



Team Defence Information

Snack session

14th January 2026

The Where of 'Waste'

Michael Groves & Caroline Mooney



Why the 'where' ?



Resordinate

Waste Process





Sites
Receivers
Waste Flow
Pause

Materials (37/37) ▲
Deselect All
<input checked="" type="checkbox"/> Cooking Oils
<input checked="" type="checkbox"/> Contaminated Recycling
<input checked="" type="checkbox"/> Solid Waste
<input checked="" type="checkbox"/> Bulk Waste
<input checked="" type="checkbox"/> Mixed Oceans

GLOBAL IMPORT AND EXPORT FLOWS*

* The flows do not specifically point to individual countries, but to the regions. These flows are based on the available data. A higher level of reporting may result in certain regions or countries having higher levels of import/export.



Uncontrolled
e-waste and
used EEE



Movement of hazardous e-waste
with prior informed consent under
the Basel Convention



Printed circuit
board waste



Flow within
the region



‘Waste’ Policy & technology landscape



Resordinate

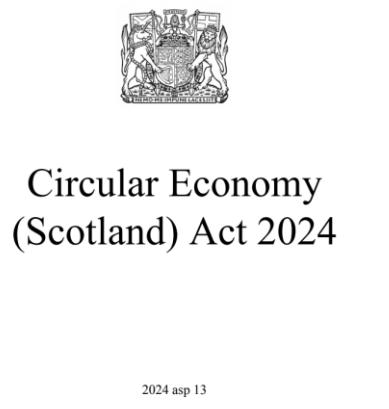
Extended Producer Responsibility - packaging



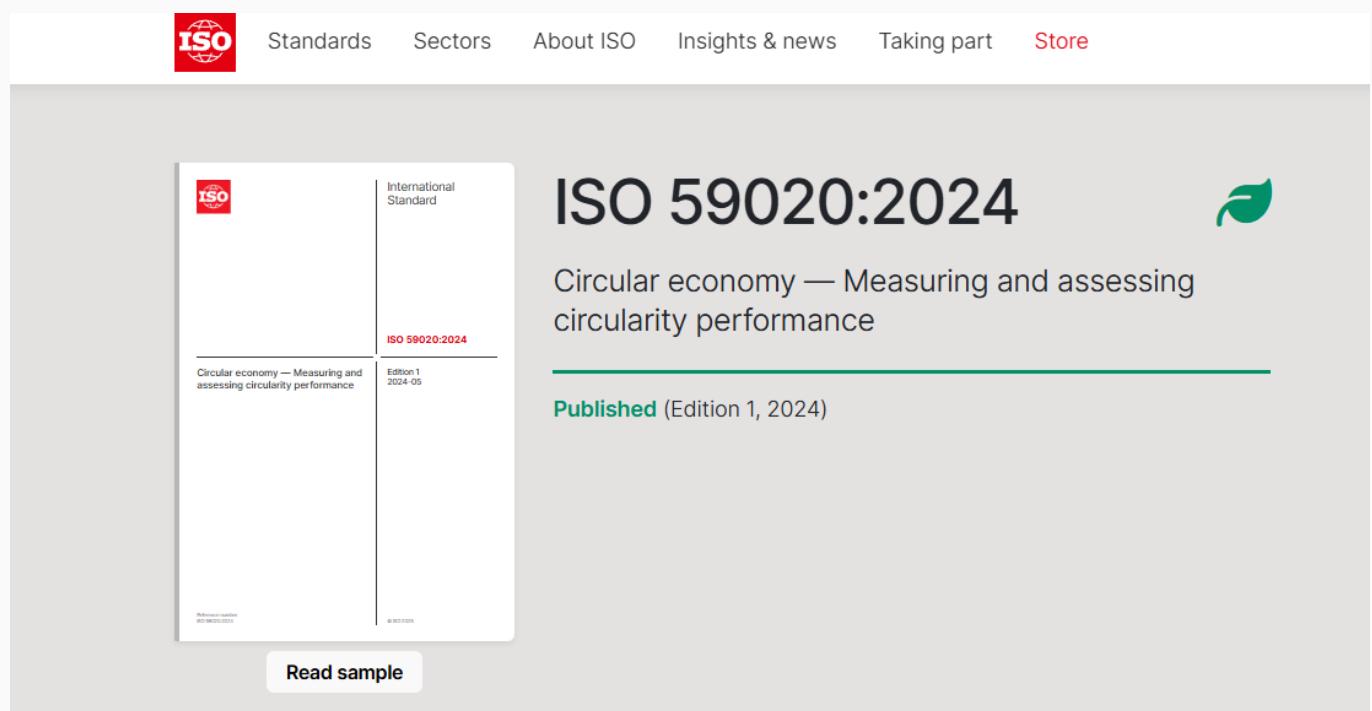
Digital Waste Tracking - UK



Regulations

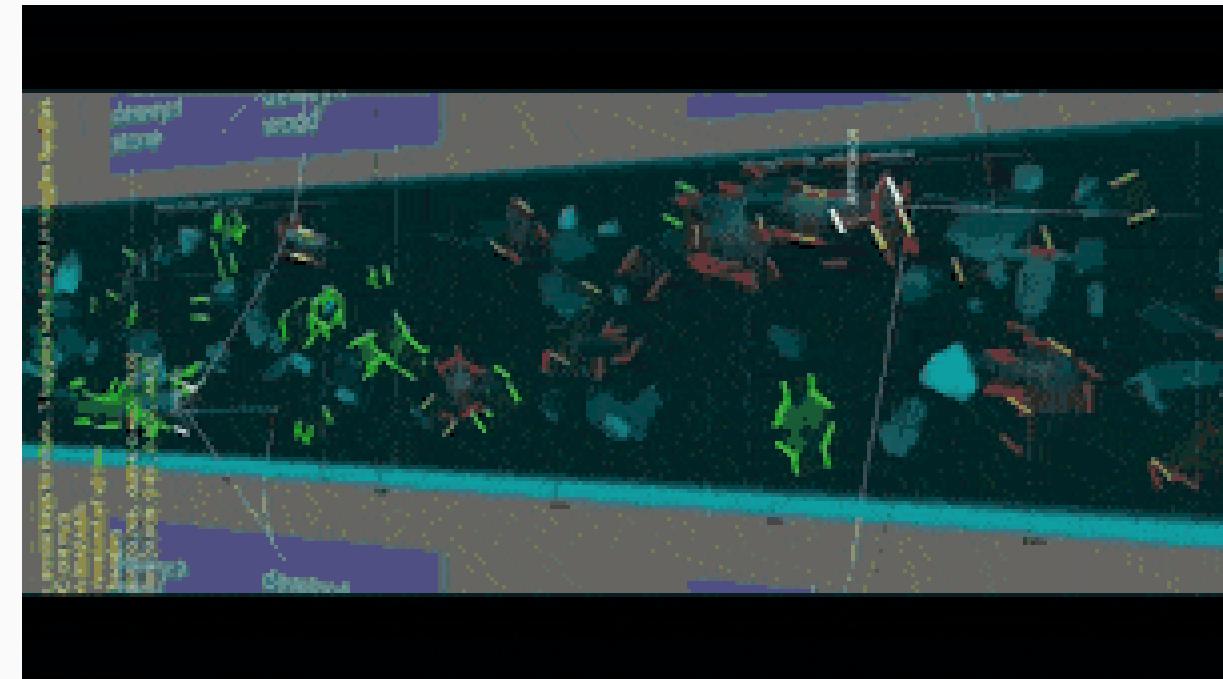
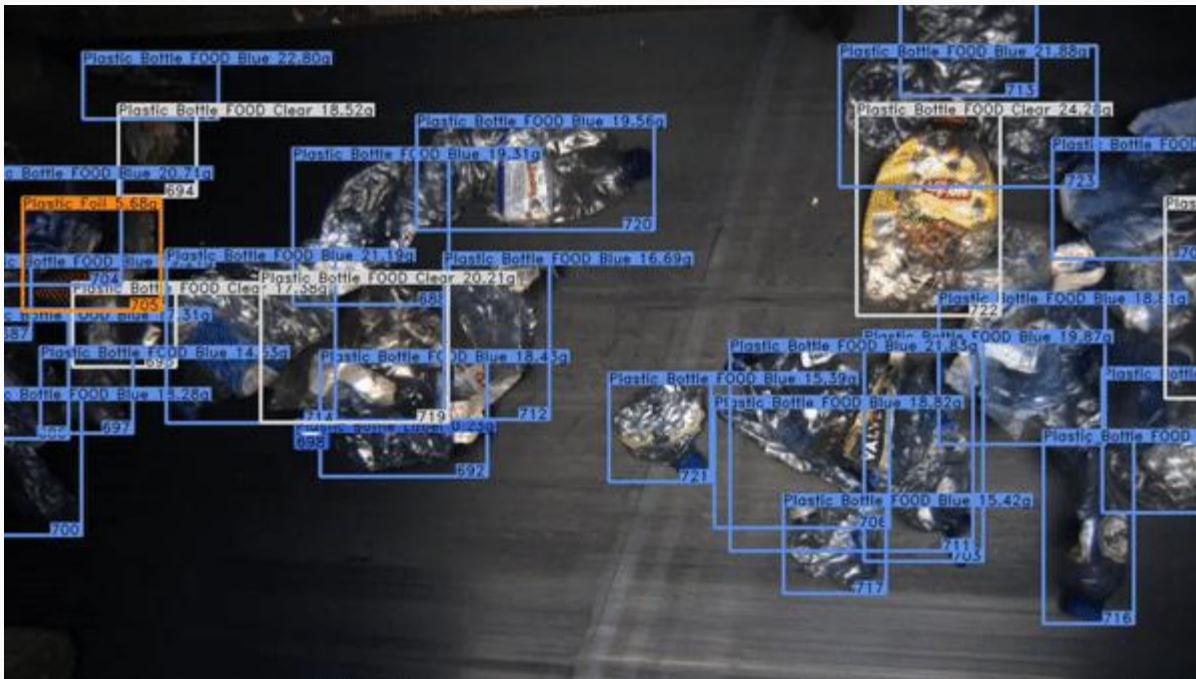


Standards



The image is a screenshot of the ISO website showing the ISO 59020:2024 standard page. The top navigation bar includes links for Standards, Sectors, About ISO, Insights & news, Taking part, and Store. The main content area features the ISO logo and the title 'ISO 59020:2024' in large bold letters. Below the title is the subtitle 'Circular economy — Measuring and assessing circularity performance'. A small green leaf icon is positioned to the right of the title. A thumbnail image of the standard document is shown, with the text 'Circular economy — Measuring and assessing circularity performance' and 'ISO 59020:2024' visible. A 'Published' status is noted as 'Edition 1, 2024'. A 'Read sample' button is located at the bottom of the page.

Machine vision & robotics: *Making the recycling paradigm work better*

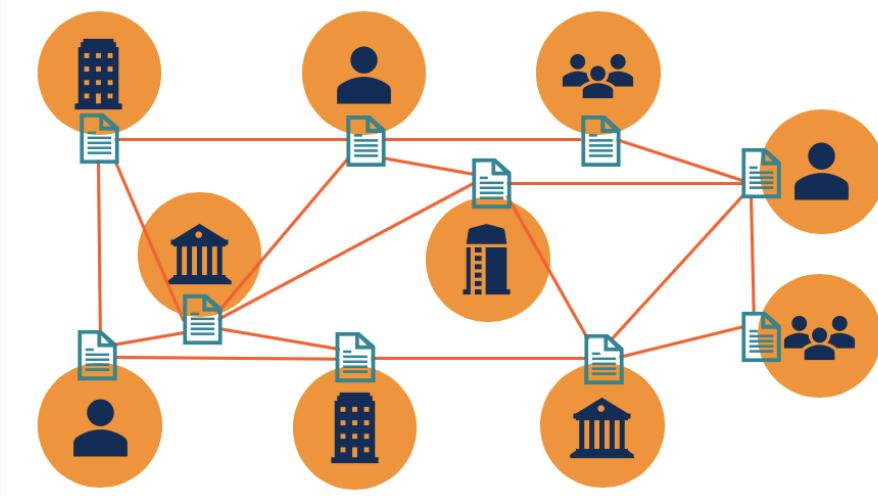


The Internet of Bins

Improves logistics....but does it stop waste or improve outcomes



Circular systems & business models



Recycling tech



ReElement Technologies Partners with Transition Equity Partners to Expand Global Critical Mineral and Rare Earth Refining Capacity and Strengthen U.S. Supply Chains

Jan 5, 2026



\$200 Million Strategic Equity Facility Accelerates U.S. and Allied Critical Mineral Refining Capacity

Marion, Indiana Facility Anchors Scalable Platform for Heavy Rare Earths, Defense Minerals, and Magnet Supply Chains

January 5, 2026 | **Source:** ReElement Technologies Corporation

FISHERS, INDIANA / EIN Presswire / January 5, 2026 / ReElement Technologies Corporation ("ReElement" or the "Company"), a leading U.S. innovator in rare earth element (REE) and critical mineral refining for the commercial and defense industries, today announced the closing of a \$200 million strategic equity facility from **Transition Equity Partners, LLC** (TEP).

Yet....

Global secondary material consumption

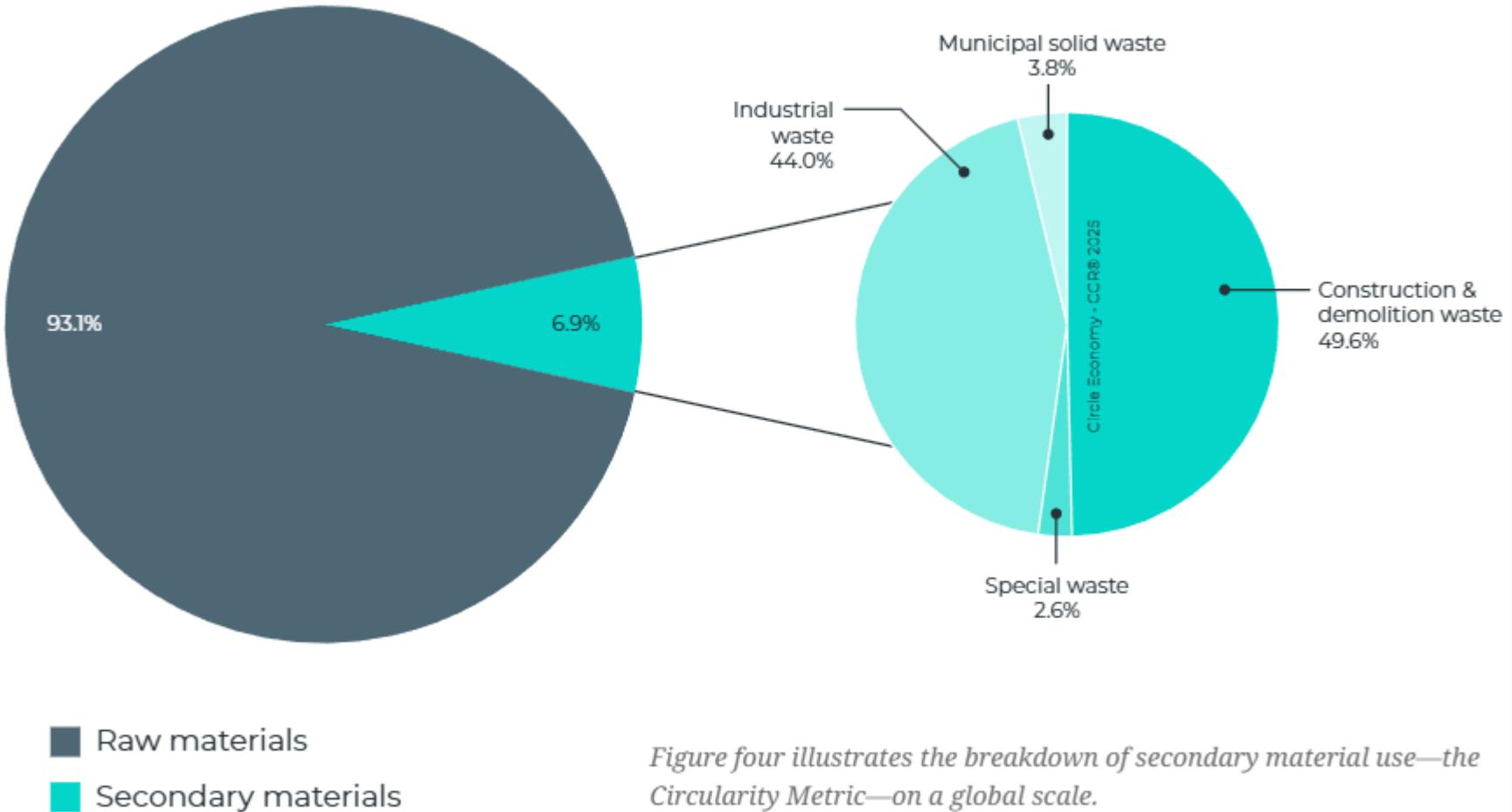


Figure four illustrates the breakdown of secondary material use—the Circularity Metric—on a global scale.



The Circularity Gap Report 2025

Yet....



Materials utility Challenges



Resordinate

What information do we need to track material

Producer



When and where was the material picked up from?

Key Data
Lift Date
Producer Address

Material



What was the material and weight?

Key Data
Description
Code
Weight
Container Type

Carrier



Who moved the material?

Key Data
Carrier Name
Carrier Licence

Receiver



Where was the primary destination of the material?

Key Data
Site Address
Site Licence



Resordinate

Lack of consistency – data, formats, definitions

Purchase Ticket Paid

Island Recycling Ltd.
IWC Compound
Sparky Drive
Industrial Park, George Town
Office Phone: (345) 516 3333
admin@iwc.ky

Purchase Ticket Number: I250620351
Purchase Ticket Date: 06/20/2025
Payment Terms: Due On
Receipt
Purchase Ticket Due Date: 06/20/2025
Purchase Ticket Creation: 06/20/2025
Date: 15:32
Purchase Ticket Amount: -73.50
Created By: Island
Recycling
Yard

Bill To
Ritz Carlton

Item #	Item Name	Quantity Lbs	Price Per Lbs	Total
Auto Battery	Auto Batteries sealed	-1,050.00	0.07	-73.50
Total Quantity Lbs:		-1,050.00		
Subtotal:		\$-73.50		
Purchase Ticket Amount		\$-73.50		
Cash on 07/02/2025:		(-73.50)		
Purchase Ticket Balance:		\$0.00		

North East Bottle Depot
5497 Falsbridge Drive NE
Calgary, AB
(403) 280-1200

Order # 1141239 9/4/2024 2:05:25PM

Station: OfficePC

Clerk: admin

Description	Quantity	Price	Total
0 - 1L Container Mix	2,060	0.10	206.00
Over 1L Container Mix	5	0.25	1.25
PET <= 1L (Clear & Light Bl)	100	0.10	10.00
Tetra Brik <= 1L	45	0.10	4.50
	2,210		(221.75)

Order # 1143363 9/10/2024 1:01:46PM

Station: OfficePC

Clerk: admin

Description	Quantity	Price	Total
0 - 1L Container Mix	1,564	0.10	156.40
Over 1L Container Mix	1	0.25	0.25
PET <= 1L (Clear & Light Bl)	251	0.10	25.10
	1,816		(181.75)

Order # 1146095 9/19/2024 11:48:48AM

Agreement N	Container T	Material Ty	EWC	Job Type	Qty	Job Status	Weight Li	Total Weigh	Overweight Am	Disposal Ch	Movement C
99920	Offcon	Confidential	20 01 01	Empty	2.00	Completed			£ 0.00	£ 52.00	
99920	Offcon	Confidential	20 01 01	Empty	2.00	Completed			£ 0.00	£ 52.00	
99920	Offcon	Confidential	20 01 01	Empty	2.00	Completed			£ 0.00	£ 52.00	
99920	Offcon	Confidential	20 01 01	Empty	2.00	Completed			£ 0.00	£ 52.00	
99581	Euro 1100	Zero	20 03 01	Empty	4.00	Completed	280		2	£ 0.38	£ 57.36
99581	Euro 1100	Zero	20 03 01	Empty	3.00	Completed	210	212	0	£ 0.00	£ 43.02
99581	Euro 1100	Zero	20 03 01	Empty	3.00	Completed	210	176	116	£ 22.04	£ 43.02
99581	Euro 1100	Zero	20 03 01	Empty	3.00	Completed	210		2	£ 0.38	£ 43.02
99581	Euro 1100	Zero	20 03 01	Empty	3.00	Completed	210	212	102	£ 19.38	£ 43.02
99581	Euro 1100	Zero	20 03 01	Empty	3.00	Completed	210	312	0	£ 0.00	£ 43.02
99581	Euro 1100	Zero	20 03 01	Empty	3.00	Completed	210	194	38	£ 7.22	£ 43.02
99581	Euro 1100	Zero	20 03 01	Empty	3.00	Completed	210	248	0	£ 0.00	£ 21.92
99578	Euro 360	Glass	15 01 07	Empty	4.00	Completed			£ 0.00	£ 28.80	
99579	Euro 240	Food	20 01 08	Empty	4.00	Completed			£ 0.00	£ 0.00	
100033	Bales	Cardboard	20 01 01	Collection	5.00	Completed			£ 0.00	£ 0.00	
99578	Euro 360	Glass	15 01 07	Empty	4.00	Completed			£ 0.00	£ 21.92	
99579	Euro 240	Food	20 01 08	Empty	4.00	Completed			£ 0.00	£ 28.80	

2, JALAN PERMAS 11,
BANDAR BARU PERMAS JAYA,
81750 MASAI, JOHOR, MALAYSIA

NO. : 00005469

DATE : 31/10/2023

TERM : 30 DAYS

YOUR REF. :

AGENT :

PAGE : 1

ITEM NO.	DESCRIPTION	QUANTITY	UPRICE	TOTAL EXCL. SST	SST	TOTAL INCL. SST	TAX SST CODE
1 CTC	CONTRACT	31	180.00	5,580.00	5,580.00	SV-0	

DOMESTIC WASTE COLLECTION

14TH CLAIM : OCTOBER 2023

DOMESTIC WASTE COLLECTION

14TH CLAIM : OCTOBER 2023

OIL COLLECTION FORM								
ზეთის შეგროვების ურნალი								
DATE & TIME	NAME OF WASTE	UNIT	COLLECTED	BUYER	ID CODE	DRIVER'S ID	VEHICLE NUMBER	WAYBILL NUMBER
25/01/2024 10:46	USED OIL	KG	100	OILIO LLC	404492483	59001091660	UC 010 OC	0794440571
26/02/2024 13:39	USED OIL	KG	96	OILIO LLC	404492483	59001091660	OI 016 LL	08010880054
26/03/2024 13:16	USED OIL	KG	144	OILIO LLC	404492483	59001091660	OI 016 LL	0807413703

Complex supply chain – from single vehicle operators to listed entities

Hauler Name
Al Rabee Shelter
Renewables for used c
Antilla Energy
EcoTech
EcoTech
Dulisco
Reloop
The Abu Dhabi EditionA
DULSCO
Baotou green energy Ji
A&R INVERSIONES Y
Ayuntamiento de Barce
Fundación Roure (kitch
Fundación Aurea (matti
JUNAN SERVEIS SOL
MARESME (kitchen oil'
NESPRESSO
北京佳阳物业管理有限
北京佳阳物业管理有限
Biofilter Környezetvéde
MOHU MOL Hulladék
MOHU MOL Hulladék
Chemical Residuos Ind
Casa Garrahan – Fund
Colegio Didascalio Sta
Cooperativa De Trabajo
Cooperativa El amanec
Ecobaires
Ejercito de Salvación
RBA AMBIENTAL

GWR GmbH



LOCATION DETAILS

CITY: Frankfurt, Germany

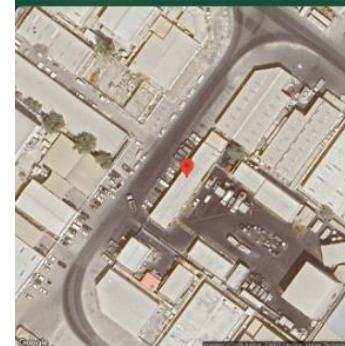
COORDINATES: 50.096283, 8.592814

MATERIALS RECEIVED

E-WASTE: 401.31 kg

METAL - MIXED: 455 kg

VEOLIA MIDDLE EAST RECYCLING



LOCATION DETAILS

CITY: Dubai, United Arab Emirates

COORDINATES: 25.108707, 55.227261

MATERIALS RECEIVED

BATTERIES: 140 kg

CARDBOARD: 29,849 kg

GLASS: 50,030 kg

METAL - MIXED: 3,220 kg

MIXED RECYCLING: 2,112,596 kg

PAPER: 1,300 kg

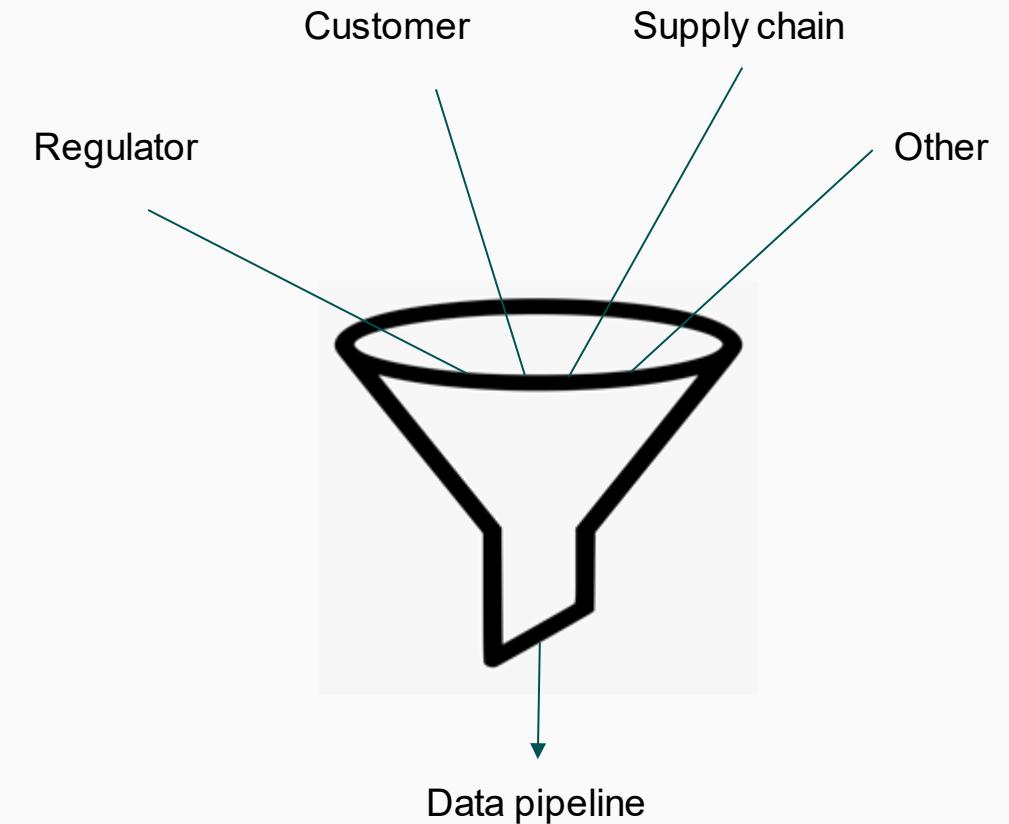
Materials utility Principles



Resordinate

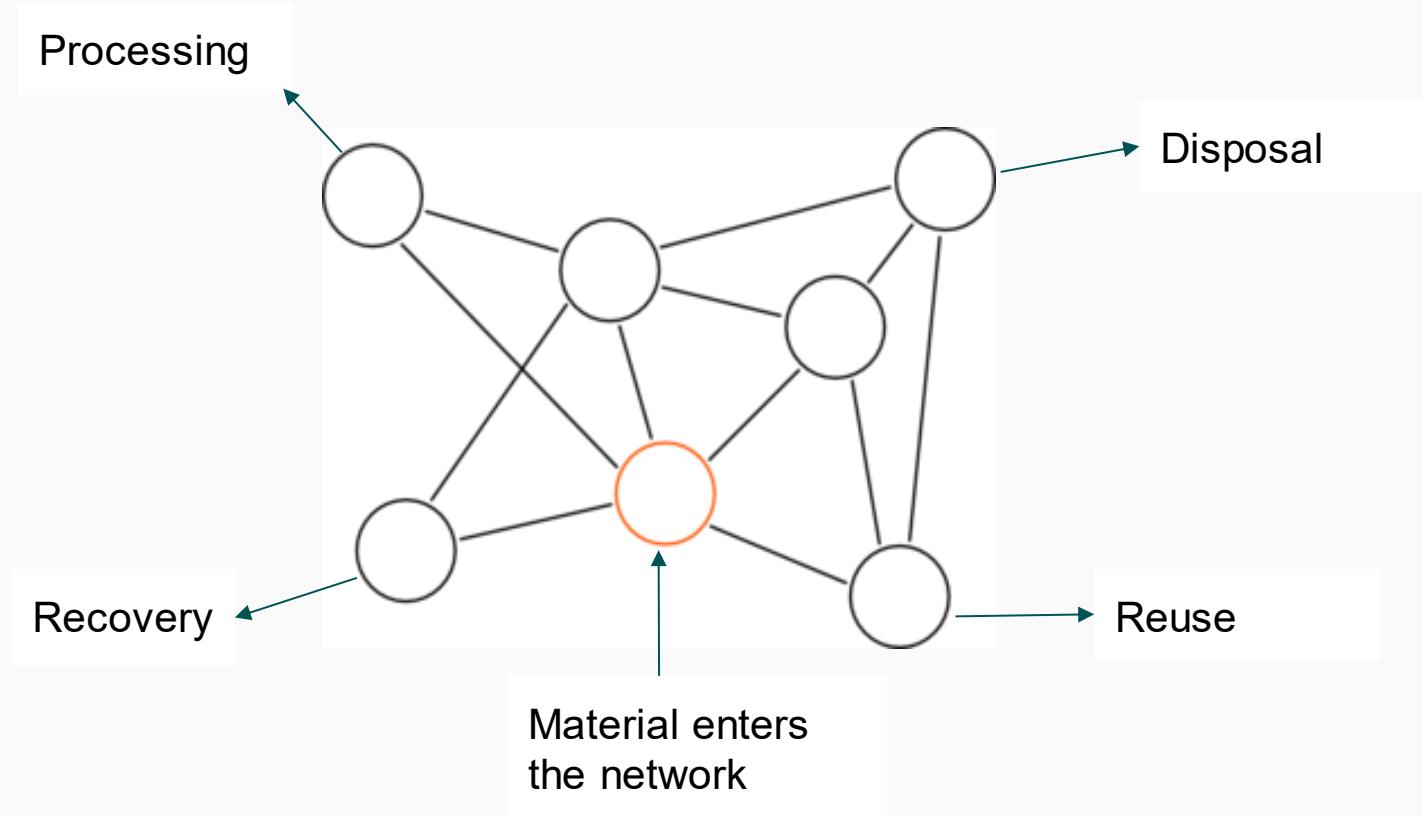
#1 Supply chain with many entities, locations, data types

- ‘Rubbish’ data: identify and accommodate missing and errors
- Value chain entity - multiple locations & IDs.
- Clean and normalise from many datasets for the ‘truth’
- AI to automate and identify patterns



#2 It's a dynamic network with multiple transformations & fates

- Understanding the material network
- Verify who & what happens to material at nodes through the network.
- Multiple paths through the network
- A particular path depends on:
 - *Transformations within sites*
 - *Site attributes*



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Thank you

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www.resordinate.com