



## **Innovation: designing for a sustainable future**

*The five principles of sustainability*

### **Edwin Datschefski**

This is the legacy that designers have left us with: a huge mish-mash of different types of materials and objects. We've got PVC, we've got metal, we've got concrete, we've got engine oil, we got vinyl from the backs of car seats. You couldn't make this up. It's a weird concoction and somewhere a designer hasn't specified what happens at the end of the life.

### **Narrator**

There are millions of different products on the world market. But few, if any, have been designed to be truly sustainable.

### **Edwin Datschefski**

What do we mean by sustainability? It's about people, planet and profits. People means we've got to have good communities and we've got to have good conditions for the workforce. It's about the planet, it's about environment and we've got to have environmental sustainability. And it's also about profits. None of this is any good if we go out of business. And designers have a big role to play.

### **Narrator**

Edwin advocates the concept of Total Beauty, where products are designed to minimize negative environmental and social impacts. The concept is based on a set of five key principles.

### **Edwin Datschefski**

The five principles to make a product sustainable are that it should be cyclic, that's using recycled materials or using grown materials.  
It should be solar – all the energy should be using renewable energy.  
It should be safe, non-toxic.  
It should be super-efficient, using the least amount of materials and energy.  
And it should be social – that's good for people, for consumers and for workers.

### **Narrator**

Sustainability is becoming part of the design vocabulary, but all too often designers interpret it in a very narrow way.

### **Edwin Datschefski**

When designers come to me and they say; "I have designed a sustainable product.", what they've usually done is, they say, they've made it out of recyclable material. Ok, recyclable material is good stuff these days, you can have polyester that's made of recycled plastic bottles, just like these ones here. Or you can have recycled high-density polyethylene. But using a material just by itself, isn't necessarily all you need to do. You need to think about durability and the end-of-use, just in the same way as you would for any other product.

### **Narrator**

Of Edwin's five principles, cyclic is perhaps the simplest to put into action. There are many recyclable materials to choose from, but the way in which materials are processed and put together can prevent a material being recycled. TV sets and video recorders are good examples of the problem.

### **Edwin Datschefski**

The biggest problems that can be divided into two parts; you've got the casing of the products and you've got the interior. The casing is metal, plastic. Interior is things like chips, power supplies, transformers and so on. The manufacturing process for these two elements is where a lot of the impacts arise. The casing's relatively straightforward but it's big. Metal, plastic; energy use in that, pollution in

that, and the manufacture of that and the distribution. The interior is a bit harder to handle. Although it's less by mass, the chemicals and the processing that goes on to make things like chips and circuit boards is highly polluting. So everyone always imagines that electronic items are nice because they're not very big but environmentally it all adds up to a considerable amount of environmental damage.

**Edwin Datschefski**

You can recycle the metal, you can recycle the plastic, but are you going to get the tiny bit of tantalum that's in this chip? I don't think people are able to recycle at that level yet. That's where we've got to go in the future.

**Narrator**

It's much harder to satisfy the solar principle – designing products which consume only renewable energy.

**Edwin Datschefski**

Many people say for example, well how can you have a solar chair, it doesn't consume any energy. But there's energy use in making the material, to extract the raw material, to process it, to distribute it. So in fact you see that chair uses quite a lot of energy. Now all that energy source has to be solar, and that I mean essentially renewable energy.

**Edwin Datschefski**

Safe is about all the releases to the environment of that product all the way through its life. Are they non-toxic, are they safe?

Most of the types of conventional waste disposal have their own hazards. Incineration causes pollution from the smoke coming out of the chimney. Landfill causes problems in terms of taking up space and potential leaking of hazardous materials into groundwater and so on. So recycling is clearly important, along with its variants which are, re-use and re-manufacture.

**Narrator**

Cyclic, solar and safe are main guiding principles for designers trying to reduce the impact of their products on the planet.

Designing products which are more efficient, using less materials or energy can bring advantages for the environment too, and benefit both producers and consumers.

**Edwin Datschefski**

All products have been improving in efficiency in many different ways: in terms of lighter materials, in terms of getting the job done with smaller amount of water, energy, materials and so on.

And those improvements are, basically, competitively driven: always make sense to use less stuff to get the job done. And we'll see improvements of that all the way, but it is a losing battle because the efficiency curve means that you make dramatic improvements and then, over time, to get that last little bit, last little bit of improvement it's diminishing returns until you get a leap through technology, when you can make a dramatic improvement but that requires re-tooling and a whole different kind of product approach.

**Narrator**

Increased efficiency is a useful weapon in the competitive market for consumer goods.

**Edwin Datschefski**

We're now reaching a point where it would be sensible, if you have a ten year old washing machine, to throw it away, buy a brand new washing machine because the amount of water, energy and soap powder that you will save will be worth all that energy to make a whole new washing machine.

**Narrator**

But for a product to have the 'total beauty' of sustainability the designer needs to consider the social impact of that product.

**Edwin Datschefski**

We have to realise that products have consequences for people. They're often hidden but in the chain of manufacturing a product, people are exploited, sadly, at the moment and getting good conditions for workers across the manufacturing chain is something that designers have a role in ensuring.

Sustainability is about a win, win, win situation, where we optimise the benefits to society, the benefits for the economy, the benefits for the environment. In the past, it seems like the environment, and even the welfare of people, come second to profit. But unless we have the three platforms working together, we can't have a sustainable future.

**Narrator**

So why are sustainable products hard to find?

**Edwin Datschefski**

Companies would like to say 'yes, we'll make a super-green product, and consumers will buy it in their droves'. Unfortunately they rarely do, because to get a product like that you're going to have some kind of performance change. And I say change, with good reason. It's going to perform in a slightly different way at a slightly different price point, to the product the consumer's used to. So unless they see a real clear benefit for themselves, green by itself is not enough to sell more products. This makes the designer's job especially hard, so they have to make the product better, and better for the environment - better in terms of performance, price, and environment all at the same time. Hey, well that's why we pay designers, they've got to do something for their money.