



DUTCH CHAMBER

Circular Economy – Fact or Fiction?

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070-5922016



Circular Economy

- What it is (and what perhaps not)?
- Circular Economy and plastics
- Business models



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LADDER VAN LANSINK

A Reduce

B Re-use

C Recycling

D Energy

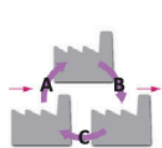
E Incineration

F Landfill

Powered by Recycling.nl



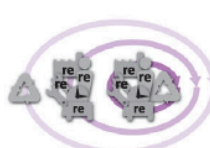
Seminal thinkers/ frameworks



e.g. Lowe and Evans (1995)



Braungart and McDonough (2002)

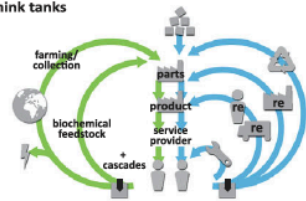


Stahel (2006)



Pauli (2010)

Think tanks



Ellen MacArthur Foundation (2013)

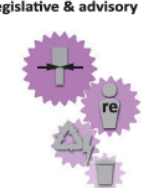


Green Alliance (2014)

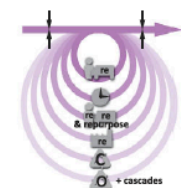


The New Economics Foundation (1994)

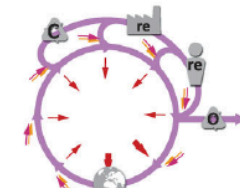
Legislative & advisory



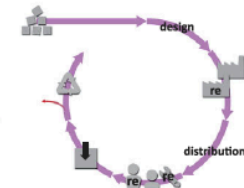
Department of the Environment (1995)



British Standards Institute (2016)

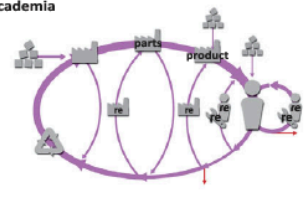


Environmental Protection Agency (1993)

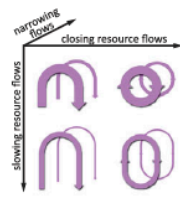


European Commission (2014)

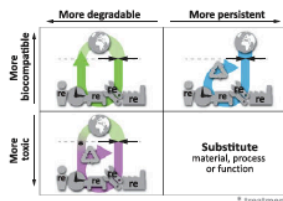
Academia



Allwood et al. (2011)

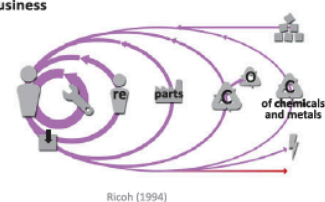


Bocken et al. (2015)



Gelser (2001)

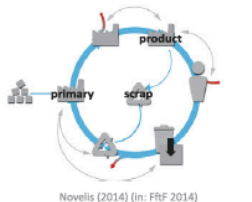
Business



Ricoh (1994)



Waste Management (2015)

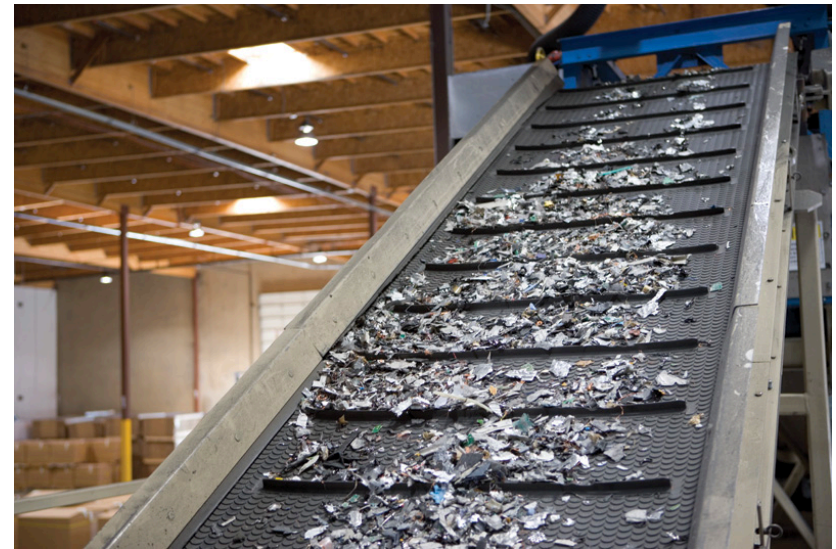


Novelis (2014) (in: FRF 2014)





- Reduce, reuse, recycling, refurbish, industrial symbiosis, sharing economy, product as a service, sustainability, sharing economy, zero-waste.





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Circular Economy & plastics





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Single-use plastics ban approved by European Parliament

🕒 24 October 2018

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GETTY IMAGES

Ocean plastic is often eaten by sea animals, with fatal results

The European Parliament has voted for a complete ban on a range of use plastics across the union in a bid to stop pollution of the oceans

RETHINK PLASTIC

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Plastic producers could market single-use items as reusable to dodge EU ban

10 10 2018

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European Parliament must close loopholes, say campaigners.

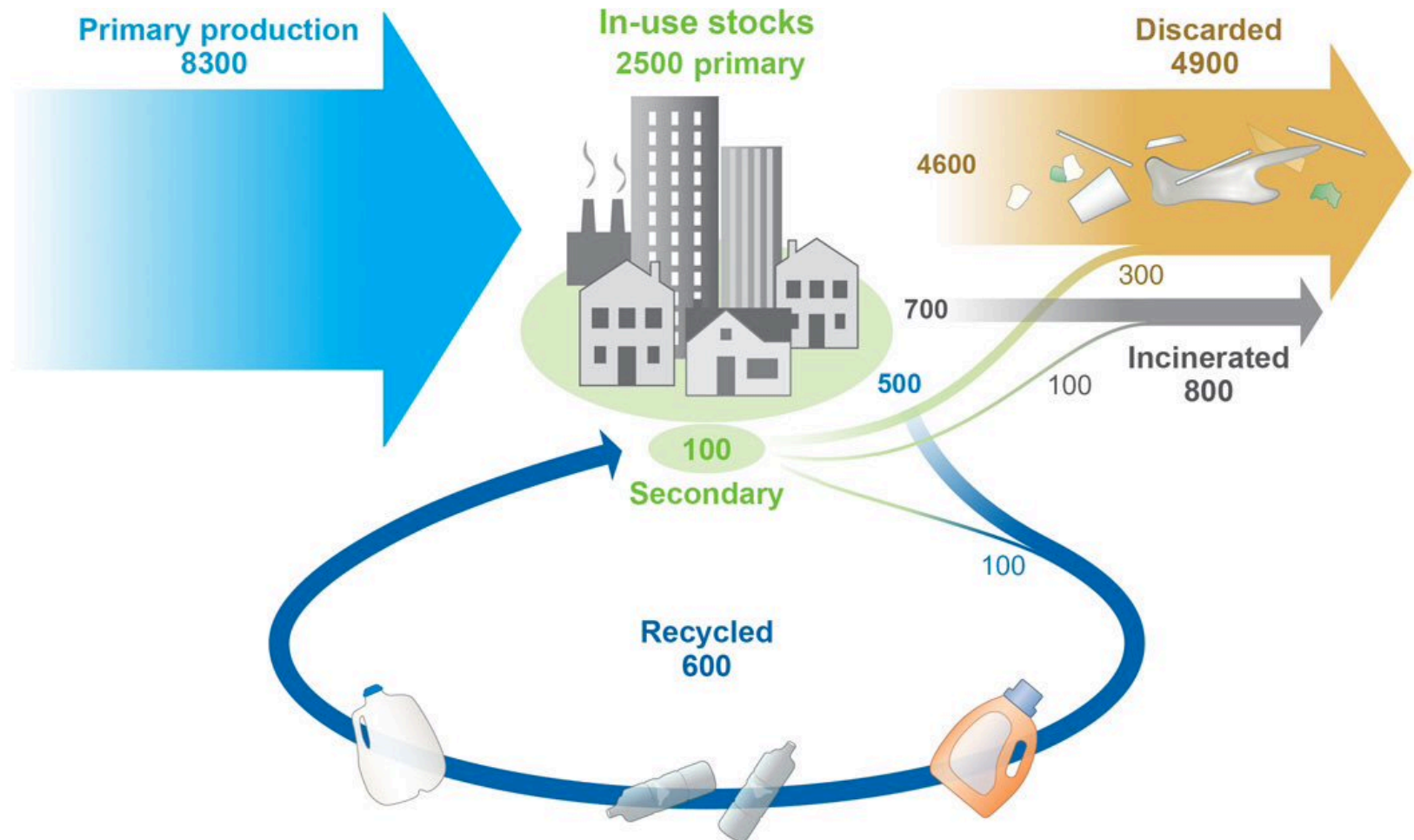
FOR IMMEDIATE RELEASE: Brussels, 10/10/2018

Producers could simply market items like throwaway plastic cups as reusable, under changes to a draft EU laws on single-use plastics tabled today in the European Parliament, the Rethink Plastic alliance of NGOs has warned.



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Industrial Engineering & Management



Geyer, Jambeck & Lavender Law (2017) <http://advances.sciencemag.org/content/3/7/e1700782.full>

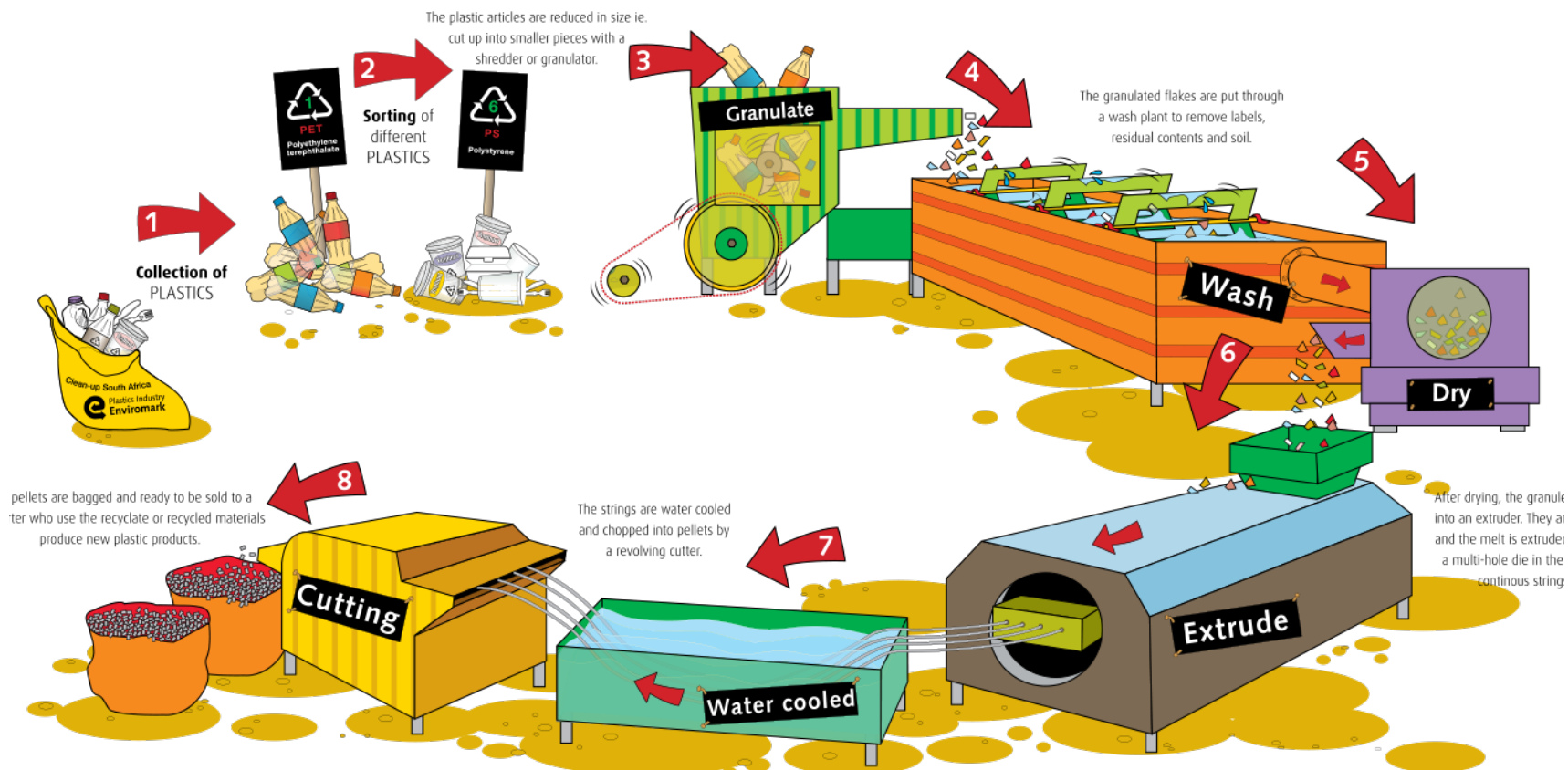


THE PLASTIC IDENTIFICATION CODE

Symbol	Type of Plastic	Properties	Common Uses	Recycled in:
 PET	PET Polyethylene Terephthalate	Clear, tough, solvent resistant, barrier to gas and moisture, softens at 80°	Soft drink and water bottles, salad domes, biscuit trays, salad dressing and containers	Pillow and sleeping bag filling, clothing, soft drink bottles, carpeting, building insulation
 HDPE	HDPE High Density Polyethylene	Hard to semi-flexible, resistant to chemicals and moisture, waxy surface, opaque, softens at 75°C, easily coloured, processed and formed	Shipping bags, freezer bags, milk bottles, ice cream containers, juice bottles, shampoo, chemical and detergent bottles, buckets, rigid agricultural pipe, scoops	Recycling bins, compost bins, buckets, detergent containers, posts, fencing, pipes, plastic timber
 PVC	PVC Unplasticised Polyvinyl Chloride PVC-U Plasticised Polyvinyl Chloride PVC-P	Strong, tough, can be clear, can be solvent welded, softens at 80°C Flexible, clear, elastic, can be solvent welded	Cosmetic containers, electrical conduit, plumbing pipes and fittings, blister packs, wall cladding, roof sheeting, bottles Garden hose, shoe soles, cable sheathing, blood bags and tubing	Flooring, film and sheets, cables, speed bumps, packaging, binders, mud flaps and mats, new gumboots and shoes
 LDPE	LDPE Low density Polyethylene	Soft, flexible, waxy surface, translucent, softens at 70°C, scratches easily	Cling wrap, garbage bags, squeeze bottles, irrigation tubing, mulch film, refuse bags	Bin liners, pallet sheets
 PP	PP Polypropylene	Hard but still flexible, waxy surface, softens at 140°C, translucent, withstands solvents, versatile	cream tubs, potato chip bags, straws, microwave dishes, kettles, garden furniture, lunch boxes, packaging tape	pallet sheets, oil funnels, car battery cases, trays
 PS  PS-E	PS Polystyrene PS-E Expanded polystyrene	Clear, glassy, rigid, opaque, semi-tough, softens at 95°C. Affected by fat, acids and solvents, but resistant to alkalis, salt solutions. Low water absorption, when not pigmented is clear, is odour and taste free. Special types of PS are available for special applications.	CD cases, plastic cutlery, imitation glassware, low cost brittle toys, video cases/ Foamed polystyrene cups, takeaway clamshells, foamed meat trays, protective packaging and building and food insulation	Coat hangers, coasters, white ware components, stationery trays and accessories, picture frames, seed trays, building products
 OTHER	OTHER Letter below indicate ISO code for plastic type e.g. SAN, ABS, PC, Nylon	Includes all resins and multi- materials (e.g. laminates). Properties dependent on plastic or combination of plastics.	Automotive and appliance components, computers, electronics, cooler bottles, packaging	Automotive components, plastic timber



What happens to 42% of consumer plastics that are material recycled? A simplified picture.





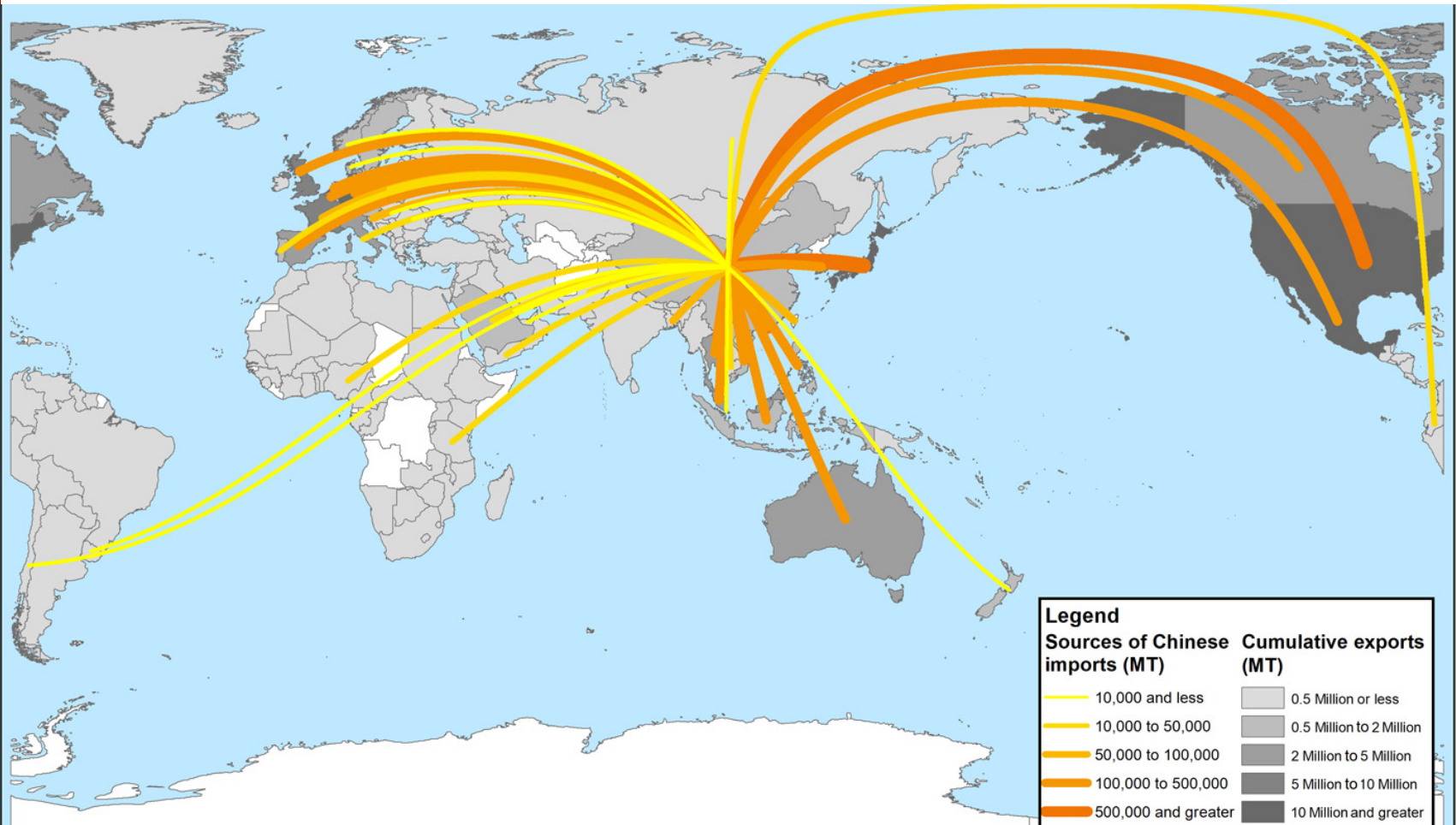
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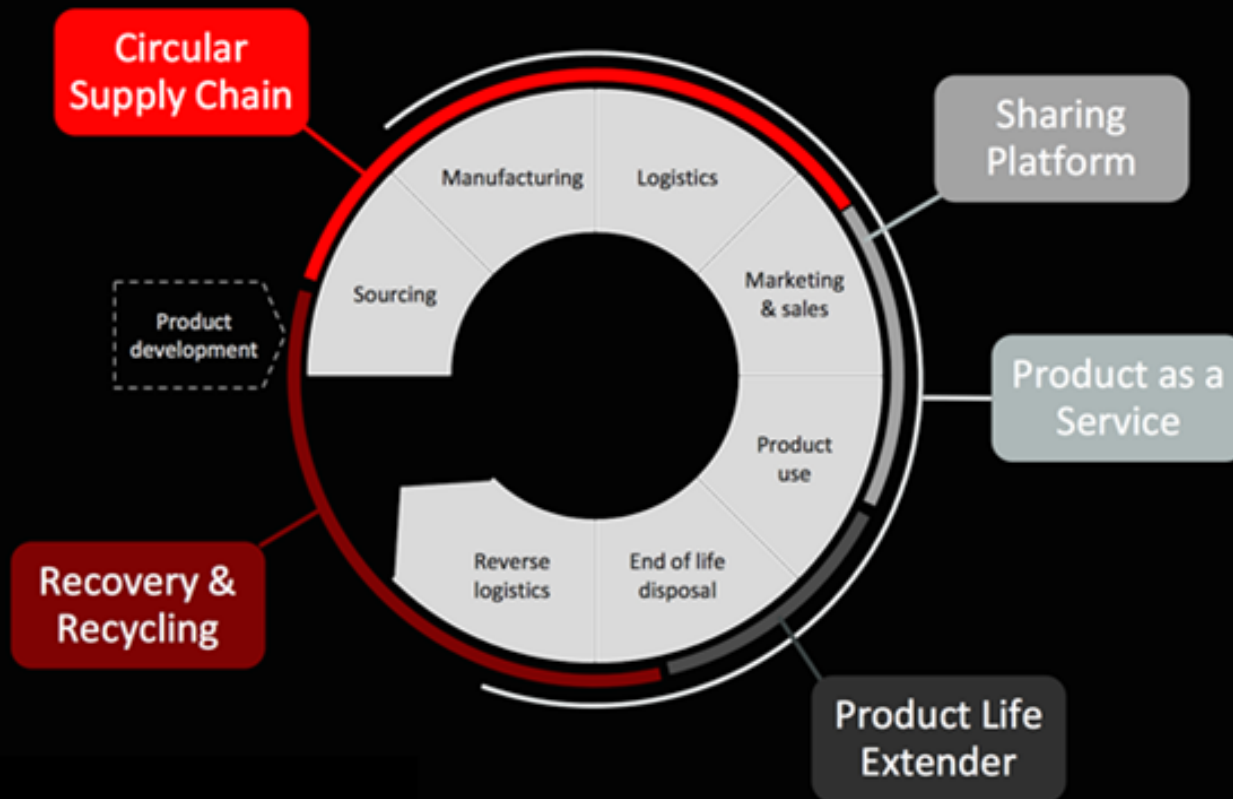


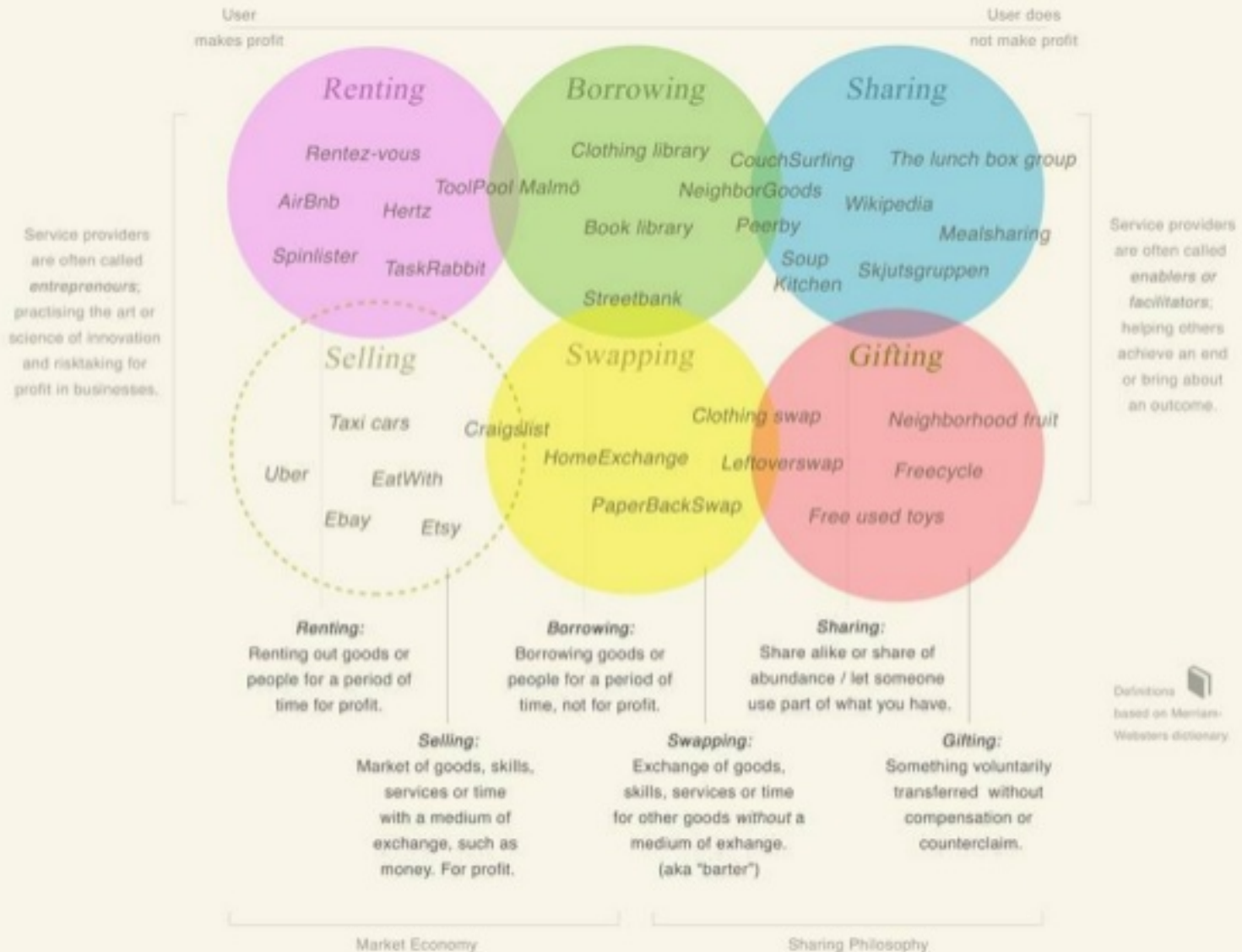
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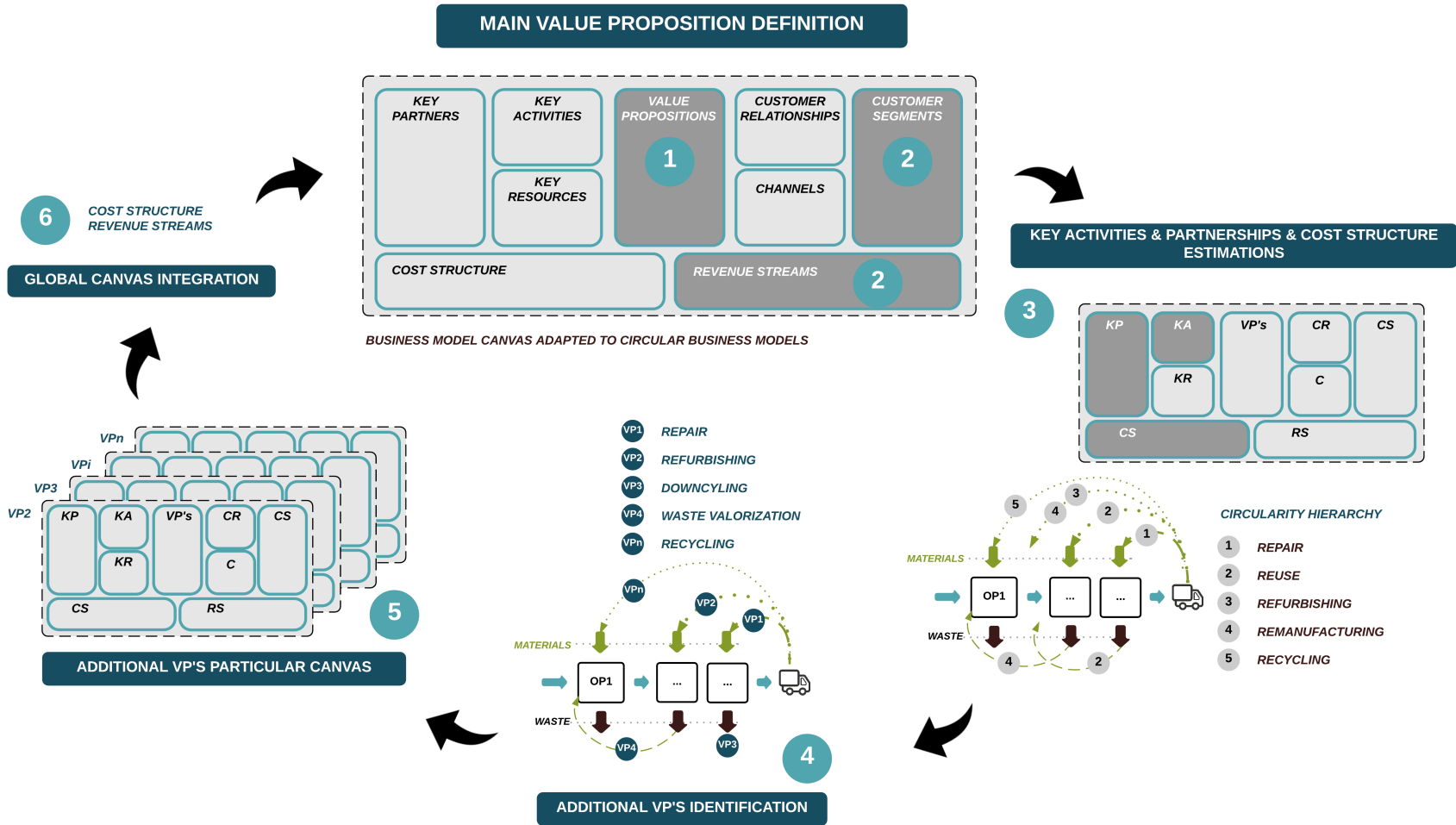
Business models



5 business models for a circular economy









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Want to know more?

