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THE SUSTAINABLE NEXT GENERATION INTERNET D4P WORKING GROUP

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DIGITAL WITH PURPOSE

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ICT FOR SUSTAINABLE DEVELOPMENT

Across several sectors - *smart energy/grids, connected mobility, smart factories, smart buildings, smart farming, smart water*, digital technologies and solutions allow for:

- More efficient use of resources
- Optimisation of processes
- Environmental impact monitoring
- Access to essential (and not only) services, e.g., education, health care…

"ICT has the potential to maintain global CO_2 emissions at 2015 levels, decoupling the past pattern where each 1% of growth in GDP equated to an 0.5% increase in CO_2 emissions, and promote sustainable growth through 2030".

SMARTer 2030, GESI

BUT AS WE KNOW

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DIGITAL TECHNOLOGIES AND THEIR OVERCONSUMPTION ARE ALSO A BIG PART OF THE PROBLEM

Technology drives electricity demands

- Estimates show that ICT could consume 20% of global electricity by 2025, generating 5.5% of CO_2 emissions - with 25 billion “connected things” by 2021 (!)

Technology is damaging the environment

- Production, use and disposal have direct effects
- Mining rare minerals destroys natural ecosystems
- eWASTE - 53.6 million tonnes only in 2019 (!)

Technology is inducing overconsumption

- Enforcing culture of disposability
- Replacement rather than repair approach
- Software development vs. hardware upgrades

WORKING GROUPS OVERVIEW

D4P WORKING GROUPS

- Green Cloud-Edge-IoT Computing WG
- Climate-Neutral and Sustainable Smart Cities WG
- **Sustainable Next Generation Internet WG**
- Sustainable 5G/B5G Networks and Services WG

TOWARDS A SUSTAINABLE INTERNET

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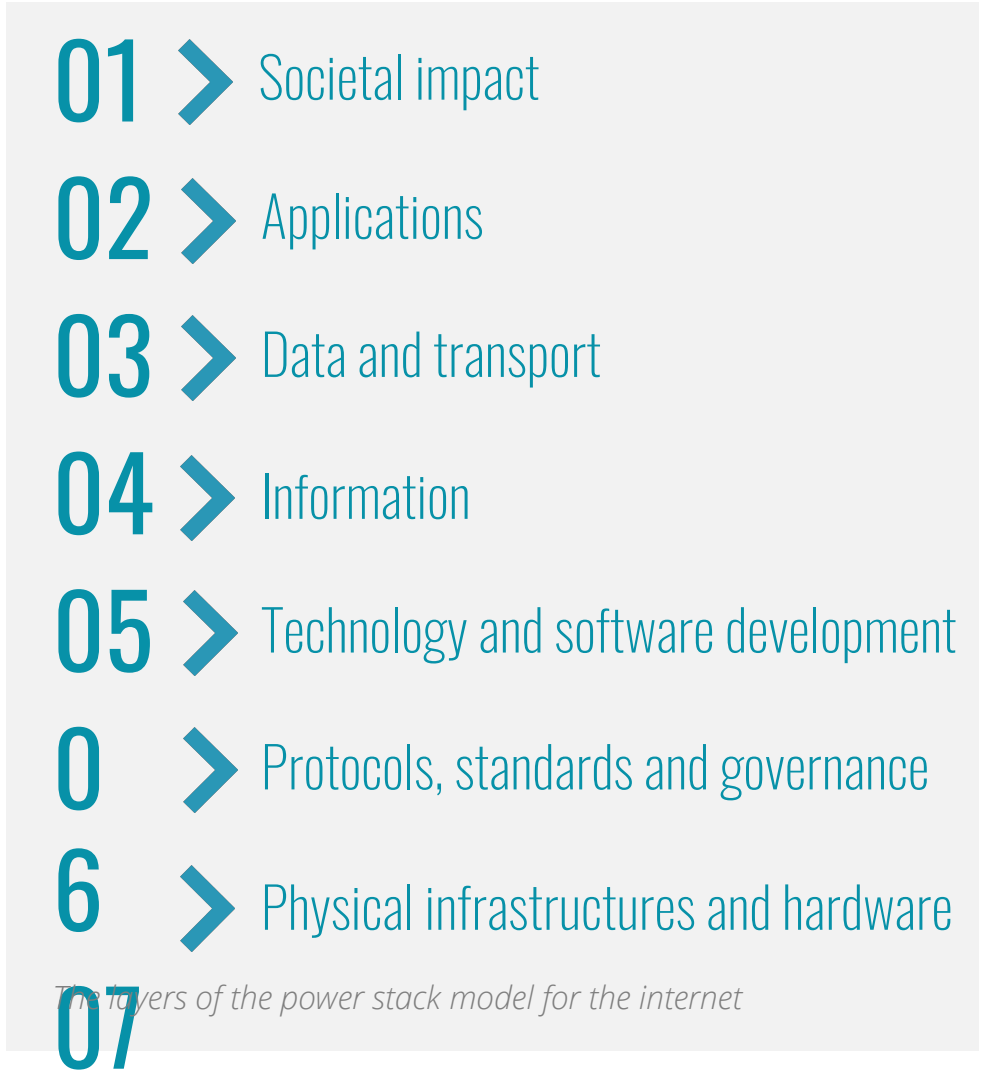
PILLARS AND LAYERS

The NGI Forward 2030 vision for a future Internet includes *five pillars*, of which two are of significance for D4P core interests: **resilience** and **sustainability**. The traditional layered network model was extended to cover information and societal aspects.

Resilient and sustainable Internet impacts many layers

- L01: escaping unsustainable consumerism
- L03: data minimization and processing power
- L06: little sustainability focus in Internet standards
- L07: network resilience vs. environment footprint



The layers of the power stack model for the internet

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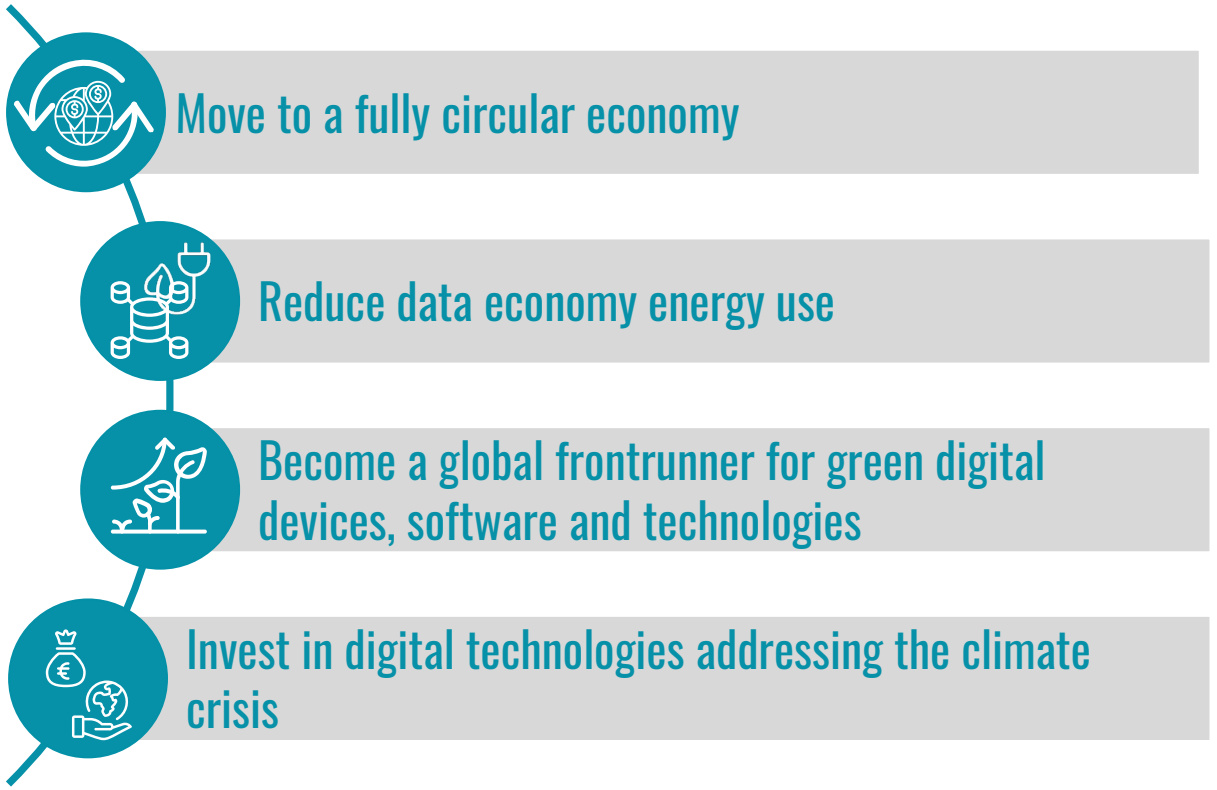
OBJECTIVES FOR 2030

NGI 2030 vision sets goals for the *Sustainability* pillar and acknowledges the symbiosis between green and digital transformation

HOWEVER, WE CAN MAKE SOME REMARKS

- The faux-ethereal self-image of ICT must go
- We need complexity mindset, not solutionism
- Interdisciplinarity is key more than ever…
  - … But must be matched by community diversity
- Social / economic sustainability and resilience
  - They are important, too
  - But must not be used as a distraction ploy



WG GOALS AND ACTIVITIES

D4P SUSTAINABLE-NGI WG

- Support the **vision and development** of a future Internet as **open, human-centric**, and **sustainable** end to end
- **D4P Sustainable-NGI WG** is active on:
  - Roadmap and R&I agendas definition
  - Facilitate entry points for SMEs as key market players in Europe
  - Engage experts and stakeholders from multiple industries and disciplines
  - Inject in EU Green Deal objectives / EC policies as relevant
  - Facilitate liaisons and dialogue across relevant initiatives

SUSTAINABLE-NGI WG: OBJECTIVES

THREE MAIN ACTIVE GOALS

- Help assess carbon and overall environmental footprint of the current and future Internet
- Foster synergy between human-centric and sustainable Internet
- Include the ELSE layer in the future Internet stack

SUSTAINABLE-NGI WG: ACTIVITIES

AREAS OF INTERVENTION

- R&I: analyse, connect, participate
  - Cover both current and future Internet
  - Carbon and environmental footprint for Internet layers, technologies, and nodes
- Human-centric and sustainable NGI
  - Consider synergies, conflicts, and trade-offs between architecture and technology
- Go beyond application layer
  - Target structure and interaction among business models, ethical frameworks, and technical solutions, within the environment

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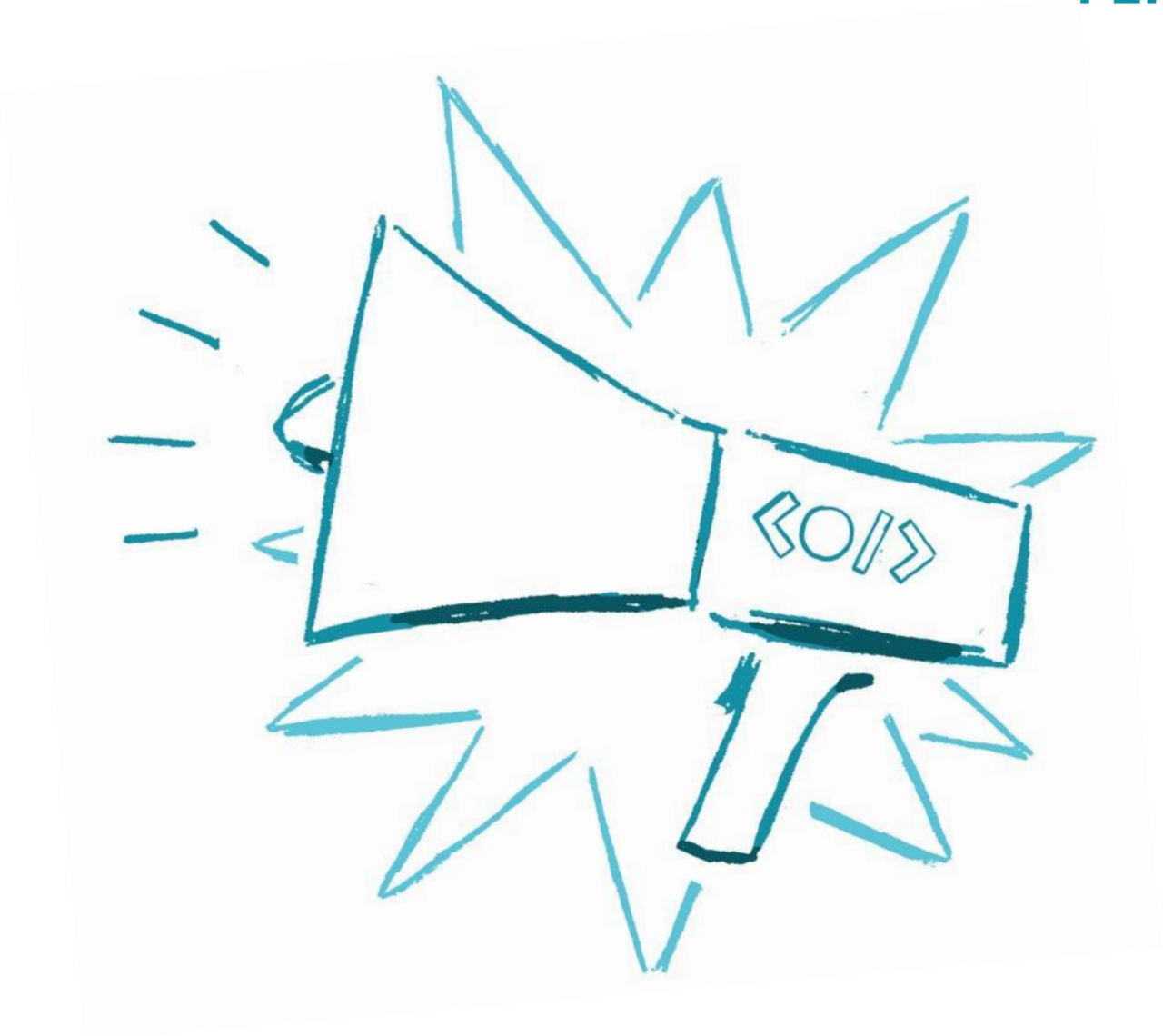

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