ETSI Summit on Sustainability

The Work of TC ATTM and OEU for Green and Sustainable Networks and Cities
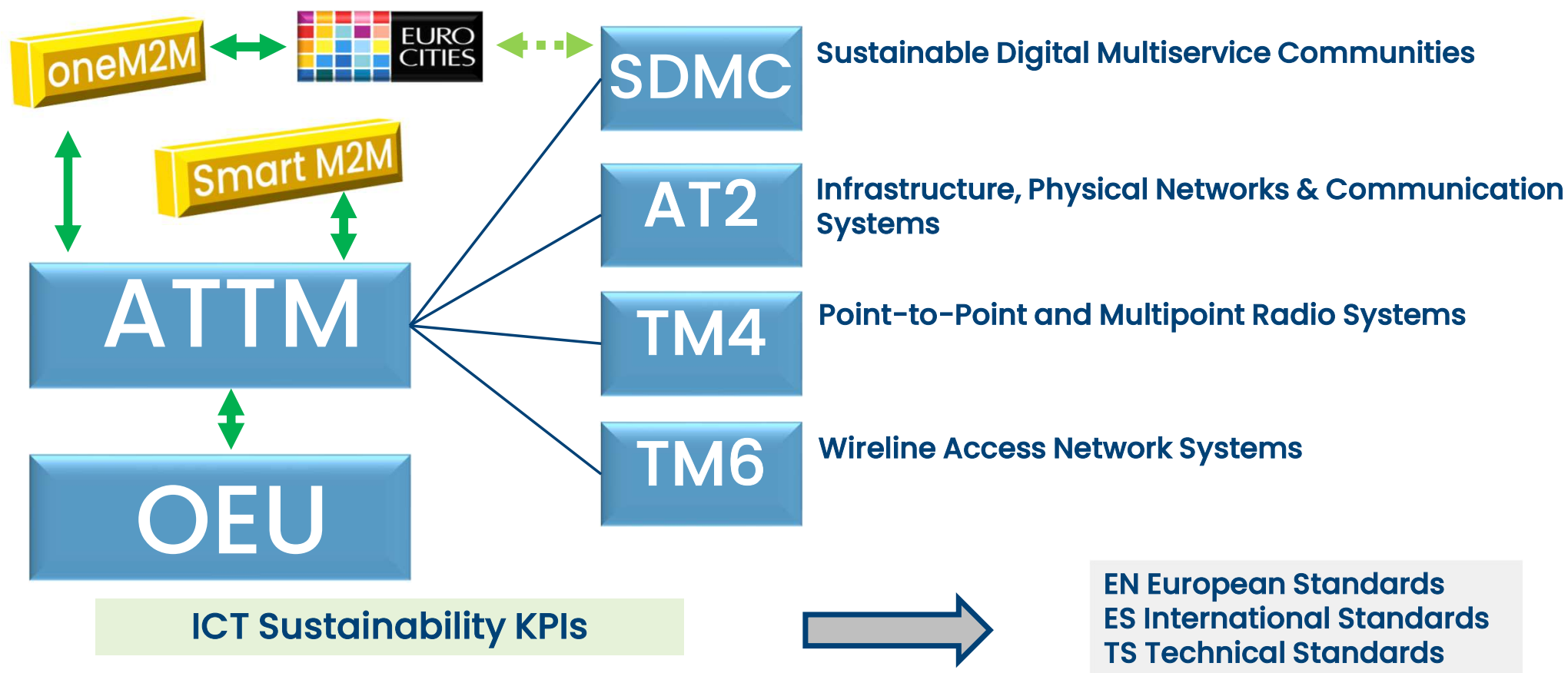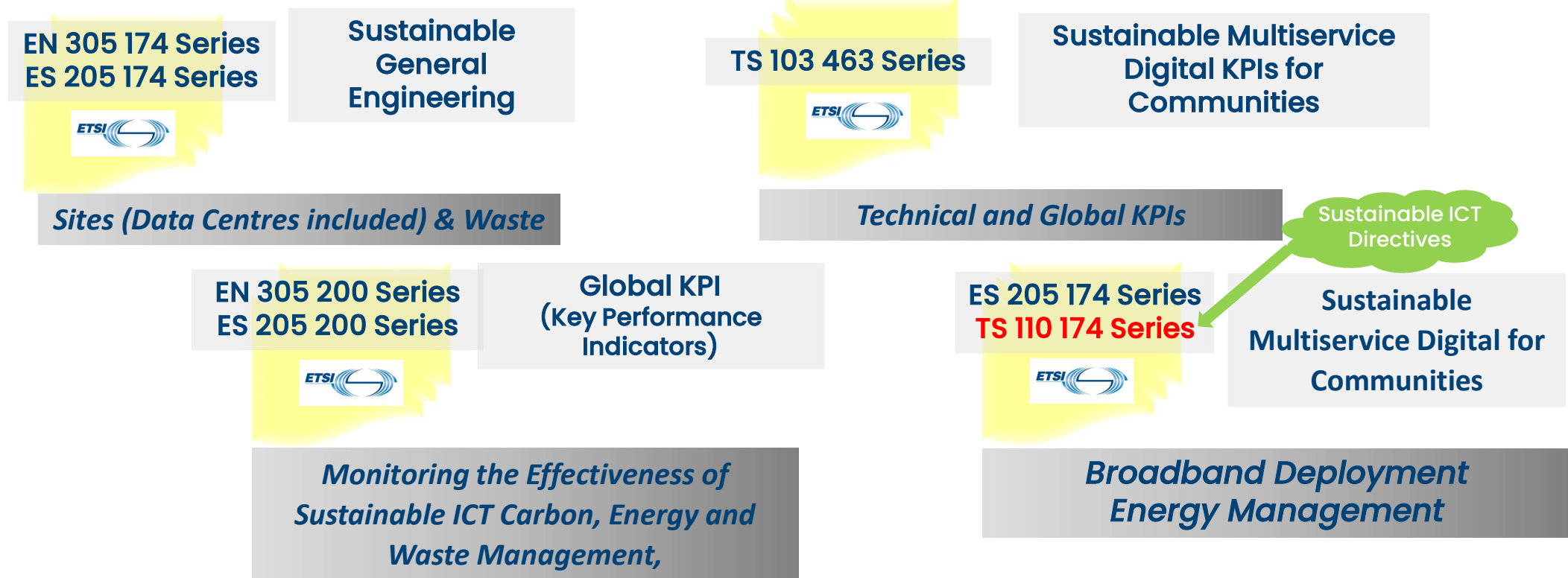
Lynn REINER, TC ATTM-TM6 Chair

e.green for users

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Organisation

oneM2M ⟷ EURO CITIES ⟷ **SDMC** — Sustainable Digital Multiservice Communities

Smart M2M

ATTM

AT2 — Infrastructure, Physical Networks & Communication Systems

TM4 — Point-to-Point and Multipoint Radio Systems

TM6 — Wireline Access Network Systems

OEU

ICT Sustainability KPIs

➡ EN European Standards
ES International Standards
TS Technical Standards

ATTM's activities

EN 305 174 Series
ES 205 174 Series

Sustainable General Engineering

Sites (Data Centres included) & Waste

EN 305 200 Series
ES 205 200 Series

Global KPI (Key Performance Indicators)

Monitoring the Effectiveness of Sustainable ICT Carbon, Energy and Waste Management,

TS 103 463 Series

Sustainable Multiservice Digital KPIs for Communities

Technical and Global KPIs

Sustainable ICT Directives

ES 205 174 Series
TS 110 174 Series

Sustainable Multiservice Digital for Communities

Broadband Deployment Energy Management

- *Standardized monitoring of the level of sustainability of ICT under EC Mandate M/462*

- **Standardization of tools and procedures for the sustainable and efficient deployment and management of the sustainability lev of ICT**
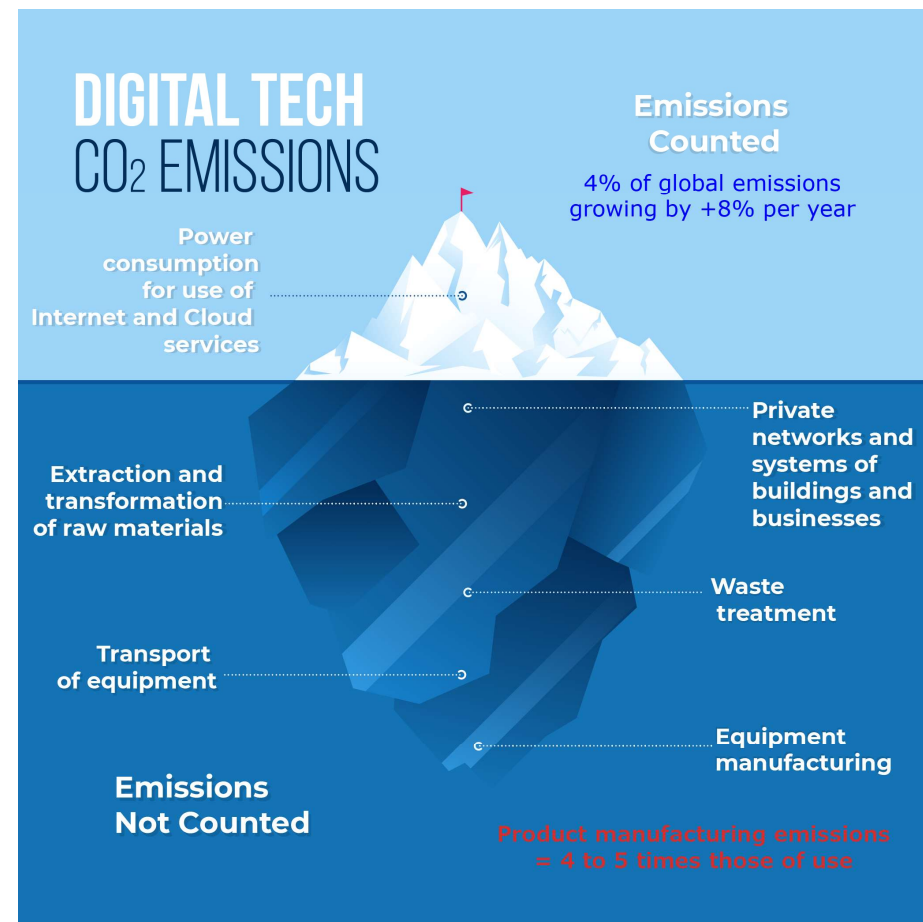
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OEU's activities

The Industry Specification Group on Operational Energy Efficiency for Users (ISG OEU) is addressing operational eco-efficient Information and Communications technologies (ICT), including the power consumption and greenhouse gas emissions related to infrastructure, equipment and software within ICT sites (e.g. data centres, central offices) and networks.

In 2023 ISG OEU anticipates the adoption of two new Work Items as requested by ATTM SDMC. The first of two proposed Group Reports addresses network interoperability in building and campus environments. The second is a further Group Report in the context of smart territories: this describes the framing of training and labelling of community prescribers and managers for community work related to data management, using ETSI engineering standards.

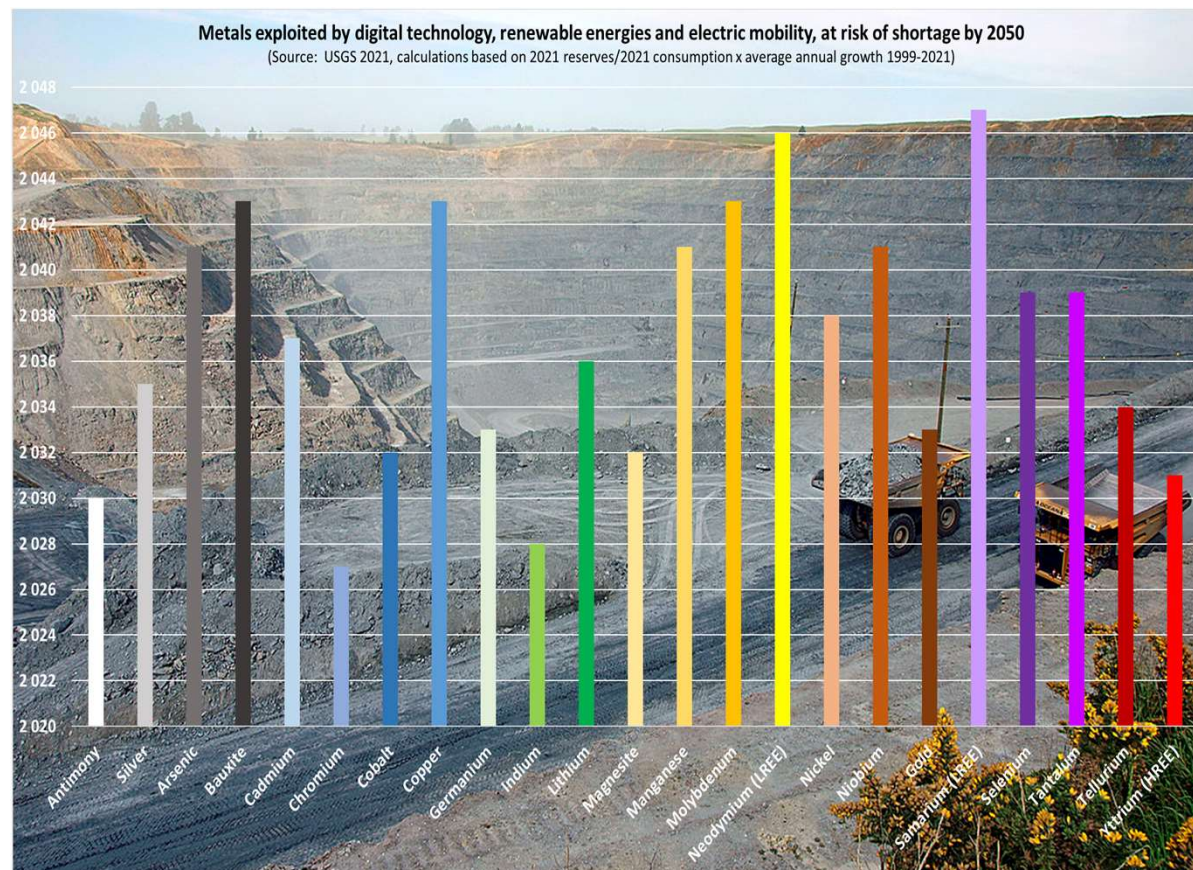# Digital's Ecological Footprint is Largely Under-Reported

- ➢ Digital must finally worry about its own environmental impacts.

- ➢ It can no longer be considered a "solution" without considering its consequences.

- ➢ Like all sectors, digital must do its part in reducing environmental impacts.

DIGITAL TECH CO₂ EMISSIONS

Emissions Counted
4% of global emissions growing by +8% per year

Power consumption for use of Internet and Cloud services

Private networks and systems of buildings and businesses

Extraction and transformation of raw materials

Waste treatment

Transport of equipment

Equipment manufacturing

Emissions Not Counted

Product manufacturing emissions = 4 to 5 times those of use

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Digital's resources: 1st crisis in sight

☞ The manufacture of electrical and telecom cables absorbs 60% of copper (**2041** production.

☞ Germanium (**2033**) is used in the manufacture of optical fiber which, as its primary consumer, absorbs 30% of production

☞ Antimony (**2030**), Gallium and Gold are used in the manufacture of semiconductors and processors

☞ Indium (**2028**) is used to make flat screens

☞ Tantalum (**2039**) is used in the manufacture of smartphones

☞ Lithium (**2036**), Cobalt (**2032**) and Nickel (**2038**) are used in smartphones and laptop batteries.

Metals exploited by digital technology, renewable energies and electric mobility, at risk of shortage by 2050
(Source: USGS 2021, calculations based on 2021 reserves/2021 consumption x average annual growth 1999-2021)

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Major recommendations for ICT sustainability and efficiency

Sobriety means doing more with less

- Converge digital systems on a single infra-network
- Converge electrical and digital infrastructures
- Use less space and ancillary equipment
- Use infra-networks demanding the least electronic equipment
- Use the most resource and emission-efficient solutions
- Take action against bloatware

Major recommendations for ICT sustainability and efficiency

Promote sustainability

- Use only standards-based solutions

- Foster flexibility, modelling, scalability and removability

- Reuse existing cables, supports and infrastructure

- Employ backward compatible protocols and adaptable interfaces

- Use applications and APIs based on common languages

- Prefer modular software

- Use modular and repairable products and solutions

- Prefer products and solutions with a long lifespan

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Major recommendations for ICT sustainability and efficiency

Consume less energy

- Use link protocols adapted to the uses on the network segments
- Avoid unnecessary protocol encapsulations
- Avoid oversizing port and speed capacities
- Manage the energy delivered by the network
- Virtualize networks and servers
- Clean applications of unnecessary lines of code
- Evaluate the relevance of cloud computing with regard to operations

Major recommendations for ICT sustainability and efficiency

Develop the market towards ecologically sustainable digital technology

- Change the digital business model

- Promote digital real estate services

- Bring out a new players in the digital value chain

- Change environmental regulations for buildings

- Have LCA energy and ecological balance sheets for products and systems

- Develop recycling channels for digital products and materials

- Manufacture products with less energy and fewer GHG emissions

- Reduce GHG emissions from the energy consumed by data centers

- Promote ecologically sustainable digital products and systems

- Advance the development of digital norms and standards