

ICT and Sustainability - Issues beyond Climate Change

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The role of Information and Communication Technologies (ICTs) in energy consumption and climate change is widely being discussed under the label of "Green IT". A common understanding has emerged that ICTs are contributing roughly 2% to the global greenhouse gas emissions and having the potential to reduce the remaining 98% in other sectors substantially.

This talk provides a survey of positive and negative effects of ICT with regard to sustainability, focusing on issues beyond energy and climate change. The general picture of a small but growing ICT footprint and a large (theoretical) potential to reduce the footprint of other sectors, however, remains valid. The services provided by ICT applications can influence any phase of the life cycle of almost any good or service. At the micro level, this means that the design, production, use or end-of-life treatment can be optimized by ICT services. At the macro level, the demand for existing goods and services can dramatically be changed in either direction by new ICT applications, resulting in changing consumption patterns and, in the best case, in decoupling economic growth from resource extraction (dematerialization). Therefore, ICT has a huge potential to influence the metabolism of society.

However, ICT does not automatically lead to a sustainable society. It is therefore essential to govern the development and application of ICT with regard to sustainability in order to maximize the positive and minimize the negative impacts. Conceptual and methodological frameworks that can be used for analysis and governance will be presented in the talk, such as the Linked Life Cycle approach.