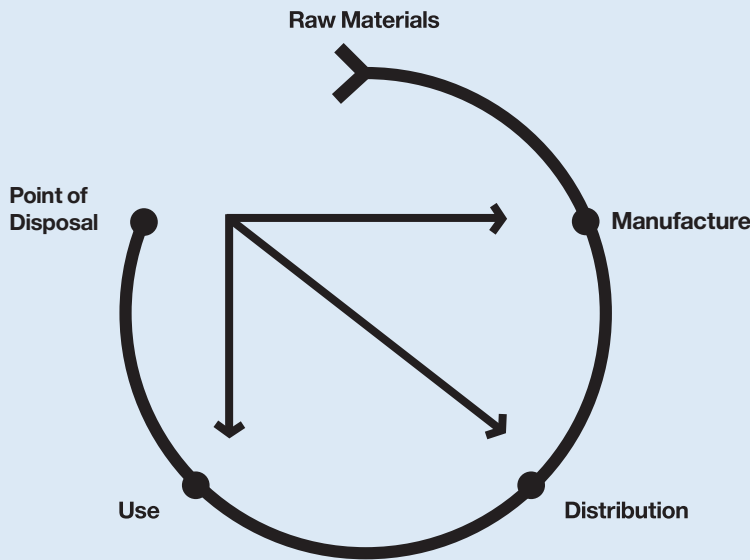


Towards a Zero Waste Future: Creating Closed Loop Systems by Dr Kate Goldsworthy

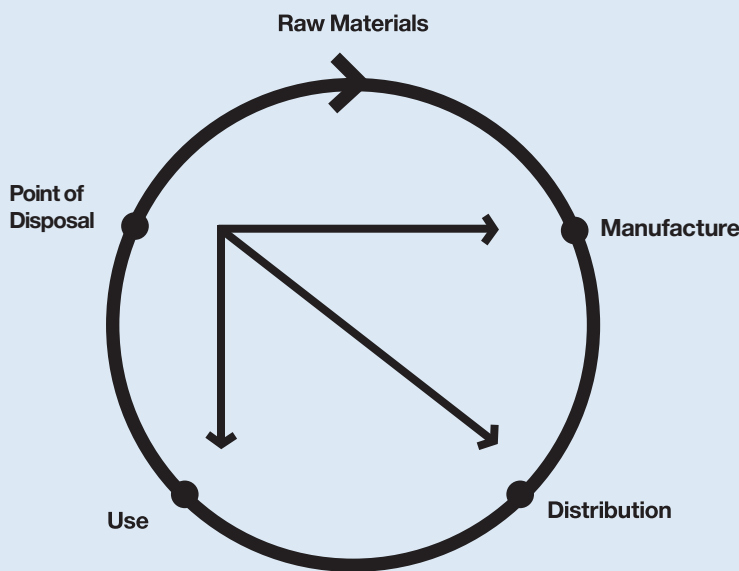
1.



Now Upcycling by Design

Limited materials with limited life cycles. Although return journeys can be designed at the end-of-life, this approach only postpones the arrival of the discarded material at landfill, where it may never biodegrade, may degrade very slowly or may add harmful materials to the environment as it breaks down.

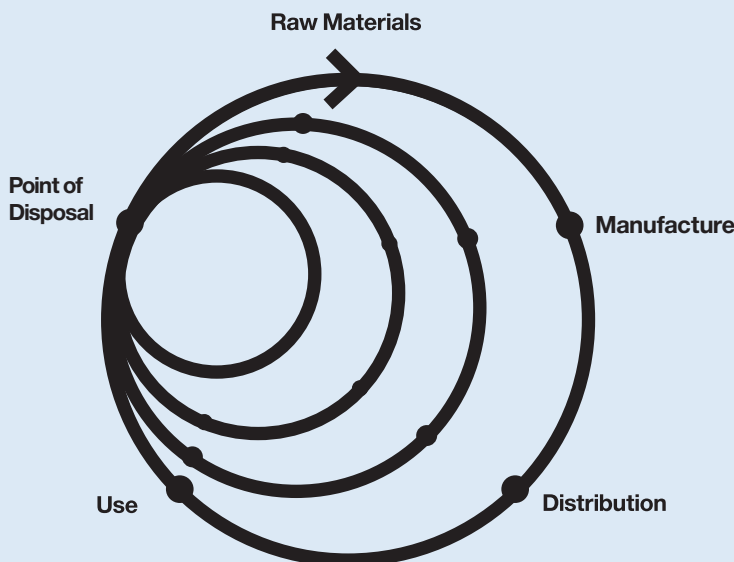
2.



Near Design for Cradle -2-Cradle

Limited materials with unlimited life cycles. By considering the barriers to recycling as part of the design brief, connected loops can be built into the material's future life from the outset. In a closed-loop, materials would never lose their value and would be designed to be recycled indefinitely.

3.



Future Design for Material Ecologies

Unlimited materials with unlimited life cycles. A genuinely sustainable future depends on creating interconnected loops, or cycles, for all industrial commodities. These cycles would be part of a scaled up system of material exchange which is open and dynamic, including all material resources in an infinite industrial ecology.