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*Introducing the ZeroNet*

**A world beyond waste**



## LAUNCH OPPORTUNITY

500,000 Tonnes\* of  
Small WEEE PA in UK  
(40m\* tonnes is  
global figure)

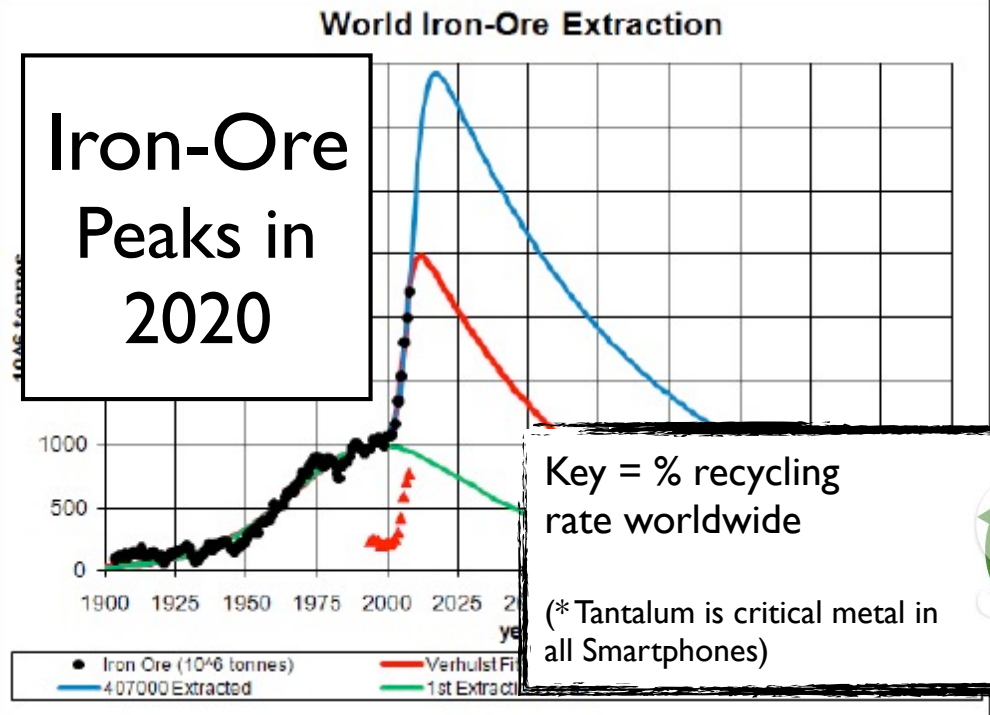
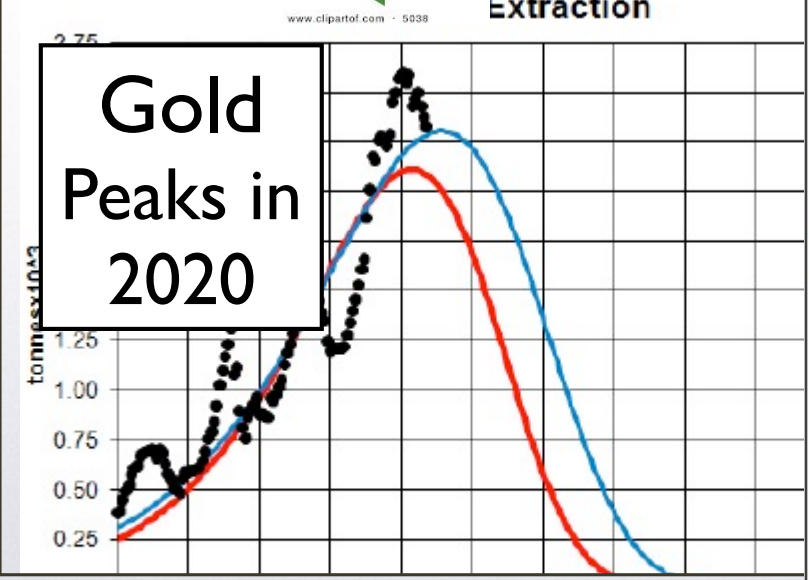
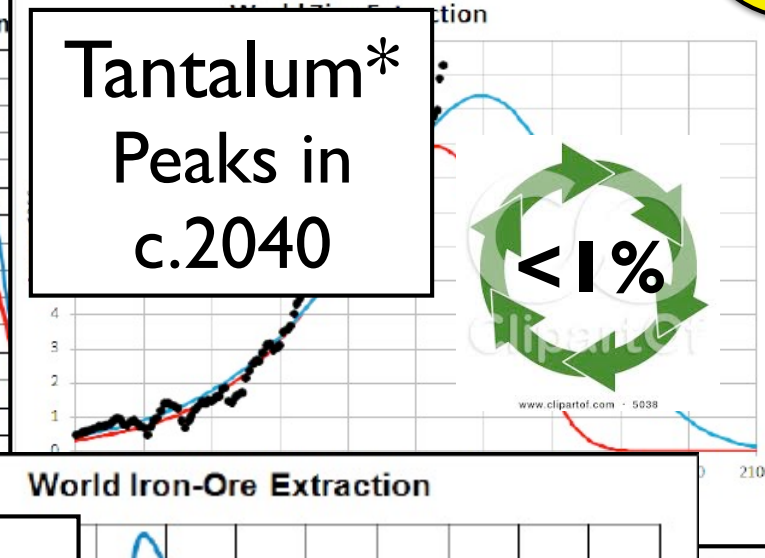
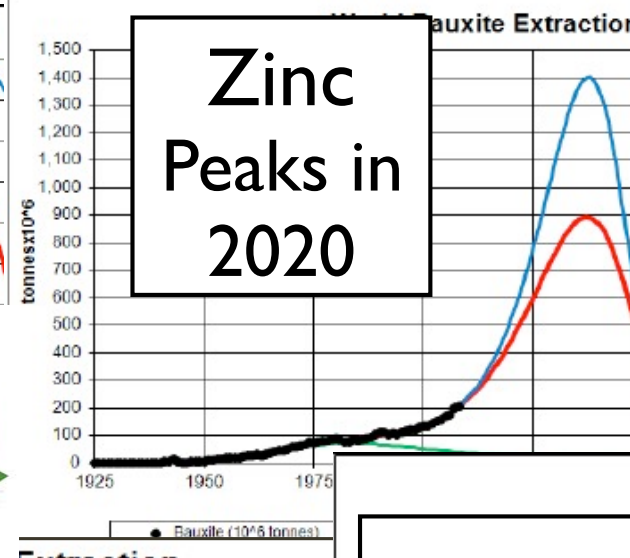
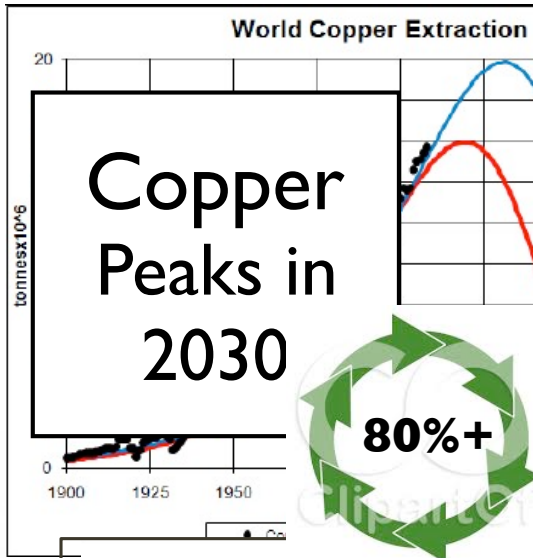
(\* = currently landfilled/lost)

Value c. £50m - £2B?  
PA (UK only)

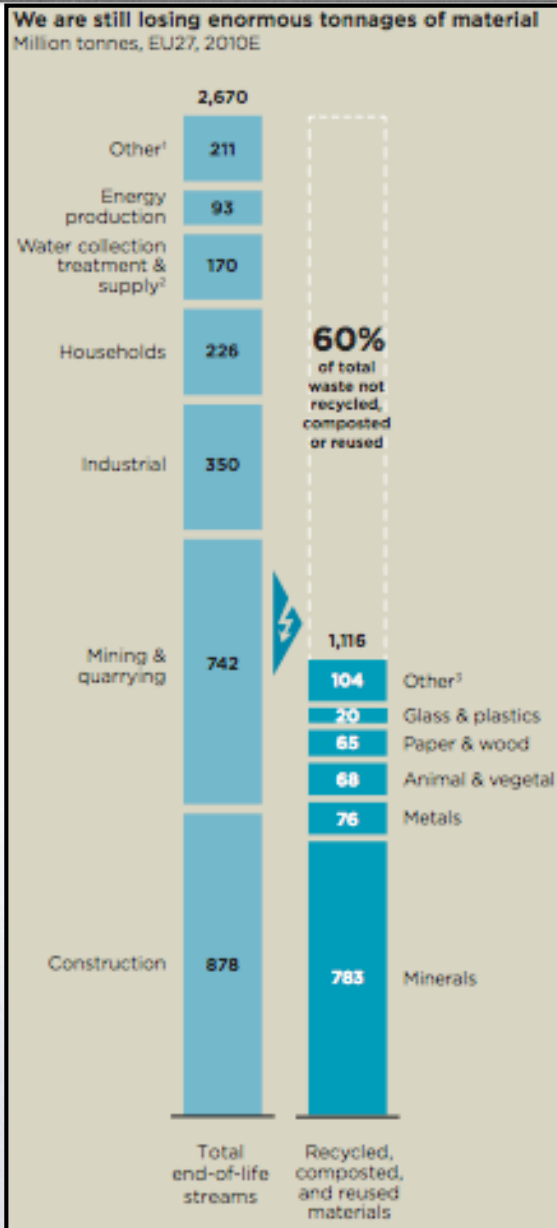


# 21st Century:- Crunch

1



**Resource Depletion is Coming...and it will affect everyone on the planet**



## EU27 2010 - Estimates

# 60% of Total Waste Not Recycled, Composted or Reused

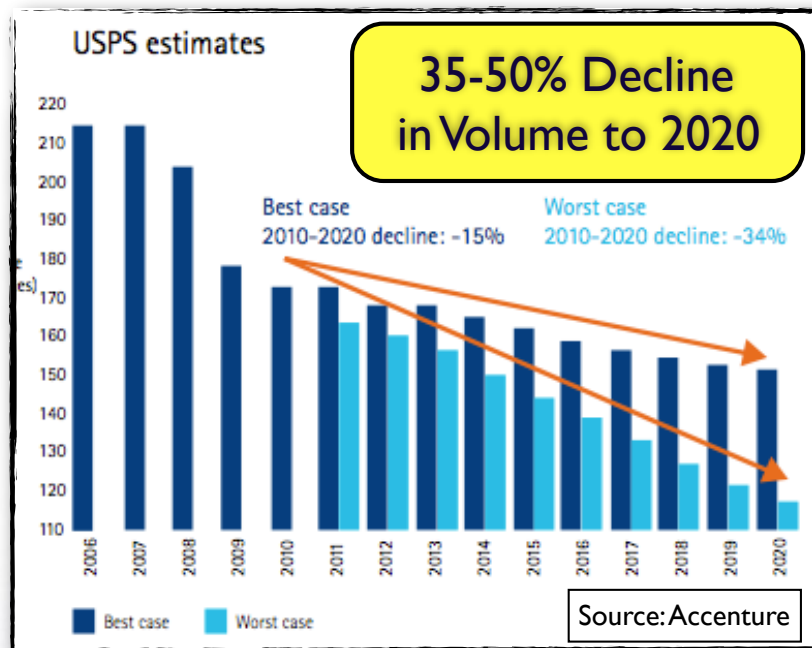
Source: Eurostat Waste Statistics 2011

Chart: Ellen McArthur Foundation - 'Towards a Circular Economy'

## Current recovery methods result in massive waste

# 21st Century:-Opportunity

3



\* UK Equivalent figure  
for Royal Mail is  
c. 29m per day

c. 142\* Million Delivery Points per day  
& **we can monetise the 'Back Haul'**

National Postal Services Need a New Drug  
**...and We Can Deliver It!!**



**The Ellen McArthur Foundation is the Leading Global Think Tank on The Circular Economy**

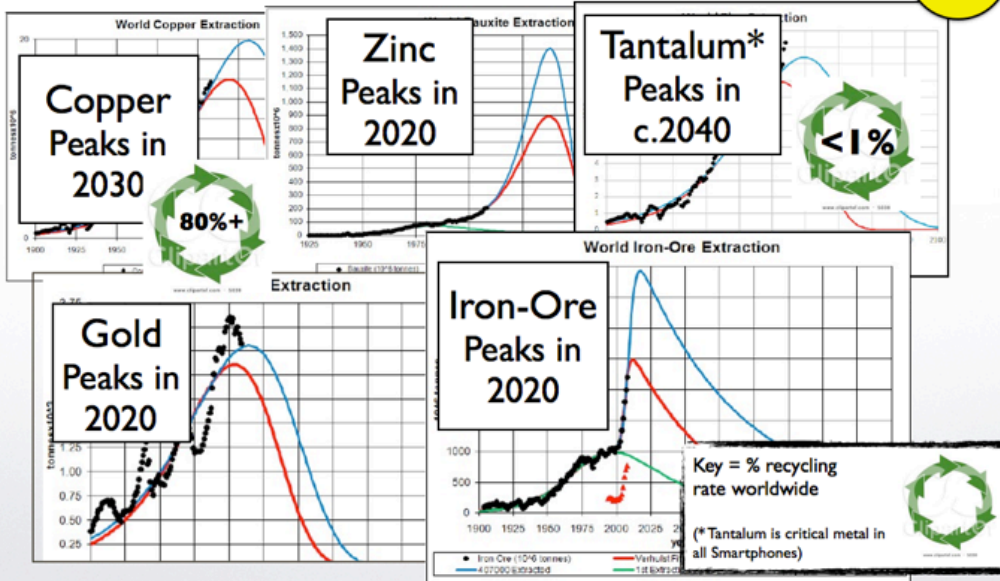
## Who's Involved

Some 40 companies have already confirmed their membership of the programme, including:



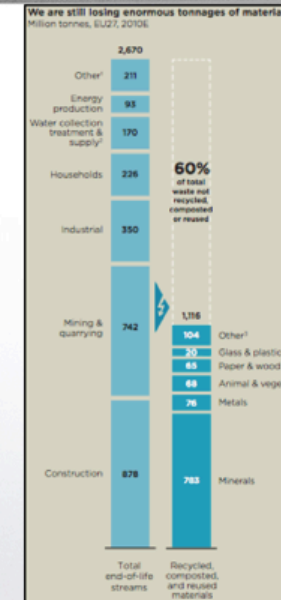
**The Circular Economy needs a Whole New Kind of Logistics.....The ZeroNet**

# 21st Century:- Crunch 1



**Resource Depletion is Coming....and it will affect everyone on the planet**

# Over 1.5 billion tonnes wasted in EU PA 2



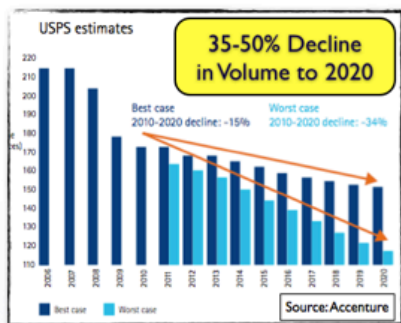
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**Current recovery methods result in massive waste**

# 21st Century:- Opportunity 3



\* UK Equivalent figure for Royal Mail is c. 29m per day

**c. 142\* Million Delivery Points per day & we can monetise the 'Back Haul'**

**National Postal Services Need a New Drug ...and We Can Deliver It!!**

# The Circular Economy - In good company 4

THE CIRCULAR ECONOMY

**100**

ELLEN MACARTHUR FOUNDATION  
Rethink the future

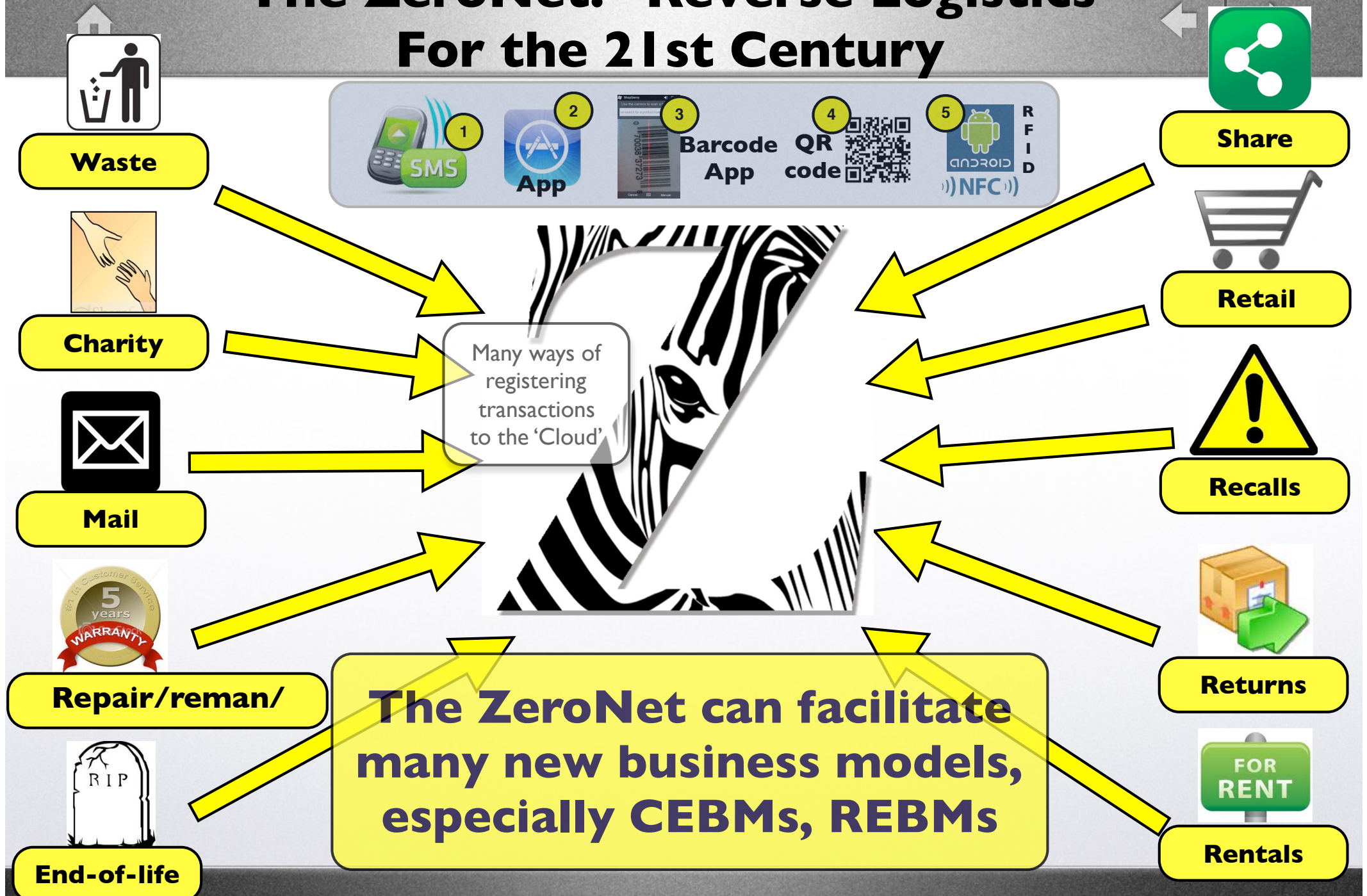
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# The ZeroNet:- Reverse Logistics For the 21st Century



# Powering the Circular Economy

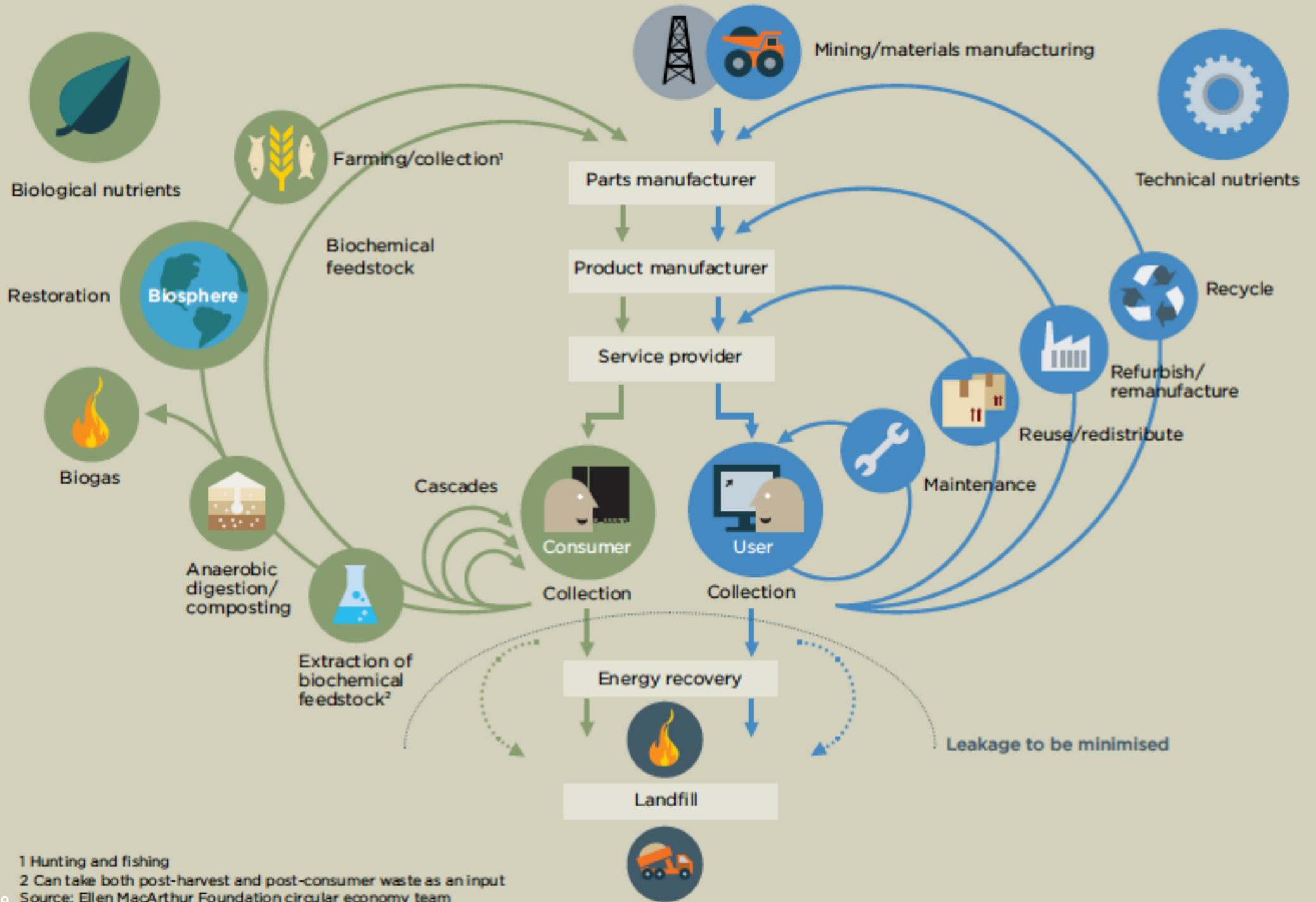




# The Circular Economy vs Traditional Waste

*Where does the ZeroNet fit in?*

FIGURE 6 The circular economy—an industrial system that is restorative by design

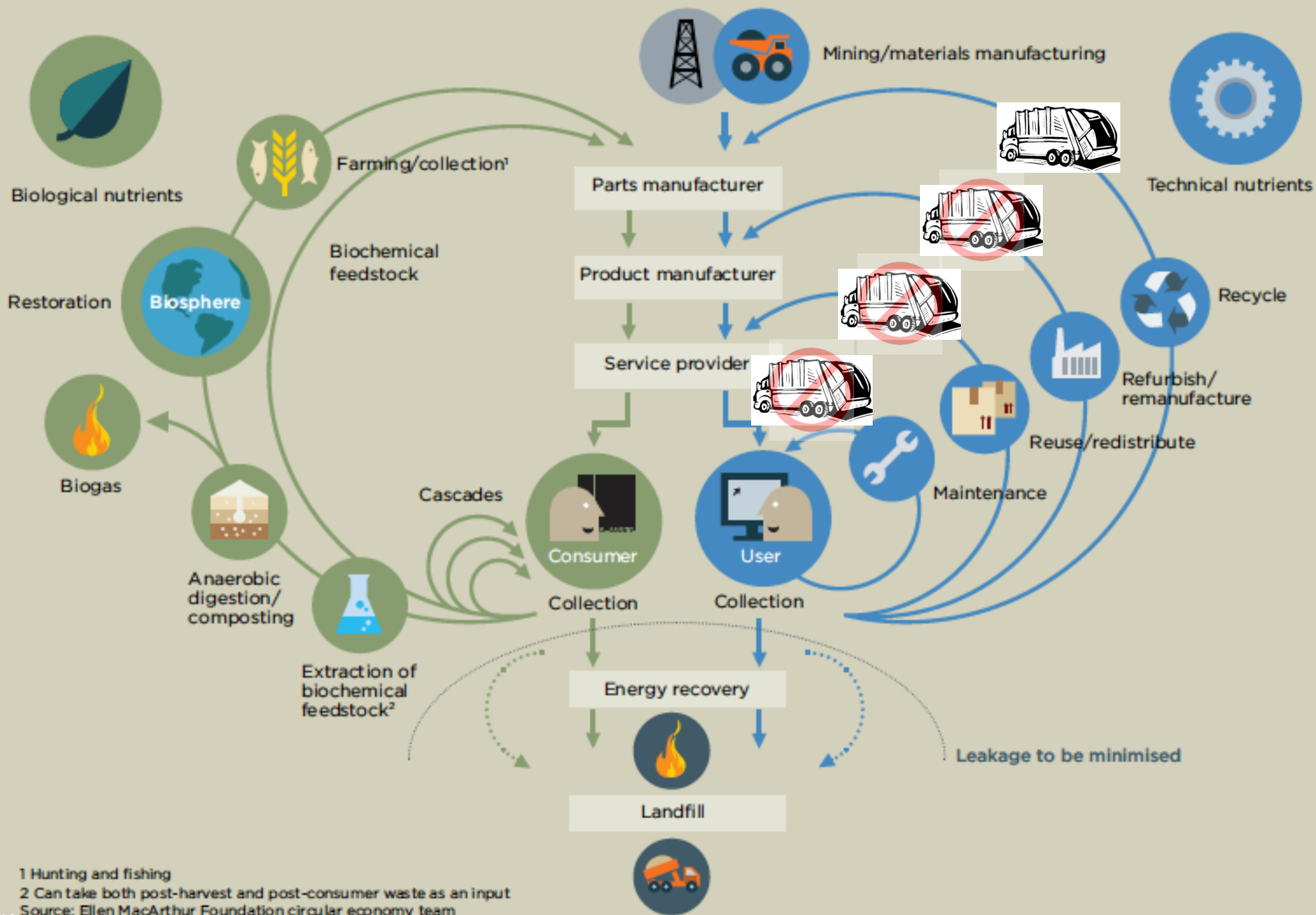


1 Hunting and fishing

2 Can take both post-harvest and post-consumer waste as an input

Source: Ellen MacArthur Foundation circular economy team

FIGURE 6 The circular economy—an industrial system that is restorative by design



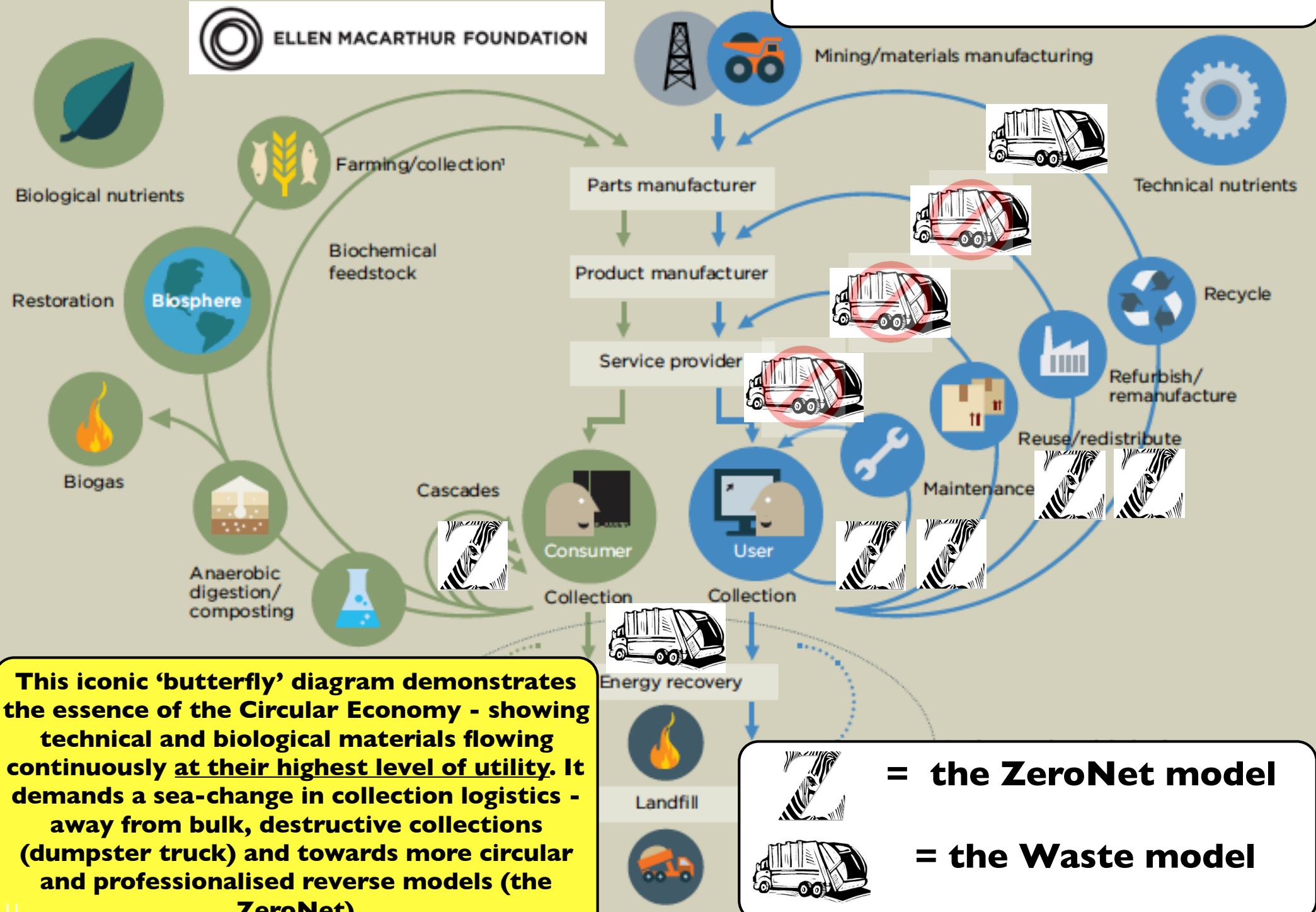
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FIGURE 6 The circular economy—an industrial system that is restorative by design

# ZeroNet vs Waste

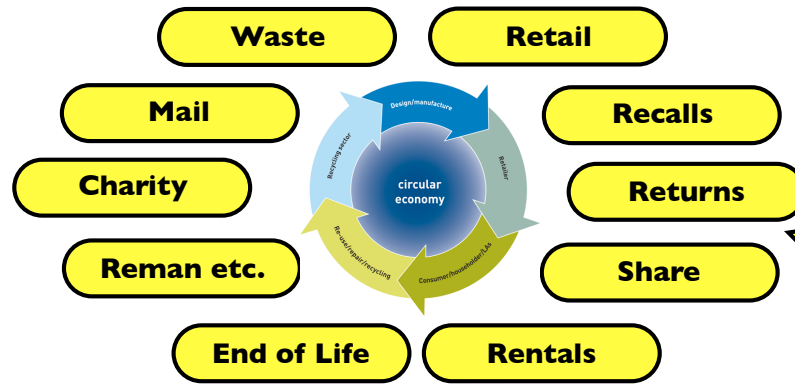


**This iconic 'butterfly' diagram demonstrates the essence of the Circular Economy - showing technical and biological materials flowing continuously at their highest level of utility. It demands a sea-change in collection logistics - away from bulk, destructive collections (dumpster truck) and towards more circular and professionalised reverse models (the ZeroNet)**

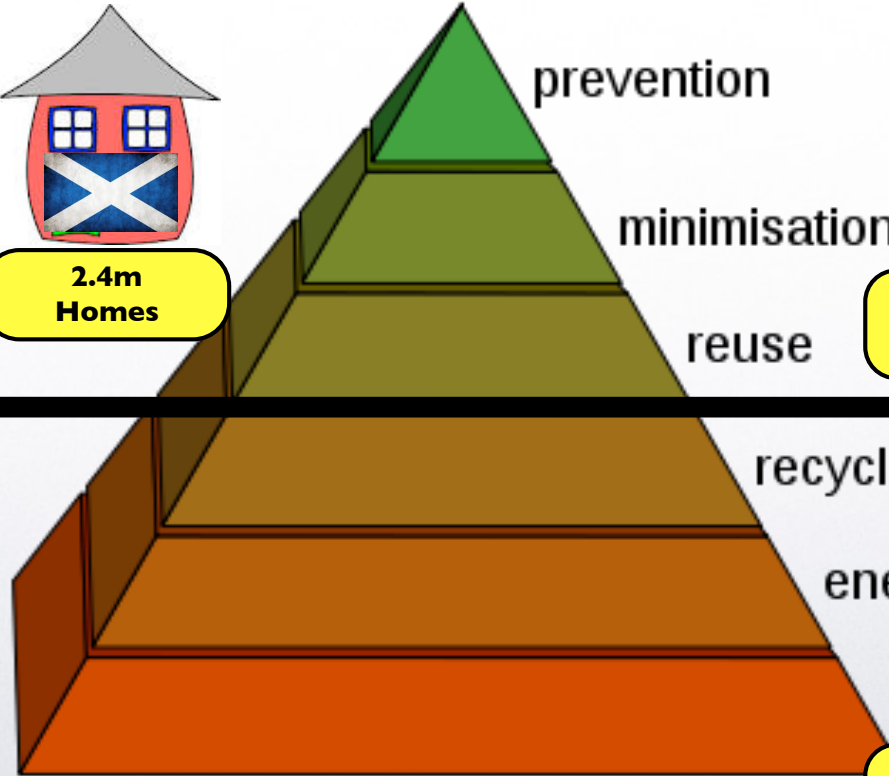
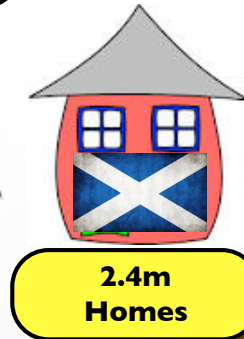
 = the **ZeroNet model**  
 = the **Waste model**

# ZeroNet: The competitive landscape

**Current models for waste recovery need to urgently migrate towards higher value recovery, otherwise the Circular Economy will never scale**

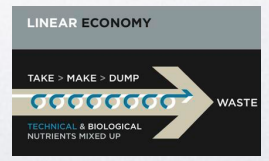


**Waste is 'scattered inventory' - our role is to recover it**



**Most favoured options**

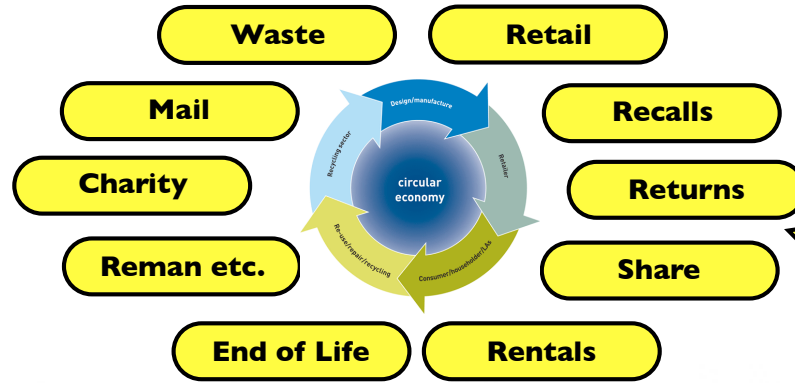
**Least favoured options**



**“Resource Recovery” is the new “Waste Management”**

# ZeroNet: The competitive landscape

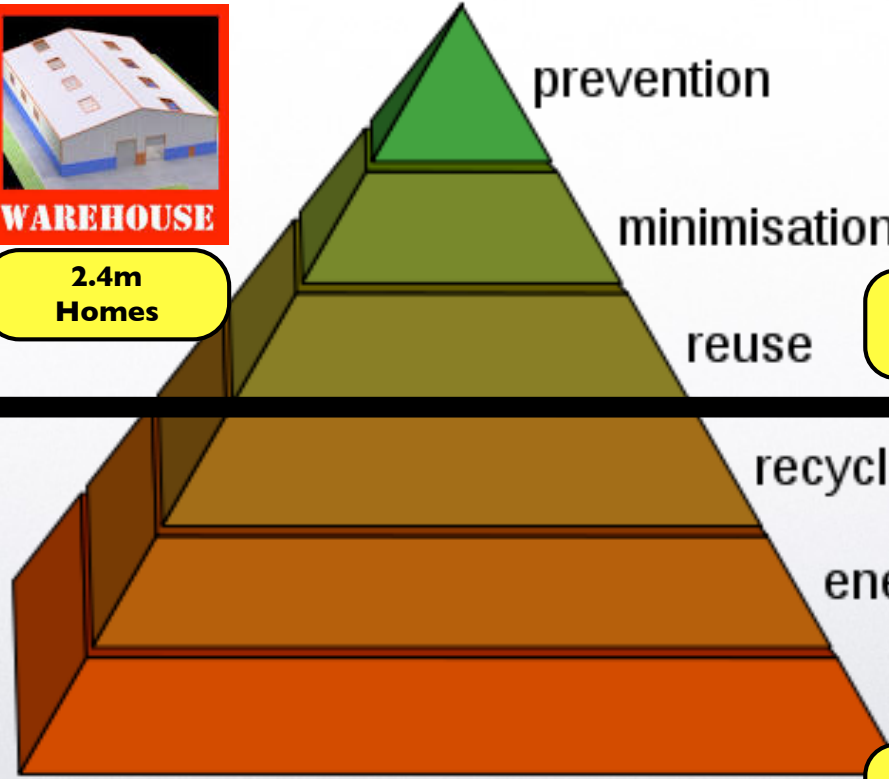
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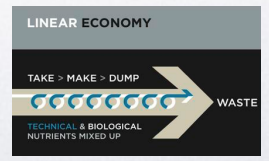


**WAREHOUSE**  
2.4m Homes



**Most favoured options**

**Least favoured options**



**“Resource Recovery” is the new “Waste Management”**



# Circular Economy Business Models:

*A quick glimpse of what's to come?*

# The ZeroNet will help reinvent retail (I)



**PHILIPS**

sense and simplicity



ELLEN MACARTHUR FOUNDATION  
Rethink the future



“Light as a Service”



Share

Retail

## Closed Loop Retail:

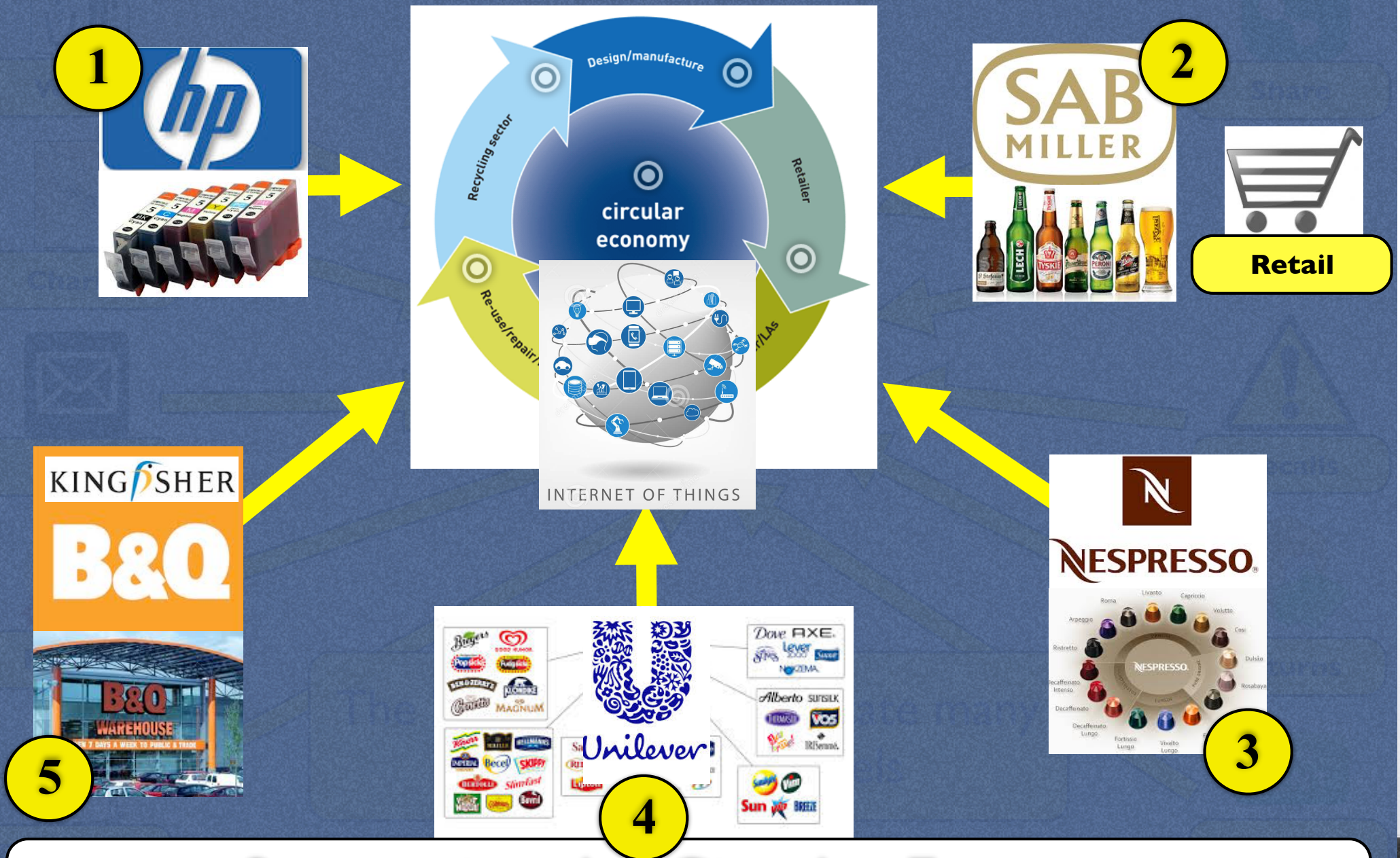
- Broken light bulb is key event
- Triggers doorstep delivery of replacement
- Old bulb is removed as part of transaction
- Forward/Reverse Logistics integrated
- Waste and Retail Integrated



# Supporting the Circular Economy



# The ZeroNet will help reinvent retail (2)



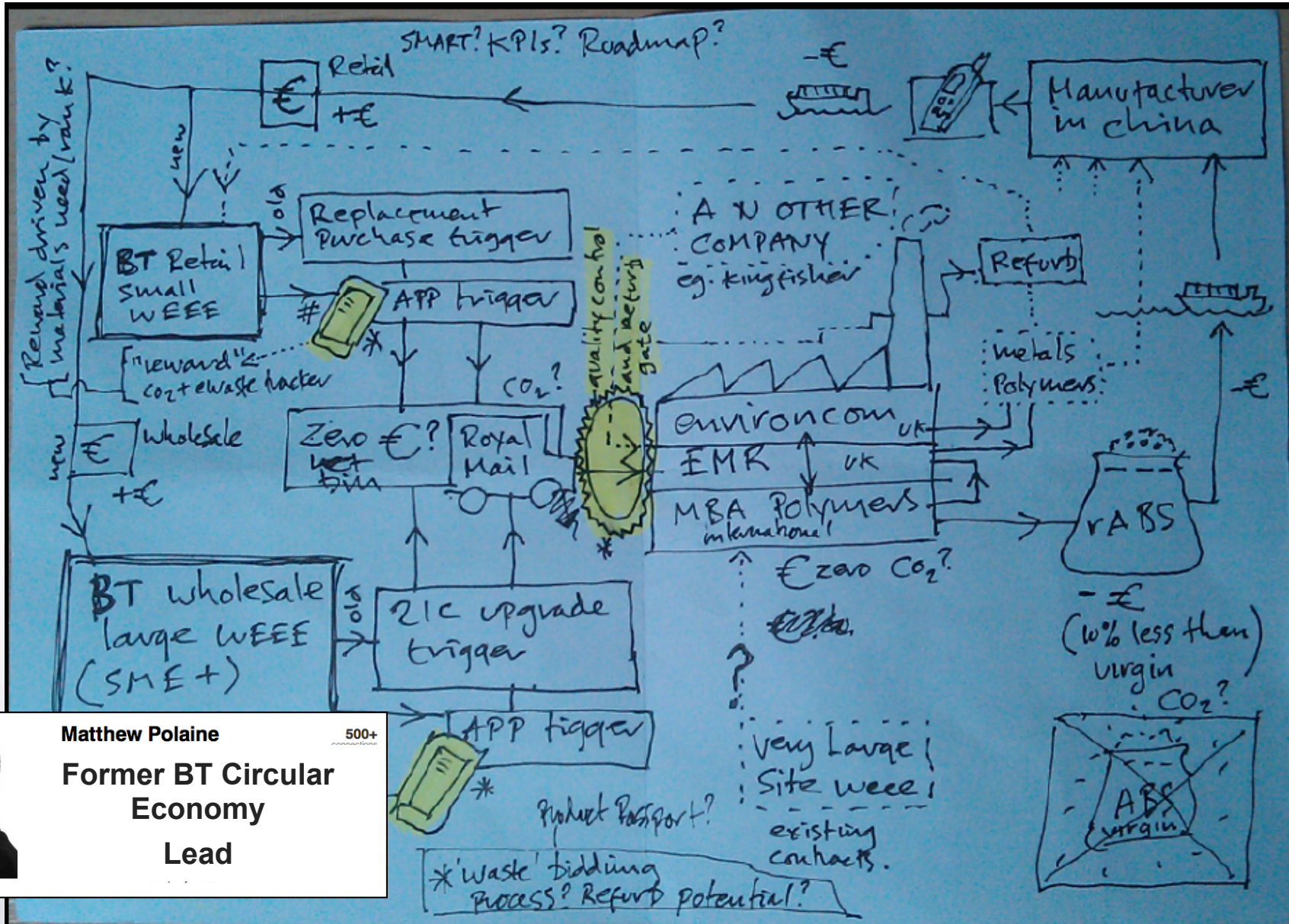
Supporting the Circular Economy



# Remanufacturing & The ZeroNet

*What's the connection?*

# 🏠 The ZeroNet: Supporting Circular Supply Chains ← | →

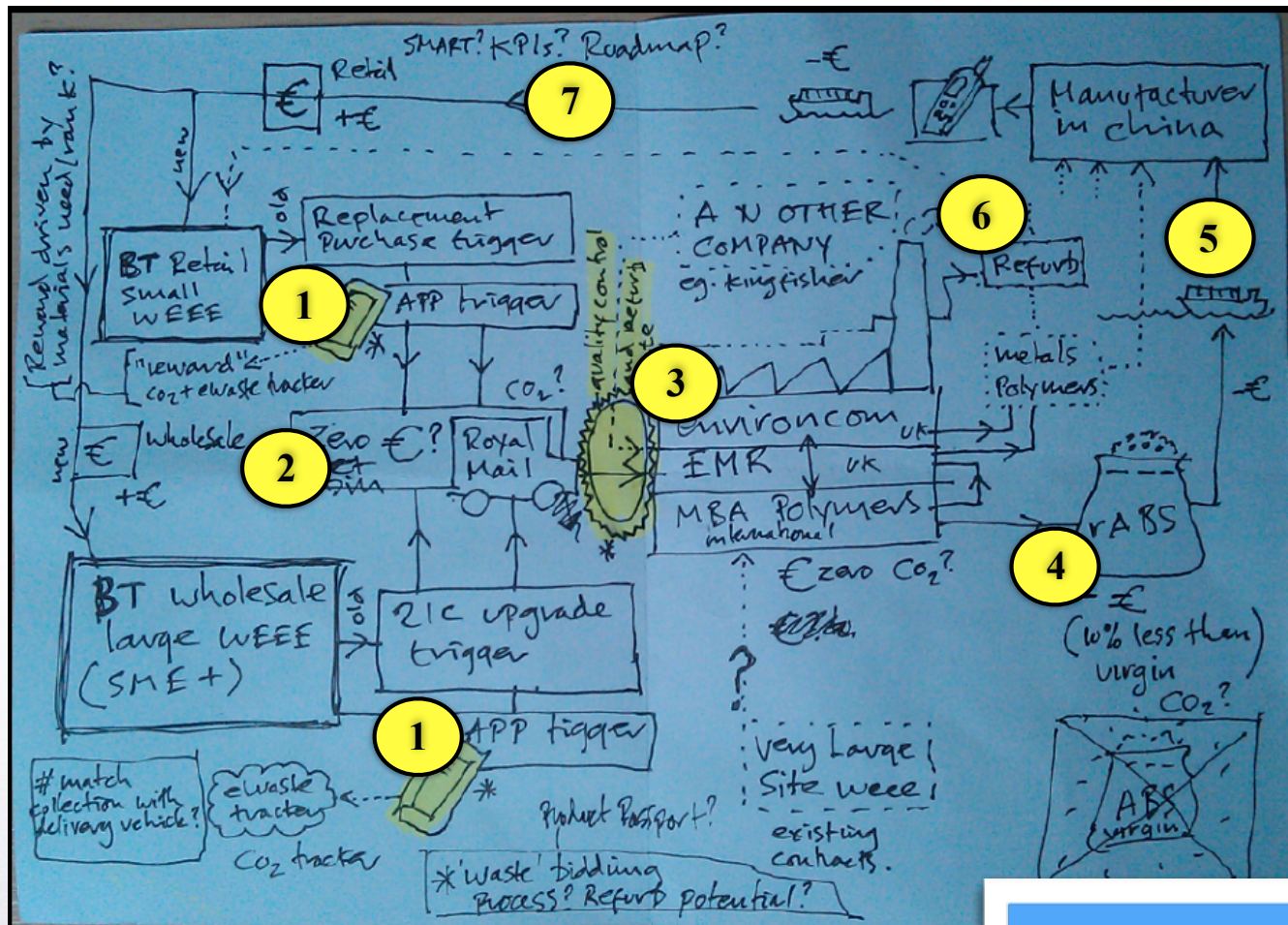


**Matthew Polaine**  
 Former BT Circular Economy Lead

**The Brands aren't there yet - But if we build it...**



# ZeroNet: A vision for remanufacturing



- 1 Retail event triggers return event
- 2 ZeroNet is used for collection
- 3 Reprocessors manage disassembly
- 4 rABS plastic made by MBA polymers
- 5 Old parts shipped to China for reuse
- 6 Other parts drive local refurb jobs
- 7 New products contain hi % of old

- High value recovery
- New way to engage brand
- UK jobs creation
- New supply chain from waste
- Reduce mfg costs
- Reduce need for virgin materials

**+ Massive reduction in CO2**



**Matthew Polaine**  
Former BT Circular Economy Lead

500+



**Key Benefits:**

**“If we build it, they will come.....”**

Where have all the wifi/TV hubs gone?











	?
	?
	?
	?

It's all about knowing where products are located.....

# 🏠 The journey from waste to inventory - 2

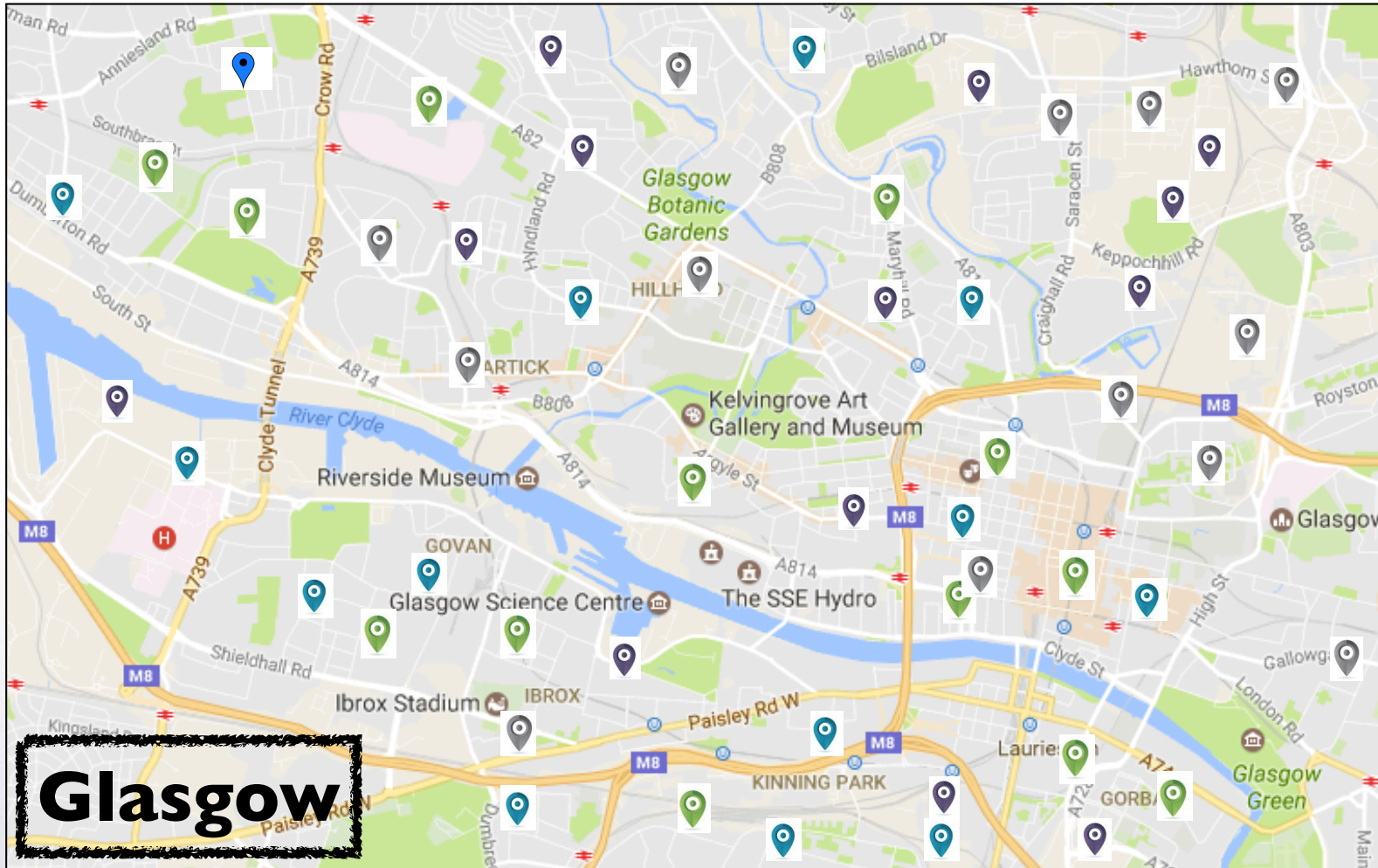


## Sample Figures





 	<b>289</b>
 	<b>339</b>
 	<b>268</b>
 	<b>307</b>

...and then recovering them for higher value options

# 🏠 The journey from waste to inventory - 3 ← | →



## Sample Figures

	<b>289</b>
	<b>339</b>
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Active discussions with many global brands:



...and then recovering them for higher value options



# The ZeroNet - Prototype now built



Waste

Retail

Mail

Recalls

Charity

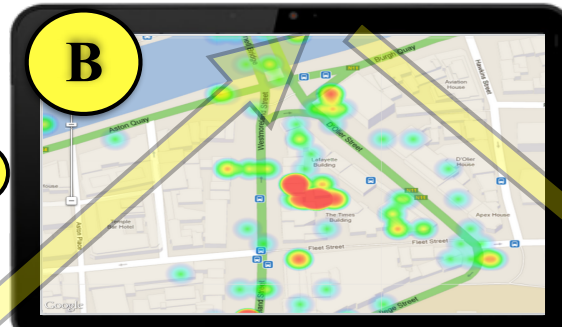
Returns

Repair

Share

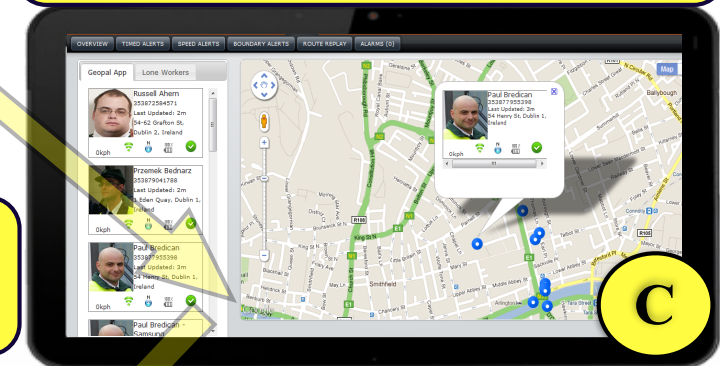
End of Life

Rentals

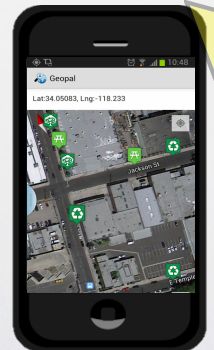


**GeoLocated 'Heat map' of materials or Products**

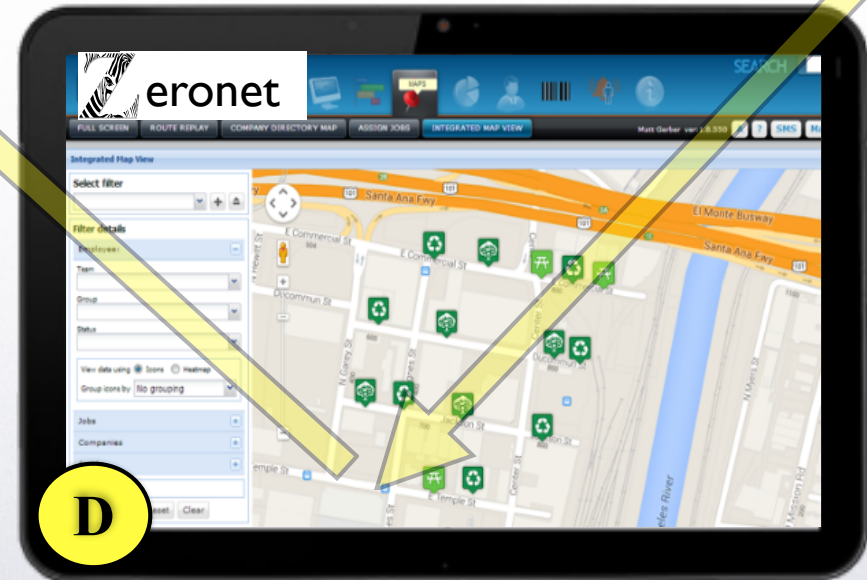
**Realtime dispatch and driver management**



**First 'on-demand' intelligent doorstep collection experience in the world**



**2.4 Million Homes**



## Aberdeen is launch city: Mid 2017





# The ZeroNet & Scotland Rollout

*What's the plan?*



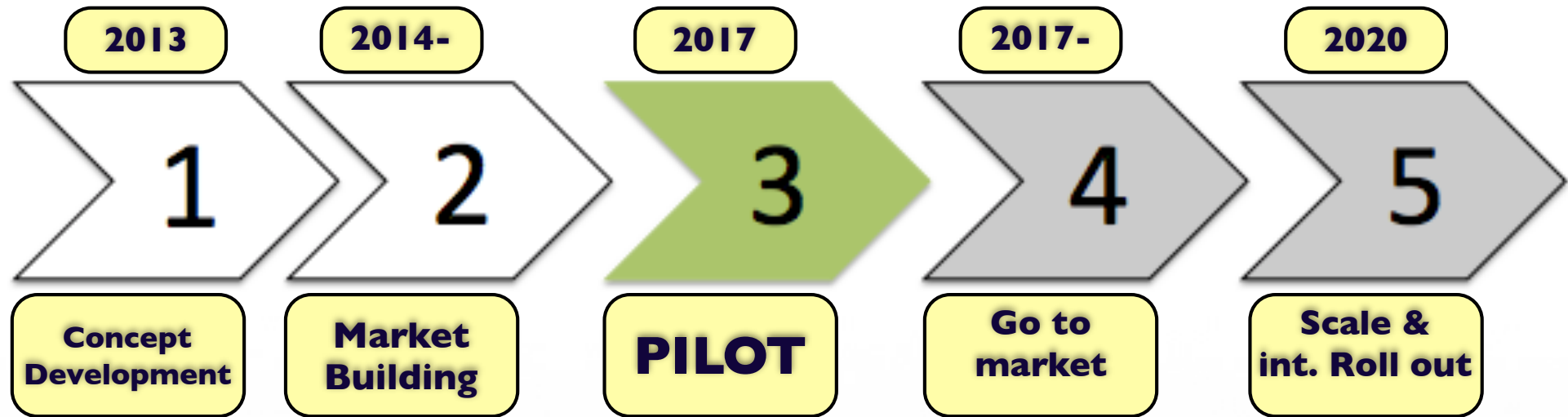
# National analysis of potential Small WEEE Collections - Scotland

Average household size			2.2		Based on One Collection Per Month					2 month Interval (x 2)		
Scotland WEEE HH Analysis			Total number of households	Total Potential Collections PA	'MARKET SHARE'							
Rank	Council area	Population	Est		100%	50%	20%	10%	5%	10%	5%	
1	City of Glasgow	592,800	269,455	538,909	44,909	22,455	8,982	4,491	2,245	8,982	4,491	
2	City of Edinburgh	486,100	220,955	441,909	36,826	18,413	7,365	3,683	1,841	7,365	3,683	
3	Fife	365,000	165,909	331,818	27,652	13,826	5,530	2,765	1,383	5,530	2,765	
4	North Lanarkshire	326,400	148,364	296,727	24,727	12,364	4,945	2,473	1,236	4,945	2,473	
5	South Lanarkshire	311,900	141,773	283,545	23,629	11,814	4,726	2,363	1,181	4,726	2,363	
6	Aberdeenshire	245,800	111,727	223,455	18,621	9,311	3,724	1,862	931	3,724	1,862	
7	Highland	221,600							879	839	3,358	1,679
8	City of Aberdeen	217,100							845	822	3,289	1,645
9	West Lothian	172,100							804	652	2,608	1,304
10	Renfrewshire	170,300							790	645	2,580	1,290
11	Falkirk	153,300							761	581	2,323	1,161
12	Dumfries and Galloway	148,200							723	561	2,245	1,123
13	Perth and Kinross	147,800							720	560	2,239	1,120
14	City of Dundee	144,300							693	547	2,186	1,093
15	North Ayrshire	135,200							624	512	2,048	1,024
16	East Ayrshire	120,200							611	455	1,821	911
17	Scottish Borders	112,900	51,916	102,836	8,533	4,277	1,711	855	428	1,711	855	
18	South Ayrshire	111,400	50,636	101,273	8,439	4,220	1,688	844	422	1,688	844	
19	Angus	110,600	50,273	100,545	8,379	4,189	1,676	838	419	1,676	838	
20	East Dunbartonshire	104,600	47,545	95,091	7,924	3,962	1,585	792	396	1,585	792	
21	East Lothian	97,500	44,318	88,636	7,386	3,693	1,477	739	369	1,477	739	
22	West Dunbartonshire	90,600	41,182	82,364	6,864	3,432	1,373	686	343	1,373	686	
23	Stirling	89,900	40,864	81,727	6,811	3,405	1,362	681	341	1,362	681	
24	East Renfrewshire	89,500	40,682	81,364	6,780	3,390	1,356	678	339	1,356	678	
25	Argyll and Bute	89,200	40,545	81,091	6,758	3,379	1,352	676	338	1,352	676	
26	Moray	87,700	39,864	79,727	6,644	3,322	1,329	664	332	1,329	664	
27	Midlothian	81,100	36,864	73,727	6,144	3,072	1,229	614	307	1,229	614	
28	Inverclyde	79,800	36,273	72,545	6,045	3,023	1,209	605	302	1,209	605	
29	Clackmannanshire	50,600	23,000	46,000	3,833	1,917	767	383	192	767	383	
30	Na h-Eileanan Siar (Western Isles)	26,200	11,909	23,818	1,985	992	397	198	99	397	198	
31	Shetland Islands	22,400	10,182	20,364	1,697	848	339	170	85	339	170	
32	Orkney Islands	20,100	9,136	18,273	1,523	761	305	152	76	305	152	
<b>TOTALS</b>		<b>5,222,200</b>	<b>2,373,727</b>	<b>4,747,455</b>								
		<b>POP</b>	<b>Households</b>	<b>WEEE tx PA</b>								

Up to 4.7m annual  
collections....just for  
small WEEE



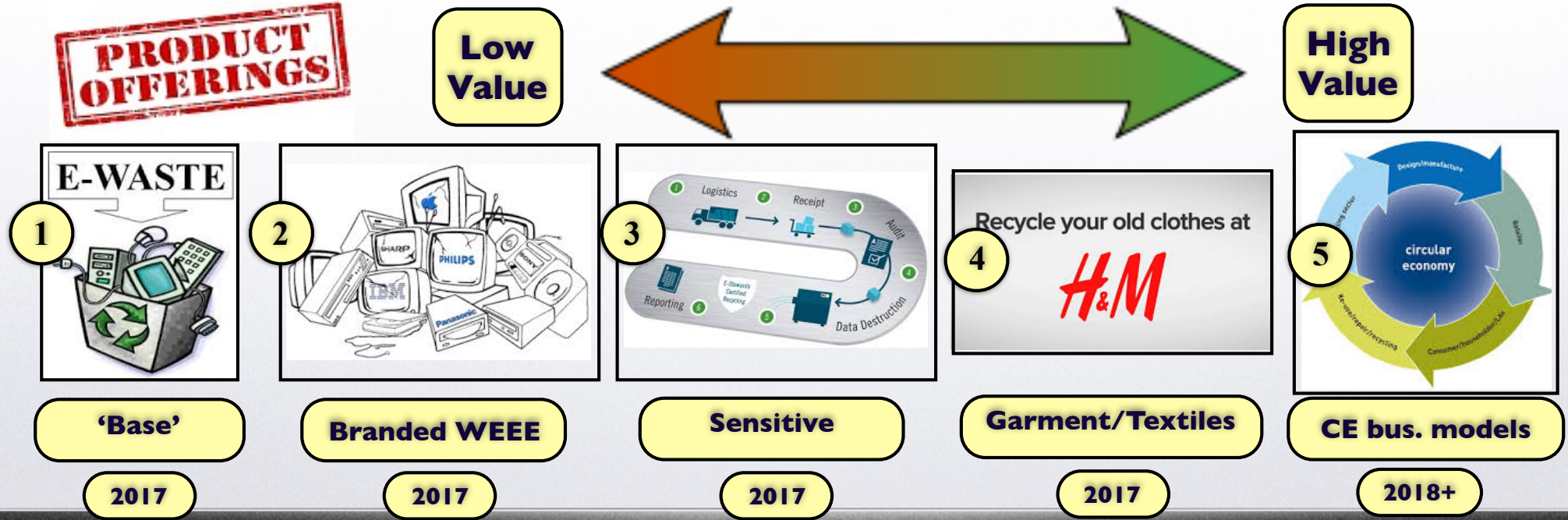
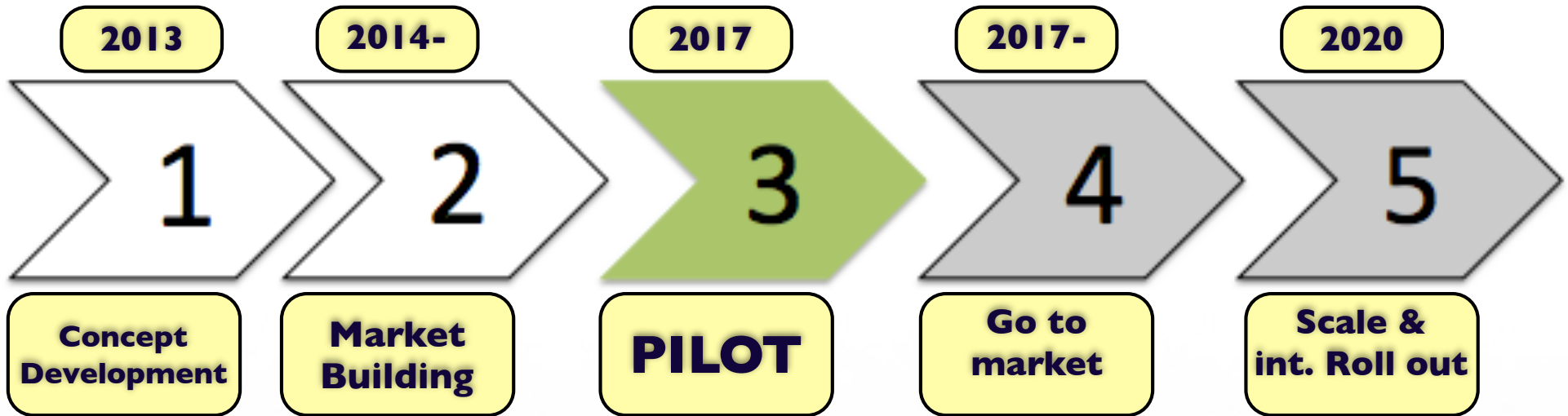
# 5 Major Offerings



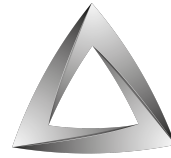
**A Portfolio of Innovative Services will Ensure Success**



# 5 Major Offerings



**A Portfolio of Innovative Services will Ensure Success**



**Scottish Institute for  
REMANUFACTURE**  
Reuse, Repair and Reconditioning

**enscope**  
ENVIRONMENTAL &  
DEVELOPMENT SERVICES

**re-tek**

## *Supported by:*



**EUROPE & SCOTLAND**  
European Regional Development Fund  
Investing in your Future

## Driving the Circular Economy in Scotland



# Earth does not belong to Man



*“If it can’t be reduced, reused, repaired, rebuilt, refurbished, refinished, resold, recycled or composted, then it should be restricted, redesigned or removed from production.”*



**Pete Seeger**

Poet, singer, songwriter &  
environmentalist  
1919 - 2014

**A world beyond waste**