

Sustainable business models: Starting small, thinking big

Posted by [Stephen Gardner](#) [1] on Nov 8, 2012

Small companies and start-ups are coming up with new products and processes that could promise radical shifts towards sustainability

If the essence of entrepreneurship is to spot unfulfilled market demand, it is clear why the field of sustainability is abuzz with start-up companies. There is a huge need for services and products that consume fewer resources, are more energy efficient, can cut pollution dramatically and lead to new, less-destructive economic models.

The ideas are certainly out there. Mini-company [Air Fuel Synthesis](#) [2], based in Darlington, UK, made headlines in October when it said it had synthesised “clean” petrol from air – actually synthetic hydrocarbons from a process involving carbon dioxide and water vapour. The company acknowledged that the process might look “too good to be true” but insisted: “We are serious scientists, engineers and business people ... and we have a solid business proposition.”

The Air Fuel Synthesis process is at demonstration stage. Many hurdles must be vaulted before it even gets close to commercial production. The company is looking for up to £6m to take it to the next stage. If it ever gets beyond demonstration, the process could – at least theoretically – revolutionise fuel production.

Other similarly radical sustainable innovations are closer to full roll-out. Take [Xeros](#) [3], a small company based in Rotherham, UK, working to commercialise a laundry technology that was developed at Leeds University. The process uses polymer beads that “agitate, attract and transport away stain and soil from textile surfaces,” by absorbing grime into their molecular structure, according to the company.

Washing without water

The beads are reusable and recyclable, and largely replace water in the cleaning process, potentially offering vast water savings. Laundry detergent is still required, but in far smaller quantities than in conventional washing. And the beads clean better than current machine washing, especially when it comes to removing oil and grease, Xeros says.

Xeros chief executive Bill Westwater, a former Procter & Gamble executive, says the company expects “first significant sales in the middle of 2013”. The beads do come with a catch: they require a special cleaning machine, though Westwater says this will compete on price with standard washing machines. For this reason, commercial laundries and institutions such as hospitals will be the company’s first targets – large-scale users that are prepared to invest in order to convert their operations to bead cleaning.

Westwater sees advantages in this. Xeros will obtain a “proven by professionals” label, which will be useful when promoting the new technology to consumers. “It will be a while yet before we’re ready with the domestic proposition,” he says.

Nevertheless, Xeros is thinking big. There is no reason why its technology should not spread across the globe. The company claims that bead cleaning is the “first real innovation” in laundry for 60 years. It could offer a giant leap in the direction of sustainability.

The idea came out of studies on how water consumption in the dyeing industry could be reduced, says Westwater. But laundry is “a massive category and we thought we could create a business model that works”. Though water saving was the starting point, “we’re here for commercial reasons”, he affirms.

True innovation

Air Fuel Synthesis and Xeros demonstrate why true innovation often comes from small companies and start-ups. In both cases, the new technology could one day revolutionise the market. This can make incumbent companies nervous. Air Fuel Synthesis founder Prof Tony Marmont has said that he would “shudder” at the prospect of investment from a major oil company. “I’d be fearful they would buy into the business and work to shut it down,” he told the Independent newspaper.

Westwater is less alarmed at the potential involvement of leviathans such as Unilever or Procter & Gamble in the Xeros technology. “Ultimately, we can see partnership opportunities with these companies,” he says. The major players “freely acknowledge they are not going to get all the innovation from within,” and are increasingly receptive to working with smaller companies, rather than trying to absorb or crush them.

Large companies generally concentrate their research and development on improving their existing products and services, rather than doing away with them through radical innovation. Market giants can be at a disadvantage because they are “entrenched in a legacy way of doing business”, whereas start-ups have a “clean sheet of paper”, Westwater says. Big company R&D units are “constantly tasked to optimise a current technology”, a process Westwater compares to a “salami-slicing operation” to get the most out of their existing products.

Corporations recognise this and are aware of their limitations in terms of innovation for sustainability, Westwater says. “Broadly speaking, corporates, especially CEOs of corporates, are increasingly sincere about wanting their companies to adopt more such practices [but] it is much more difficult for them to turn their ships around.”

Guido Lena, director of sustainable development for European small business federation UEAPME (Union Européenne de l’Artisanat et des Petites et Moyennes Entreprises) agrees that small companies have an advantage in bringing ideas about sustainability to market, compared with large companies with “long and bureaucratic procedures”.

Small companies benefit from “flexibility and procedures reduced to a minimum”, Lena says. But entrepreneurs and start-ups face difficulties that big companies do not. Most of these relate to resources and achieving sufficient scale.

All companies face financing challenges in the current environment, but sustainable start-ups face bigger challenges than most, Lena says. “Generally it is more difficult for these companies to get financing, particularly from the banks. Employees in the banks are not trained to understand the advantages of these kind of [sustainable] developments.”

To a certain extent, governments are filling the gap. The UK government, for example, has a £125m environmental investment fund and a £200m future technologies fund. The funds back “small growing businesses, start-ups and spin-outs including pre-profit and pre-revenue stages of development,” the UK government says. But government venture capital budgets are also subject to austerity constraints.

Lena highlights a further issue for small companies trying to get sustainable ideas off the ground: perceptions. “It’s still a niche,” and there is a perception among consumers that green products are more expensive, he says.

Xeros’s Bill Westwater says consumer wariness about switching from traditional water-based laundry to bead cleaning was his main concern. But research so far as shown this not to be a barrier. Xeros has been able to show that there is “no compromise on cleaning,” and this has been “compelling” for consumers, Westwater says. “Undoubtedly our process is cheaper than conventional washing. We’re not expecting the consumer to choose us solely on a green promise.”

Identifying the gaps

susTomi Tura, coordinator of [Ecopol](#) [4], a European Union sustainability partnership that promotes eco-innovation, says the current wave of start-ups and small companies are not necessarily more sustainably minded than their forbears, despite the growing knowledge about pressing environmental problems that urgently need to be dealt with.

It would be wrong to generalise that the latest generation of entrepreneurs understands that sustainable business is smart business, though some certainly do, Tura says. “But it is becoming quite hard to launch a new business without considering the sustainable dimension of your business. There is also a certain level of market gap in the field of eco-innovation, and of course start-ups are looking for these gaps. So, as a result, [there are] a lot of young companies in that field.”

Matthew Feinstein, an analyst with Lux Research, supports the “market gap” argument, but it is not necessarily sustainability that motivates companies to fill gaps. In the solar panel sector, for example, Feinstein notes that “cost reduction is without doubt the driver”, rather than technological improvement per se. But the demand for lower costs pushes technological development and “start-ups are critical for radical cost reduction technologies”.

[Solexel](#) [5], [1366 Technologies](#) [6] and [Twin Creeks Technologies](#) [7] are examples of small companies in the solar sector promising lower costs, which will make solar power more viable and thus more widely used, Feinstein says. The companies are all US-based, and promise manufacturing improvements – for example, more efficient machinery and processes, and less materials use – as the way to cost reductions that will mean that solar panels can sell for half their current cost. They are “essentially looking at the conventional crystalline silicon technologies, and are cutting out a couple of steps”, Feinstein says.

Such sustainable process innovations reduce waste, improve efficiency and are likely to be widely commercialised in three to 10 years, Feinstein says. But small, innovative companies “must go through the critical scale barrier”. In this respect, they will probably need to work with the large companies in the sector. “Many of [the smaller companies] have strategic investment from the larger crystalline silicon companies. Eventually they get bought,” Feinstein says.

Whether small companies that specialise in sustainability remain independent or are ultimately absorbed by their larger competitors, the end result is likely to be an increasing wave of sustainable services and products that seek to meet the demand for sustainability.

As the 1366 Technologies website modestly notes for the solar sector: “The science is understood. The material is abundant. The products work. All that is left is to build the largest manufacturing industry in the history of mankind. This is what we intend to do”.

Case study: Wear&Toss – sustainability through disposability

At first glance it might not seem very sustainable: Italian start-up [Wear&Toss](#) [8] is developing a range of disposable garments that will be worn once or twice before being discarded. But, says Sean Wilkinson, who is working on business development for the firm, the disposable garments could be more sustainable than standard clothing.

Wear&Toss clothing is made from **plant fibres** and is primarily designed as a substitute for cotton, which is “very, very heavy on land use and water consumption”, Wilkinson says.

Wear&Toss garments have a similar feel to cotton, but are entirely **biodegradable** and compostable, decomposing into powder after about three years. This is a positive step, Wilkinson says, as “a lot of landfill is occupied by clothing”.

Tossing, rather than repeatedly laundering the garments, also saves **water** and cuts the need for washing machines and detergents. However, Wilkinson concedes that Wear&Toss has not yet carried out a full analysis of the environmental benefits of its garments compared with traditional products.

Wear&Toss is “still very much in the project state”, and is “looking for and talking to investors”, he says. The company is the brainchild of Italian entrepreneur Filippo De

Martin, who got fed up with the mountains of clothing that had to be packed when he went on holiday with his family. The idea thus “started with convenience”, Wilkinson says. Wear&Toss says its garments will be **inexpensive**, especially once ongoing laundry costs are taken out of the equation.

Wilkinson adds that there are many occasions when disposable clothing is necessary, and in these areas the environmental benefit of Wear&Toss is clear. Single-use clothing could be appropriate in **hospitals** and other tough work environments, or for **disaster relief**. But the company has also had interest from the **fashion** and **sports** sectors.

A big launch could be on the horizon. “Production of the cloth is absolutely no problem,” Wilkinson says. “We’re looking at an eventual global launch.”

Case study: Zen Car - leading the charge

For city dwellers, car ownership can be as much curse as blessing. It is expensive, it’s hard to find parking, and congestion is a constant drag. **Car sharing** can be an answer, and can offer great efficiencies. The world’s largest car sharing network, **Zipcar**, says that each of its shared vehicles takes at least 20 private cars off the road.

A small Brussels company has gone one step further – electric car sharing. This can be even simpler than petrol car sharing because there is no more fiddling about with fuel cards and mileage calculations. Users of cars from Brussels micro-company [Zen Car \[9\]](#) simply unplug when they drive away, and plug in again on return. Electric car sharing is also in principle more sustainable, because it is not fossil-fuelled, if the electricity comes from green sources.

Zen Car’s Stéphanie Fain says the company is backed by private investment and its main target is **corporate customers**. Instead of maintaining a large company car fleet, firms can set up electric recharging bays on their premises, and run a small fleet of Zen Cars so that executives can get around to meetings.

The company is benefiting from tighter corporate budgets, Fain says. “We help the company to reduce their costs”. Between 10 and 20 companies have so far signed up, she says.

Targeting companies is also a way for Zen Car to sidestep its biggest barrier. The problem is not consumer acceptance, or the range the cars can cover (they are perfectly adequate for urban journeys), but obtaining **city authority permission** for parking bays and recharging points on public roads. “It takes a lot of time and the file has to pass everywhere,” Fain says, with up to a year needed for each new charging station to be authorised.

Fain voices some frustration, explaining: “When we have a new station, it brings a lot of new clients.” With more charging points, electric car sharing “could explode”.

Links:

- [1] <http://www.ethicalcorp.com/users/stephen-gardner>
- [2] <http://www.airfuelsynthesis.com>
- [3] <http://www.xeroscleaning.com>
- [4] <http://www.ecopol-project.eu/>
- [5] <http://www.solixel.com/>
- [6] <http://www.1366tech.com>
- [7] <http://www.twincreekstechnologies.com/>
- [8] <http://www.weareross.com>
- [9] <http://www.zencar.eu>