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 environment.

In the continual flow of activities it is possible to identify clusters of activities where coordination and interdependence make it meaningful for practitioners to co-ordinate them as entities – for cooking, having parties, playing football. A practice is recognisable across time and space. When a practice is performed, practitioners make linkages between heterogeneous elements that configure the practice. These elements can be grouped in Material objects, Competence and imagetaking.

Practices cohere 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. Peoples’ performance of practice reproduces and transforms webs of social and material structures that frame the practice.

Everyday life unfolds in time and space.

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

The connection between everyday life and the environment.

Consumption comes in as an aspect of the practices people are engaged in, because the performance of a practice usually requires use of material artefacts, such as tools, materials and infrastructures. 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

ICTs have become integrated in a wide range of everyday practices such as ‘staying in touch’ with friends and relatives, do to pay one’s bills, spirit, voluntary work, bank transactions etc. Computers, mobile and smart phones, tablets, internet etc. have developed into a general infrastructure that has become part of people’s daily practices.

The rationale of ICT integration emerge from each practice, such as using ICT to find special materials for renovating houses, offer 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 change 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 ICT mediated channels, e.g., sending messages, photos, video calls and instant messaging.

For instance, Grethe uses Picasa’s photo web album to stay in contact with her friends and relatives. In 2008 the 51-year old Grethe explains how she uses a variety of ICTs and internet services to stay in contact with her friends and relatives.

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3. Environmental impacts

Electricity consumption: A new round of household electrification

The previous 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 energy consumption 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. The development in Danish residential electricity consumption by final use 1940 to 2006 (p. cooking, heating etc).

- The third round of household electrification is based on the computer and the various communication networks. ICT can be said to replace or enhance built 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 ICTs in relation to more and more activities supports a partial decoupling of practices from their former time-space location (e.g., communicating with family members while commuting to or from work). This partial decoupling enables the activation of ‘idle time’ and increased multitasking, which contribute to a more densely packed everyday life. In energy terms, a 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 minor social practices in such a way as to enable increased communication and thereby increasing energy consumption for transport.

ICTs do have great potentials for reducing the energy intensity of everyday life, but the mobilisation 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 new usage in predictions – 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 discrepancies and low prices on energy and resources have directed ICT innovation in unsustainable directions, giving low priority to environmental impact. However, there is a strong need to encourage ICT innovation to focus on more on resource savings, transformation of social structures and use of ICT in transport, food provision etc., but political intervention is needed to speed up the process and ensure a socially more balanced development.

The forgotten explanations

A new round of household electrification

The development in Danish residential electricity consumption by final use 1940 to 2006 (p. cooking, heating etc).

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