Urban Mining – the future of global resources?
Brand-Rex & HSSMI
A Scottish Institute for Remanufacture Case Study

Resource Crisis

The world is rapidly running out of key resources – gold, silver, tin and lead are forecast to run out within 50 years whilst copper reserves could be exhausted by 2040. These precious metals are vital as components within the technology we rely on to connect to the outside world, from smartphones and tablets to the cabling infrastructure that carries our internet and data.
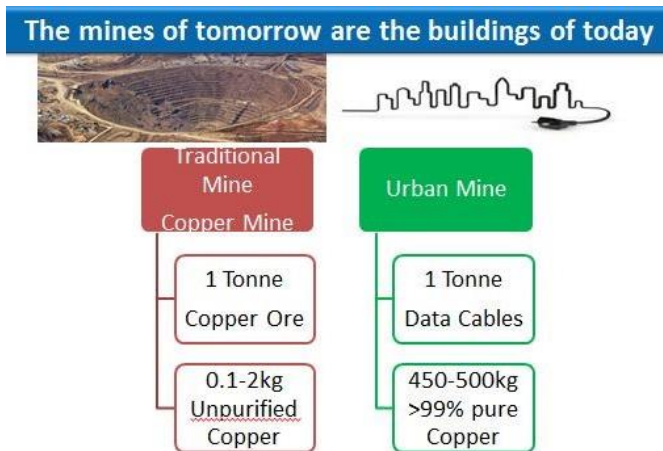
Therefore, new methods of retrieving and reusing these natural materials must be found to avoid demand outstripping supply and an inevitable price increase for industry and the end consumer.

Innovative Solutions

Brand-Rex, a leading cable systems provider, identified a sustainable business model to "mine" copper from the structured cabling in decommissioned buildings, and to reuse the cables as an alternative to new materials or parts. The cables would subsequently be recovered to as good as new condition through a pre-termination and reuse operation.

Brand-Rex wanted to understand if a 'lease' model was a feasible option for this process of recovering and reusing data communication cables. This option, together with a "return and recovery" approach, was assessed using the Remanufacturing Readiness tool in conjunction with the High Speed Sustainable Manufacturing Institute (HSSMI).

The team investigated a service model where Brand-Rex would remanufacture the cables and then "lease" a cabling solution to the end customer, retaining responsibility for maintenance and repair, was analysed and rejected. It was identified that whilst this model would allow multiple lifecycles for cabling, it would not adequately deal with the continued demand for cables with higher specifications.

A return and recovery model was identified as the most viable solution, whereby 92% of the raw materials in cables could be recovered and returned to the supply chain to be reused in new high performance cables.

The remaining 8% could be used to provide a clean fuel for electricity generation facilities, leading to a zero waste to landfill process.

Leading the industry

The project identified a viable and cost effective model which could be rolled out across the entire construction industry. Widespread adoption of similar models could hold the key to satisfying our increasing appetite for resources whilst extending the lifespan of global reserves and reducing waste going to landfill.

"Today we work in a linear economy. We harvest natural resources, use them to make sellable goods and at the end of their life dispose of them in landfill or, in the world of structured cabling, leave them within the cavities of a building.

There is no endless supply of natural resources, meaning that this economy is not sustainable. We must therefore move to a circular economy, where at the end of life a product can be re-used or recycled back into the supply chain.

This will take the strain away from the natural resources and provide our industry with a sustainable supply for future generations of structured cabling"

Kennedy Miller, Technology and Sustainability Manager, Brand-Rex

Benefits

The cost benefits of this type of business model have been demonstrated in a pilot project in the Netherlands, where 8.35 tonnes of cabling infrastructure was mined from a decommissioned building and returned to raw materials for the local economy - generating over €5,000 which was used to purchase solar panels for a local youth community project.

Match-funding from the Scottish Institute for Remanufacture enabled HSSMI to work closely with Brand-Rex and make recommendations on how the business can improve its readiness across all critical factors to make their Circular Economy business model viable.

For more information on the funding opportunities available through SIR visit our website www.scot-reman.ac.uk, email us sir-enquiries@strath.ac.uk or follow us on twitter @SIRemanufacture