Aalborg Universitet

AALBORG UNIVERSITY
DENMARK

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

Røpke, Inge; Christensen, Toke Haunstrup

Publication date:
2013

Document Version
Early version, also known as pre-print

Link to publication from Aalborg University

Citation for published version (APA):
Røpke, I., & Christensen, T. H. (2013). *ICT in everyday life - energy impacts and the sustainability of innovation*. Poster presented at ICT for Sustainability, Zürich, Switzerland.

General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

? Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
? You may not further distribute the material or use it for any profit-making activity or commercial gain
? You may freely distribute the URL identifying the publication in the public portal ?

Take down policy
If you believe that this document breaches copyright please contact us at vbn@aub.aau.dk providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from vbn.aau.dk on: December 26, 2020

ICT in everyday life

– energy impacts and the sustainability of innovation

ICT for Sustainability

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.

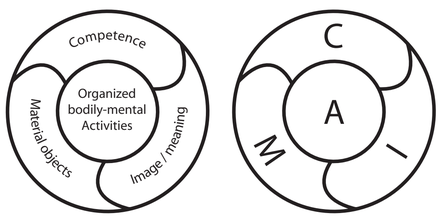
The results are based on interviews with Danish households on their use of ICT, participation in events like the Danish Broadband Days and literature studies. Our theoretical approach is informed by practice theory.

1. A practice theory perspective

A practice is a configuration of competence, material and image

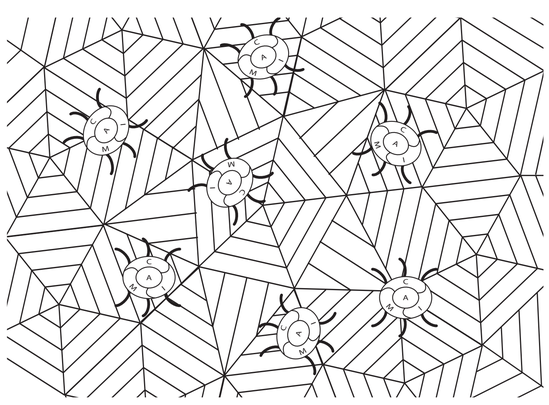
In the continual flow of activities it is possible to identify clusters of activities where coordination and interdependence make it meaningful for practitioners to conceive of them as entities – like cooking, having guests, playing football. A practice is recognisable across time and space.

When a practice is performed, practitioners make linkages between a diverse set of heterogeneous elements that configure the practice. These elements can be grouped in: Material objects, Competence and Image/meaning.



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. People's performance of practices 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 take place in space. It is a challenge of everyday life to manage participating in practices within the limitations set by 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 the 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 practices

ICTs have become integrated in a wide range of everyday practices such as "staying in touch" with friends and relatives, do-it-yourself 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 almost any practice.

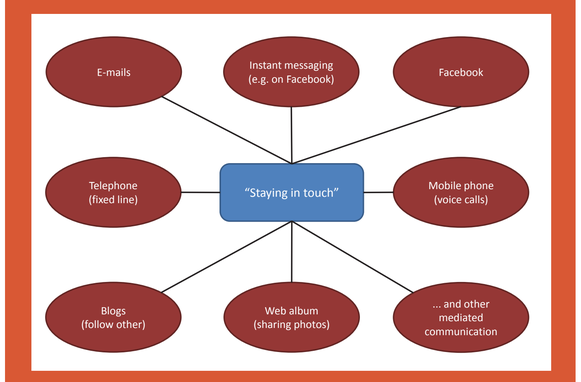
The rationales of ICT integration emerge from each practice, such as using ICTs to find special materials for renovating houses, attract new members to a club, improve sports performance, socialize and so on.

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 ICT-mediated forms of interaction like e-mailing, mobile phone calls and texting, sharing photos on web-based photo albums, Facebook, Skype calls, instant messaging and chat rooms.

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.

For instance, Grethe uses Picasa's photo web album to stay in contact with her former neighbours who moved to Singapore some time ago. She uploads and shares photos with them from social gatherings with the neighbours so that they can follow life on their street. Similarly, the former neighbours upload pictures from their own life in Singapore and share them with Grethe.



Staying in touch with friends and relatives

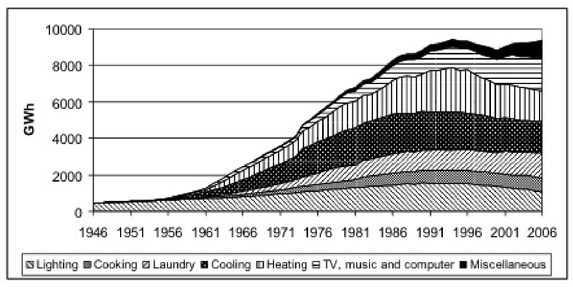
3. Environmental impacts

Electricity consumption: A new round of household electrification

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

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

- Lighting formed the basis of the first round of household electrification
- The second was based on the integration of the small electromotor in a wide range of domestic appliances. The replacement of muscular strength by mechanical power and the use of heating/cooling led to a dramatic increase in electricity consumption



The development in Danish residential electricity consumption by final use 1946 to 2006 (e.g. 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 brain 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 related to time and space in everyday life suggests a different perspective.

The growing use of ICT in relation to more and more activities supports 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 "dead time" and increased multi-tasking, 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 cultivation of wider social networks, which tends to call for face-to-face meetings and thereby increasing energy consumption for transport.

ICTs do 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.

Photo: Ed Post Wikipedia

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 low wages 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 societal systems for housing, transport, food provision etc., but political intervention is needed to speed up the process and ensure a socially more balanced development.

Photo: Julien Harnies, Flickr & CC Commons

Photo: Robert Scoble, Flickr & CC Commons

The forgotten explanations

Publications

Journal papers

Inge Røpke, Toke Haunstrup Christensen and Jesper Ole Jensen: Information and communication technologies – A new round of household electrification. Energy Policy 38 (2010): 1764-1773.

Inge Røpke and Toke Haunstrup Christensen: Energy impacts of ICT – Insights from an everyday life perspective. Telematics and Informatics 29 (2012): 348-361.

Inge Røpke: The unsustainable directionality of innovation – the example of the broadband transition. Research Policy 41 (2012) 1631-1642.

Book chapters and conference proceedings

Jesper Ole Jensen, Kirsten Gram-Hanssen, Inge Røpke and Toke Haunstrup Christensen: Households' use of information and communication technologies – a future challenge for energy savings? In: Proceedings from the ECEEE Summer Study 2009, Cote d'Azur, France, 1-6 June 2009.

Toke Haunstrup Christensen and Inge Røpke: Can practice theory inspire studies of ICTs in everyday life? In: Birgit Bräuchler and John Postill (Eds.): Theorising Media and Practice. Berghahn, 2010.

Inge Røpke, Kirsten Gram-Hanssen and Jesper Ole Jensen: Households' ICT use in an energy perspective. In: Julian Gebhardt et al. (Eds.): Experiencing Broadband Society. Peter Lang, 2010.

Inge Røpke and Toke Haunstrup Christensen: Transitions in the wrong direction? Digital technologies and daily life. In: Elizabeth Shove and Nicola Spurling (Eds.): Sustainable Practices: Social Theory and Climate Change. Routledge, forthcoming in 2013. (Shorter version of the article in Telematics and Informatics).

Contact information

Inge Røpke
Department of Development and Planning
Aalborg University
Copenhagen

ir@plan.aau.dk

Toke Haunstrup Christensen
Danish Building Research Institute
Aalborg University
Copenhagen

thc@sbi.aau.dk

AALBORG UNIVERSITY
COPENHAGEN