



# Life cycle perspective on challenges and opportunities of 6G technology for sustainable development

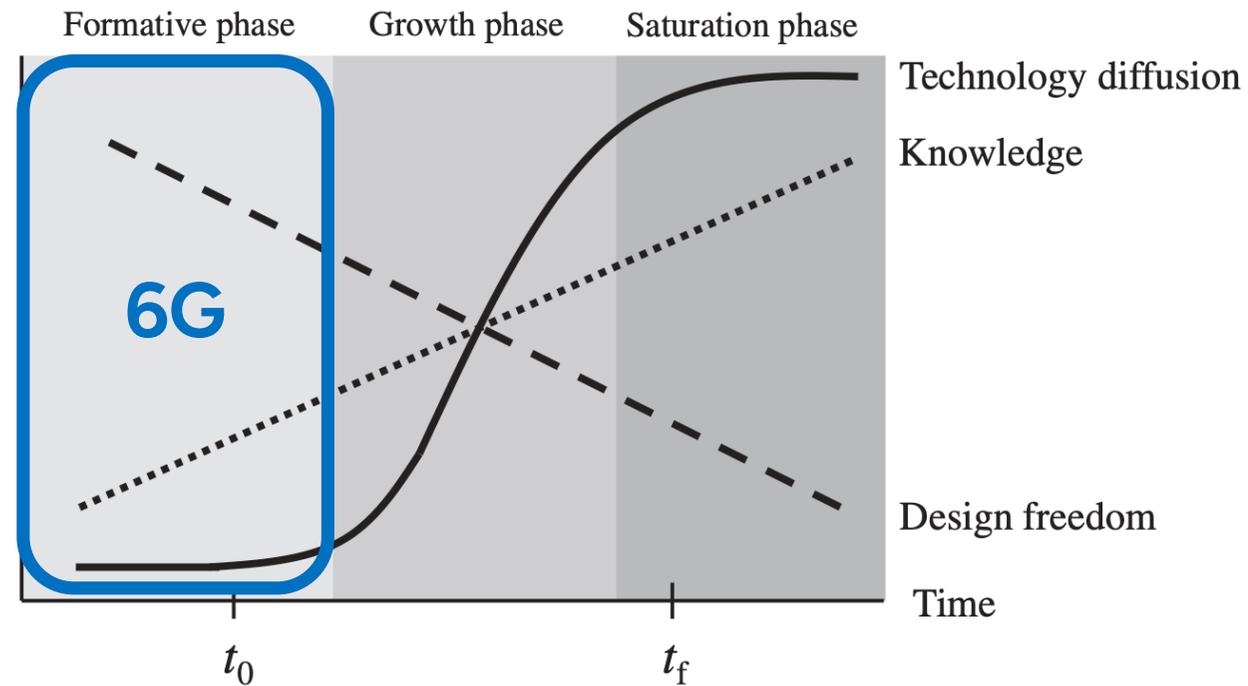
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3<sup>rd</sup> of June, 6G series workshop by Hexa-X-II, EuCNC 6G Summit 2024, Antwerp, Belgium

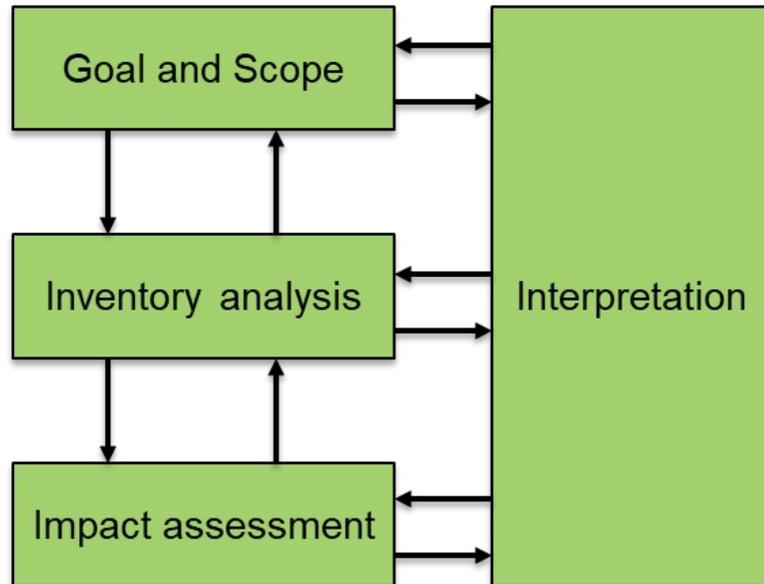


# Early technology development - challenges and opportunities for sustainability

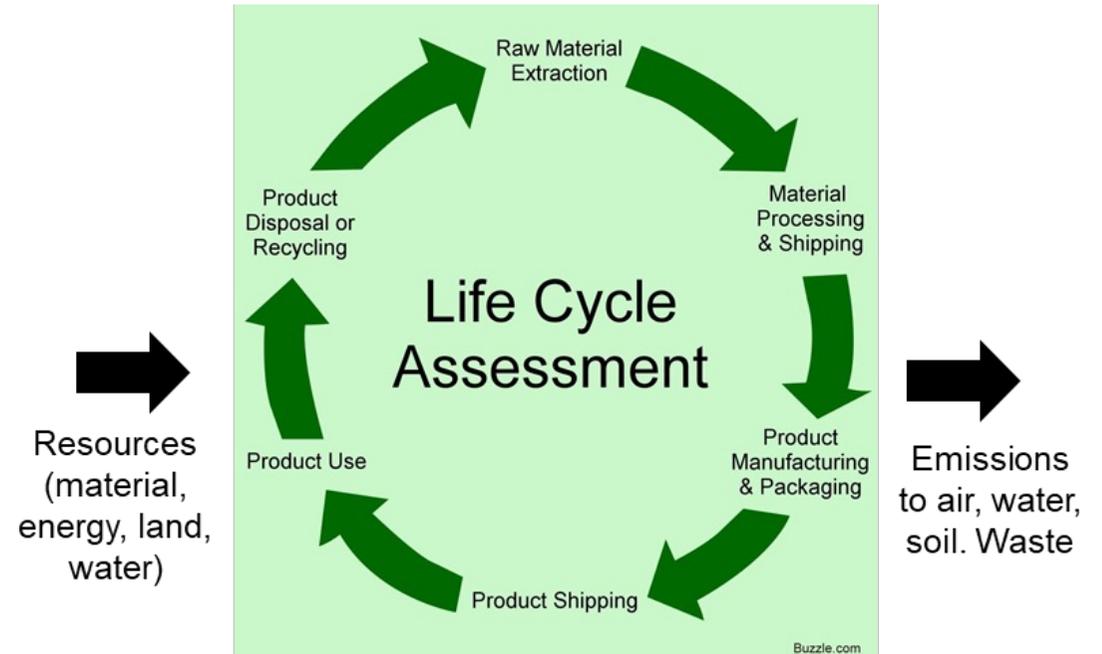


# Importance of a life cycle perspective

## Life Cycle Assessment: A standardized method



## The product life cycle, from "cradle-to-grave"





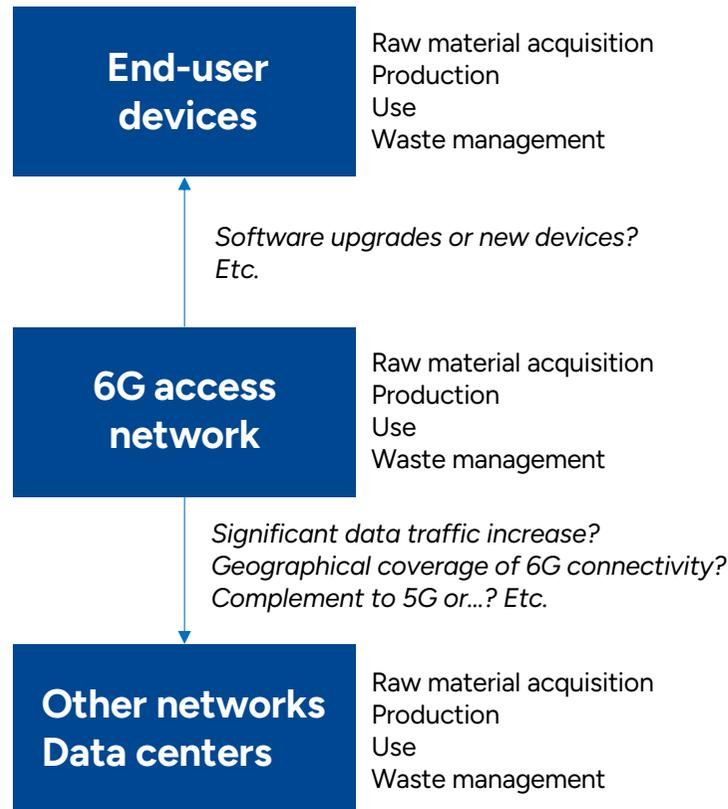
# Life Cycle and ICT system perspective on 6G

## Not only energy

Resource impacts, toxicity impacts...

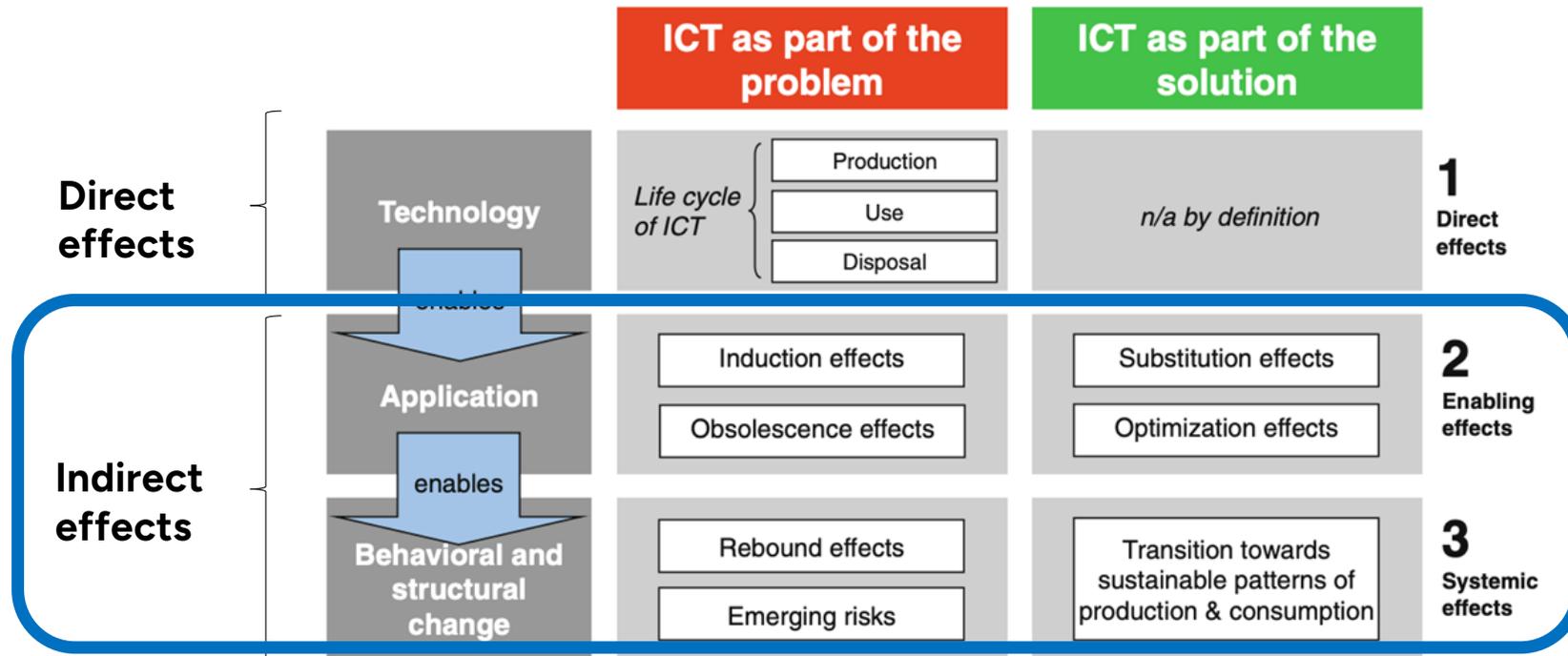
## Explore different 6G directions to inform decisions early on

Construct explorative scenarios



**Indirect effects?**

# Indirect effects of ICT



Hilty and Aebischer, eds. 2015. *ICT Innovations for Sustainability*. Edited by Kacprzyk. Vol. 310, *Adv Intellig Sys Comp*: Springer.



# Take-home messages

1. Need to consider both **pros and cons of 6G for sustainability** and balance different aspects
2. Need a technology development that contributes towards sustainability from a **life cycle and ICT system perspective**
3. Need to **explore different 6G directions** to inform decisions early on, incorporating different perspectives on technology, society and the needs of different stakeholder groups