Innovative recycling technology draws funding from some unexpected investors

THE BUSINESS
Enval is a growing firm in the recycling and environmental technologies business. It specialises in recycling packaging materials of mass-market consumer goods that had previously been thought of as not possible to recycle.

THE IDEA
Brand owners of a whole range of fast moving consumer goods are facing considerable pressure from both the public and from regulators to ensure that their products are environmentally friendly and that, in particular, their packaging is capable of being recycled. One area where this is acute is the use of aluminium/plastic laminate, a very popular way of packaging juices, toothpaste, cosmetics and pet food. It comes in a variety of different types, but invariably consists of a thin foil of aluminium laminated with paper or plastic layers. This packaging is cheap to produce and is very effective in preserving the product. It is also lightweight, which reduces transport emissions and costs, as well as having less impact than heavier packaging if discarded. But consumers are aware that this is a packaging format that they cannot recycle that is either dumped in landfill or incinerated. Enval’s idea was to use the scientific expertise of its founder to create a process that allowed such products to have their valuable constituents recycled. ‘The process was born from research I had done in Cambridge while working on my PhD’, says Carlos Ludlow, now Enval’s Managing Director and Chief Technical Officer. ‘I wanted to do something that was applicable and not something just scientific.’ The company was formed in 2006 as a spin-out of the department of Chemical Engineering at the University of Cambridge.

THE INNOVATION
As a result of the research project carried out at Cambridge, a continuous process was developed that provided for the complete recycling of laminate waste, recovering 100% of the aluminium present in the laminate. This aluminium is clean and ready to reuse while the process also produces oils and gases suitable for fuel for heat or electricity production or to be used as chemical feedstock in other processes. The Enval method is based on a process called microwave induced pyrolysis that allows the waste to be treated in the absence of oxygen. As opposed to incineration, pyrolysis takes place without the combustion of the waste and so avoids the production of greenhouse gases or toxic emissions. And, as the process uses microwave energy as the source of heat, by using renewable or green electricity, the process can be made carbon neutral. In short, the aluminium from, for example, toothpaste tubes, can be recovered clean and ready to sell to the aluminium industry and the plastic is transformed into chemicals that can be used to produce energy or sold as chemical feedstock. And there are cost savings on the transport of waste and landfill charges.

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Carlos Ludlow, Managing Director and Chief Technical Officer
As a young company, the problem that Enval had was that, despite offering a safe, clean, environmentally friendly and economical alternative to landfill, the obvious potential users of the process were wary or dismissive. ‘The problem’, says Ludlow ‘is that the waste-handling sector is very conservative. Things have started to change but in general they have been burying stuff for 70 years so they are very reluctant to buy new technology’. The company was left with two options; to go back to their investors for more money so that they could demonstrate the possibilities on a larger scale, or try ‘to leverage the power of several well-known brands of consumer goods that had already approached us’.

Initially the financial side was very difficult. The obvious route was to go directly to waste handlers, but they lacked the motivation because they generally do not engage with technology development and they get steady business from the owners of the waste, i.e. local authorities and industry. ‘The waste handlers are not directly in the public eye or viewed as responsible for the creation of the waste, so hoping that they would help finance our process, was wishful thinking’, says Ludlow. So a Plan B had to be created.

This plan was to form collaborative relationships with the big companies producing the products and packaging. ‘We said to them: “You use this packaging because you like it, but consumers cannot recycle it so it is perceived to be bad”’, says Ludlow, ‘we were able to say: “Help us to help you”’. An Enval consortium of organisations in the flexible packaging supply chain, who had a vested interest in seeing the Enval process succeed, was created. ‘Companies like Kraft and Nestle signed up’, says Ludlow ‘with some of the funding that we needed for our first plant, in exchange for the marketing opportunity to say they were helping this young company to improve recycling’.

This has enabled the company to build a plant at Alconbury in Cambridgeshire. ‘It was not only money we received from the companies’, says Ludlow. ‘It was the intangible endorsement by large companies. They were quite happy to do so. They recognised that, if we could make their packaging recyclable, like toothpaste tubes, for example, then their customers would be happy’.

And the company was also successful in attracting investors from around the established Cambridge business angel circuit. ‘Selling equity is never easy’, says Ludlow ‘but the consortium helped to demonstrate the company had legs and had a good financial plan and this made the fundraising easier’.

The long-term impact comes from the actual recycling process and the pioneering business model. The recycling process means that a huge range of products packaged in an increasingly popular, easy, consumer-friendly way, but which previously could not be recycled, now can be. And the company was also successful in attracting investors from around the established Cambridge business angel circuit.

Firstly, look beyond the obvious providers of finance. In the words of Carlos Ludlow: ‘Look outside the box for sources of financing and look for companies in the right supply chain. And they don’t have to be the obvious players in that supply chain’. The obvious source of collaboration in the case of Enval would have been the traditional waste handlers and not the likes of Kraft and Nestle.

Secondly, says Ludlow: ‘Don’t get stuck trying to convince your potential customers. If you need financing, there are unusual contributors and collaborations. These are not obvious, but can lead to win-win scenarios’. The world is no longer reliant on traditional methods of gaining finance. The rules are breaking down because of people thinking logically about who, in the complex network of stakeholders in the wider business, might be likely to help, and why.

And Ludlow’s third piece of advice is that very traditional, but often ignored one. ‘Everything takes way, way longer than you would like’.

He praises the traditional advisory network. ‘Some entrepreneurs fear, or are very reluctant to engage with, the investment and finance community in the right way’, he says. ‘They feel they might lose control of their companies. But without those advisors, the people in the accountancy and legal world, we would not have accomplished what we have accomplished so far’.

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