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Eco-design: the environmental impact at every stage of your product's life

Eco-design is about designing products and services in a way that minimises negative environmental impacts.

Eco-design does this by considering a product or a process from the point of view of its entire environmental impact – often described as ‘from cradle to grave’. The process of eco-design looks at the natural resources a product or process uses, the waste it creates and, equally as important, how the product or service is used and influences behaviour.

When developing a product from scratch, ask yourself how it can be designed so that it uses fewer inputs and materials.

1. What materials will be used?

- a) Can you use recycled materials or materials that are made from renewable resources?
- b) Can they be sourced within Australia instead of from overseas?
- c) Can less toxic or less environmentally harmful materials be used?
- d) Can materials that use less energy to make be incorporated into the product?
- e) Are you buying your raw materials from the most environmentally and socially responsible source?

Inform yourself about the chemicals used in your business' products and processes.

A useful place to start is www.saferesolutions.org.au which is an initiative of the Total Environment Centre. It provides a glossary of the major chemicals found in consumer products.

Wherever possible, use natural-based, non-toxic substitutes and make it a procurement policy to favour products and companies with a similar commitment.

2. Light-weighting

- a) How can the product be designed so it weighs less?
- b) Can it be reduced in size so that more units can be transported?

3. Leaner production

- a) How can the production process be tightened so it uses less energy, fewer raw materials, fewer processes and cleaner technology?
- b) Can this be done in a way that generates less waste and pollution?

4. Product distribution

- a) How can the product distribution process be streamlined?
- b) Can the packaging be made of recycled content or, at the very least, be easily recycled?
- c) How can the packaging itself be reduced?
- d) Is your product designed to maximise transport efficiencies? Furniture for example, can be flat packed, allowing for more products to be shipped in the same sized container.
- e) Is there a more environmentally efficient way of transporting your goods to your customers?
- f) Does your delivery company have vehicles that use alternative fuels? Do they use smaller delivery vehicles that offer a more fuel-efficient way of delivering your products? Do they use rail? Do they back load and maximise their loads?

5. Product efficiency

- a) Can the product be made to use less energy when it's switched on?
- b) Can it achieve energy efficiency standards that make it 'best in class'?
- c) Can the product be made so it uses no energy at all?
- d) Can it be constructed so it uses fewer secondary materials – for example, if it's a coffee filter, can it use reusable filters instead of single-use filters?

While some water carbonating units use electricity, the Sodastream carbonator uses the energy from the carbonating gas cylinder. This means no electricity is needed when it makes sparkling water. When the gas cylinder is empty, customers have to return it to the retailer they got it from in order to buy a new cylinder. This ensures that the old cylinder can be reused and refilled. This more environmental approach is really working with the public. In the last year, sales of Sodastream products in Australia have tripled. Visit www.sodastream.com.au for more information.

6. Making it last

- a) So many products these days don't seem to last as long as they used to. Can your product be made to last as long as possible?
- b) Can it be made more reliable and easier to repair?

7. End-of-life

- a) Can the product be made so that it's far easier to recycle? Can you reuse any of the components of your product?
- b) If recycling facilities for your product are not easily available, can you extend your producer responsibility and take back your product for recycling?
- c) Can you help to ensure recycling markets for the materials within your products?
- d) Can you take back raw materials derived from the recycling of your products?

Testing from the German TÜV NORD agency indicates that 40 per cent of the mass of the new VW Golf is made from recycled materials. The majority of the car is also recyclable.

What is eco-efficiency and cleaner production?

Queensland Government agency ecoBiz defines 'eco-efficiency' and 'cleaner production' as being about saving money while improving environmental performance. This is also achieved through the use of fewer resources such as water, energy and raw materials and producing less waste overall.

For SMEs, it's about doing more with less. This involves coming up with production solutions that don't necessarily follow the 'business as usual' model. The World Business Council for Sustainable Development (WBCSD) and ecoBiz outline the seven elements of eco-efficiency as:¹¹³

- reducing material intensity (making more goods with fewer inputs)
- reducing energy consumption (making more goods with less energy)
- reducing the dispersion of toxic substances (making more goods but with less toxic waste)
- enhancing recyclability of materials (making the goods more recyclable)
- maximising sustainable use of renewables (using renewable energy or making goods out of materials that won't run out)
- extending product durability (making goods that last)
- increasing service intensity (meeting demand with a service and not with goods).

The 'What is Eco-design?' website is a complete online guide to sustainable design for industrial, fashion, graphic and textile designers.

Backed by the Victorian Government and Design Victoria, the project has been developed by the Centre for Design at RMIT University, WSP Environmental and leading industry experts. This highly recommended website has a range of tools and reference guides that provide SMEs with practical eco-design information that can be used in business operations.

For more information visit:

- What is Eco-design?: www.designvic.com/whatisecodesign
- RMIT Centre for Design: www.rmit.edu.au/cfd
- Society for Responsible Design: www.green.net.au

113 Adapted from: WBCSD, 2000, eco-efficiency, ecoBiz Queensland, 2008, Fact Sheet, Introduction to ecoBiz. See: www.derm.qld.gov.au/ecobiz

Case study: InterfaceFLOR – redesigning business

The story of how Ray Anderson ‘redesigned’ InterfaceFLOR is one that is told by many sustainability professionals.

Back in 1994, as the CEO of InterfaceFLOR, Anderson oversaw a carpet company that generated air and water pollution and many tonnes of waste. It’s safe to say the company, like many others back then, did not enjoy a good environmental reputation.

What set Anderson apart is how he went about fundamentally changing the very basis of how InterfaceFLOR did business. He realised that businesses needed to use the Earth’s natural resources in a more sustainable way. Under his leadership, the company generated new patents and invented innovative machines. It used new materials and created different manufacturing processes. The results showed the potential of making a business more sustainable in the way it did business.

Between 1994 and 2009, InterfaceFLOR claims to have:

- cut greenhouse gas emissions by 82%
- cut fossil fuel consumption by 60%
- cut waste by 66%
- cut water use by 75%
- increased sales by 66%, doubled earnings and raised profit margins.

To ensure even greater results, the company’s Mission Zero™ is an initiative to eliminate InterfaceFLOR’s negative environmental impacts by 2020.

The way in which Anderson achieved his results is set out in the book *Confessions of a Radical Industrialist*. It’s a must-read for SMEs who want to see how practical ideas can be implemented in a way that boosts environmental performance and the bottom line.¹¹⁴

114 See www.interfaceflor.com.au

