



Rebound and Induction Effects of Digitalization

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Digital Enables Green?

‘Digital technologies are a critical enabler for attaining the sustainability goals of the Green Deal in many different sectors’ (European Commission 2019, p. 9).



Beneficial
effects

Detrimental
effects



Beneficial
effects

Detrimental
effects

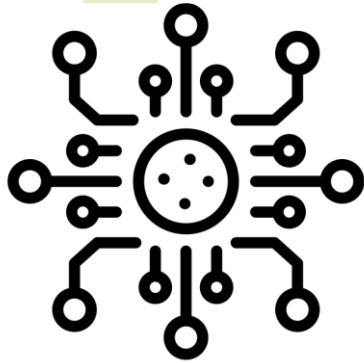
Low Improvements in Energy and Resource Productivities

"You can see the computer age everywhere but in the productivity statistics" (Solow, 1987, p. 36).



Rebound and Induction Effects

Digital
innovations

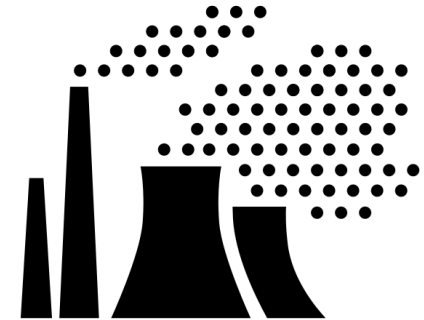


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Rebound effects
- via efficiency -

Induction effects
- via new options -

Energy and resource
consumption



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Types of Rebound and Induction Effects

Rebound effects due to

- energy and resource efficiencies (Lange et al.),
- time efficiency (Santarius & Bergener),
- behavioral cost efficiency (Frick & Matthies).

Induction effects due to

- more options (Pohl et al.).

Summary

- Digital is so far not a driver for sustainable.
- Four reasons:
 - Low efficiency improvements;
 - Environmental footprint;
 - Rebound effects;
 - Induction effects.

Reconcile the
digital and the
social-ecological
transformation





Thank you!

www.sustainable-digitalization.org

References

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