Since its inception in 2000, Close the Loop has continuously invested in research and development (R&D) to identify innovative ways to improve resource recovery and create new end products for industry.

Zero waste to landfill promise

Close the Loop is a Melbourne-based resource recovery and recycling company. Its core business is recovering imaging supplies (cartridges) for printers and copiers, with 30,000 active collection points across Australia.

The strong focus on R&D has seen the company grow from a single idea to a business that employs 200 people, including a subsidiary in the United States.

Close the Loop invests around 2% of its annual revenue in R&D. “We have many patented processes that we’ve developed to keep our ‘zero waste to landfill’ brand promise and this has created a very innovative culture at Close the Loop – one that requires constant R&D to maintain,” says Founder and Executive Director Steve Morriss.

R&D creates new opportunities

Close the Loop has recently been working with Sustainability Victoria on a project to commercialise the use of recycled toner powder from printer cartridges in asphalt. Toner powder predominantly consists of small particles of very high grade engineering plastics and these same plastics are commonly used to modify bituminous binders for asphalt roads. Bitumen is the black glue in asphalt. Asphalt is the finished road; a combination of bitumen and crushed rock.

The asphalt additives made by Close the Loop improve the quality and carbon footprint of asphalt at no extra cost. It has better longevity, reducing whole-of-life costs.

While this may look like a recent opportunity, it is the culmination of more than 10 years of R&D. Thanks to the knowledge and expertise gained from their investment in R&D, Close the Loop was able to seize a business opportunity with global implications.

Working with industry for mutual gain

Close the Loop recognised that R&D does not exist in isolation – there must be an end market for your product and it must make financial sense to industry to use it. As Steve explains, “It doesn’t matter how good a technological breakthrough you think you’ve made – if the market doesn’t agree with you, it’s all for nothing.”

SNAPSHOT

Organisation
Close the Loop

Profile
Lifecycle management of imaging supplies (cartridges) for printers and copiers, handheld batteries, mobile phones and cosmetics.

Objectives
To eliminate the concept of waste (e.g. zero waste to landfill) and continuously improve recovery of materials from end of life products.

Status
Close the Loop employs over 200 people and owns a subsidiary in the US.

Challenges
Working with the large element of risk inherent in R&D activity and maintaining a culture of innovation in a continuously evolving company.

Next steps
Continue to research and develop innovative products made from post-consumer waste and work with manufacturers in their design of new products with end of life disposal in mind – to improve reusability, to simplify recycling, and to maximise the value of recovered materials.
It’s equally important that sustainability benefits are matched by the economic component. “Being green is not enough,” says Steve. “Without a financial incentive for your industry partners your business will not grow.”

To ensure that its product would meet industry standards, Close the Loop formed a strategic partnership with an industry partner, EDI Downer. EDI Downer helped with the R&D, providing both knowledge and equipment to develop the asphalt additive to the right specification.

“When we develop something in our lab, that doesn’t mean it works for the materials handling equipment used by asphalt manufacturers,” says Steve. “All of the technical elements along the supply chain have to be considered and Downer was able to help us develop an end product suited to their needs.”

Building an end market

This partnership with Downer also provided an end market for the product. The company has already laid more than 10,000 tonnes of asphalt with the new additive, helping to further prove the benefits.

For Close the Loop, developing an end market is key. “It’s not just about the technology; it’s also about the people and the relationships. You’ve got to be good at aligning yourself with influential companies and people that you will need along the supply chain,” adds Steve.

Creating a product with global implications

Close the Loop’s investment in the R&D for this product helps use resources more efficiently, diverting 3,000 tonnes of waste from landfill each year across Australia. It also generates more employment at Close the Loop’s plant in Somerton, Victoria.

The market now has access to a product that improves their sustainability with no loss in quality or increase in cost. The company can divert more toner powder from landfill and expand into new markets.

“The work we’re doing with Sustainability Victoria has global implications for our company,” says Steve. “We can leverage this innovation into a global marketplace to both return royalties to Australia and to create jobs in Australia and overseas”.

A long-term commitment to R&D

Close the Loop acknowledge that R&D is an essential component of any progressive company. Steve offers the following advice:

› R&D can be high risk and failure is often a necessary step in the process of innovation. Be prepared to invest time and money in R&D without expecting immediate results.
› When developing new products, be very clear about what you want to achieve and begin with the end in mind.
› Research potential markets for your product and understand how it can meet the economic needs of industry. Find out how risk averse the industry is – consider the difficulty in convincing them to switch to a new product?
› Understand what partnerships you need in place, particularly other players in the supply chain. Developing a strategic alliance with an industry player is a great way to understand your market and bring more skills and knowledge to your projects.
› Check what industry specifications and standards exist and whether these would need to be changed for industry to use your product. Who do you need to approach to make this happen?
› You need someone to drive the development of new markets and sell your product – to understand your target audience, build partnerships and convince industry to use your product.
› R&D should also be used to continually improve your products and manufacturing process. Be diligent in monitoring performance so that you can provide ongoing benefits to your customers.
› Researching and bringing new products to market requires a big investment in people and knowledge.
› Bringing a new product to market may require a large investment in equipment, manufacturing and site infrastructure.
› For resource recovery projects, ensure you can access sufficient materials to meet demand for your end product.”

“Resource recovery is a huge growth opportunity for Australia”

Steve Morriss, Executive Director, Close the Loop