Sustainability 1 Review & Case studies

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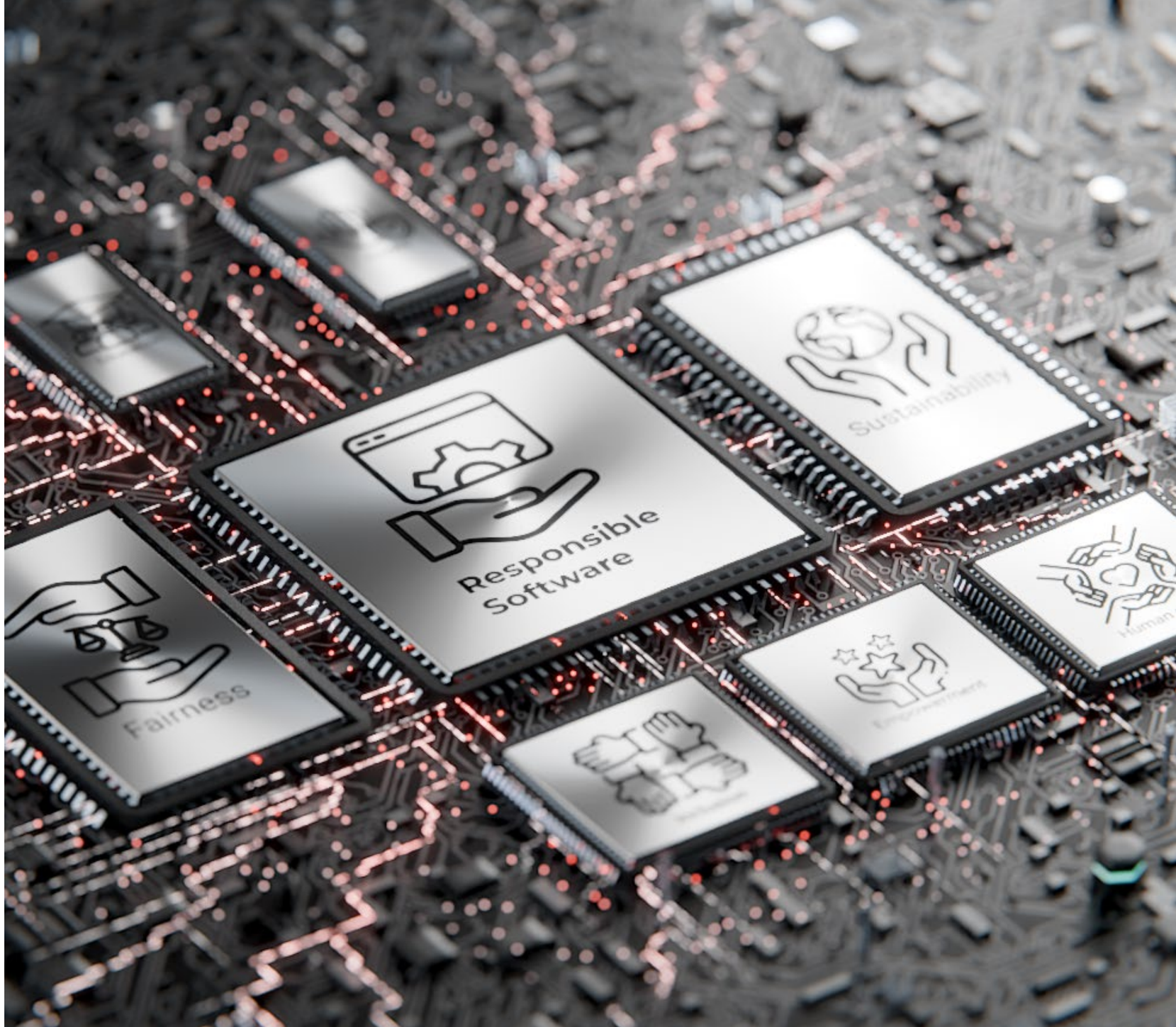
Responsible Software



Carbon footprint factors

URL: ttpoll.eu
Session ID: cs290

What are (some of) the factors in the carbon footprint of software? (select all that apply)

a. The programming language
b. The computational complexity of the code
c. The type of hardware
d. The carbon intensity of the electricity mix
e. The location where software is hosted
f. The time at which software runs

CO_2 equivalent

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An electricity production facility reports the following emissions per kWh produced:

- 250 g of carbon dioxide
- 8 g of fossil methane

What are the carbon emissions of the facility in g CO_2 eq / kWh (considering the GWP-100)?

a. 240 g / kWh
b. 258 g / kWh
c. 490 g / kWh
d. 656 g / kWh
e. 906 g / kWh

Power Usage Effectiveness

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The GreenDC datacenter consumes an average of 1 MW.
This means annually a total of 8 760 MWh of electricity.
50% of this electricity is used to power the IT equipment.
What is the PUE of GreenDC?

a. 0.5
b. 1
c. 1.5
d. 2

Scopes in the GHG protocol

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For a software development company, the **electricity consumed** by software during the **development phase** falls into:

a. Scope 1 (direct / on premises)
b. Scope 2 (indirect energy)
c. Scope 3 (indirect value chain)
d. It depends

Direct stakeholders

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Which of the following stakeholders can be considered **direct** stakeholders in the case:

a. Internal IT employees working on IT infrastructure
b. Corporate clients using the center to provide applications
c. Users of applications hosted by the center
d. Companies providing energy to the center
e. Local population in the area of the center
f. Local ecosystems in the area of the center

Rebound effect

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The rebound effect is when **higher energy efficiency** in a product leads to an **increase of total energy consumption** because: (select all that apply)

a. The demand for the product increases
b. The demand for the product decreases
c. The product is used more often
d. The product is used less often
e. The consumption of other products increases
f. The consumption of other products decreases