

## Abstract

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There are a number of challenges when it coming to making ICT “green”. These can be split into two categories, personal computers, and industrial computers, or data centres.

The problem with personal computers is that there is a large amount of waste. This can come from manufacturing the computer, or discarding an obsolete computer in favour for a new computer.

The solution to manufacturing waste is to use materials and processes that reduce or eliminate the amount of waste being produced. The solution to obsolete computers is to implements ways of reusing or recycling the computer.

Carbon footprint and power consumption are two problems for data centres. The ICT sector makes up about 2% of all carbon emissions. This is due to the data centres being powered by electricity generated from fossil fuel power.

The solution is to reduce the amount of power being consumed by data centres. This can be done by virtualisation, where several virtual data centres are hosted on a single physical data centre.

This can also be done by reducing the amount of power the cooling systems consume, as they contribute to 35% of the total power consumption. Moving the data centres to cold places, such as Canada, or the Arctic Circle can give the benefit of ‘free convection’, meaning less power is consumed by the cooling systems.