidence, such as a verifiable document/credential.
- Metric:
 - Name, a human-readable name.
 - Value, numerical, represents the measurement or evaluation outcome of the claim.
 - Unit, a code expressing unit of measure (following standards, e.g. ISO/IEC).
 - Range of accuracy, a numeric value to express percentage (optional).



**ICT Product
Pathway**

Thank you!

Questions?
Let us know!



Email

leandro.navarro@upc.edu

tsbsg5@itu.int



Website

[\[www.itu.int/climate\]](http://www.itu.int/climate)

