



Green IT – towards a reduced carbon footprint and sustainable development

The term “Green IT” has become more common in the last two or three years, and it has rapidly become a known and accepted term for designating green products and services. Many use the term when referring to energy consumption and to carbon footprint reduction for products and services. It is also used to promote software and services that replace a product or eliminate the need to travel (i.e. dematerialization and digital meetings). Sometimes even existing products and services are promoted as “Green IT” even though there has been no change made to increase the energy efficiency or reduce the environmental impact. This misinformation is sometimes referred to as “greenwash”.

In one year (Feb 2008-Feb 2009) Green IT hits on Google went from 1 million to 7 million.

What does Green IT really mean?

For us at TCO Development Green IT is a more complex area than mere energy efficient products or services. We include hazardous substances, environmental performance and many more product attributes that are part of the product life cycle. This may include stand alone products such as a desktop or notebook computer and also imbedded software that leads to improved environmental performance of cars and houses for example.

As you see, the term needs to be discussed in order to reach a common understanding of what it really is and to avoid green noise on the market. And so far no one has set a definition of Green IT.

We would like to discuss Green IT with interested parties from industry, the scientific and user communities. Our aim is to influence, define and to act as a catalyst to the greening of the IT-industry and the IT-use in our world.

“Gartner predicted that Green IT would be the No 1 Strategic Technology for 2008, accelerating and expanding the focus that came to the forefront in 2007.”
 (“Gartner predicts 2008 and beyond”
<http://www.gartner.com>)

The TCO-label is one of the leading eco- and usability labels for ICT-equipment in the world. By setting high standards based around environmental and human factor needs, the TCO-label has been a successful demand shaper and is today regarded as one of the most important factors driving environmental issues in the ICT-industry. This according to Display Search in the report “Green Technology in Flat Panel Displays: Market Technology and Trends”

http://www.displaysearch.com/cps/rde/xchg/displaysearch/hs.xsl/green_is_next_wave_in_flat_panel_displays011909.asp

TCO Development has been working with Green IT and usability topics since the first TCO-label was launched in 1992 when requirements on low energy use and emissions from electromagnetic fields were included as part of the certification criteria. From TCO'95 the visual ergonomics criteria as well as the environmental criteria were included and the existing requirements were tightened.

To become a Green IT product or service its environmental benefits must be defined and verified



What is “Green”? What is “IT”? What is “Green IT”?

In the view of TCO the Green IT concept includes three parts:

A. Environmental aspects – what kind of environmental aspects are included.

B. IT products and services – how to define them in a proper way to achieve comparability.

C. Definition and verification - To become a Green IT product or service the product together with its environmental benefits should be defined and verified.

A. Environmental aspects

Environmental aspects of Green IT can be divided into five areas:

1. Production
2. The product
3. Product Usage
4. Reuse/recycle / End of Life handling
5. Services

Areas 1-4 represent the life cycle of an IT-product and the fifth area represents IT-services that can reduce environmental impact in other parts of society.

TCO consider these five areas of environmental aspects of Green IT as equally important and they need to be addressed in parallel.

1. Production

The IT industry has complex production methods which include many types of materials and chemicals, which can lead to hazardous emissions and waste. The production process also involves large consumption of water and energy. This part of the lifecycle is mainly dealt with in an indirect way through environmental management systems for the production facility and also through various forms of national legislation.

2. The product

Several materials and substances included in the product have a significant impact on the environment. PVC, heavy metals, flame retardants are well known environmental hazards often found in IT products. Products can also be designed for long life, using less material and easy recycling. Green purchasing guidelines and environmental labels support the restriction of these substances in IT products and influence manufacturers to develop more environmentally-responsible solutions.

3. Usage

There are over one billion Internet users around the globe. This increasing usage of IT products brings with it massive energy consumption. Studies have shown that the climate effect of IT use is equal to the global aviation industry

(<http://www.gartner.com/it/page.jsp?id=503867>) . The main topics that need to be



addressed are energy saving and energy efficiency.

However taking care of, updating equipment and right kind of equipment for the purpose can prolong the lifetime, which decreases the environmental impact. Another important measure is to influence user habits. In this area there are very few NGOs or companies offering guidance. It is also an area where great achievement can be made with small means. TCO Development, through its engagement with user communities, has a role to play in this area.

4. Reuse/recycle /end of life handling

Enormous amounts of electronic waste are every year generated around the globe and every year hundreds of millions of new products enter our society. The two main environmental topics are too short life length of products and irresponsible waste management and waste trade. These areas are dealt with in many types of legislation, international organizations and environmental labels.

5. Services

IT services have a great opportunity to decrease the environmental impact in other sectors in our society. A good example is when business travel can be replaced by digital meetings and flexible working from home or close to home locations. Dematerialization is another field where IT services can contribute to decrease the environmental impact. The switch from paper to electronic invoicing is an example. Different kind of IT solutions to control and optimize energy and material flows in buildings can also have significant effects when it comes to energy saving.

Another area is compilation and communication of environmental data. Due to the fact that environmental effects of modern life and businesses are abstract and often not possible to see or feel there is a huge need to make it more understandable and possible to measure. Here IT can make an important difference.

Approximately 20 percent of the global climate impact comes from transportation and buildings. This can with improved and more widely spread IT services be significantly reduced. (<http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-ts.pdf>)

B. IT products and services – scope and definition

IT or ICT covers a broad scope of products and services. TCO Development defines IT in Green IT as a product or a service that is sold on the market as IT/ICT equipment, software or service.

Definition Examples:

Hardware: Office and home electronics and accessories.

Software: Benchmarking of software that for the same task uses less energy from the computer and/or server. Software that compiles and communicates environmental data and performance. Software that increases usability of services.



Services: Systems for digital meetings, dematerialization, flexible work solutions and optimization of energy usage and material flows in buildings and equipment.

C. Green IT, Proposed Definition

For consumers, institutional purchasers and companies it is important that the “Green” elements of IT products and services are marketed and communicated in an accurate and verifiable way. For this, some kind of independent and commonly accepted definition is needed.

Based on these assumptions, TCO Development proposes the following definition of “Green IT”:

1. A Green IT product or service shall have at least one documented positive and significant effect when it comes to reducing the environmental impact in our society.
2. A Green IT product shall in all other green aspects be at least average on the market.
3. Green IT related to hardware and software is always a moving target and shall be benchmarked towards its product segment average environmental performance at the actual time of marketing the product as Green IT. This is the same as for a TCO Certified product and several environmental labels on the market.
4. For Green IT services there is a need for good quality and usability to optimize the usage of such services. Therefore the definition of Green IT Services shall include usability aspects. Hardware in Green IT services shall meet a standard set of environmental demands.
5. A reliable Green IT claim shall be documented and third party verified.

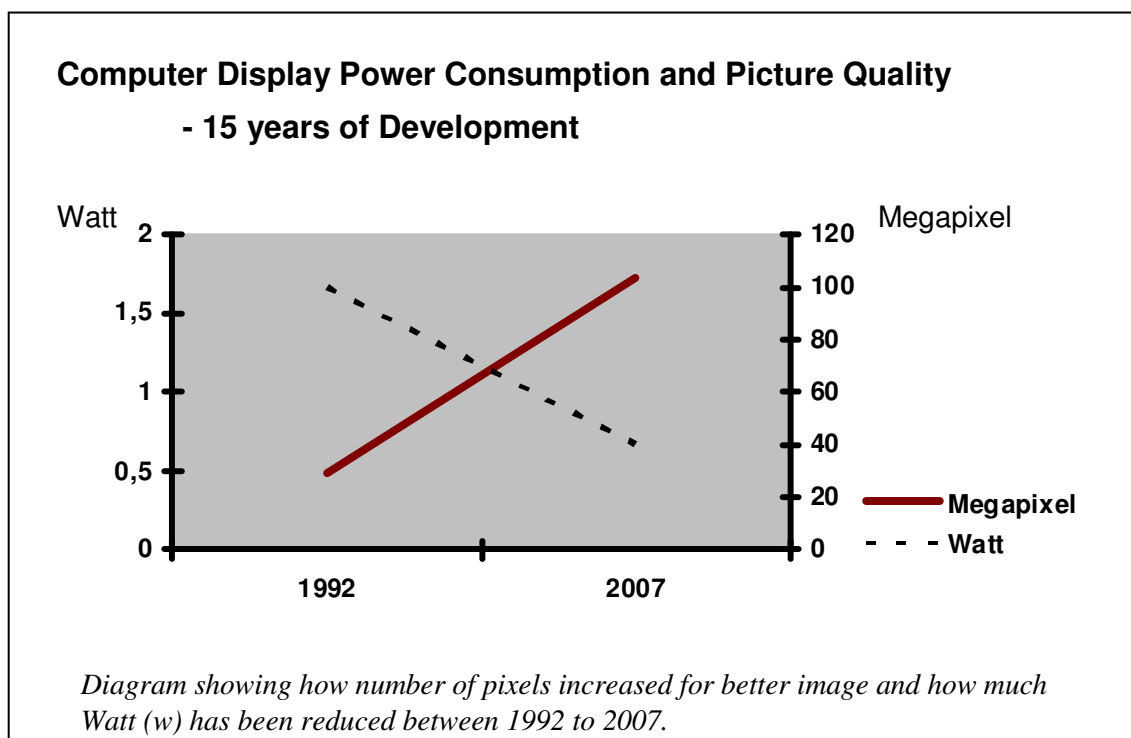
**Green IT definition by TCO Development,
2009:**

- One or several documented positive and distinct effects
- All other green aspects at least be average on the market
- Moving target
- Third party verification

Green IT and usability

Good usability is often supporting the greening of IT products and services. Good usability can for example prolong the lifetime of a product and support more frequent use of digital meeting equipment. On the other hand poor usability can shorten the lifetime and increase the amount of IT-waste. Poor usability can also create resistance to adopting digital meeting habits.

Displays certified according to TCO-standards show a positive development for both performance and environmental factors since TCO started in 1992. In this way environmental- and high performance go hand in hand.



The future of Green IT

There are several parallel movements in the IT industry and in our society and new inventions and ways of thinking that influence what we today recognize as being Green IT.

Cloud computing (e.g. “software as a service” provided on internet) is only one trend within the IT industry that probably is going to influence the way we use IT equipment and software. The development in society and business regarding CSR, Corporate Social Responsibility, will also effect the way we recognize Green IT.

Most important for a good and green development is to be open minded and bold when it comes to new thinking. The definition of Green IT shall always support and encourage new good solutions.



Technology for you and the planet

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