Conflicts and synergies of the digital and green transitions

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GLOBAL VISION: 
IoT TODAY AND BEYOND
The nexus of Green transition & Digital Transformation

Synergies
- Digital transformation for climate neutrality. It can reduce 15-20% of total GHG emissions
- Green transition for sustainable financing and new jobs in green digital transformation

Conflicts
- ICT footprint: 2.1 and 3.9% of total emissions; eWaste - fastest growing waste category
- Green transition may block certain digitalisations patterns (built in obsolescence, blockchain mining, single use electronics, etc).

- Today’s focus is mostly on the Conflicts because they are measurable.
- What is needed: To realise benefits of Synergies for sustainability and digital sector
- How: Science based methods to measure the contribution of digital to environment -> leading to sustainable finance for green digital (EU Taxonomy, Green Public Proc.)
34 CEOs of ICT companies, that lead their own transition to climate neutrality by 2040, have committed on behalf of their companies to take action in the following areas:

• Investing in the **development and deployment** of green digital solutions with significant energy and material efficiency that achieve a net positive impact in a wide range of sectors.

• Developing **methods and tools** to measure the net impact of green digital technologies on the environment and climate by joining forces with NGOs and relevant expert organizations.

• Co-creating, with representatives of others sectors, **recommendations and guidelines** for green digital transformation of these sectors that benefits environment, society and economy.


[https://www.greendigitalcoalition.eu/](https://www.greendigitalcoalition.eu/)
IoT integrates Digital Technologies

Sensor-Control Infrastructure

Telecom (5G) Infrastructure

Data Spaces

Cloud Infrastructure

Apps - Services

IoT is much more than Connectivity:

• Industrial Internet of Things
• Industrie 4.0
• Cyber-physical Systems
• Smart Internet of Things

Max Lemke, Connect University, June 2021
IoT across Industry

Max Lemke,
Connect University,
June 2021

IOT ANALYTICS

Global share of IoT projects

<table>
<thead>
<tr>
<th>IoT Segment</th>
<th>Americas</th>
<th>Europe</th>
<th>APAC</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart City</td>
<td>34%</td>
<td>45%</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>Connected Industry</td>
<td>45%</td>
<td>31%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Connected Building</td>
<td>53%</td>
<td>33%</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>Connected Car</td>
<td>54%</td>
<td>30%</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>Smart Energy</td>
<td>42%</td>
<td>35%</td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>50%</td>
<td>34%</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>Connected Health</td>
<td>55%</td>
<td>29%</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>Smart Supply Chain</td>
<td>49%</td>
<td>36%</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>Smart Agriculture</td>
<td>39%</td>
<td>26%</td>
<td>31%</td>
<td></td>
</tr>
<tr>
<td>Smart Retail</td>
<td>53%</td>
<td>35%</td>
<td>9%</td>
<td></td>
</tr>
</tbody>
</table>

1. Based on 1,600 publicly known enterprise IoT projects (Not including consumer IoT projects e.g., Wearables, Smart Home). 2. Trend based on comparison with % of projects in the 2016 IoT Analytics Enterprise IoT Projects List. A downward arrow means the relative share of all projects has declined, not the overall number of projects. 3. Not including Consumer Smart Home Solutions. Source: IoT Analytics 2018 Global overview of 1,600 enterprise IoT use cases (Jan 2018)

Source: IoT Analytics, Jan 2018
The Consumer Perspective:
• Target: home comfort and low energy usage
• Smart appliances
• ‘Green’ consumption
• Apps: market-driven empowerment

Key challenges:
• Efficient integration of renewables
• Integrated smart home services through IoT
• Interoperable smart grids

Next Generation IoT Solution Space:
• Decentralisation
• Decarbonisation
• Intelligence at the far edge

Max Lemke, Connect University, June 2021
Sustainability is not only about GHG emissions reduction
Cooperation among manufacturers, retailers, repairers, recyclers, is essential to enable these ‘circles’
Transition to Circular economy

Sustainable products – durable, re-usable, reparable, refurbishable, …recyclable

Sustainable Business models – e.g. Product as a service,

Key enabler: Digital Product Passport

Recent EU legislations:

• Ecodesign for sustainable products - European Commission – product requirements, information requirements across who supply chain, Digital Product passport (30.3.2022)

• Empowering consumers for the green transition - European Commission (30.3.2022)

• Initiative on substantiating green claims - European Commission (coming soon)
ESPR
Digital Product Passport (DPP) – expected benefits

Tracking of raw materials extraction/production, supporting due diligence efforts.

Enable manufacturers to create products digital twins, embedding all the information required.

Tracking the life story of a product, enabling services related to its remanufacturing, reparability, re-use/re-sale/second-life, recyclability, new business models.

Benefit market surveillance authorities and customs authorities, by making available information they would need to carry out their tasks.

Make available to public authorities and policy makers reliable information. Enable to link incentives to sustainability performance.

Allow citizens to have access to relevant and verified information related to the characteristics of the products they own or are considering to buy/rent (e.g. using apps able to read the identifier).
Thank you
Sustainable products package

Ecodesign Working Plan 2022-2024
- Higher energy efficiency and circularity for energy-related products
- New rules for consumer electronics (smartphones, tablets, solar panels)

Complementary sectoral rules on construction and other product categories (e.g. batteries, chemicals, packaging)

Ecodesign for Sustainable Products Regulation
- Performance and information requirements for greener products
- Tackle the destruction of unsold goods
- Waste prevention and reduction
- Mandatory criteria for green public procurement
- Digital Product Passport and new labelling rules
- Stronger market surveillance

Strategy for Sustainable and Circular Textiles
- Binding eco-design requirements, incl. durability, reparability, and recycled fibre content
- Stop microplastics pollution
- Tackle fast fashion, textile waste, and the destruction of unsold products
- Accurate green claims
- Sustainable global value chains

New rules to empower consumers for the green transition
- Protection against greenwashing and the deliberate planning or design of products with limited lifespans
- Information on product durability and reparability

Global action
- Corporate sustainability due diligence
- Global sustainable consumption and production forum

**Digital contribution to environment & climate**

**Digital product passport:** Data for circular business models, Sustainable, integrated Single Market

**Smart mobility:** reduction of transport emissions up to 37%; **smart buildings** with emissions reduction by 17%;

**Also:** smart energy networks; Precision farming, Blockchain for emissions accounting, smart cities; AI for climate; smart manufacturing;

**RRPs:** Missed opportunity to use digital solutions for climate action

**Digital contribution:** reduction by up to 15%-20% of total emissions with deployment of today’s technology.

**Destination Earth / digital twins:** High Performance Computing, AI for better anticipation of extreme events prediction, climate modelling.

**ETSI ES 203 199 V1.3.0 (2014-12)**
Sustainable Digital Technologies

Climate Neutral and highly energy efficient datacentres by 2030: review JRC’s CoC, the Energy Efficiency Directive and the Taxonomy Regulation

Greener electronic communications by 2030:
- Transparency measures
- Administrative incentives for green deployment

Circular Electronics Initiative: Better durability, reparability, refurbishment, recycling for consumer and industrial electronics & IoT

“Right to repair” for consumers.

Low power processors, software and AI: investing in new ultra-low-power