

Circular Economy and the Evolution of Global Asset Management

SIR Conference 2017

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**SIMS
RECYCLING
SOLUTIONS**

ASSET MANAGEMENT TODAY



SIMS
RECYCLING
SOLUTIONS

THE OLD WAY



TAKE



Materials

MAKE



Product

WASTE

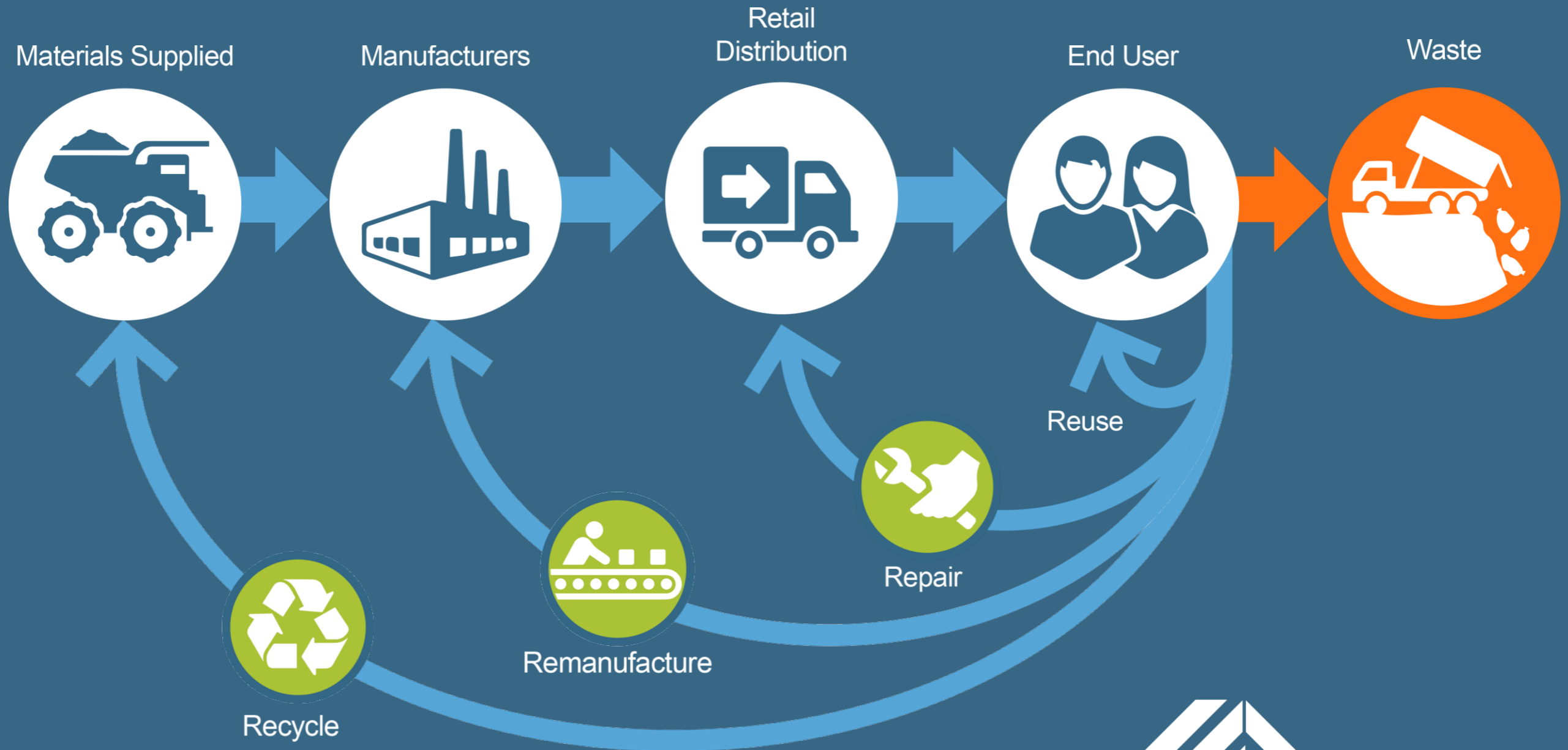


**End
of Life**



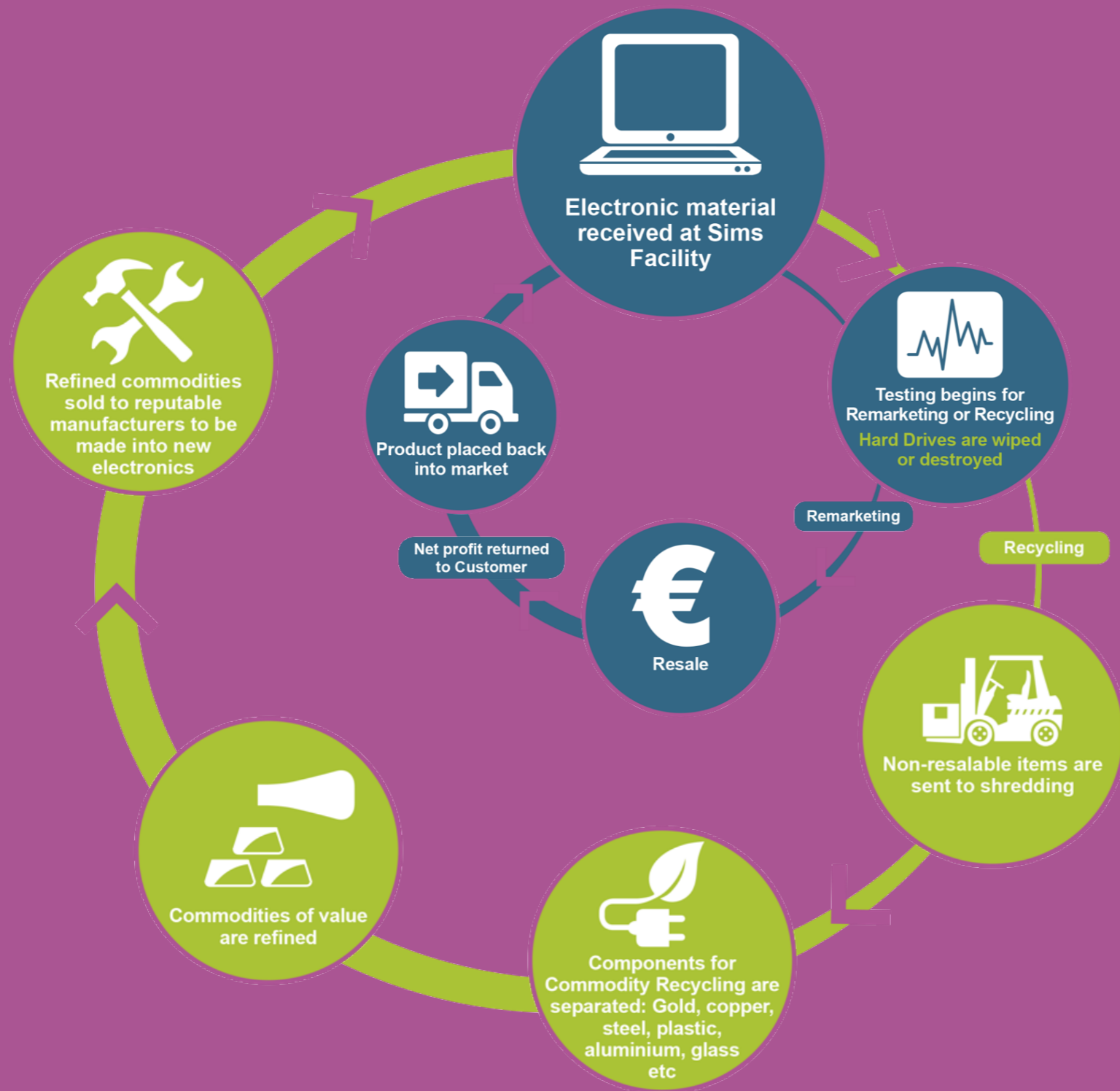
**SIMS
RECYCLING
SOLUTIONS**

... TOWARDS A BETTER WAY



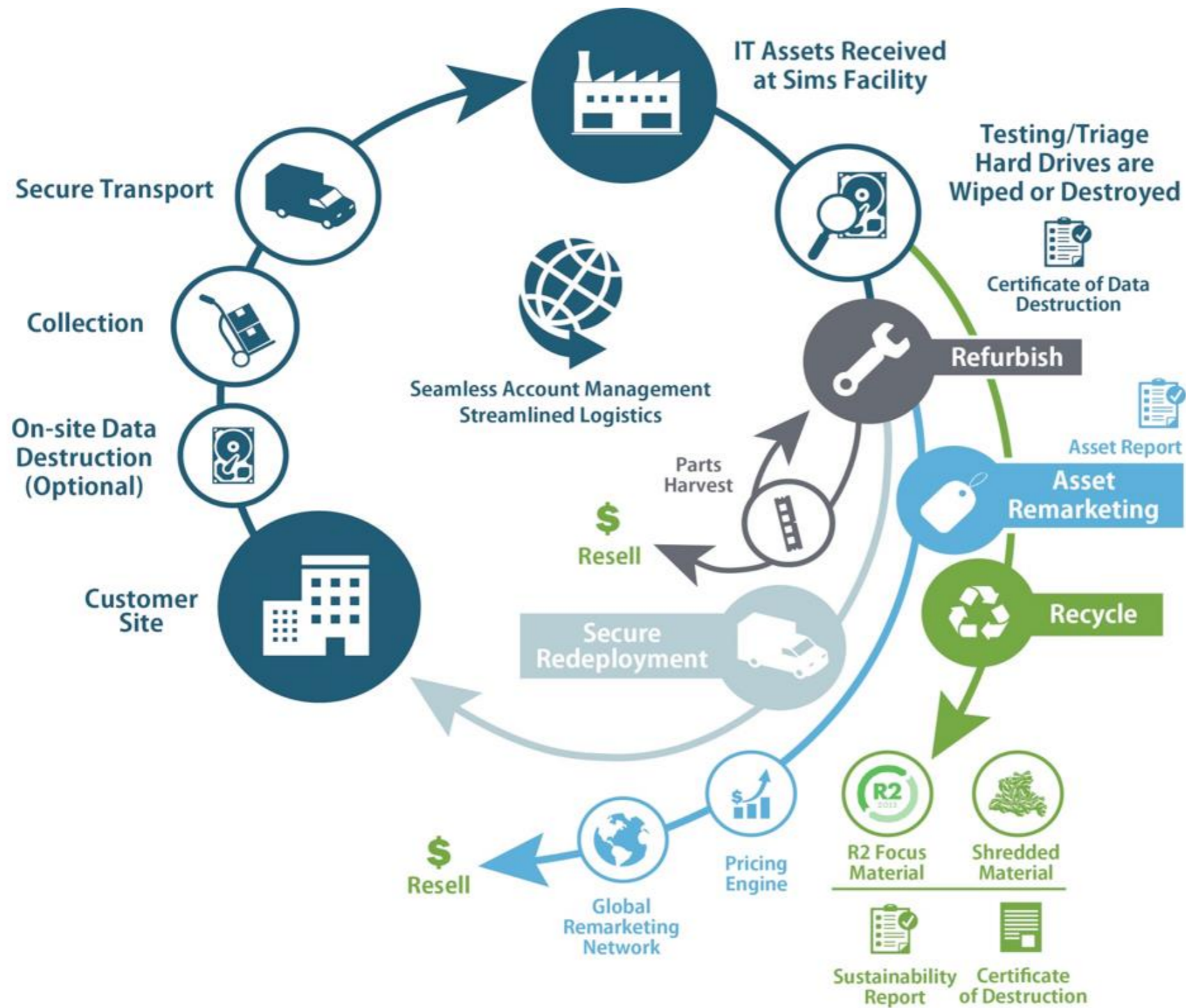
SIMS
RECYCLING
SOLUTIONS

AND EVOLVING ...



SIMS
RECYCLING
SOLUTIONS

... INTO A CIRCULAR MODEL



SIMS
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SOLUTIONS

KEY DRIVERS FOR A CIRCULAR ECONOMY



SECURITY



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GLOBAL LOSSES & PENALTIES



83M
Records Stolen



145M
Records Stolen



80M
Records Stolen



47,000
Records Stolen



38M
Records Stolen



110M
Records Stolen



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DATA SECURITY

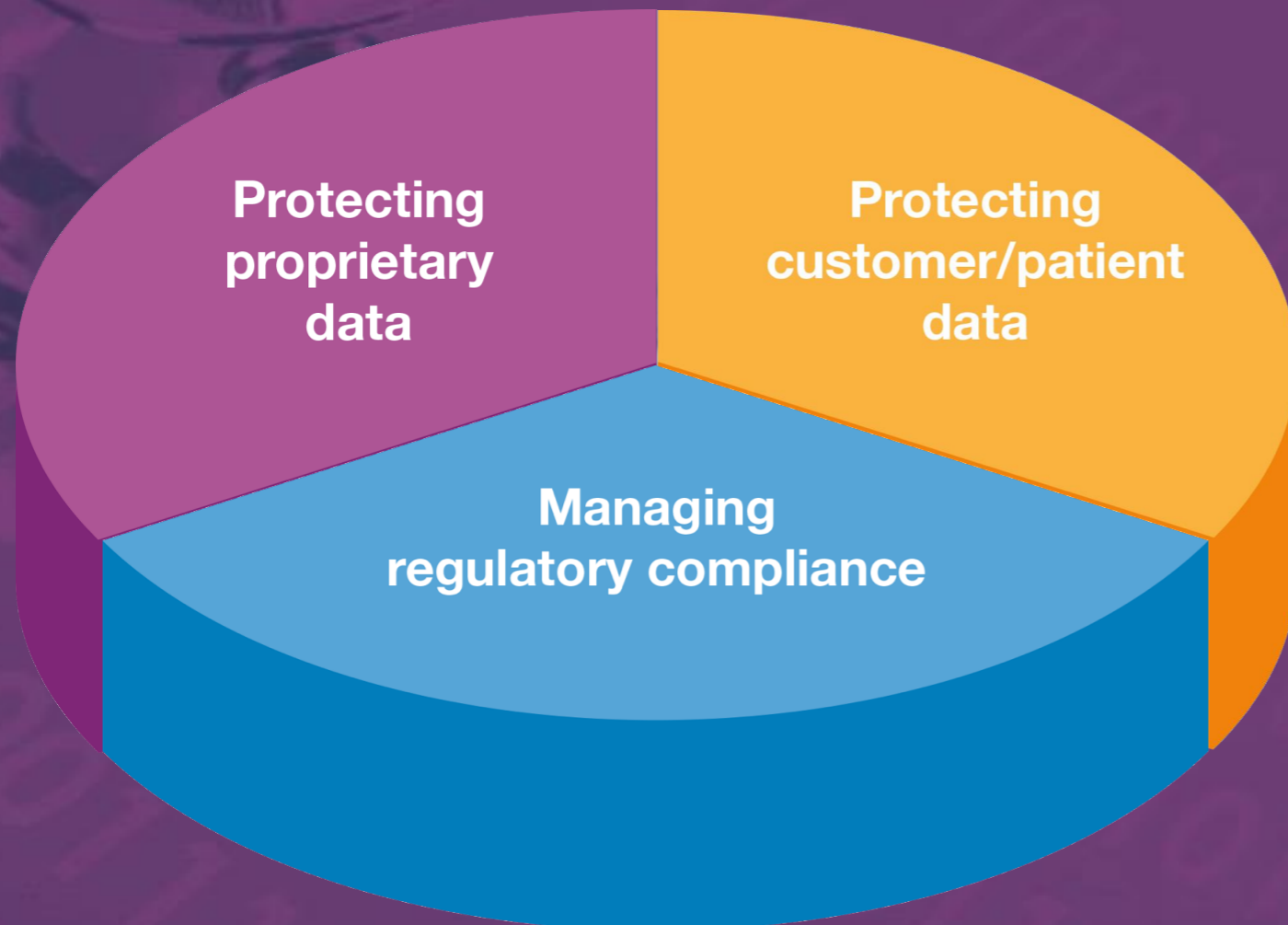
Ex: New product info,
product designs etc



Ex: Data destruction
requirements HIPAA, GLBA



Ex: Credit card info,
protected patient data



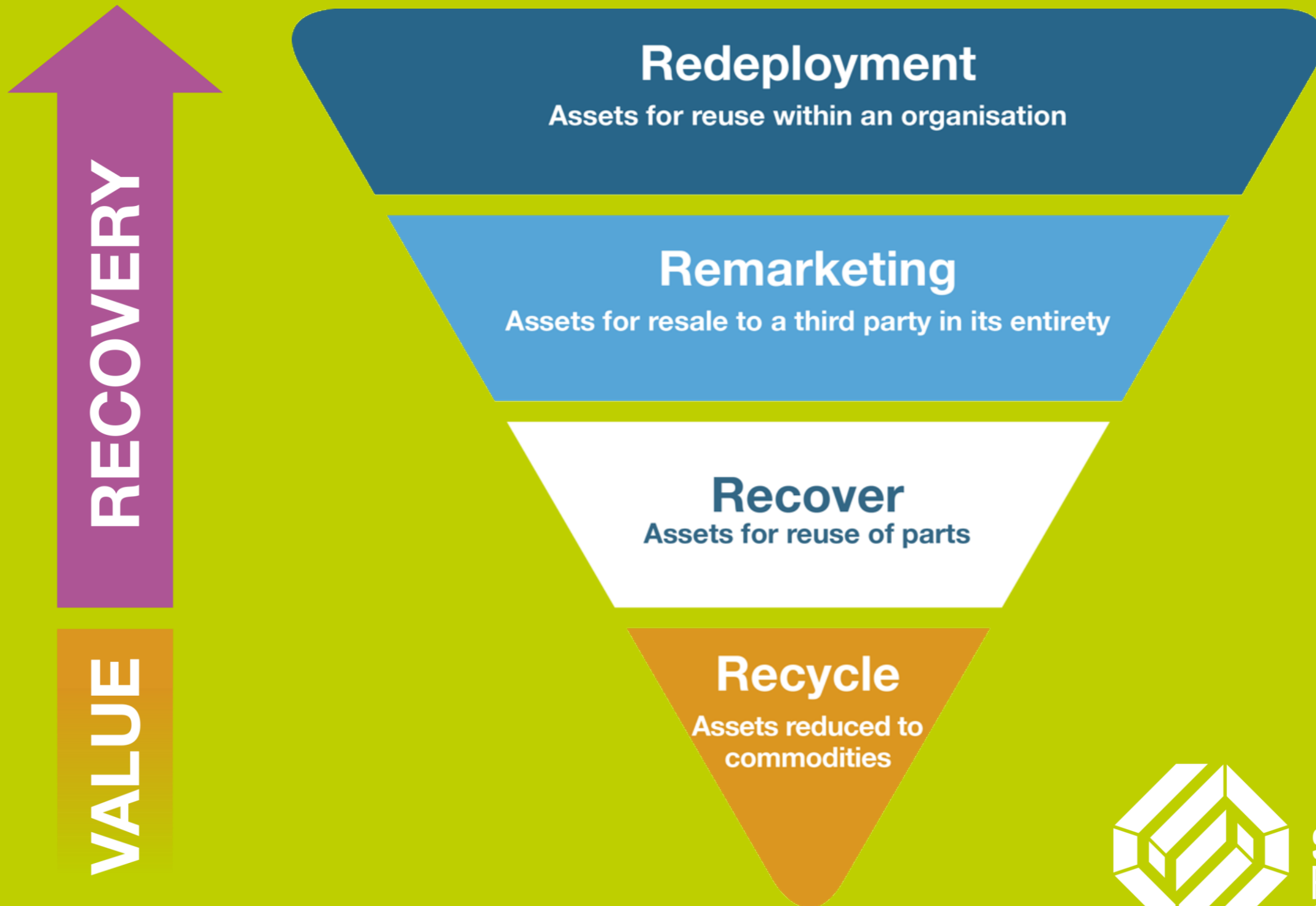
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VALUE



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VALUE RECOVERY



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COMPLIANCE

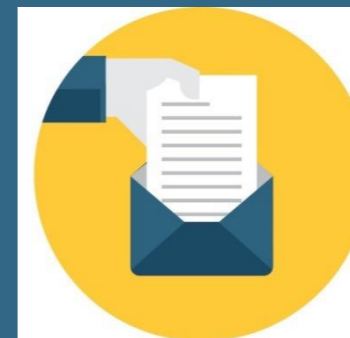


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EU'S GENERAL DATA PROTECTION REGULATION



NEED FOR DATA SUBJECT CONSENT



NEED FOR DATA PROTECTION OFFICIALS



NEED TO CONTROL MOVEMENT OF DATA

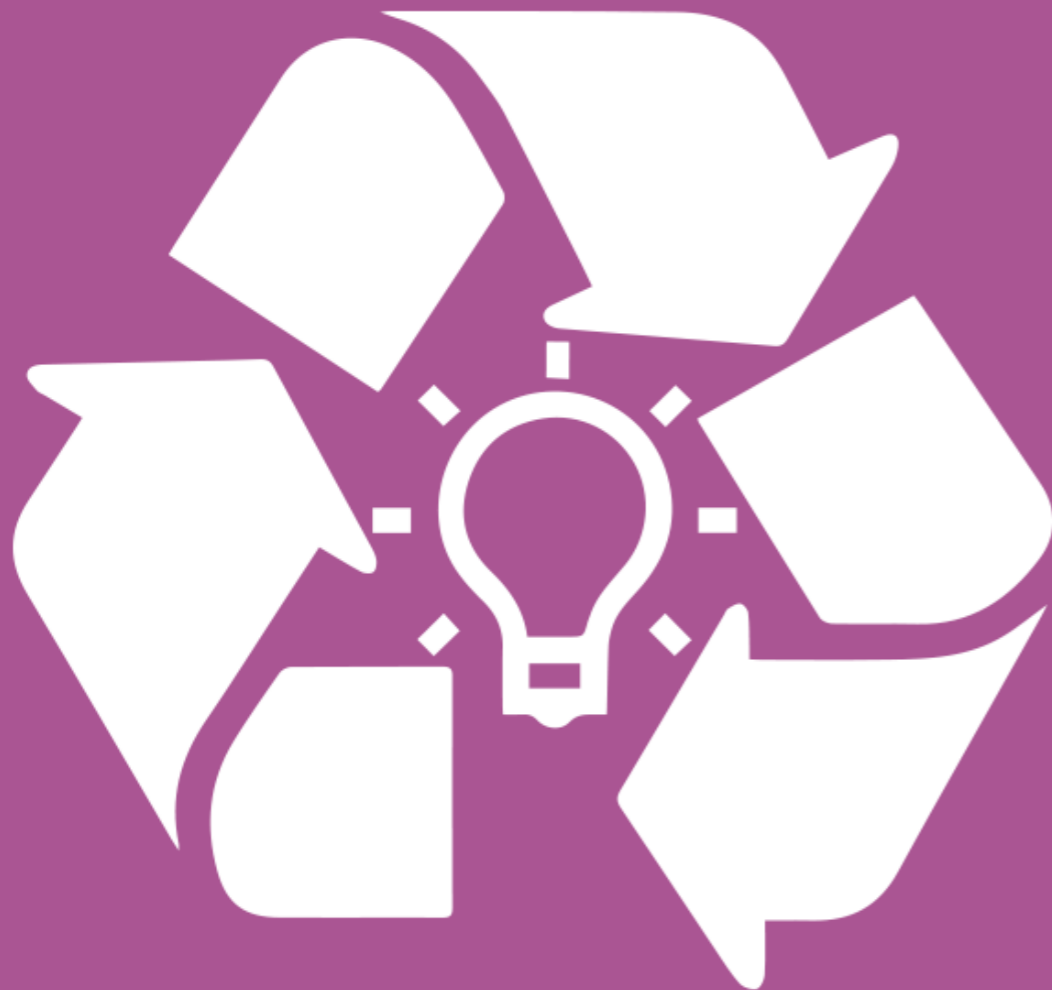


NEED FOR CYBER LIABILITY INSURANCE



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EU ACTION PLAN



Proposed (and challenging!) targets:

Recycle 65% of municipal waste by 2030

Recycle 75% of packaging waste by 2030

Reduce landfill to 10% of all waste by 2030

Ban on landfilling separately collected waste

Economic instruments to discourage landfilling

Harmonized calculators for recycling rates in EU

Stimulate industrial symbiosis



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SUSTAINABILITY



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CIRCULAR MODELS



Annual consumer electronics sales have exceeded
\$1 TRILLION



The average device is replaced every
1-3 YEARS



Electronics are now the
FASTEST
growing waste stream

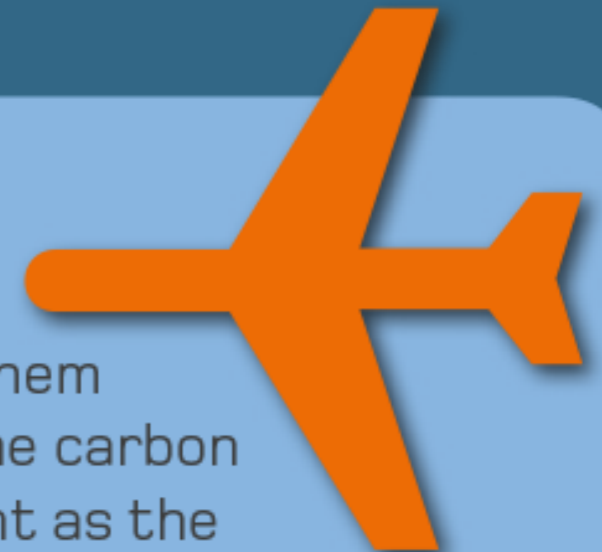


The Cloud



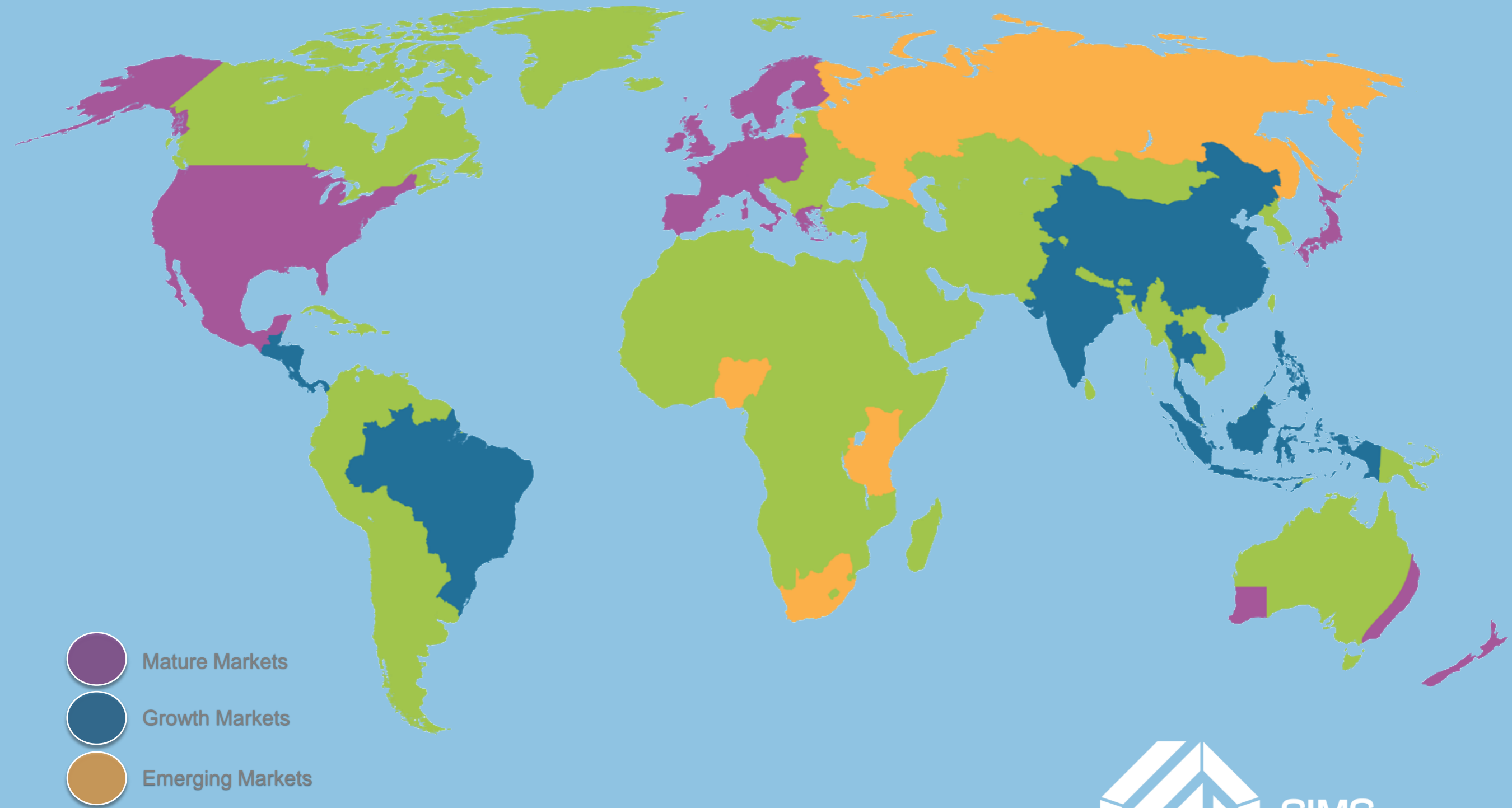
Data Centres consume **3% OF THE WORLD'S ENERGY** – that's 416.2 terawatt hours in 2015. ⁴

Giving them the same carbon footprint as the airline industry!



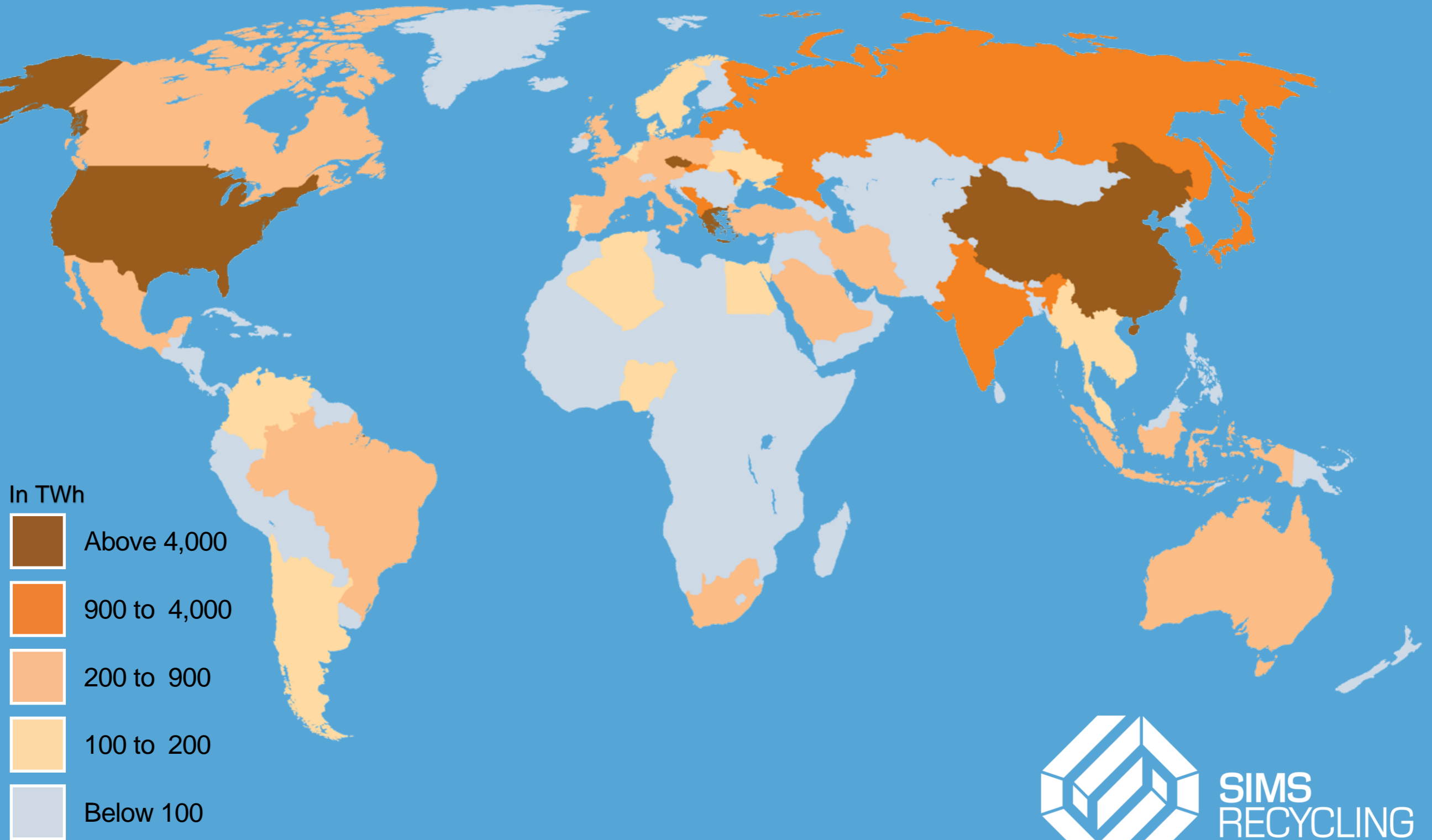
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WHERE ARE THE USERS?



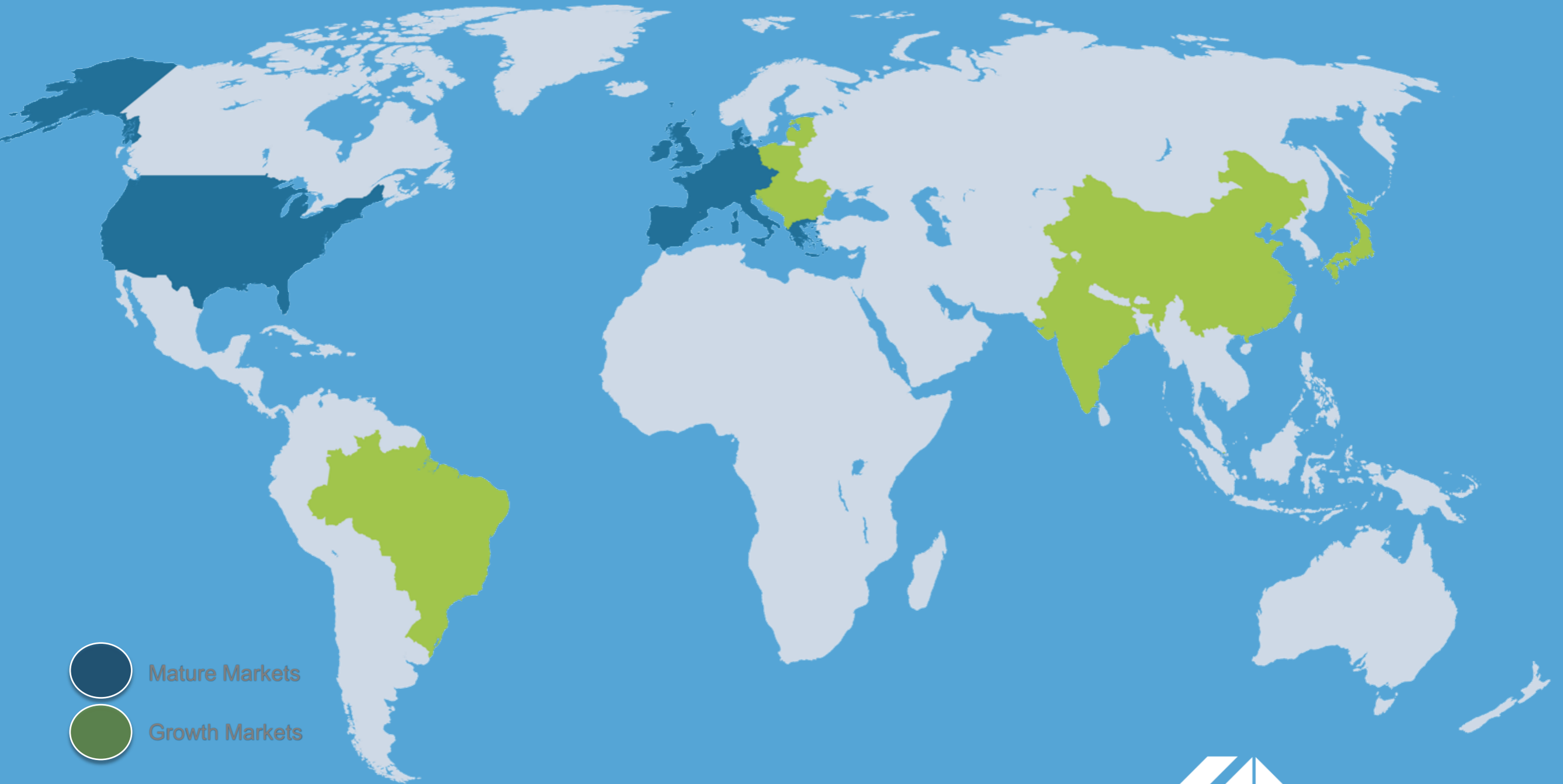
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WHO USES ALL THE POWER?



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WHERE ARE THE CLOUDS?



-  Mature Markets
-  Growth Markets



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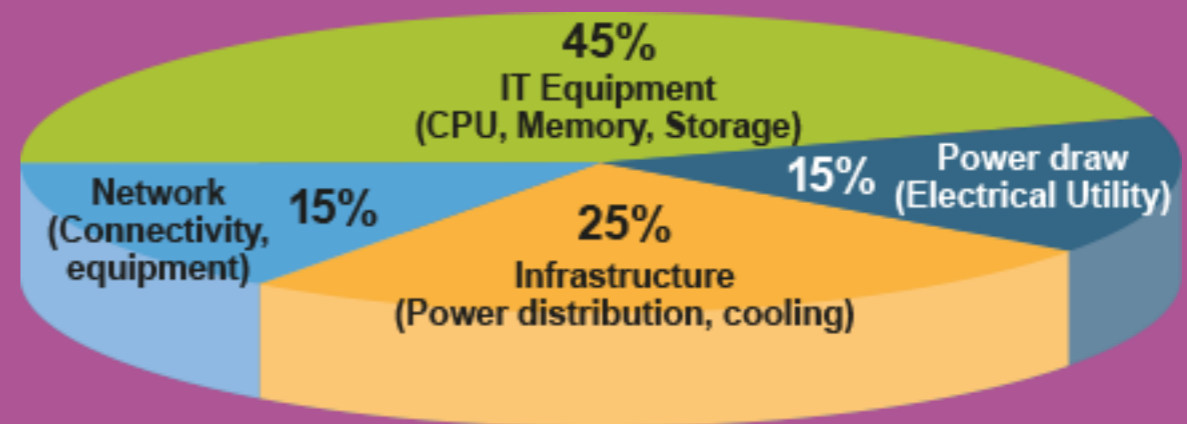
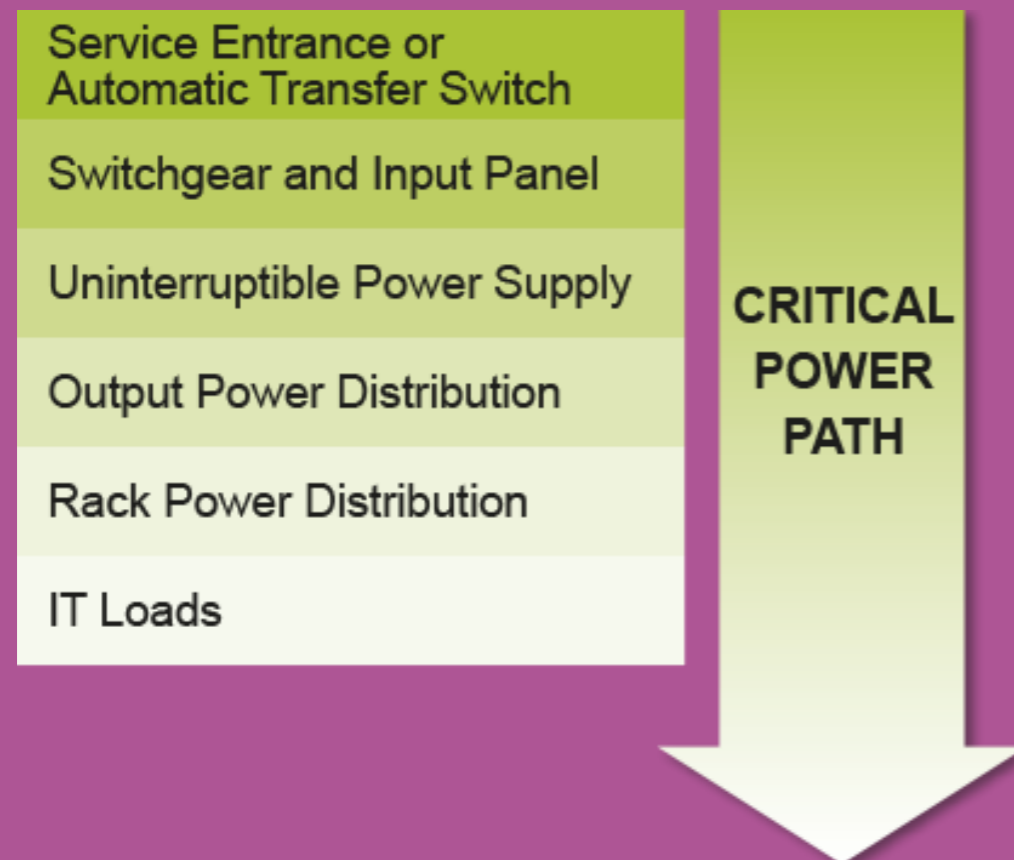
DATA CENTRE COST DRIVERS

- **Power**
- **Connectivity**
- **Marketplace**
- **Regulations**



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POWER



CONNECTIVITY

What are the drivers?

Latency

Availability

What is the impact?

Data centres closer to market

More opportunities for carrier data centres

More specialised equipment



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MARKETPLACE

What are the drivers?

Local consumers

Availability

Lower costs

Competition

What is the impact?

Data centres closer to market

More opportunities for carrier data centres

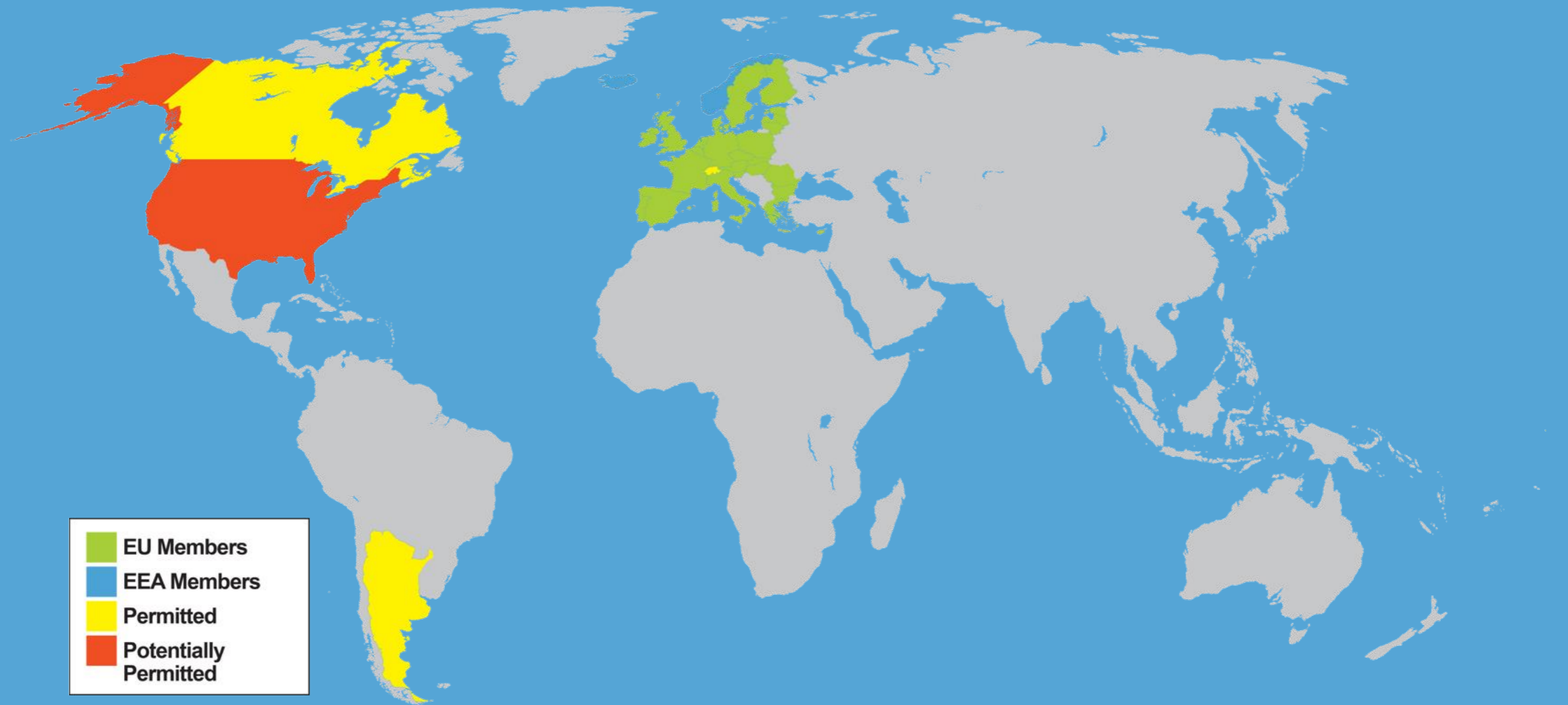
Rise of micro data centres

Top tier Provider consolidation, more local players



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REGULATIONS



Region	What are the laws?	What does this limit?	What is the impact?
US	HIPAA, FERPA, GLBA, Patriot Act	Laws are unclear, so Large US corporations hesitate to use non-US data centers	Specialised regional markets
EU	Data Protection Directive	Limits where EU data can be stored	Move to distributed data centers



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CASE STUDY: DATA CENTRE DECOMMISSIONING

SWEDEN

UK

IRELAND

NETHERLANDS

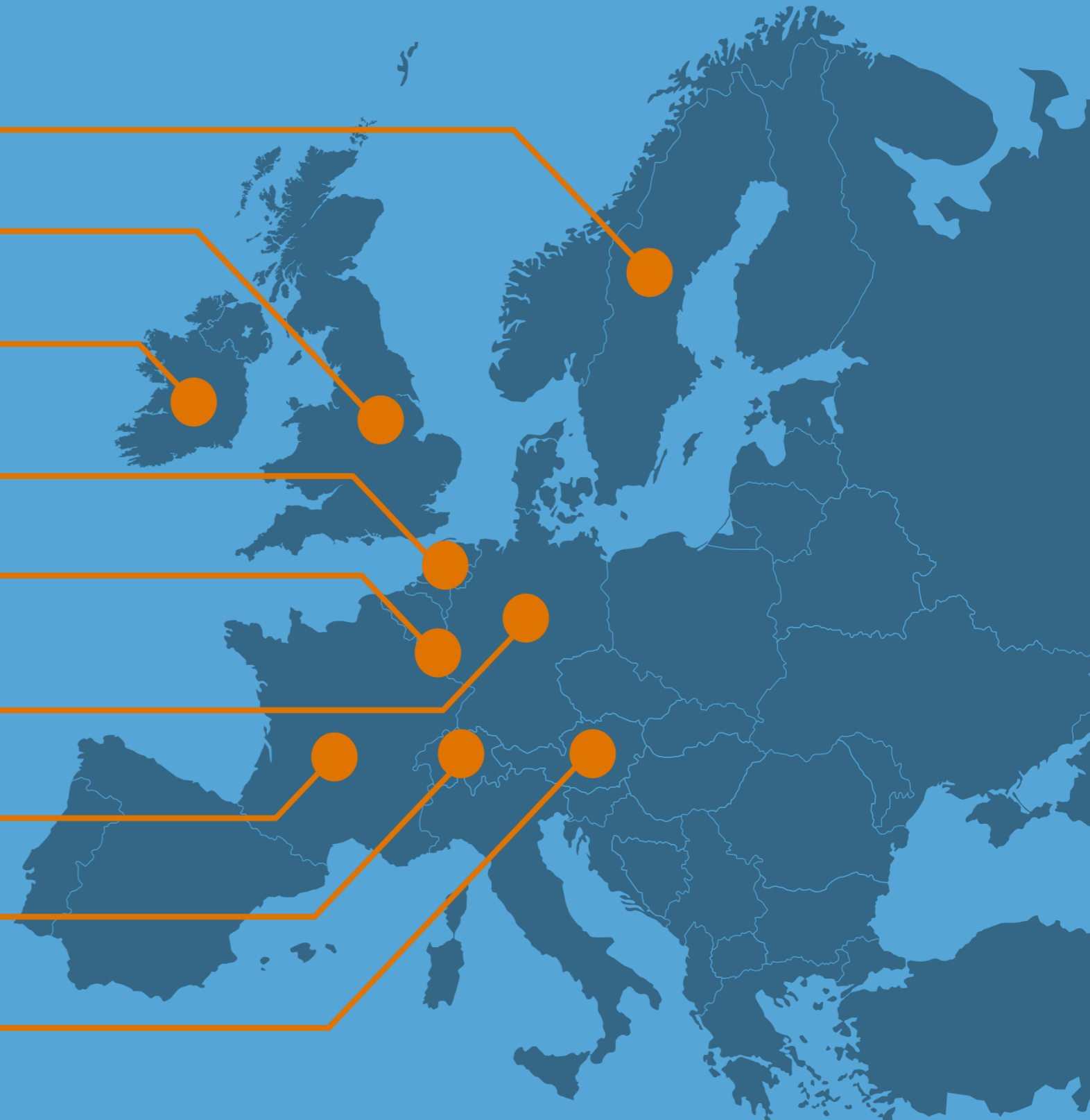
LUXEMBOURG

GERMANY

FRANCE

SWITZERLAND

AUSTRIA





**RECOVER
VALUE**

**CARON
NEUTRAL
DATA
CENTRES**

**REFUSE
LANDFILL**

**CREATE
JOBS**

REVERSE LOGISTICS



ACHIEVED GOALS BY:

- Developing consistent strategies
- Developing coherent ITAD policies

RESULTS:

- Maximum number of assets resold or reused
- Recycling carried out within the strictest environmental standards



PARTS HARVESTING



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363,025.97
AVOIDED POUNDS
OF IT MATERIAL
SENT TO LANDFILL

504,624
POUNDS
REDUCED
GREENHOUSE
GAS
EMISSIONS



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EU's RESTRICTED HAZARDOUS SUBSTANCES DIRECTIVE

1 H Hydrogen [1.00784;1.00811]																	2 He Helium 4.002602(2)
3 Li Lithium [6.938;6.997]	4 Be Beryllium 9.0121831(5)											5 B Boron [10.806;10.821]	6 C Carbon [12.0098;12.0118]	7 N Nitrogen [14.00643;14.00728]	8 O Oxygen [15.99903;15.99977]	9 F Fluorine [18.998403163(6)]	10 Ne Neon 20.1797(6)
11 Na Sodium [22.98976928(2)]	12 Mg Magnesium [24.304;24.307]											13 Al Aluminum [26.9815386(8)]	14 Si Silicon [28.084;28.086]	15 P Phosphorus [30.973761998(5)]	16 S Sulfur [32.059;32.076]	17 Cl Chlorine [35.446;35.457]	18 Ar Argon 39.948(1)
19 K Potassium 39.0983(1)	20 Ca Calcium 40.078(4)	21 Sc Scandium 44.955908(5)	22 Ti Titanium 47.867(1)	23 V Vanadium 50.9415(1)	24 Cr Chromium 51.9961(6)	25 Mn Manganese 54.938045(5)	26 Fe Iron 55.845(2)	27 Co Cobalt 58.933194(4)	28 Ni Nickel 58.6934(4)	29 Cu Copper 63.546(3)	30 Zn Zinc 65.38(2)	31 Ga Gallium 69.723(1)	32 Ge Germanium 72.630(8)	33 As Arsenic 74.921595(6)	34 Se Selenium 78.971(8)	35 Br Bromine [79.901;79.907]	36 Kr Krypton 83.798(2)
37 Rb Rubidium 85.4678(3)	38 Sr Strontium 87.62(1)	39 Y Yttrium 88.90584(2)	40 Zr Zirconium 91.224(2)	41 Nb Niobium 92.90637(2)	42 Mo Molybdenum 95.95(1)	43 Tc Technetium <98>	44 Ru Ruthenium 101.07(2)	45 Rh Rhodium 102.90550(2)	46 Pd Palladium 106.42(1)	47 Ag Silver 107.8682(2)	48 Cd Cadmium 112.411(8)	49 In Indium 114.818(1)	50 Sn Tin 118.710(7)	51 Sb Antimony 121.760(1)	52 Te Tellurium 127.60(3)	53 I Iodine 126.90447(3)	54 Xe Xenon 131.293(6)
55 Cs Cesium 132.90545196(6)	56 Ba Barium 137.327(7)	57-71	72 Hf Hafnium 178.49(2)	73 Ta Tantalum 180.94788(2)	74 W Tungsten 183.84(1)	75 Re Rhenium 186.207(1)	76 Os Osmium 190.23(3)	77 Ir Iridium 192.217(3)	78 Pt Platinum 195.084(9)	79 Au Gold 196.966569(5)	80 Hg Mercury 200.592(3)	81 Tl Thallium [204.382;204.386]	82 Pb Lead 207.2(1)	83 Bi Bismuth 208.98040(1)	84 Po Polonium <209>	85 At Astatine <210>	86 Rn Radon <222>
87 Fr Francium <223>	88 Ra Radium <226>	89-103	104 Rf Rutherfordium <261>	105 Db Dubnium <268>	106 Sg Seaborgium <271>	107 Bh Bohrium <272>	108 Hs Hassium <270>	109 Mt Meitnerium <276>	110 Ds Darmstadtium <281>	111 Rg Roentgenium <280>	112 Cn Copernicium <285>	113 Uut Ununtrium unknown	114 Fl Flerovium <289>	115 Uup Ununpentium unknown	116 Lv Livermorium <293>	117 Uus Ununseptium unknown	118 Uuo Ununoctium unknown

57 La Lanthanum 138.90547(7)	58 Ce Cerium 140.116(1)	59 Pr Praseodymium 140.90766(2)	60 Nd Neodymium 144.242(3)	61 Pm Promethium <145>	62 Sm Samarium 150.36(2)	63 Eu Europium 151.964(1)	64 Gd Gadolinium 157.25(3)	65 Tb Terbium 158.92535(2)	66 Dy Dysprosium 162.500(1)	67 Ho Holmium 164.93033(2)	68 Er Erbium 167.259(3)	69 Tm Thulium 168.93422(2)	70 Yb Ytterbium 173.054(5)	71 Lu Lutetium 174.9668(1)
89 Ac Actinium <227>	90 Th Thorium 232.0377(4)	91 Pa Protactinium 231.03588(2)	92 U Uranium 238.02891(3)	93 Np Neptunium <237>	94 Pu Plutonium <244>	95 Am Americium <243>	96 Cm Curium <247>	97 Bk Berkelium <247>	98 Cf Californium <251>	99 Es Einsteinium <252>	100 Fm Fermium <257>	101 Md Mendelevium <258>	102 No Nobelium <259>	103 Lr Lawrencium <262>

NINE COUNTRIES, TWO YEARS

8,528
servers
reused
through
resale

3,765
servers
responsibly
recycled

10,409
pounds of toxic
material avoided
being sent to
landfills



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SOLUTIONS

Li-ion BATTERY MANUFACTURING

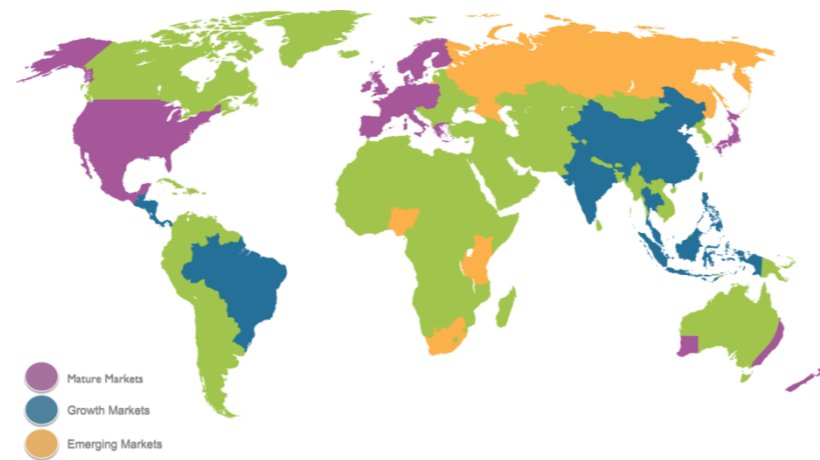
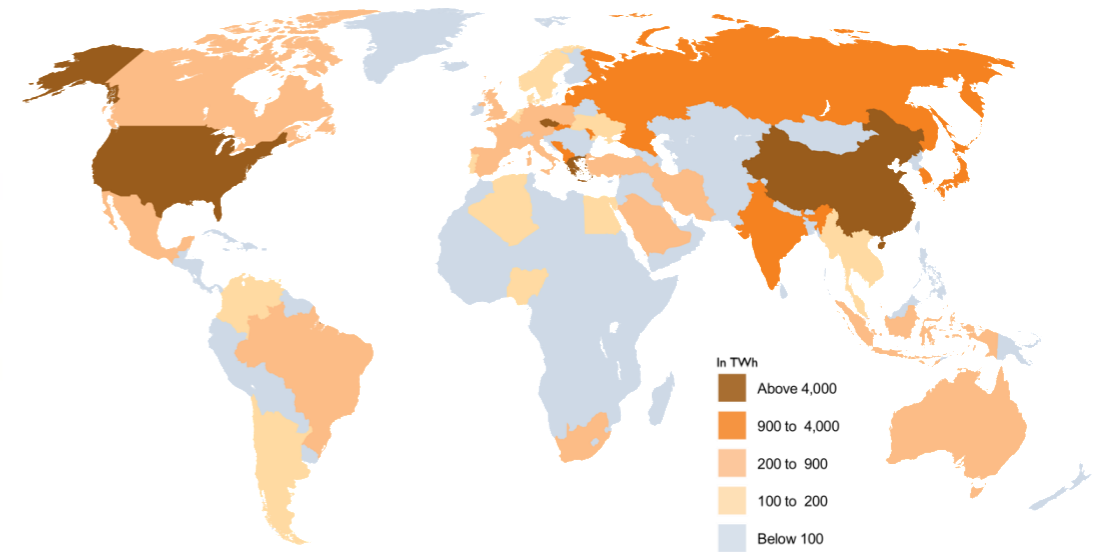
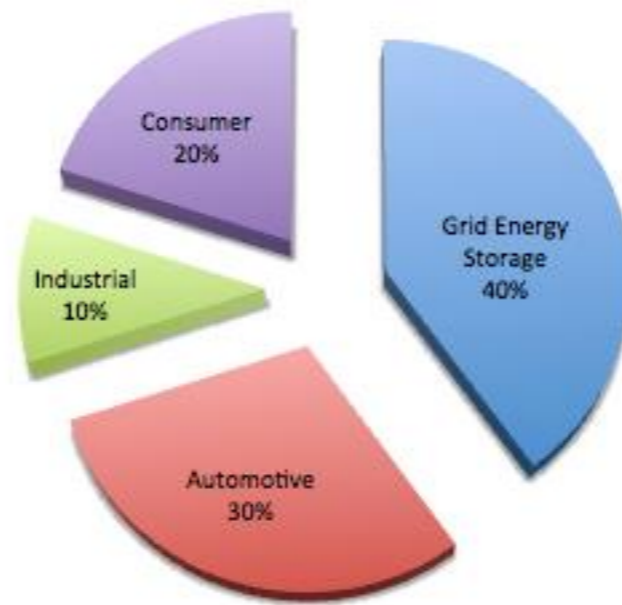
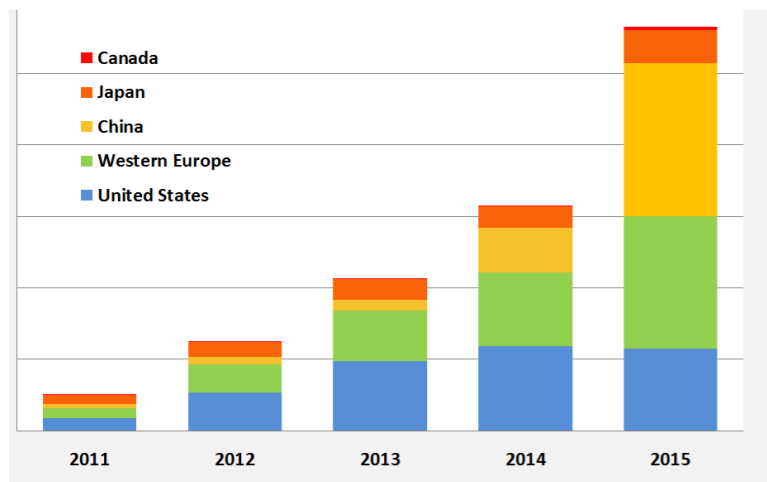


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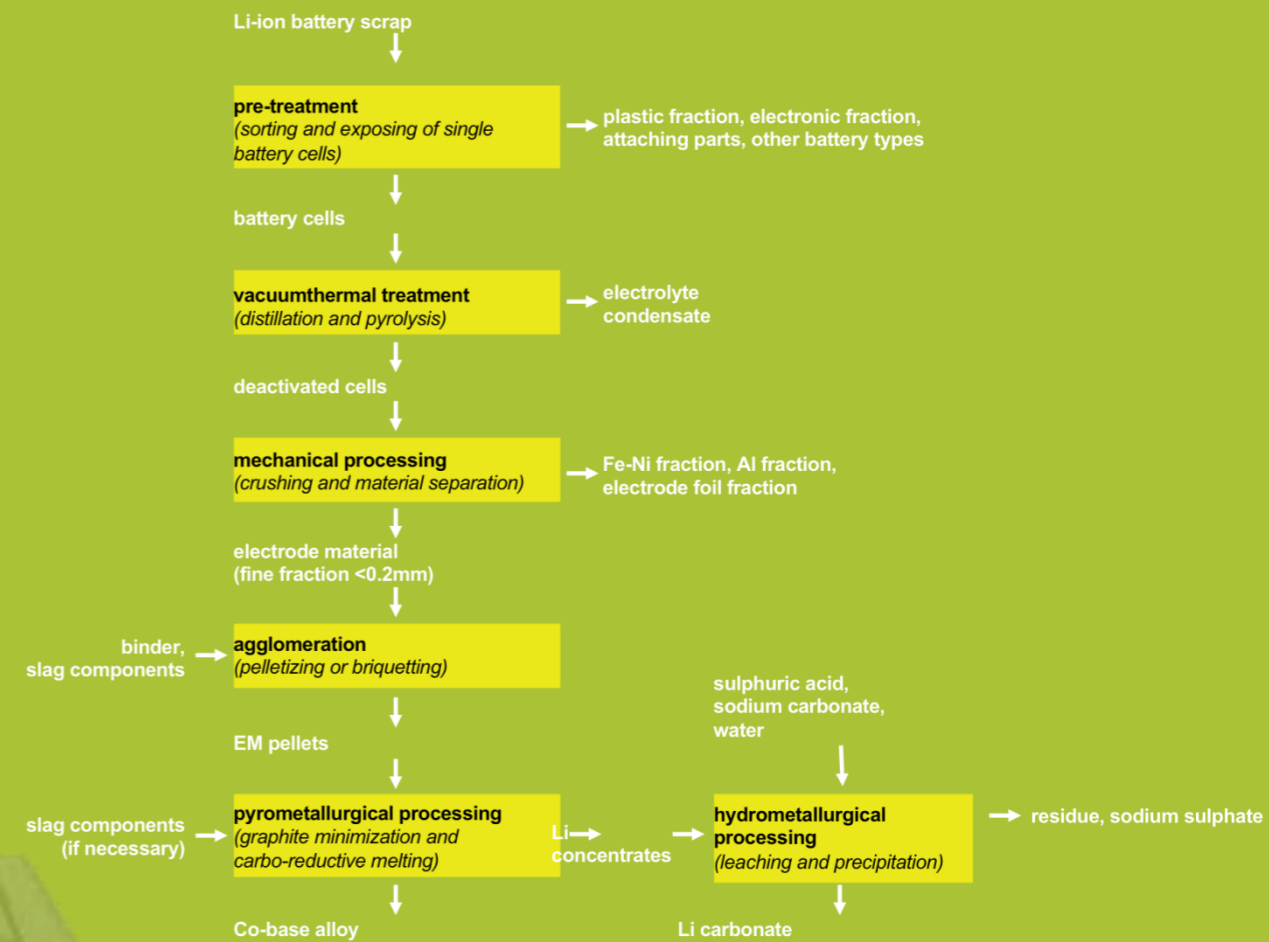
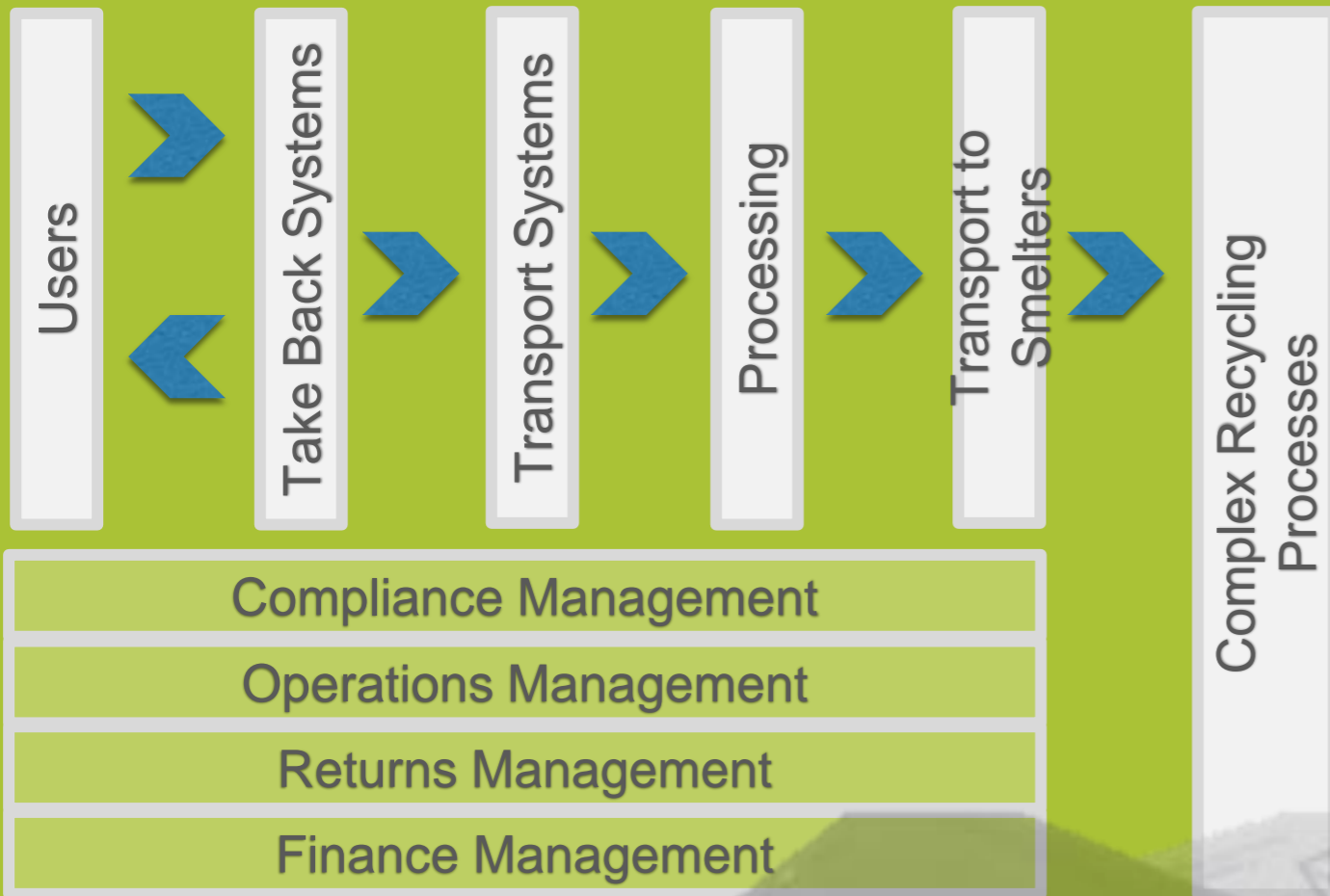
WHERE ARE THEY USED?

Global Li-Ion Battery Market by 2020

Sales of plug-in electric vehicles



BATTERY RECYCLING IS EXPENSIVE

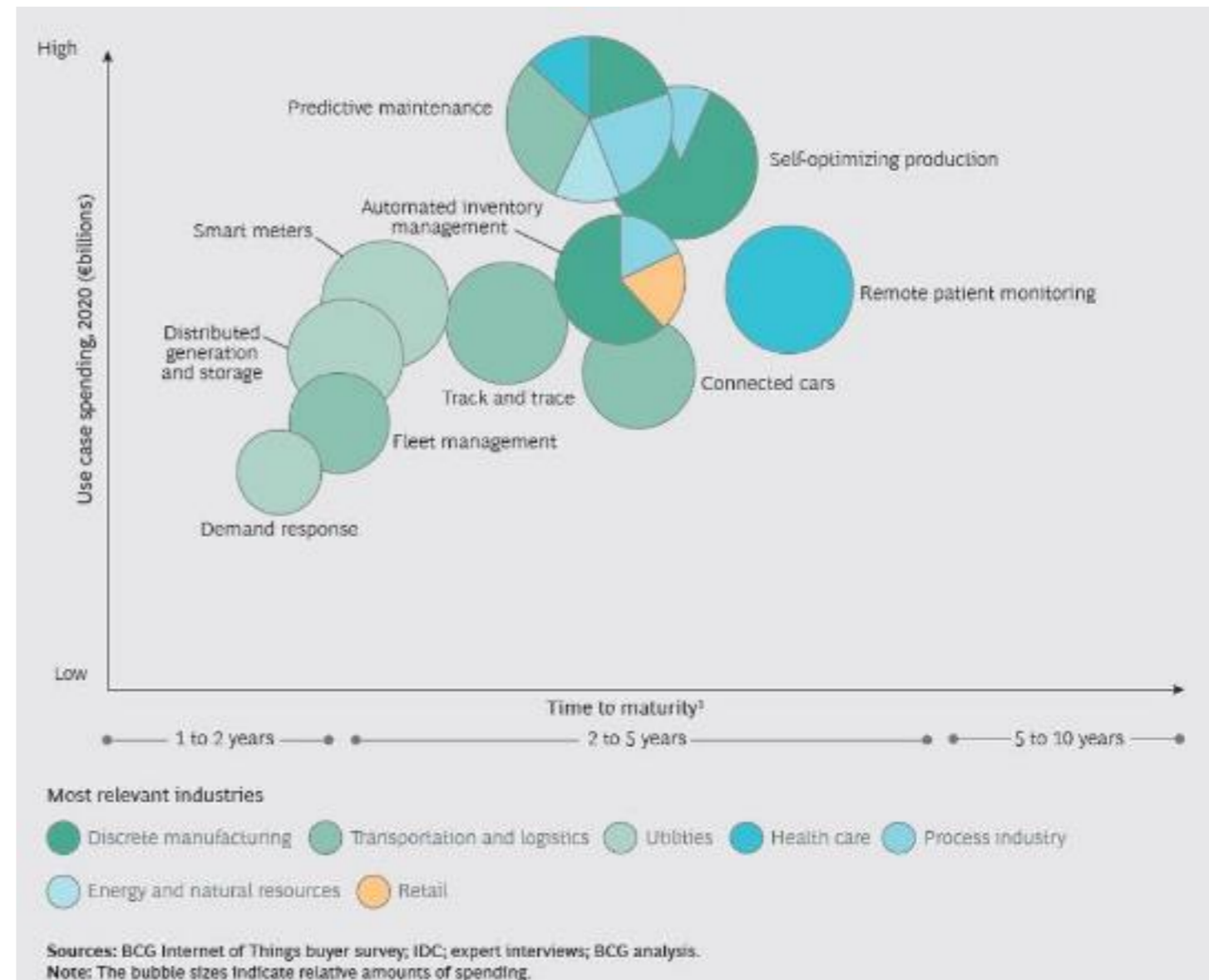


INTERNET OF THINGS

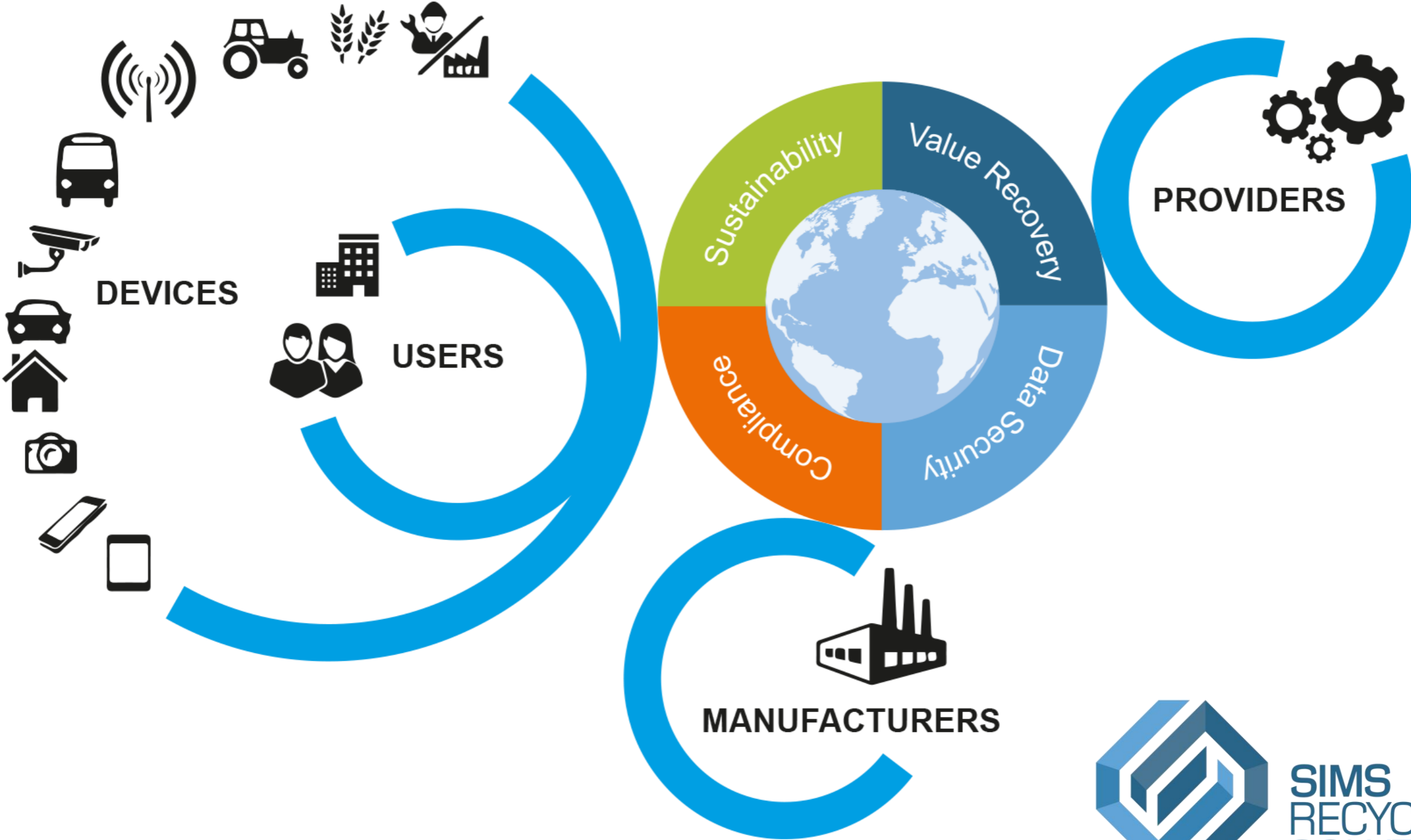
By 2020

60 Billion IoT devices

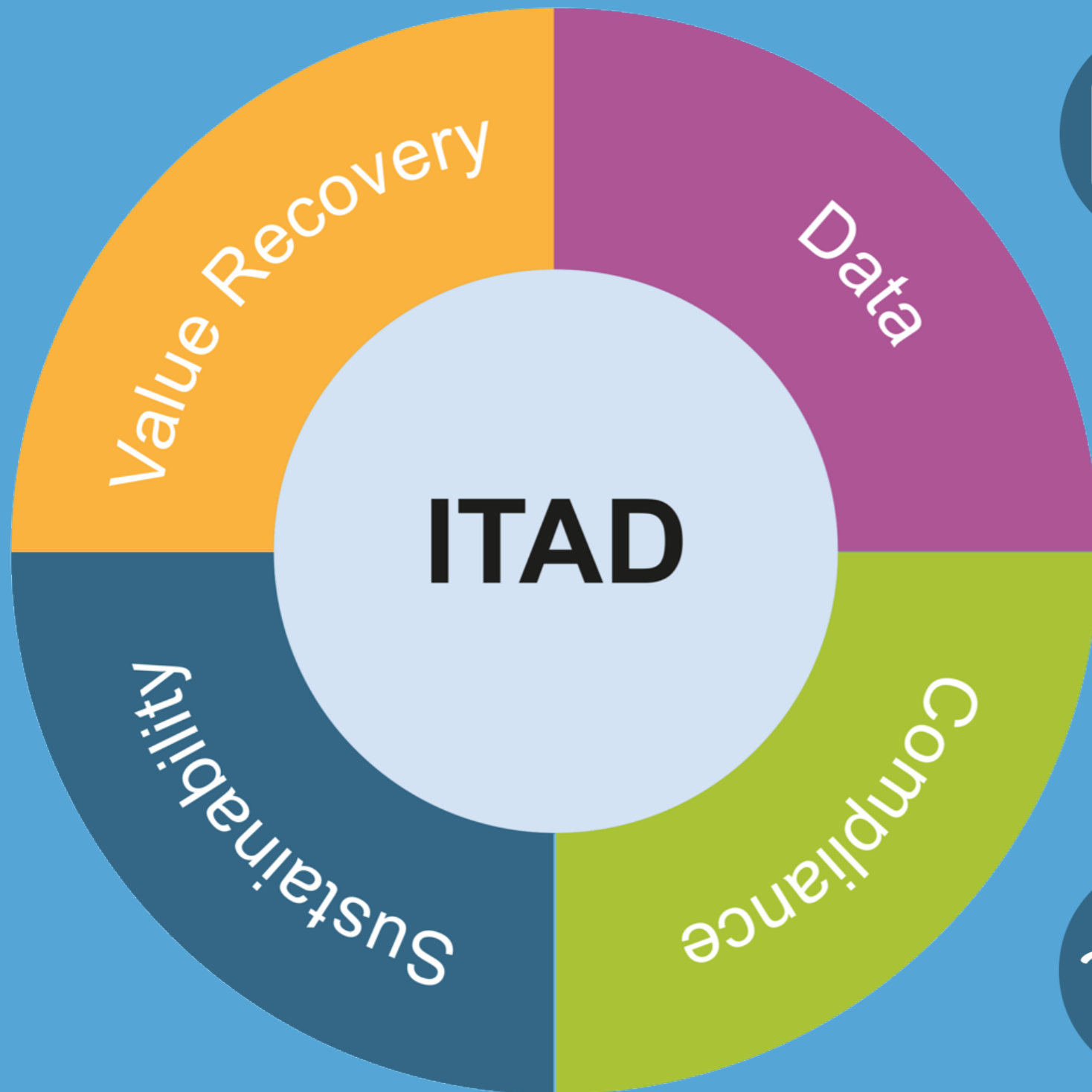
IoT market will reach
\$250 Billion (BCG, Forbes, Gartner)



INTERNET OF THINGS

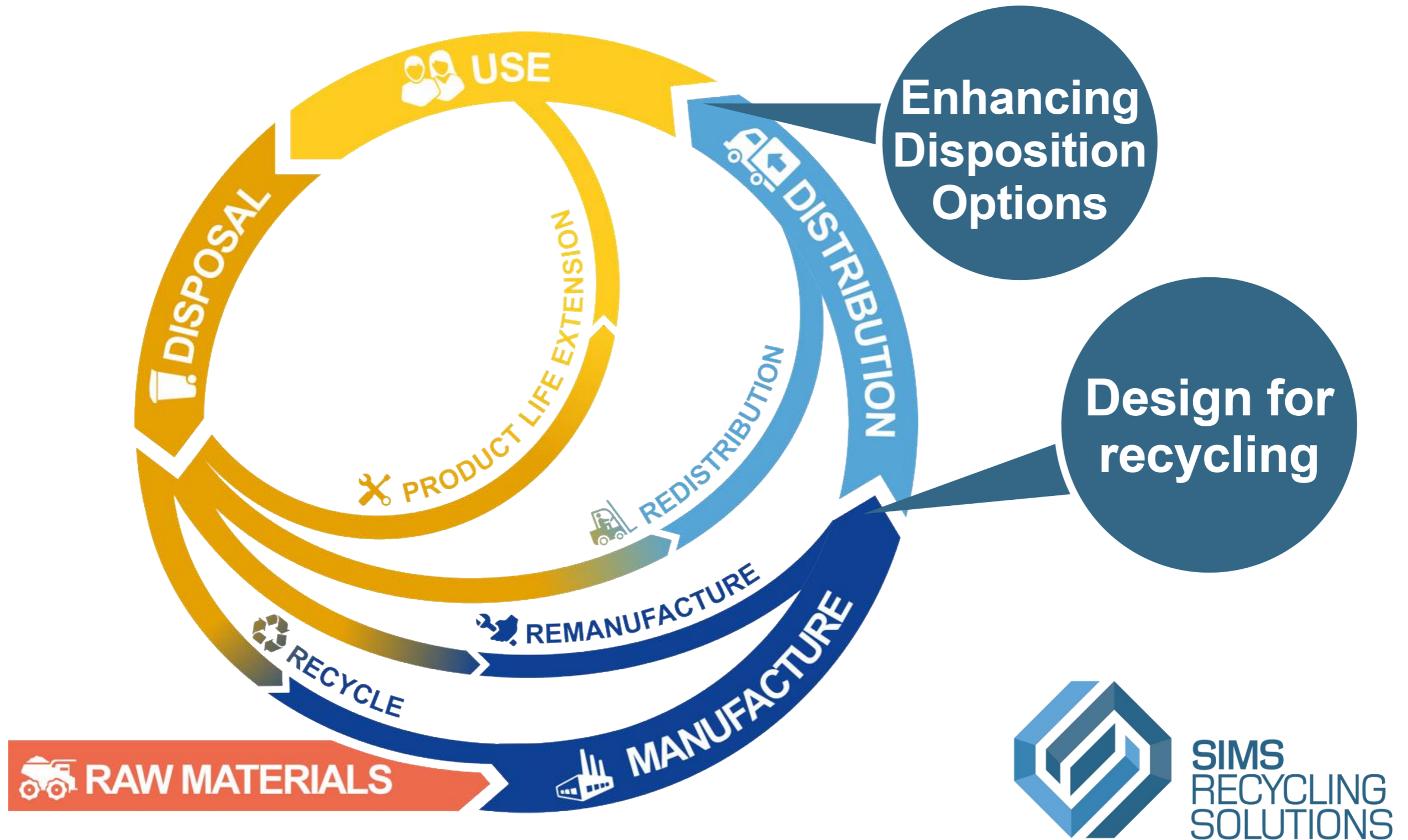


KEY DRIVERS ARE THE SAME



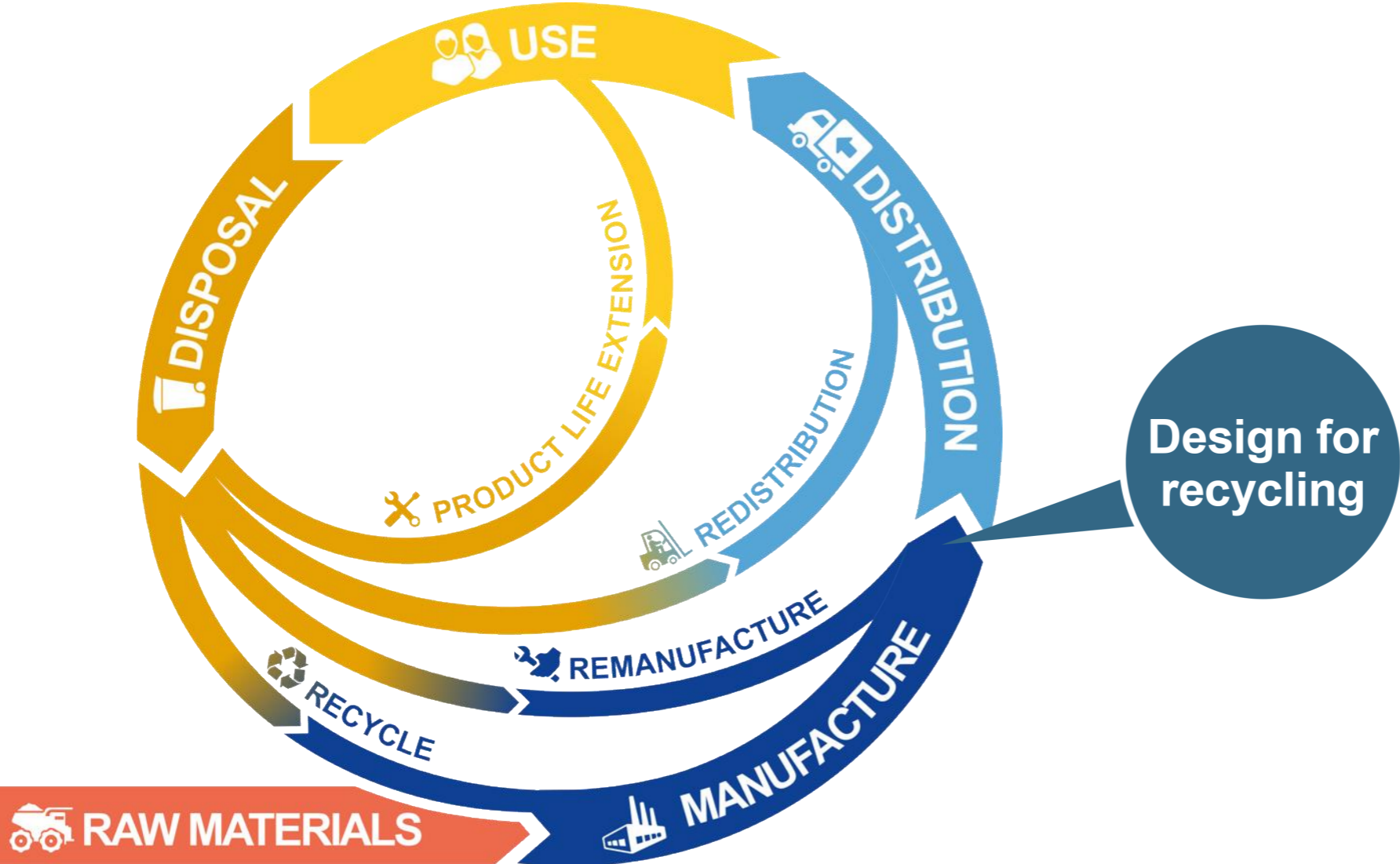
SIMS
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THE FUTURE OF ITAD



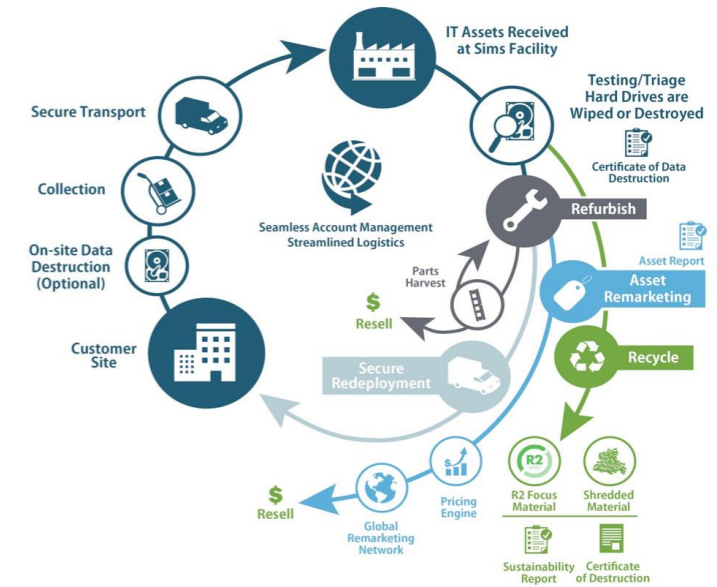
DRIVING THE CONCEPT FORWARD

Working with Manufacturers

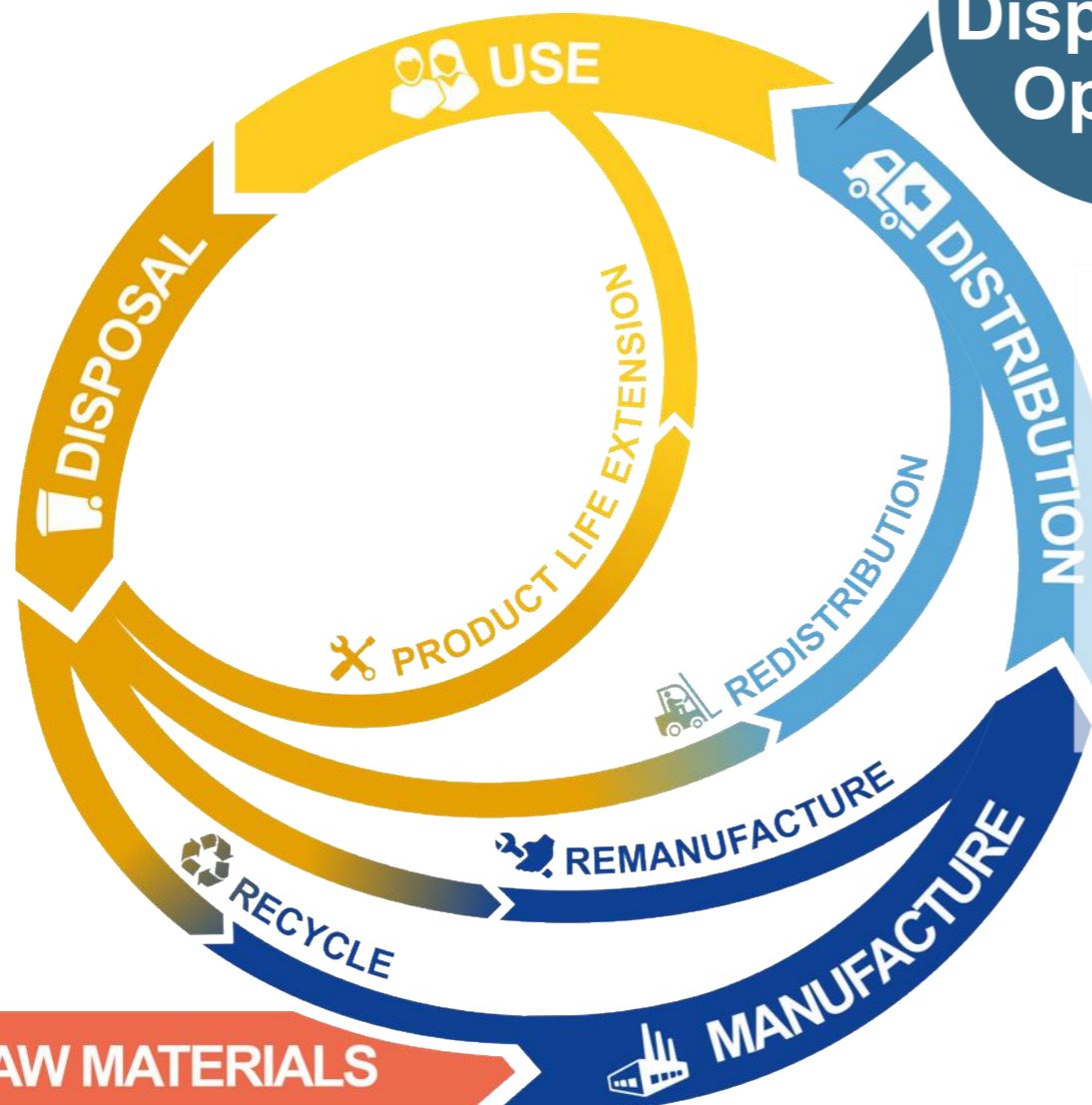


DRIVING THE CONCEPT FORWARD

Working with Industry



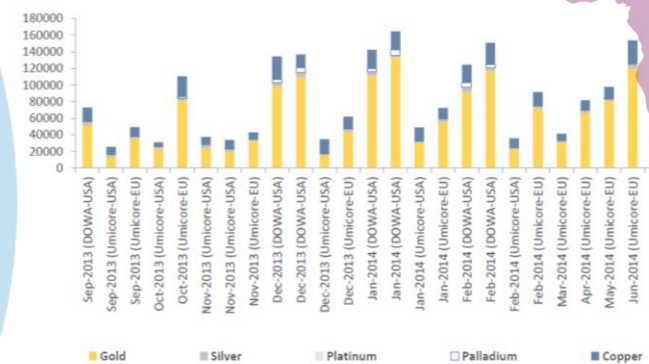
Enhancing
Disposition
Options



OVER 10 MILLION
kgs processed in
the last 5 years

OVER 5000
collections from
47 countries

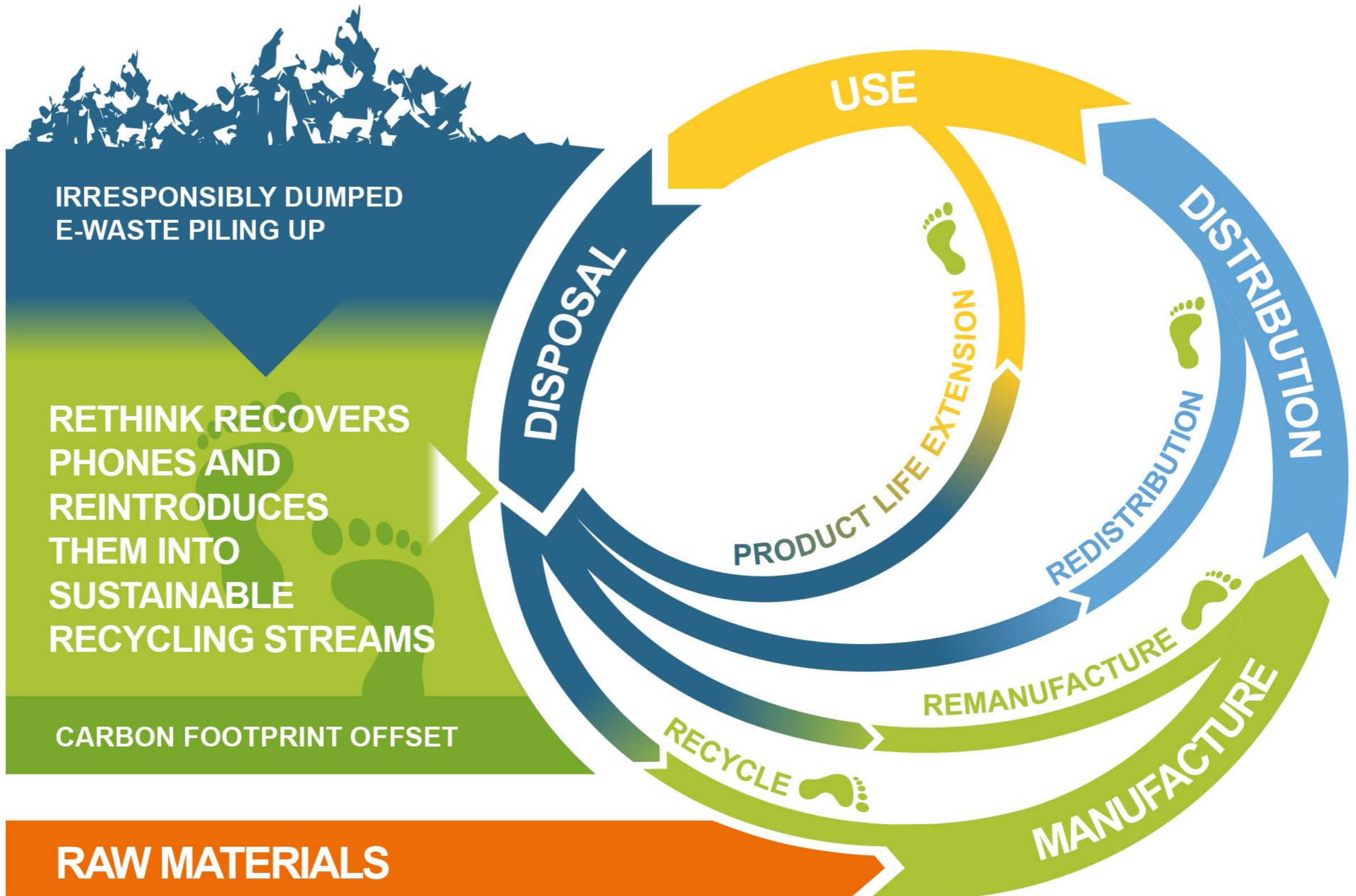
Precious Metals Recovery (by Date)





Rethink

Reuse • Recycle • Reinvent



RETHINK MOBILITY

Global Impact on landfill reduction and material reuse

CO2 emission reduction – offsetting and neutralising your footprint

CSR – Employment and Education opportunities

Support digital inclusion

Employee Engagement

Evidence based reporting – GRI standards

Brand profile enhancement

Service Portfolio Enhancement



Rethink

Reuse • Recycle • Reinvent

SUSTAINABLE GROWTH IN SCOTLAND

Key Priorities:

- investing in people and infrastructure to safeguard Scotland's future
- **fostering a culture of innovation and research and development**
- stimulating inclusive growth and creating opportunity through a fair and inclusive jobs market
- promoting Scotland on the international stage to boost our trade, investment, influence and networks

Key Sectors:

- Energy
- Pharmaceutical
- Finance
- Infrastructure

