Green Public Procurement and Ecolabelling in Sweden under Plastic Circulation Policy

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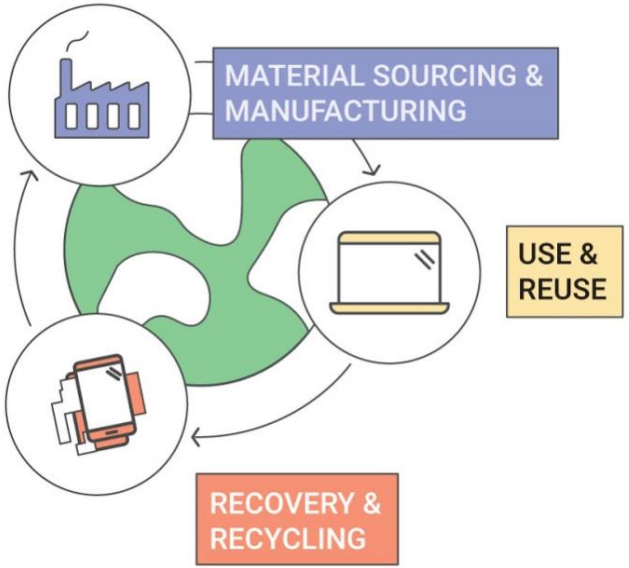
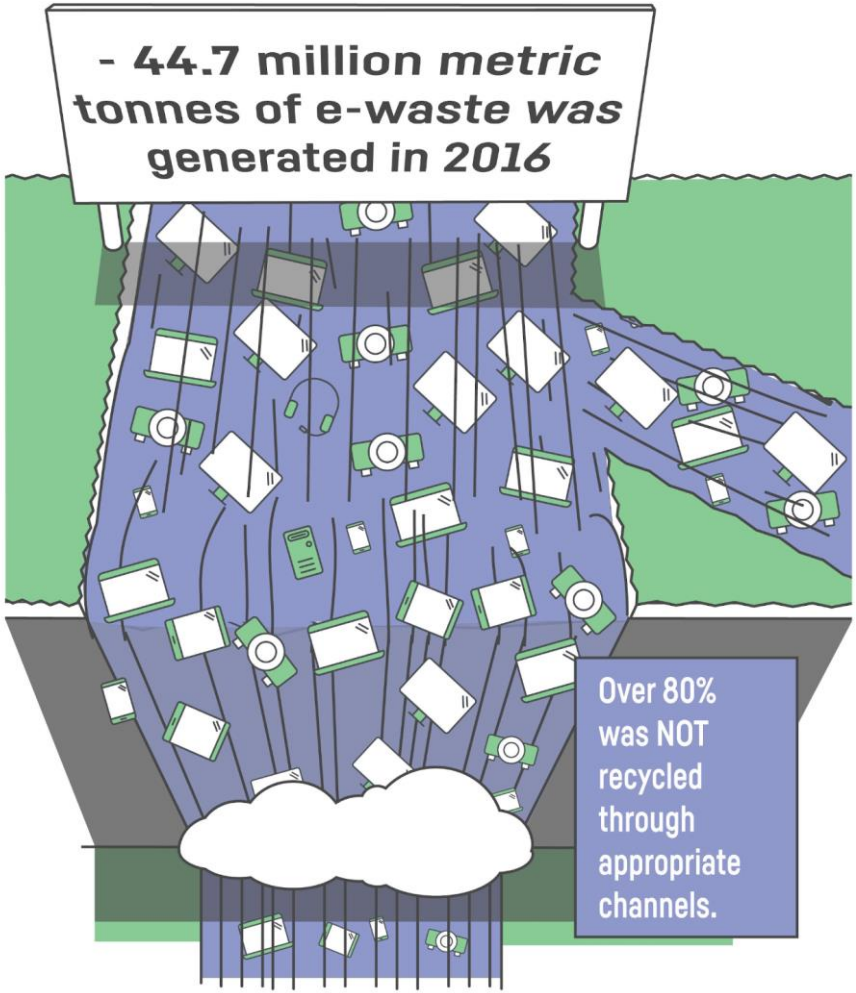
TCO Certified



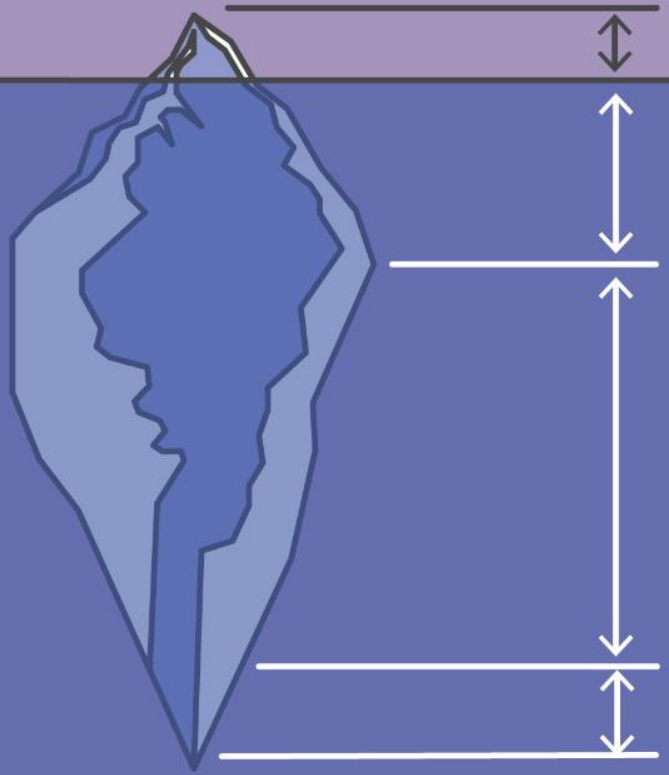
Manufacturing
- Supply chain transparency
- Supply chain responsibility
- Responsibly sourced minerals
- Environmental management system
- Energy efficiency
- Anti-corruption management system

Use / re-use
- User health and safety
- Energy efficiency
- Product warranty
- Replaceable components
- Repair manuals
- Secure data removal

Recovery
- Reduction of hazardous substances
- Product, packaging designed for recycling
- Product take back system


- 44.7 million metric tonnes of e-waste was generated in 2016
Over 80% was NOT recycled through appropriate channels.

The majority of waste is from manufacturing



Consumer waste
(“visible waste”)

Waste from
manufacturing

Waste from material
production and mining

Waste from energy
production

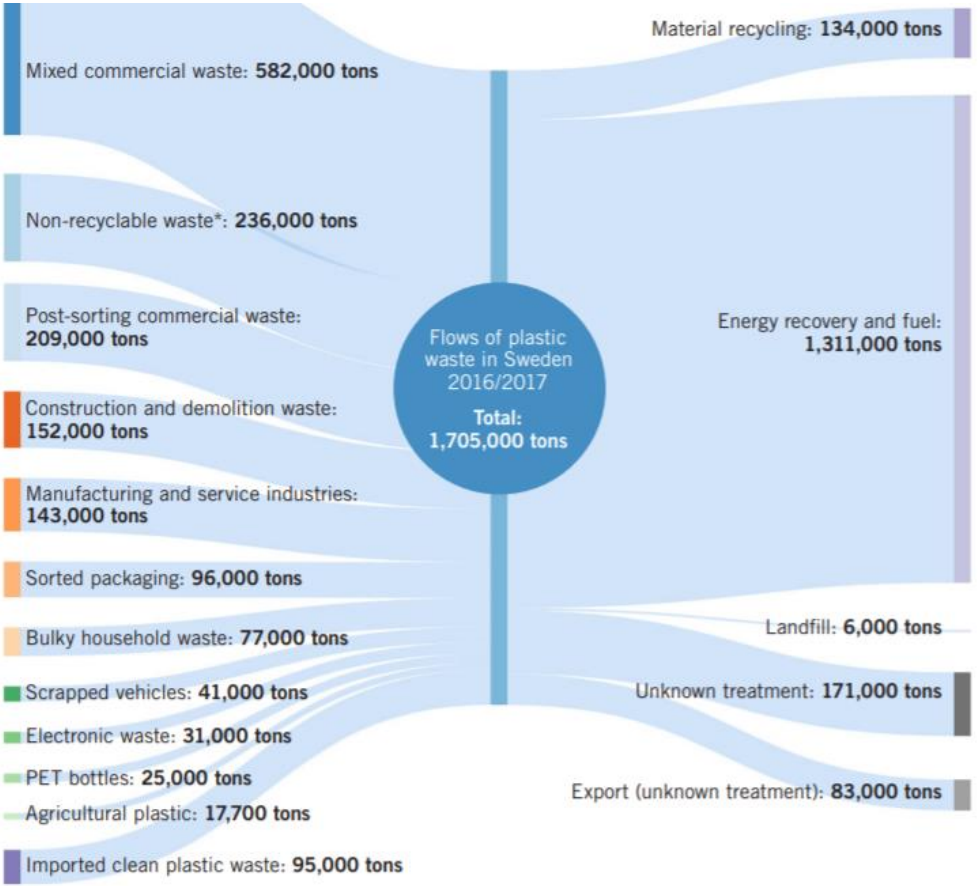
IVL - The total waste of products - a study on waste footprint and climate cost - 2015

The situation in Sweden

Less than 10% of collected **plastics**
was recycled for materials

Where does it go?

- <10% is recycled for materials!
- Majority for energy recovery
- Small amount to landfill
- Large amount to unknown
- Some for export



https://www.naturvardsverket.se/globalassets/media/publikationer-pdf/8800/978-91-620-8854-5.pdf

<10% goes to material recycling

Svensk Plaståtervinning's plant in Motala sorts packaging based on the type of plastic.


Export…?
Source: http://citifmonline.com


Unknown…?
Source: http://www.blakkpepper.com

Plastic waste scenarios and risks

- Burning/Energy recovery -> Risk of chemicals leaking into the nature
- Landfill -> Risk of chemicals leaking into the nature
- Unknown -> Risk of chemicals leaking into the nature
- Export -> Risk of chemicals leaking into the nature
- Recycling -> Risk of chemicals banned in the future making material useless

Reducing contamination of plastics will improve all scenarios and may also improve user health and working conditions at factories

Contamination of plastics

Poses a health risk and make plastics useless

Contamination of plastics

In TCO Certified we restrict Plasticizers and Flame retardants as these are the major additives with hazardous aspects.

Type	(% w/w)
Functional additives	
Plasticizers	**10–70**
Flame retardants	**3–25**
Stabilisers	0.05–3
Heat stabilisers	0.5–3
Slip agents	0.1–3
Lubricants	0.1–3
Anti-statics	0.1–1
Curing agents	0.1–2
Blowing agents	varies
Biocides	0.001–1

Type	(% w/w)
Colorants	
Soluble (eg. azocolorants)	0.25–5
Organic pigments	0.001–2.5
Inorganic pigments	0.01–10
Special effect	varies
Fillers	Up to 50
Reinforcements	15–30

https://www.sciencedirect.com/science/article/pii/S030438941730763X

Halogenated flame retardants

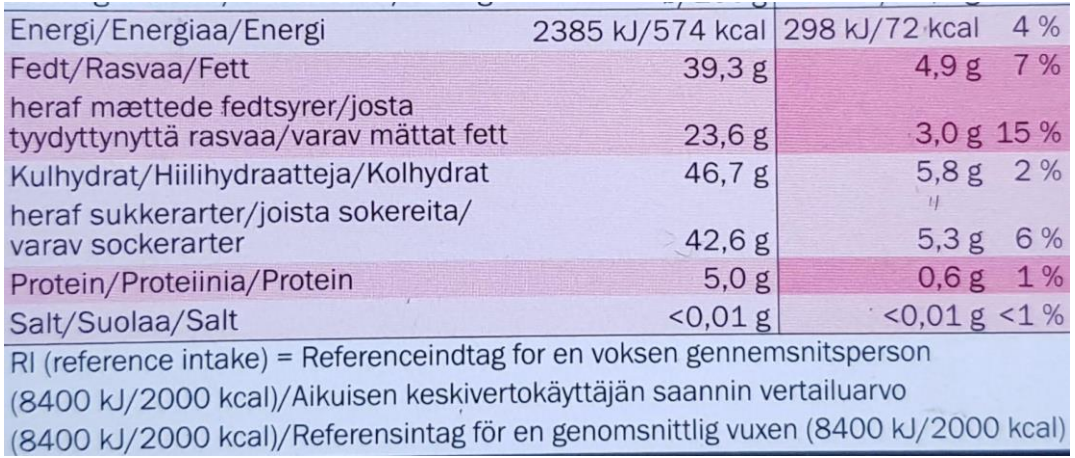
Halogenated substances are often persistent and can bio-accumulate in living organisms. 71.000 tonnes of BFR plastics are found in globally undocumented flows of e-waste annually, which is largely released into the environment and impacts the health of the exposed workers. (PVC is one example)

TCO Certified

1. Product housing parts above 0.5 grams and the power PCB laminate must not contain flame retardants or plasticizers with halogenated substances.
2. The product must not contain PBB, PBDE and HBCDD.

Non-halogenated flame retardants and plasticizers

Only non-halogenated flame retardants and plasticizers on our accepted substance list may be added to the plastic in certified products. This makes it possible for users to know which of these substances that could be in the product.



Energi/Energiaa/Energi	2385 kJ/574 kcal	298 kJ/72 kcal	4 %
Fedt/Rasvaa/Fett	39,3 g	4,9 g	7 %
heraf mættede fedtsyrer/josta tyydyttynyttä rasvaa/varav mättat fett	23,6 g	3,0 g	15 %
Kulhydrat/Hiilihydraatteja/Kolhydrat	46,7 g	5,8 g	2 %
heraf sukkerarter/joista sokereita/ varav sockerarter	42,6 g	5,3 g	6 %
Protein/Proteiinia/Protein	5,0 g	0,6 g	1 %
Salt/Suolaa/Salt	<0,01 g	<0,01 g	<1 %

RI (reference intake) = Referenceindtag for en voksen gennemsnitsperson (8400 kJ/2000 kcal)/Aikuisen keskivertokäyttäjän saannin vertailuarvo (8400 kJ/2000 kcal)/Referensintag för en genomsnittlig vuxen (8400 kJ/2000 kcal)

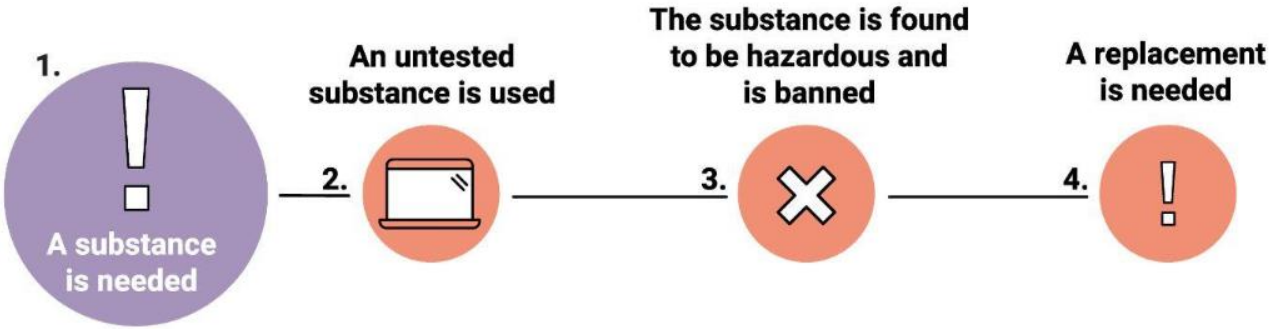
TCO Certified Accepted Substance List

https://tcocertified.com/accepted-substance-list

Substance name	CAS	Flame retardant	Plasticiser	Benchmark	Assessment date	Sunset date	Report public	Comments
Aluminum diethylphosphinate	225789-38-8	Yes		2	Feb, 2016		Yes	
Aluminum Hydroxide	21645-51-2	Yes		2	Feb, 2016		Yes	
Ammonium Polyphosphate	68333-79-9	Yes		3	Feb, 2016		Yes	
Bisphenol A diphosphate	181028-79-5; 5945-33-5	Yes	Yes	2	Feb, 2016			Interchangable CAS numbers
Magnesium Hydroxide	1309-42-8	Yes		3	Feb, 2016		Yes	
Melamine Polyphosphate	15541-60-3	Yes		2	Feb, 2016		Yes	
Phenoxyphosphazene	890525-36-7, 2791-22-2, 2791-23-3	Yes		3	Feb, 2017			
Poly[phosphonate-co-carbonate]	77226-90-5	Yes		2	Feb, 2016		Yes	
Polyphosphonate	68664-06-2	Yes		3	Feb, 2016		Yes	
Red Phosphorus							Yes	
Resorcinol Bis-Diphenylphosphate							Yes	Interchangable CAS numbers
Siloxanes and silicones, di-Me, di-Ph, polymers with Ph silsesquioxanes	68648-							
Substituted Amine Phosphate mixture	66034-17-1	Yes		2	Feb, 2016		Yes	
Tetrakis (2,6-dimethylphenyl)-m-phenylene biphosphate	139189-30-3	Yes		2	Jan, 2015			
Triphenyl Phosphate	115-86-6	Yes		2	Feb, 2016		Yes	
2-Ethyl-1-Hexanol	104-76-7		Yes	2	Aug, 2018			
Acetyl tri-butyl citrate (ATBC)	77-90-7		Yes	3	Aug, 2018			
Bis(2-ethylhexyl) Adipate (DEHA)	103-23-1		Yes	2	Aug, 2018			
Di(2-ethylhexyl) Terephthalate (DEHT)	6422-86-2		Yes	3	Aug, 2018			
Diisononyl Adipate (DINA)	33703-08-1		Yes	2	Aug, 2018			
Diisononyl Cyclohexanedicarboxylate (DINCH)	166412-78-8, 474919-59-0		Yes	2	Aug, 2018			Interchangab bers
Dimethyl phthalate (DMP)	131-11-3		Yes	2	Aug, 2018			
Epoxidized soya bean oil (ESBO)	8013-07-8		Yes	3	Aug, 2018			

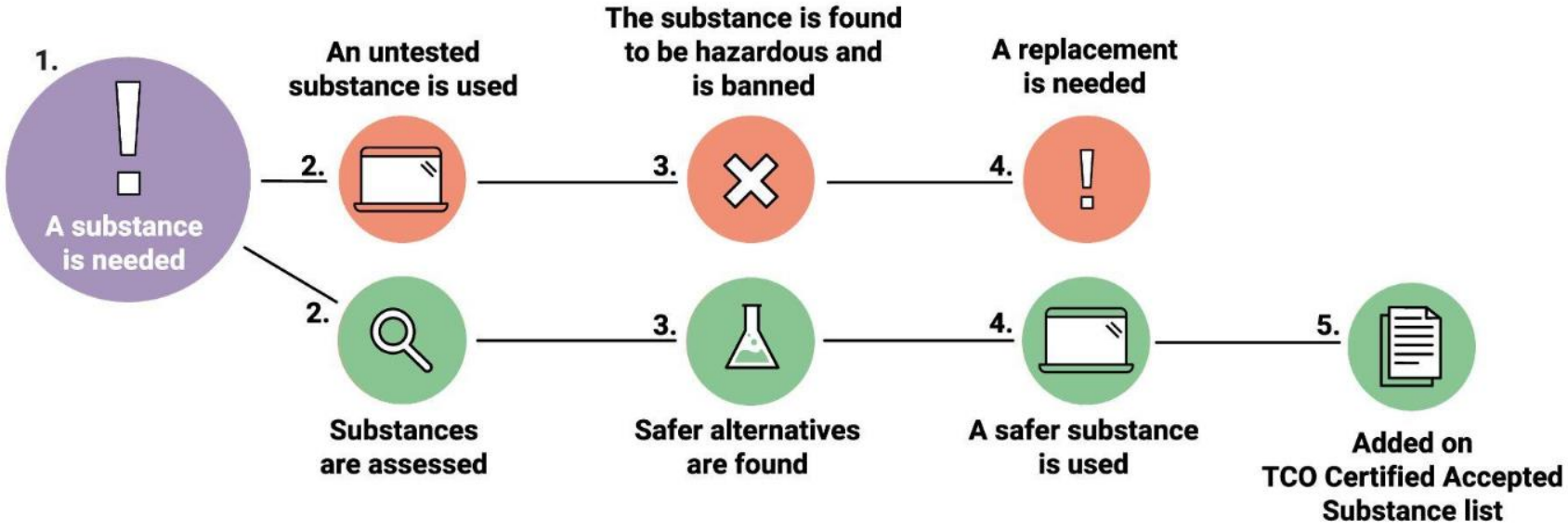
TCO Certified Accepted Substance List

– making safer chemicals the mainstream choice



TCO Certified Accepted Substance List

– making safer chemicals the mainstream choice



TCO Certified Accepted Substance List is public and safer alternatives are made available to all.

Ambition must go beyond legislation

- Products on the market today will end up in recycling 5-10 years from now and legal requirements will be more strict then.
- Therefore additives in plastics must be restricted beyond current legislation to enable the plastics to be reused in new products in the future.
- **Only allowing safer substances** in the production process helps protect the **health and safety of workers, and reduces the environmental risk.**

Swedish chemical tax

A tax for products with more contaminated plastics

Legislation Sweden

Swedish Chemical tax 2021:

- White goods 11 SEK per kilogram.
- Other electronic products 164 SEK per kilogram.
- Tax rate cap 451 SEK per item.

- 50% discount if added chlorine or bromine < 0.1% by weight in parts > 25g
- 90% discount if added chlorine, bromine or phosphorus < 0.1% by weight in parts > 25g


Incentives to recycle
Increase the demand for
post consumer recycled plastics
TCO
CERTIFIED

How we increase demand in TCO Certified

1. We list post consumer recycled plastic content on the certificate to give buyers a chance to make a choice.

BRAND NAME	EIZO
SALES NAME	FlexScan EV2430
MODEL NAME	EV2430
RECYCLED PLASTIC	70%
WEIGHT	6.7 kg

1. Products with ≥85% recycled plastics is awarded TCO Certified Edge!

Reduce waste

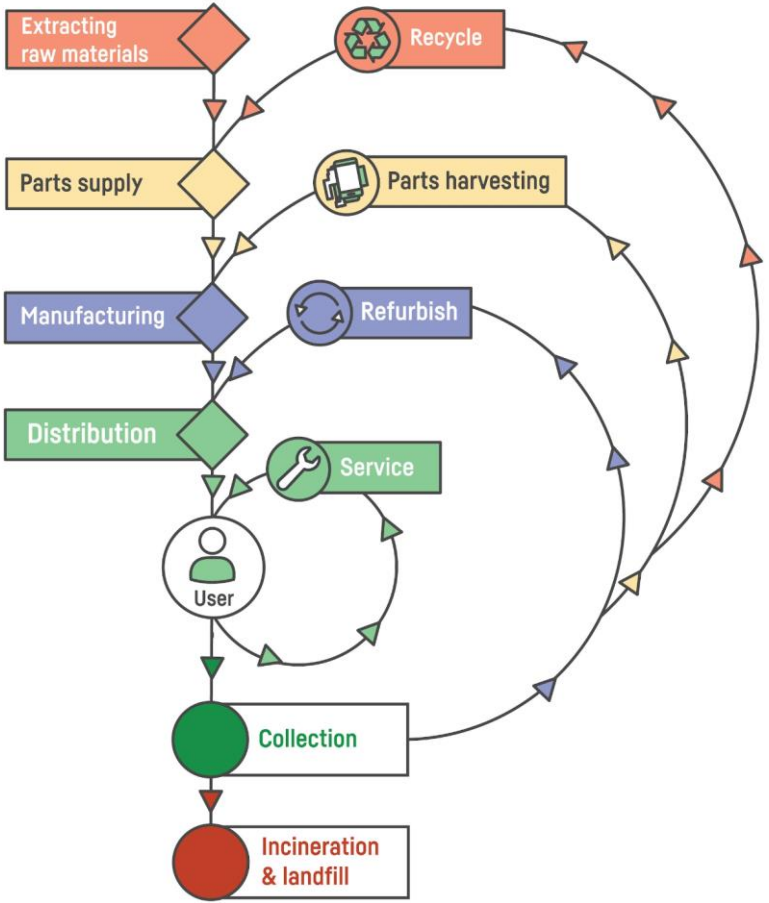
Other ways to reduce waste

Reduce waste by using your product longer

- Prolong the lifetime of products
- Improve durability
- Improve repairability
- Reduce packaging materials

TCO Certified & Circularity

Closing the loops



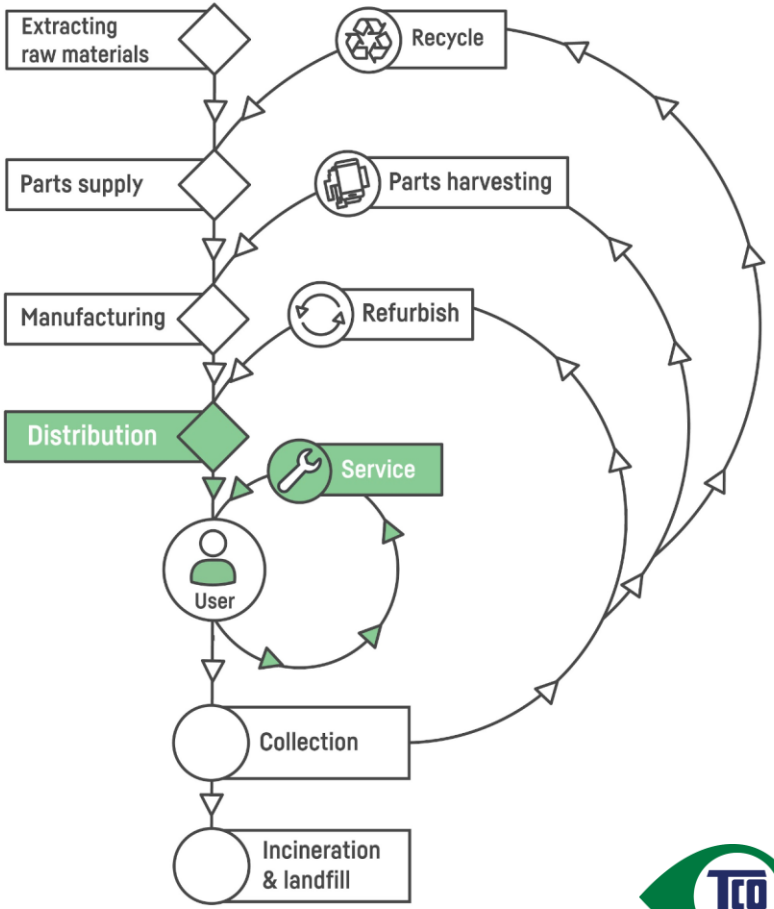
Service/Maintain

– Prolong the use of products

Challenges in closing the loops

- Access to repair manuals and spare parts
- Component life shorter than product life

  (consumable components like batteries)
- Durability
- Performance

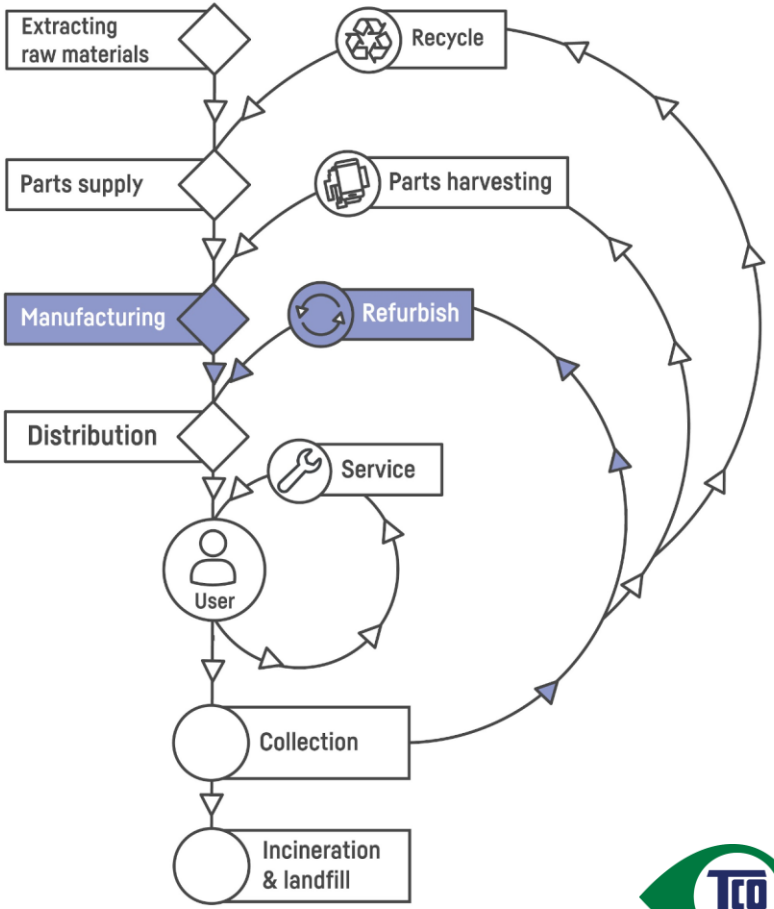


Reuse/redistribute

- A second life for the product

Challenges in closing the loops

- Confidential information getting in to the wrong hands
- Durability of the product
- Performance of the product

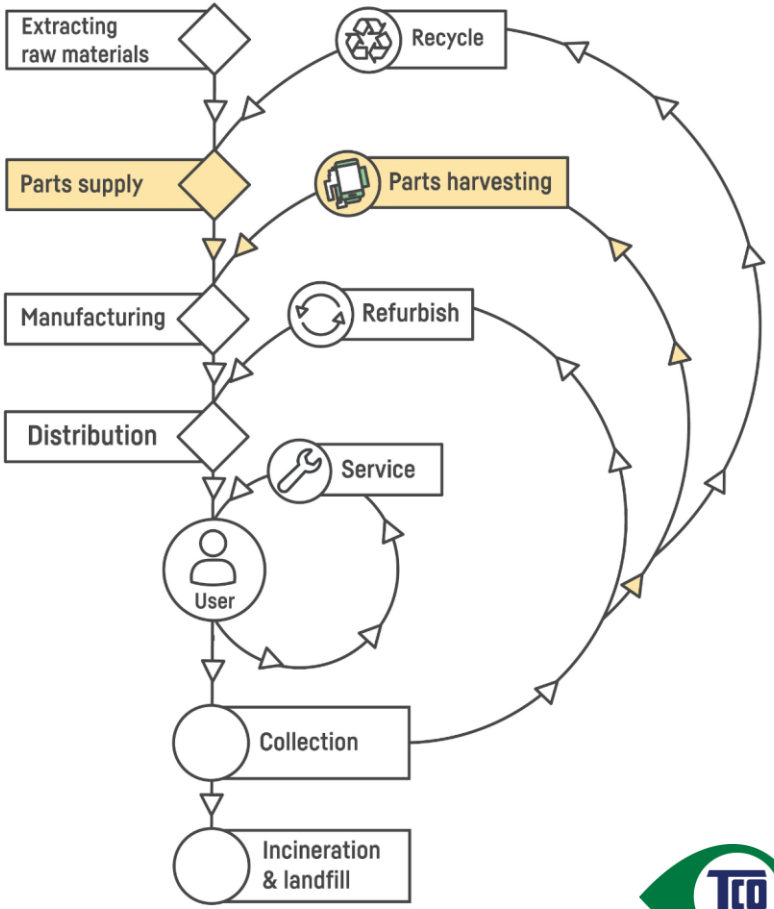


Parts supply

- A new life for components

Challenges in closing the loops

- Parts standardization
- Performance of components
- Disassembly manuals
- Durability of components

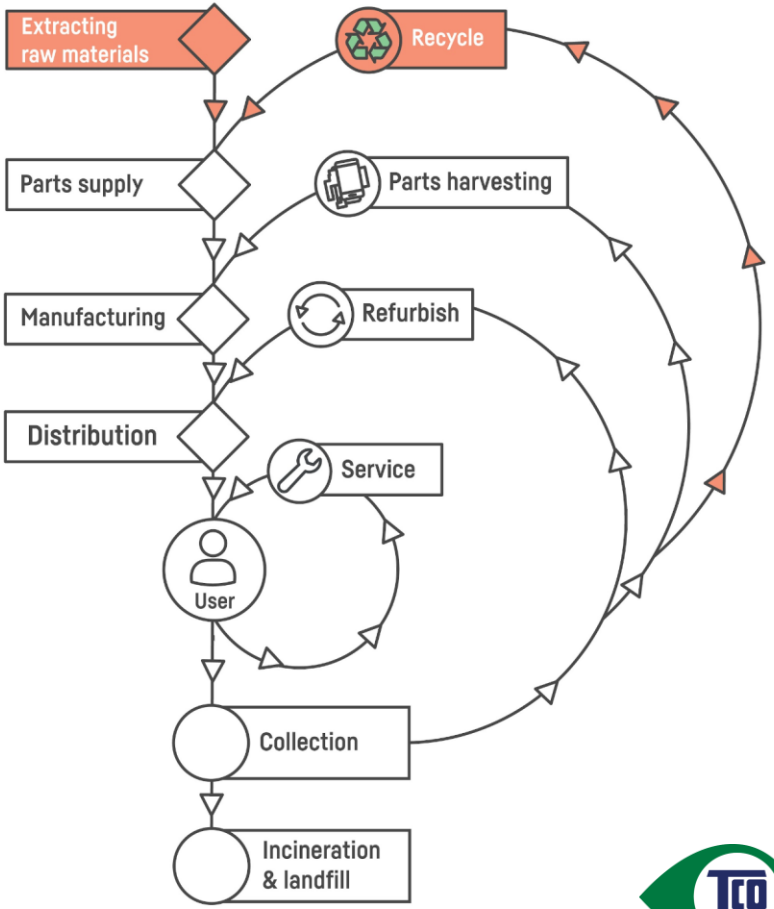


Recycle

- A new life of the materials in the product

Challenges in closing the loops

- Contamination of materials
- Wastage/leakage to incineration & landfill
- Create a market for recycled materials
- More...



Questions?

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