ICT in everyday life - energy impacts and the sustainability of innovation

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In everyday life – energy impacts and the sustainability of innovation

This poster summarises our work on the use of ICT in everyday life and the implications for energy consumption. It also raises the question of whether ICT innovation points in the direction of sustainability.

The results are based on interviews with Danish households on their use of ICT, participation in events like the Danish Broadband Days and literature studies. Our theoretical approach is informed by practice theory.

1. A practice theory perspective

A practice is a configuration of competence, material and emotional elements. It is the continual flow of activities it is possible to identify clusters of activities where coordination and interdependence make it meaningful for practitioners to conceive of them as practices e.g. cooking, having parties, playing football. A practice is recognisable across time and space.

When a practice is performed, practitioners make linkages between activities that form the practice. These elements can be grouped in: Material objects, Competence and interdependence.

Practices coevolve with the social and material framework

In a given society, some overall trends in the combination of practices are determined by the social and material framework that has been established through previous practices. Peasants’ performance of practice reproduces and transforms webs of social and material structures that frame the practices.

Everyday life unfolds in time and space

Each individual follows a path in time and space, carrying out practices that take time and place, and place in time. It is a challenge of everyday life to manage participating in practices within the constraints set by time and space and the need for coupling one’s own path with the paths of others.

The connection between everyday life and the environment

Consumption comes as an aspect of the practices people are engaged in, because the performance of a practice usually requires the use of material artefacts, such as tools, materials and infrastructure. The use of resources always takes place in relation to social practices.

2. Integration of ICT into everyday practices

The pervasive integration of ICTs in practice

ICT has become integrated as a wide range of everyday practices such as ‘staying in touch’ with friends and relatives, do in part work, sport, volunteer work, bank transactions etc. Computers, mobiles and smart phones, tablets, internet etc. have developed into a general infrastructure that has become part of everyday activities.

The rationale of ICT integration emerge from such practices. For instance, ICT is to bring social material infrastructures for enrolling in social distance, offered new members to a club, improve sports performance, social and so on.

Diversification of practices

The integration of ICTs into everyday practices is in many cases accompanied by changes and diversification of these practices. An example of diversification is the practice of ‘staying in touch’ with friends and relatives: the communication now involves a wide range of ICTs, new forms of communication, and new forms of interaction.

Even in ‘old’ activities such as cooking, for instance, it is possible to see how the use of ICTs has changed. The cooking might be done through an online recipe, or the use of a food delivery service. It is possible to see how ICTs have changed the way people cook and interact with their meals.

Staying in touch with friends and relatives

In 2008 the 55-year old Grethe explains how she uses a variety of ICTs and internet services to stay in contact with her friends and relatives.

For instance, Grethe uses Picassa’s photo web album to stay in touch with her former neighbours who moved to Singapore. She uses Facebook, Twitter, Facebook and her cell phone to keep in touch with her friends and relatives. She also uses mobile phone calls and the internet to stay in touch with her friends in Singapore.

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3. Environmental impacts

Electricity consumption: A new round of household electrification

The pervasive integration of ICTs in everyday practice and the resulting diversification of them often tend to make the practices more energy intensive. In this way, the diffusion of ICTs can be seen as a new round of electrification of everyday life and households.

Electricity is used for basic functions as providing light, transmitting sound, heating, powering mechanical devices, and processing data.

- Lighting forms the basis of the first round of household electrification.
- Heating/cooling is a new round of household electrification.
- ICTs are a new round of household electrification.

The development in Danish residential electricity consumption byfinal year

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- The third round of household electrification is based on the computer and the various communication networks. ICTs can be said to replace or enhance basic capacity – the ability to calculate, manage, communicate, and regulate.

Without the substantial increase in electricity use for household electronics, Danish residential electricity consumption would have declined (see graph of Danish residential electricity consumption).

Time and space

Many studies on the second- and third-order impacts of ICT have focused on the potential for environmental improvements. Considering the changes in time and space in everyday life suggests a different perspective. The growing use of ICT in relation to new social practices, with ICT activities supporting a partial decoupling of practices from their previous time-space location (e.g. communicating with family members while commuting by car). This partial decoupling enables the activation of ‘sleep time’ and increased multitasking, which contribute to a more densely packed everyday life. In energy terms, more densely packed everyday life implies a tendency towards second order and third order increases in the total consumption of energy, since the performance of each single practice involves energy use. Also, the partial decoupling enables the calibration of similar social interactions in space and time by ICTs, thus increasingly energy consumption for transport.

ICTs does have great potentials for reducing the energy intensity of everyday life, but the realization of these potentials does not come about automatically as an effect of technological change.

The sustainability of ICT innovation

ICT is cheap due to the combination of:

- Moore’s law
- The use of under-priced energy and other resources (not taking environmental and social externalities into account)
- The scale economies in production – reflecting the high degree of global inequality

The low price of ICT encourages all kinds of uses – sustainable as well as unsustainable – and contributes to the high replacement rates.

Some innovation focuses on environmental efficiency improvements of ICT, but this cannot keep up with the high replacement rates. Much innovation is directed towards entertainment – a large market constituted by the global middle classes.

For many years large inequalities and low prices on energy and resources have directed ICT innovation in unsustainable directions. Increasing resource prices can be expected to encourage ICT innovation to focus more on resource savings and transformation of social practices in transport, flood prevention etc. But political intervention is needed to speed up the process and ensure a socially more balanced development.

Publications

Journal papers


Book chapters and conference proceedings


