

# ***Digitalisation & Green Deal***

## ***European Commission priorities***

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# Impact of Digitalisation on SDGs



## Positive or negative?




# 11 SDGs -> Positive Relationship with increased Digitalisation (Digital Access Index of GeSI)

## 17 SDGs correlated with digital access

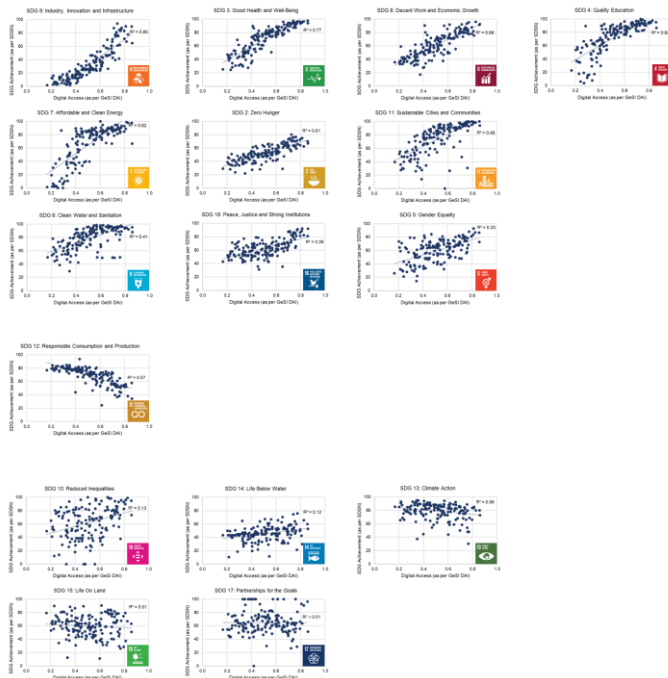
**Relationship pattern**  
(% and # of SDGs)

 **Positive**  
**65%** 11

 **Negative**  
**6%** 1

 **Unclear**  
**29%** 5

**Correlations per SDGs** (ordered by strength of relationship ( $R^2$ ) from left to right)



*Three relationship patterns:  
positive, negative, unclear*

*65% of SDGs with positive correlation*

*SDGs with strongest positive links:*

- SDG 9 (infrastructure, industry and innovation)
- SDG 3 (health and well-being)
- SDG 8 (decent work and economic growth)

*SDGs with unclear link:*

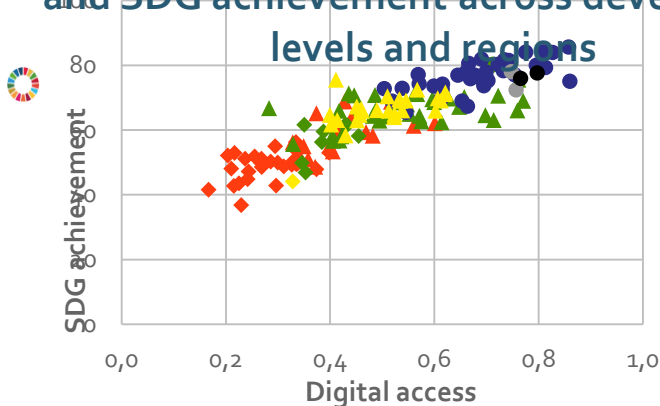
- SDG 13 Climate action (infrastructure, industry and innovation)

*SDG with negative link: SDG 12 (responsible consumption and production)*

# From A Geographical Perspective, Africa Has The Strongest Link between Digital Access and SDG Achievement



## Strong and positive link of digital access and SDG achievement across development levels and regions



Geographical clusters (development levels and regions, n = number of countries)	Strength of relationship ( $R^2$ )	Relationship p (R)
Developed regions (n = 44)	0.45	→
Developing regions (n = 76)	0.31	→
Least Developed Countries (n = 37)	0.48	→
Africa (n = 44)	0.60	→
Asia (n = 44)	0.39	→
Europe (n = 39)	0.51	→
Latin America & Caribbean (n = 26)	0.39	→
North America (n = 2)	n.a. (sample too small)	
Oceania (n = 2)	n.a. (sample too small)	

→ Positive correlation    ← Negative correlation    ? Unclear relation (defined by  $R^2 < 0.3$ )



### Digital Access - 21 indicators

- Infrastructure (e.g. 4G network coverage, number of internet exchange points);
- Use (e.g. fixed/mobile broadband subscriptions, smartphone market penetration);
- Affordability (e.g. cellular tariff cost, mobile-specific taxation cost);
- Technologies (e.g. cellular machine-to-machine (M2M) connections, social media penetration);

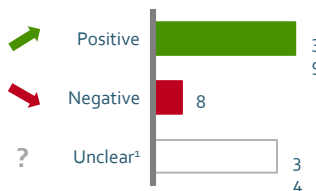
<https://digitalaccessindex-sdg.gesi.org/digital-access-index/>

# The SDG Indicators Negatively Correlated with Digital Access Are Mostly about Environmental Impacts











## SDG indicators with negative impact

Relationships of all 81 global SDG indicators and Digital Access Index (DAI)



<sup>1</sup> Unclear defined by  $R^2 < 0.3$

SDG indicators negatively correlated with DAI		Strength of relationship ( $R^2$ )
	E-waste generated (kg/person/year)	0.79
	Production-based reactive nitrogen emissions (kg/capita)	0.50
	CO <sub>2</sub> emissions from energy (tCO <sub>2</sub> /capita)	0.43
	Net imported SO <sub>2</sub> emissions (t/capita)	0.41
	Imported biodiversity impacts (species lost per million people)	0.41
	Prevalence of adult obesity (%)	0.39
	Municipal solid waste (kg/person/year)	0.36
	Net imported emissions of reactive nitrogen (kg/capita)	0.31

### Observations

- Mostly environmental impacts (SDGs 12, 13 and 15)
- E-waste with strongest negative link
- One social impact regarding adult obesity (SDG 2)

# The environmental footprint of digital



- *ICT: 8-10% of the electricity consumption, 2-4% of carbon emissions.*
- *Data centres all over the world alone are set to account by 2025 for as much as GHG emissions as all air traffic.*
- *e-waste: fastest-growing waste sources in the EU, 12 M tonnes by 2020.*
- *To produce a mobile phone 60 different metals are required, ~ 20 can currently be recycled, only 26 % of all phones are collected*
- *32 kg of raw materials are needed to produce a microchip weighing 2g.*
- *Life of digital devices, has steadily decreased between 1985 and 2015, the useful life of a computer was reduced from 11 to only 4 years.*

# *New Commission Priorities*



- *A European Green Deal*
- *A Europe fit for the digital age*
- *An economy that works for people*
- *Protecting our European way of life*
- *A stronger Europe in the world*
- *A new push for European democracy*

*'...a once-in-a-generation opportunity to ensure Europe leads the way on the twin ecological and digital transitions.'*





1. **Supplying clean affordable and secure energy** – *Digitisation of decarbonised (smart) grids*
2. **Mobilizing industry for clean and circular economy** - Digital is a key enabler for circular economy (sharing, servitisation, virtualisation). ICT sector needs to improve energy and material efficiency- extending the lifetime of all smartphones in the EU by 1 year would be equivalent of taking a million cars off the roads.
3. **Building and renovating** in energy and resource efficient ways – ICT can improve energy efficiency of buildings by 15-25%
4. **Accelerating the shift to sustainable and smart mobility** – digitally enabled Mobility as a Service, CAD, shared mobility
5. **From 'Farm to Fork'** – Precision agriculture can lead to 25% savings in Fuel, 15% reduction in seeds and fertilisers Enabling crop protection service leading to significant reduction of pesticides & fertilisers



**Green Deal (11 Dec 2019):** *...Europe needs a digital sector that puts sustainability at its heart. The Commission will also consider measures to improve the energy efficiency and circular economy performance of the sector itself, from broadband networks to data centres and ICT devices. The Commission will assess the need for more transparency on the environmental impact of electronic communication services, more stringent measures when deploying new networks and the benefits of supporting 'take-back' schemes to incentivise people to return their unwanted devices such as mobile phones, tablets and chargers.*

## **Digital Strategy (19.2.2020)**

Initiatives to achieve climate-neutral, energy-efficient data centres by 2030, and, transparency measures for telecoms operators on their environmental footprint.



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## **Digital Strategy – Shaping Europe’s Digital Future (19.2.2020)**

**Circular Device initiative** to ensure that devices are designed for durability, maintenance, dismantling and recycling and to ensure that consumers have a right of repair and upgrade. More details in **Circular Economy Action Plan (CEAP)**, March 2020 including take back schemes, action on common chargers, eco-design for digital devices ( mobiles),etc

**Green Deal (11 Dec 2019):** *Digitalisation can also help improve the availability of information on the characteristics of products sold in the EU. For instance, an **electronic product passport** could provide information on a product's origin, composition, repair and dismantling possibilities, and end of life handling.*

## **European Strategy for Data (19.2.2020)**

*Establishing common European **Industrial ( manufacturing) data space, Green data space and data space for smart circular applications** making available the most relevant data for enabling circular value creation along supply chains. Digital 'product passports' will be developed, that will provide information on a product's origin, durability, composition, reuse, repair and dismantling possibilities, and end-of-life handling.*

**Green Deal (11 Dec 2019):** The Commission will support work to unlock the full benefits of the digital transformation to support the ecological transition. **An immediate priority** will be to boost the EU's ability to predict and manage environmental disasters. To do this, **the Commission will bring together European scientific and industrial excellence to develop a very high precision digital model of the Earth.**

**European Strategy for Data (19.2.2020):** *Destination Earth, initiative to develop a high precision digital model of Earth (a "Digital Twin of the Earth") that would improve Europe's environmental prediction and crisis management capabilities (Timing: from 2021).*

**Digital Strategy (19.2.2020):** *The 'Destination Earth' initiative will bring together European scientific and industrial excellence to develop a very high precision digital model of the Earth. This ground-breaking initiative will offer a digital modelling platform to visualize, monitor and forecast natural and human activity on the planet in support of sustainable development thus supporting Europe's efforts for a better environment as set out in the Green Deal. The digital twin of the Earth will be constructed progressively, starting in 2021.*

**Green Deal (11 Dec 2019):**.. reflect the ambition of the Green Deal and the **Farm to Fork Strategy**. ..These plans should lead to the use of sustainable practices, such as **precision agriculture**, organic farming, agro-ecology, agro-forestry and stricter animal welfare standards. (...) The Commission will explore new **ways to give consumers better information, including by digital means**, on details such as where the food comes from, its nutritional value, and its environmental footprint.

## **Farm to Fork Strategy ( March ? 2020)**

**European Strategy for Data (19.2.2020):** □ Take stock with Member States and stakeholder organisations of experiences gained with the stakeholder code of conduct on agricultural data sharing by contractual agreement, also on the basis of the current market for digital farm solutions and their requirements in terms of data availability and use (Q3/Q4 2020). □ Take stock of agricultural data spaces in current use, including funded under the Horizon 2020 programme, with stakeholders and Member State organisations and take decision on an EU approach (Q4 2020/Q1 2021).

**Green Deal (11 Dec 2019):** Further decarbonising the energy system is critical to reach climate objectives in 2030 and 2050... EU's energy supply needs to be secure and affordable for consumers and businesses. For this to happen, it is essential to ensure that the European energy market is fully integrated, interconnected and **digitalised**, while respecting technological neutrality.

## **Strategy for Smart Sector integration ( ?, 2020)**

**European Strategy for Data (19.2.2020):** Common European energy data space  
*Adopt implementing act(s) setting out the interoperability requirements and nondiscriminatory and transparent procedures for access to data, building on existing national practices on the basis of the Electricity Directive 2019/944 (2021/2022). Consider actions for improving the interoperability in smart buildings and products, with a view to improve their energy efficiency, optimise local consumption and broaden the integration of renewable energy sources (Q4 2020).*





**Green Deal (11 Dec 2019):**.. Automated and connected multimodal mobility will play an increasing role, together with smart traffic management systems enabled by **digitalisation**. The EU transport system and infrastructure will be made fit to support new sustainable mobility services that can reduce congestion and pollution, especially in urban areas. The Commission will help develop **smart systems for traffic management and 'Mobility as a Service' solutions**, through its funding instruments, such as the Connected Europe Facility.

**Strategy for Sustainable and Smart Mobility ( ? 2020):**

**European Strategy for Data (19.2.2020):** Review the current EU type approval legislation for motor vehicles (currently focused on wireless data sharing for repair and maintenance), to open it up to more car data based services (Q1 2021). The review will inter alia look at how data is made accessible by the car manufacturer, what procedures are necessary to obtain it in full compliance with data protection rules and the role and rights of the car owner.



# Thank you!

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