Links for participants (Digital Energy Summit '22)

Below please find some basic points and the links provided by **Mr. Ilias Iakovidis, PhD**, Adviser, Digital aspect of green transition, European Commission, DG CONNECT

Green (Energy) and Digital transitions are in

i) **Conflict** due to the environmental impact of digitalisation: ICT consumes 8-10% of total electricity (which is ~2% of total energy consumption) and expected to rise. See in particular the impact of datacentres and telecoms https://www.iea.org/reports/data-centres-and-data-transmission-networks
European Commission is working on green datacenters (we committed to make datacenters in EU climate neutral by 2030, on greening telecoms, on legislative measures to make electronics more energy and material efficient) Legislations are expected soon.

ii) **Synergy –** digitalization has the potential to reduce significantly the energy consumption and GHG emissions– See Annex1.
This POTENTIAL is not currently measureable in consistent and standardized way. That is why the Commission, Parliament and Council supported the launch of the Home - European Green Digital Coalition – developing metrics regarding the net environmental impact of the digital solutions and guidelines on how to deploy digitalization that benefits sustainability

iii) Utilities are currently leveraging only around 2-4% of data collected. More has to be done as suggested by IEA: https://www.iea.org/reports/digitalisation and the Digitalisation of energy action plan launched recently by European Commission Actions to digitalise the energy sector (europa.eu)

iv) EU, National and private financing needs to support the 'smart digitalization' (properly designed and governed to avoid negative impacts such as rebound effects). Sustainable (green) financing should also apply in order to scale the digitalization of energy systems to harness quickly the benefits – especially now in the times of crises. The national sustainability plans supported by RRF to consider digitalization of climate critical sectors such as energy, transport, agriculture and construction keeping in mind the lessons and guidelines developed by the European Green Digital Coalition. Globally, power sector investment in digital technologies rose by around 13% in 2021 to USD 55 billion after a slowdown in 2020, reaching around 18% of total investment in electricity grids)

Annex 1

Digital technologies could also help **reduce overall emissions more than they themselves produce**

- **AI and supercomputers** are already being used to design more energy efficient products and make sustainable technologies more effective (e.g., by improving the design of wind turbines and optimising their location to ensure the maximum electricity generation potential).
- **Projects of European microprocessors** that deliver high-performance computing at ultra-low power operation with low environmental impact (e.g. the European Processor Initiative)**Lightweight printed or flexible electronics** (up to six orders of magnitude less energy to produce) can be used to boost future car and planes energy efficiency, saving more than 70% in weight and space.

- **Buildings** are responsible for approximately 40% of energy consumption and 36% of emissions in the EU. Creating a **digital twin** to model the energy consumption of a building can reduce energy use by up to 17%, cut costs by 15-25% and improve the sustainability of the whole infrastructure lifecycle from the point of conception[1]. New and newly renovated buildings could be made '**smart by design**', equipped with the necessary technology as standard; smart building design has the potential to generate energy savings of up to 27% [2].
- **Smart farming and food sustainability**, using sensors, AI and robotics to monitor fields, can help reduce the need for chemical pesticides or fertilisers, or reduce fuel, in a sector that accounts for 12% of EU emissions.
  - **Precision farming** by using GPS to steer tractors with accuracies down to 2.5cm can reduce overlapping which means up to 15% savings in fuel, seeds and fertiliser.
  - Downstream, technologies can help battling against **food waste**, saving CO2 emitted for the irrigation, harvesting and cultivation, processing, storage and transportation of these meals[3].
- **Smart mobility** have been shown to be able to reduce transport emissions by up to 37%[4]. Deploying smart-mobility applications have the potential to cut commuting times by 15-20%[5].

E-meeting shows **great prospects of emission savings.** In Germany, projections shows that 40% of the workforce teleworking two days a week can save 5.4 million tonnes CO2 equivalent, this is 18% of the emissions from commuting and 4% of the total passenger transport emissions.[6]

[1] World Economic Forum, Shaping the Future of Construction , 2016
[1] https://www.buildup.eu/en/news/overview-smart-hvac-systems-buildings-and-energy-savings-0
[1] A Danish company saved 22 million meals and more than 55,000 tonnes of CO2 by putting in contact supermarkets an consumers https://www.barillacfn.com/m/publications/digitising-agrifood.pdf, 2019
[1] TransformingTransport.eu, EU-funded Horizon 2020 Big Data Value Lighthouse project
[1] McKinsey Global Institute Report, June 2018: Smart cities: Digital solutions for a more livable future
[1] Greenpeace, August 2020: How COVID-19 working routines can save emissions in a post-COVID-19 world

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[4] TransformingTransport.eu, EU-funded Horizon 2020 Big Data Value Lighthouse project
[5] McKinsey Global Institute Report, June 2018: Smart cities: Digital solutions for a more livable future
[6] Greenpeace, August 2020: How COVID-19 working routines can save emissions in a post-COVID-19 world