



# Adding to the bottom line

In the first of an occasional series, Ainsley Fraser investigates potential additional Lines of Business (LOBs) which could create new revenue streams for companies in the waste industry.

Most of us in this industry spend a lot of time running! It's seldom the lycra-clad rural lanes jogging stuff ... but more usually bouncing between the yard, the office, the car, various sites and customers, all of which is achieved whilst clutching the mobile, fielding enquiries or troubleshooting problems. That's called everyday life – and it's what we do to keep our existing businesses running.

Now pause, take a deep breath and ponder the time we should all try to spend looking at ways to make our businesses 'better'. To some, that will mean more profit ... to others, its new vehicles ... but it could be thinking about additional or alternative activities – Lines of Business (LoBs), into which we could diversify or bolt onto our existing businesses.

This article – and any others like it which SHM agrees to run – will not seek to wave any magic wands, come up with a plan or offer commercial advice ... but they will try

to look at bits of the business which you might not be involved in already, but that if you were, might generate some useful revenue.

When I saw the headline 'Recycling e-waste worth up to €3.7 billion to Europe', my immediate thought was that surely, we could bring some of that work further down the supply chain. Sorting, processing and recovering more or at least some of the material closer to source could be a viable opportunity – all of course covered under the WEEE (Waste from Electric and Electronic Equipments) framework.

Then I linked up with Lenny Koh ... actually Professor SC Lenny Koh, BEng, PhD, FRSA, an Associate Dean at Sheffield University and Director of the Advanced Resource Efficiency Centre (AREC) – and a world leading authority on low carbon supply chains.

Professor Koh told me that she and her colleagues and co-authors, Federica Cucciella, Idiano D'Adomo and Paolo Rosa from the University of L'Aquila and Politecnico di Milano, have been working on the collaborative research for several years,

building from their prior research on turning waste into resource, resource efficiency and the circular economy. Their work has just been recognised with the Elsevier Atlas Award – and SHM readers have been granted permission to share it (see panel).

Their award-winning paper, entitled 'Recycling of WEEEs: An economic assessment of present and future e-waste streams' argues that recycling waste electrical and electronic equipment (WEEE) more effectively could be worth up to €3.7 billion to the European market as well as reducing environmental pollution.

"Our paper is a cornerstone and crucial evidence base to really inform society globally and encourage us to think about the amount of embedded value and precious materials in the electronic products that we consume on a daily basis," says Professor Koh. "In particular, this research has strong relevance to addressing global issues of materials availability and security, reducing reliance on unused non-renewable materials, especially precious, critical and rare earth materials in manufacturing for sustainability and for consideration for substitution." >

Around the world, 30 to 50 million tons of electronic devices are tossed away every year. That volume of e-waste is expected to increase by three to five percent per year as consumers demand more and more 'smart' products. The paper presents a comprehensive framework supporting the decision-making process of multiple electronic recycling centres.

The European Union has made it a priority to work towards a circular economy, (see SHM this time last year) in which wastes are increasingly recognised as resources, and it's clear from the new work that such an effort makes good sense when it comes to economics. Professor Koh and her co-authors estimate potential revenues from recycled e-waste at more than €2 billion in the year 2014. The value associated with those recycled resources is expected to rise by the year 2020 to more than €3.5 billion.

The team have also developed a methodology to help organisations identify these key materials and to prioritise their investment in materials recovery based on factors including the amount of materials that are available in waste streams, their material composition, the price volatility of recovered materials, degree of purity required, and more. They have relied on their methodology to evaluate the potential revenues from the recovery of fourteen popular e-products, including LCD and LED notebooks, TVs, computer monitors, cell phones and solar panels.

The recycling of electronic waste products promises to reduce environmental pollution by conserving virgin resources, which are required for the manufacturing of high-tech consumer products as well as for aerospace, automotive and other industries. As the demand for these limited resources continues to rise, industry will be left with little choice but to capture recycled materials for manufacturing to meet the demand for their new products.

That sounds like a number of opportunities worth a closer look to me!

We are grateful to world-leading publishing and information provider, Elsevier, for readers of Skip Hire Magazine to be given open access to the award-winning paper and associated documentation.

The article is entitled Recycling of WEEEs: An economic assessment of present and future e-waste streams by Federica Cucchiella, Idiano D'Adamo, S.C. Lenny Koh, Paolo Rosa

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