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Sustainable technology

Technology allows us to convert natural resources into the goods and services that we eat, drink, wear, live in, travel on, etc. It can make both positive and negative contributions to sustainability.

Efficient technology results in the greatest possible benefit for the smallest consumption of resources. Likewise, for a given benefit achieved, it creates the smallest possible amount of waste and the least possible environmental impact. This applies to the whole life of the product, not only when it is being used. In the case of a car, for example, this is not just the distance it will travel on a tank of fuel and how much or little pollution is created by its exhaust. It also includes the energy, iron ore and other resources that go into making it, and how much waste is created when it is eventually scrapped.

One benefit of appropriate technology is to reduce waste. For example, many services can be obtained via the internet without travel while, more generally, electronic systems mean that many media products do not require a physical form. Another example of positive use of technology is that temperature-controlled distribution has greatly reduced food loss, though at the cost of additional energy consumption.

Many manufacturers have already invested heavily in improving the resource efficiency of their technology and supply chains. It can be more profitable for suppliers of goods and services to adopt more efficient technology, as they can provide the same benefits to the customer at a smaller cost to themselves, in terms of the resources that go into the

product. In addition, the customer may be prepared to pay a premium for a product that is cheaper to run, such as a more fuel-efficient car. But more could yet be done. Some companies are less enlightened, or lack the funds to invest in improving their technology. Many consumers are still more greatly influenced by the initial purchase price of a product than its total lifetime ownership costs. However, even with the best available technology, an “industrial way of life” is inevitably resource-intensive.

*Read more to find out, as an example, what resources are used to put the **cornflakes** on your breakfast table.*

In terms of sustainability, industrially-developed economies could further improve the efficiency with which they use resources and reduce the environmental impact of the goods and services they enjoy. However, the law of diminishing returns applies here, and it is important to appreciate that we cannot continue indefinitely to “produce more and more using less and less.”

- Technology can improve only up to the limits that the laws of physics allow.
- Energy and other resources that are renewable, and therefore truly sustainable, are only renewable up to a limit, and they are often expensive.

Doubtless technology will go on improving, but it would be irresponsible to proceed with a given level of consumption on the basis of relying on technologies that haven’t yet been discovered, let

alone proven. While some technologies that few of us even dreamed about in years gone by are now in widespread use, some that we thought were “just around the corner” seem no nearer to fruition than they did a generation ago. An example here would be commercially viable nuclear fusion energy.

The overall conclusion is that developing and using the best available technology will certainly help to reduce human impact on the environment, but we

cannot rely on technology on its own to make us sustainable.

- We need to consume less as individuals.
- We need to stabilise our populations at levels that are sustainable.

Read about [sustainability and the Ehrlich equation](#) for further insight into the relationship between technology and sustainability.