IMAP

The Circular Economy
Sector Report Q4 - 2023

Unstoppable & Accelerating

Contents

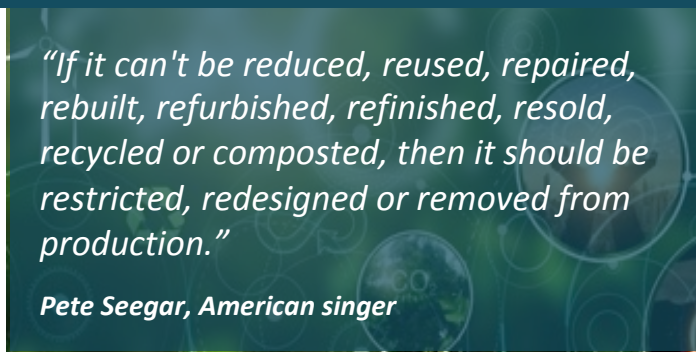
THE CIRCULAR ECONOMY

Unstoppable & Accelerating

Pete Seegar, the American singer, should have won a Noble Prize for Economics for one of the most prophetic songs ever sung: *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…* The case for a transition to a more circular less linear economy is not a moral crusade or a shift away from a capitalism-based society. Even if we cannot agree on the definition and applications of the precautionary principle behind a circular economy, surely we can all agree that it should cost less to do a minor repair on an otherwise perfectly working dishwasher than buy a new replacement.

The circular economy is not just about better use of material and energy resources. It is being seen as a fundamental change in the way we find practical solutions to irreversible risks to our environment whilst spreading a decent standard of living as far and wide as possible. It teaches us to think not just forward in steps, but also backward in steps. For example, we didn't have to change everything in a car to reduce emissions, only the powertrain, but in doing so we have also reduced the overall demand for materials. Equally, circular thinking also challenges myths like all plastics are bad or if something is renewable or carbon neutral it is necessarily sustainable. Circularity also forces us to examine trade-offs such as energy transition that is highly material-intensive.

Our research has shown that as more consumers and investors have become concerned with environmental issues, more companies are starting to be creative and embrace the circular economy in their core mission and strategy, especially if a competitor has moved. Indeed, we believe this is an unstoppable and accelerating trend with legislative support coming recently passed bills such as the "Fair Repair Act" in New York and California.



This is reflected in nearly 100 M&A deals in the UK in the past 12 months (see table on page 12) in clean tech, environmental consulting, recycling and other areas that we believe form part of the Circular Economy. M&A activity in UK listed companies suggests that EBITDA multiples for circular economy companies have jumped 27% in the past year. Going forward, we also expect to see continuing high activity levels amongst environmental consultants as demand for transparency and objectivity increases. Many PE firms having acquired a platform in the space and looking for bolt-ons in competition with established platforms like RSK and Anthesis leading the way. Consultants focused on environment on average have fetched c13% valuation uplift over its peers in recent years.

Inevitably, there is resistance particularly in markets where consumers are very price-sensitive such as textiles. As the strong growth in the organic food industry has shown we only need a few consumers to be not price sensitive to begin. Indeed, the commercial success of brands like Tesla, Octopus Energy and musicMagpie has shown that one doesn't even have to appeal directly to consumers' instincts on environment but obliquely to kick start revenues. Judging by social media comments, most Tesla owners are initially attracted by its "cool" features and a growing charging network than the corporate mission to save the planet. The success of Octopus Energy is based on its user-friendly apps and transparent communication, but it may now be attracting some customers based on its focus on renewable energy. musicMagpie initially attracted customers who replace their phones more frequently but is now attracting corporates where sustainability has become a core part of strategy.

CAN WE DEFINE AND MEASURE A CIRCULAR ECONOMY?

There is no single accepted definition, which is not a surprise given the broad scope of the underlying principles. The EU defines the circular economy as a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In practice, this definition implies reducing waste to a minimum and recycling as much as possible.

It is estimated that the global economy today consumes around 100 billion tonnes of materials per year in feeding, housing, clothing, transporting and entertaining 8 billion people. According to MaterialsFlows.Net, in the period from 1970 to 2019, the global extraction of biotic and abiotic materials increased by more than 210%, reaching an amount of 96 billion tonnes in 2019. Two distinct phases of material extraction can be identified: a period of modest growth between 1970 and 2002, with only a short period of stagnation caused by the collapse of the former Soviet Union; and from 2003 onwards, a period of significant increase in material extraction.

The main proponents of the circular economy assert that by 2050 material extraction and use is expected to double relative to 2015 levels, which could further threaten life support systems, which are already at a breaking point, unless urgent action is taken.

"Impact investment and the circular economy have been much talked about for a long time but until very recently there was little change in investment behaviour. However, we have suddenly seen in a very short period of time, led by LP demands in PE funds as well as public market investors, a real clamour for deals that have a potential to make a difference. The pace of consolidation by PE owned platforms like RSK, Anthesis, ERM and APEM is nothing short of staggering and the premium paid for new platform investments is impressive."

Karri Vuori
Managing Partner
IMAP UK

WHY WE CAN'T JUST JUST RECYCLE OUR WAY OUT OF A LINEAR ECONOMY?

According to the Circularity Gap Report, secondary materials that are recycled back into the global economy from waste accounted for 7.2% of all material inputs into the economy in 2021.

However, by this measure, the global circularity has shrunk from 9.1% from 2016 to 7.2% of total material inputs. This may be because recycling has stagnated but also due to increasing virgin extraction and more materials are going into stocks. Of the total material consumed in 2021, stock build-up represented 38% which is mainly in the form of large, long-lasting structures such as buildings, infrastructure and roads as well as vehicles, machinery, and the equipment and appliances. This means that the global economy cannot recycle enough to create a truly closed-loop of consumption. A circular economy focused on recycling alone cannot keep up with virgin material use rising to new highs every year.

Global material consumption, 2021		
	billion tonnes	*share of consumption*
Non-metallic ores	42.8	43%
Renewable biomass	21.2	21%
Fossil fuel	15.5	16%
Metal ores	9.4	9%
Non-renewable biomass	3.8	4%
Total material extracted	**92.7**	**93%**
Recycled secondary materials	7.2	7%
Total consumed	**99.9**	

Source: The Circularity Gap Report, 2023

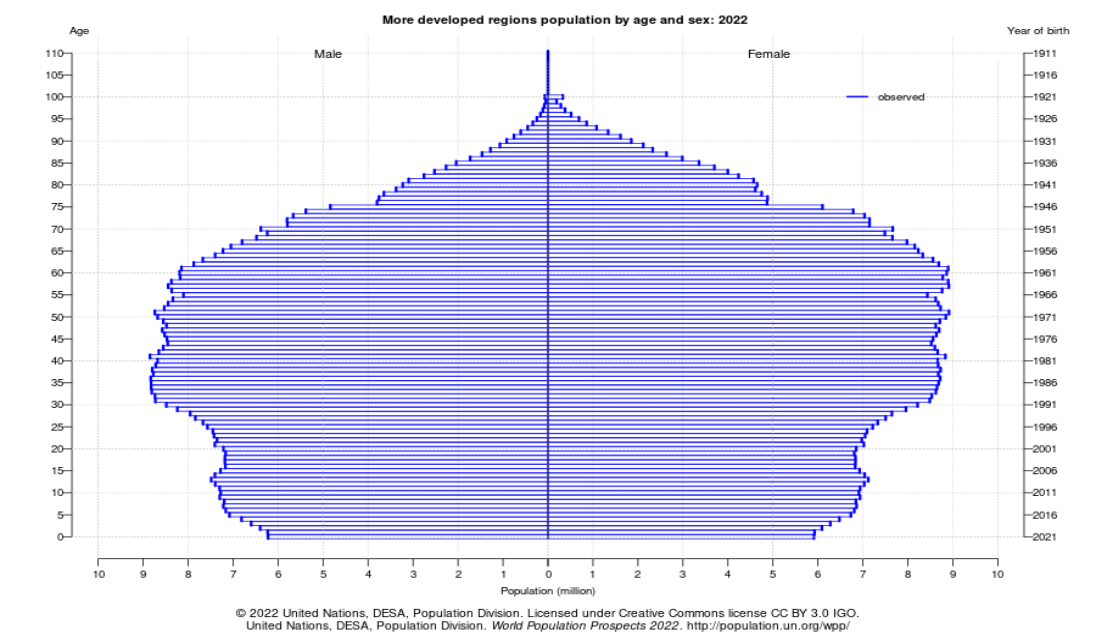
It is important to note that while fossil fuels dominate the green agenda it represented only 16% of total inputs in the global economy in 2021. However, the transition to clean energy is not without its costs. It is a material-intensive process, particularly for metals, and has helped to increase metal ore extraction. Of course, the relatively sharp increase in metal ore extraction is also due to the expansion of the built environment and manufacturing sectors. Consumption of non-metallic minerals has also increased sharply in the last five decades, and represented almost half of total material extracted in 2021. This is primarily due to a booming construction industry and the need to house, provide infrastructure and cater for rising populations in many parts of the world. The mining of metals, as well as non-metallic minerals, has spurred biodiversity loss, in addition to pollution of water, air and soil, and toxic waste generation.

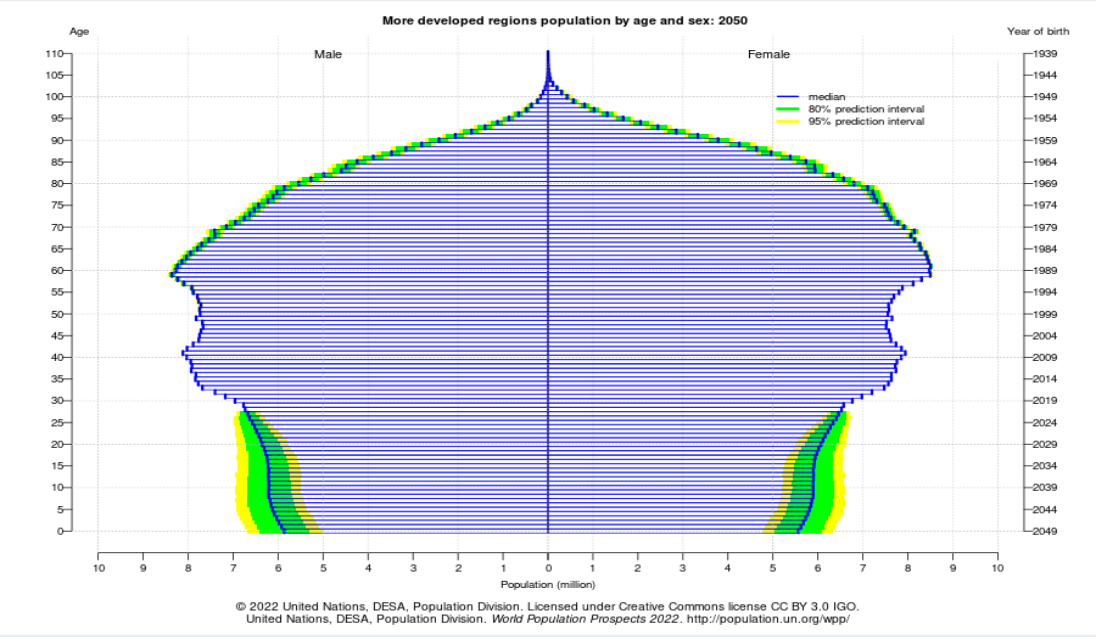
Biomass represented approximately 25% of all material inputs in 2021. Whilst the majority of this is renewable, the Circularity Gap report does not include it in its circularity measure. The argument being that the ways in which biomass is cultivated is precarious, with land system change often linked to deforestation, soil depletion and the draining of wetlands, which have all served to damage biodiversity while damaging carbon sinks, the latter also causing an increase in emissions. While carbon neutrality is a necessary condition for biomass to be considered sustainable, it is not sufficient in itself: other nutrients such as nitrogen and phosphorus should be fully circulated back into the economy or the environment as well.

THE HUMAN DIMENSION

The popular definitions of circular economy exclude a problem not widely appreciated today: the flattening and ageing human resources. In 2020, the growth rate of the global population fell under 1% for the first time since 1950 and the latest projections by the United Nations suggest that the world's population will grow by just 0.6% p.a. to 2050. Most of this growth is expected to come from just eight countries. Should fertility rates in countries like India and Pakistan fall more rapidly than expected these projections could prove optimistic.

Population by sex and age in more developed countries, 2022 and 2050





Source: UN

Significantly, the global population above age 65 years is growing more rapidly than the population below that age. As a result, the share of global population at ages 65 and above is projected to rise from 10% in 2022 to 16% in 2050. A secondary effect of this is that a greater proportion of working population will be devoted to taking care of the non-working population. Fertility has fallen markedly in recent decades for many countries. Today, two-thirds of the global population lives in a country or area where lifetime fertility is below 2.1 births per woman, roughly the level required for zero growth in the long run for a population with low mortality. The graphs above show that not only the population in the most developed world (North America, Europe, Japan, Oceania) has effectively peaked but the age profile will become more lopsided by 2050.

We also note that a circular economy isn't socially just by default. If increased automation and robotics reduce demand for repetitive soul-destroying jobs then it should be encouraged. However, this must be matched by new channels for all humans to explore their creativity.

CIRCULAR SOLUTIONS

We now explore where the different principles of circular economy can be applied in three resource categories. We believe that given the limitations of recycling, the other pillars of the Circular Economy will have to do more of the lifting. We have also added human resources that needs to be part of the mix when thinking circularity. The table below is not comprehensive but hopefully provides a framework.

Principles	*Materials*	*Energy*	*Human Resources*
Use less	Increased efficiency, 3D printing, ride bikes instead of driving, car sharing	Reduced consumption of fossil fuels, less reliance on renewable energy	Increased automation, robotics, less soul-destroying repetitive jobs
Use longer	More durability and repairability	Less demand	Incentives to prolong career, focus on creativity rather than repetitive tasks
Use again	Reuse materials at their highest value	Capture and reuse heat	Transferable skills
Regenerate/make clean	Phase out hazardous or toxic materials and processes	Phase out fossil fuels	Reskill

Source: IMAP research

We can design stocks like buildings, infrastructure, machinery and vehicles to be rich resource mines for the future, and design manufactured goods and consumables to be recycled and made regenerative. Furthermore, the focus must also centre on getting more value out of fewer materials.

GREENWASHING AND CHALLENGES IN QUANTIFYING CIRCULARITY

If it is not easy for consumers to accurately measure the environmental impact of their economic activity, it is even harder for them to be sure that they are not substituting to a product that claims to address environmental concerns but is making no difference or even further harming the environment. Biodegradable plastics are often claimed to be sustainable and better for the planet. In many instances, these properties are inaccurate and misleading. Not only are biodegradable plastics made from fossil-fuels, they also end up creating microplastics and contaminating other plastics recycling streams. This should not deter the progress made so far. Equally, the answer to this problem is not to bombard consumers with more technical data on emissions, energy, water, etc., saved.

"We see Swedish companies are wanting to get out in front, have high ambitions and want to play a driving role in this area. The circular economy means new business opportunities which can contribute to increased competitiveness for Swedish companies. The appetite for Swedish investors to invest in impact companies with a clear purpose and commitment to address global challenges is strong. We also see more Swedish investors referring to ESG focus areas and some even conduct an ESG Due Diligence."

Andreas Anderberg
Partner
IMAP Sweden

An objective measure for global circularity has many advantages, not least that it can be used to call for policies. After all, the figures from the Circularity Gap report are clear: circularity is in reverse. The circular economy, however, is a holistic and complex concept, and representing it through one single metric will never give a true picture.

One obvious limitation is that there is more to circularity than mass recycling. The circular input metric only measures the mass-based recycling of materials that re-enter the economy and does not consider their composition, value or level of quality. Making things last and using less also aren't fully captured. Moreover, reaching a fully circular economy is technically not possible: there's a practical limit to the volume of materials that can be recirculated. Materials that can be recycled, such as metal, plastic and glass, may only be cycled a few times, as each cycle degrades quality and will require at least some virgin inputs. The sheer volume of materials we use also poses a challenge: it would take a very slow economy to downsize global material use to match its capacity for recycling. Better and more holistic measures are needed and there will be a role for independent consultants and agencies to differentiate between companies that are making a real impact and those that are pretending to.

CIRCULAR SOLUTIONS FOR MANUFACTURED GOODS AND CONSUMABLES

We recognise that the circular economy solutions applied in different markets will typically only contribute a minor impact but combined we should see the substantial impact that a circular economy can have at a global level. We cannot write about each solution in this report but focus on a few companies that are leading the way in manufactured goods and consumables.

musicMagpie (making consumer goods last longer)

- Founded in 2007, musicMagpie is a circular economy pioneer specialising in refurbished consumer technology. Operating through two brands - musicMagpie in the UK and decluttr in the US - the platform provides consumers with a smart, sustainable and trusted way to buy, rent and sell refurbished consumer technology and physical media products.
- Nearly 400,000 consumer technology products were resold in FY22. In addition, the Group re-sells approximately 10m books and disc media each year that could have ended up as waste. The UK market buys 16m phones per year, of which 15% is refurbished and brands like musicMagpie have helped to build trust. Most mobile phones are typically used for 2-3 years due to battery loss, musicMAGPIE can extend its life to 7-8 years. Its main competition is apathy, with most consumers not bothering to recycle their old phones. According to Back Market, a refurbished smartphone on average uses 91.3% less raw materials, 86.4% less water, generates 89% less e-waste, and puts 91.6% less carbon emissions into our atmosphere compared to brand new. During 2022, musicMagpie's UK consumer tech and disc media customers, along with its trade partners, helped to save over 43,000 tonnes of CO2 - an amount equivalent to providing heating for over 16,000 homes, or powering more than 50,000 flights from London to New York.
- musicMagpie finds that whilst trust is important to both, consumers are relatively price sensitive but the corporate market is less so as ESG has become a top priority and price is less important as a consideration.

NOTPLA (regenerative packaging)

- Notpla is a start-up focused on replacing single use plastic with packaging made with seaweed that is naturally biodegradable and has not been chemically modified. It has two product ranges that are now fully industrialised – take-away boxes for food service industry and an edible packaging membrane for liquids like water, juices and alcohol. Fundamentally, it is superior to other water and grease proof packaging that contains plastic but can claim to be biodegradable. It has capacity to produce 50m boxes per annum compared to 2bn single-use takeaway containers used for food delivery in Europe alone and is cost competitive with “biodegradable” PLA.
- There are about 12,000 species of seaweed but Notpla has developed specific packaging grades that are cheaper than its other uses in medical and food industry. The advantage with seaweed is that it doesn’t compete with food crops, some of the species can grow up to 1-2 metres per day and don’t need fertilisers.
- The EU’s directive on single-use plastics has been adopted in the Netherlands from 1 July with each plastic and PLA take-away box costing an extra 25 cents to consumers. Notpla has passed the Dutch regulatory body’s test and is the first and only plastic free material available in that market and does not need to pay the country’s new plastic tax. It is the only provider of sustainable take-away packaging in the Dutch market, and therefore it is receiving lot of interest from distributors in the Netherlands.

Techbuyer (making IT hardware last longer)

- Founded in 2005, Techbuyer has grown from a company run by just two people to a global organisation with multiple warehouse facilities located worldwide. It buys used enterprise IT equipment and sells them back refurbished and reconfigured with warranties similar to new equipment. Its research has found 3-5 year old servers can perform better than new servers if they are configured correctly and Techbuyer offers such optimisation.
- Corporations looking to meet stricter sustainability targets are also attracted to Techbuyer as optimisation of hardware helps to reduce energy consumption and lower carbon footprint. Increased digitalisation has meant that data centres have become one of the fastest growing source of carbon emissions. We are not surprised to learn that Techbuyer's customers include large corporations and government agencies.

Xaar (reduced energy usage, less chemicals in waste water)

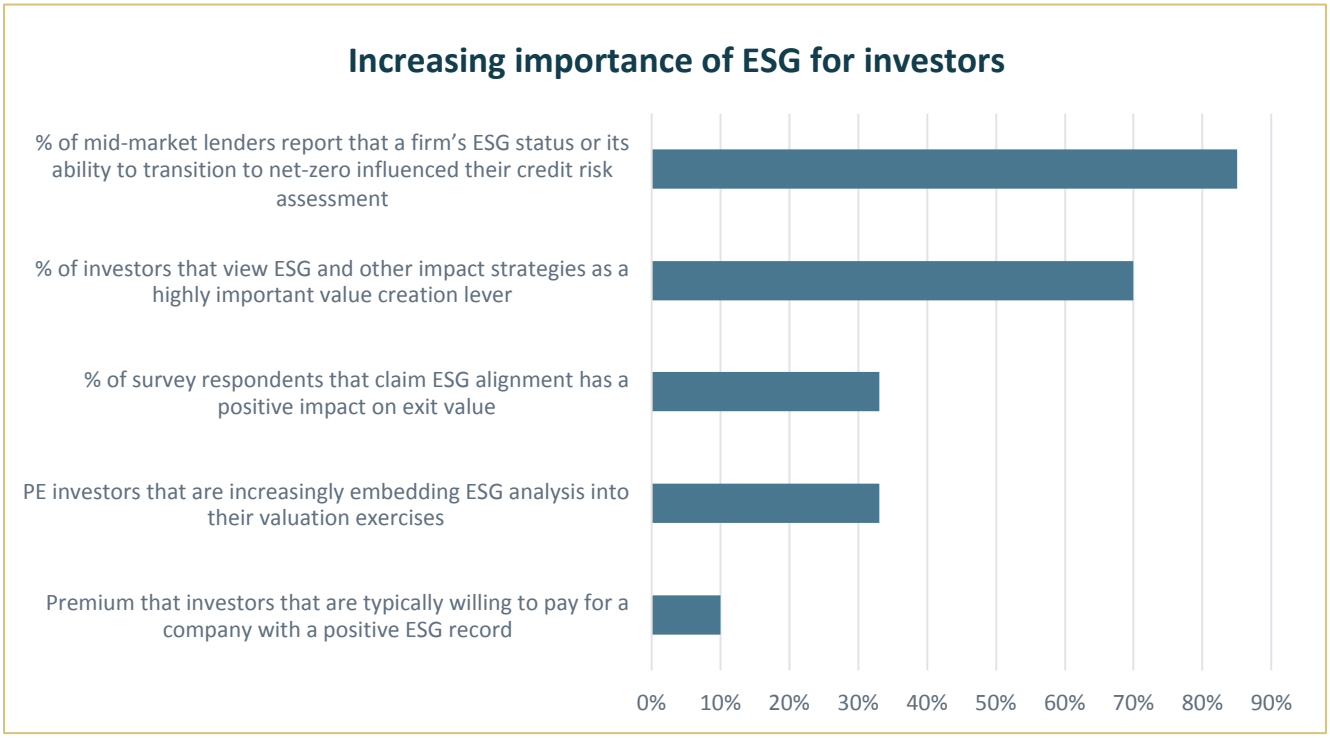
- The technology leader in digital inkjet printheads recently launched a radically new approach for jetting water-based fluids. In the past, water-based inks have proved difficult to use efficiently especially with the heat required to dry the water on the substrate. They also contained harmful chemicals. However, the Xaar Aquinox is helping printers to future-proof their businesses whilst being more environmentally friendly. This new platform reduces energy and water consumption and simplifies production processes for lower production costs, for example, quicker drying times due to less water content in fluid. It uses bulk piezo technology with Xaar's patented chevron architecture for a very energy efficient operation, reducing the power requirements for printers and end users. It reduces chemicals released in waste water, thus meeting emerging environmental standards.

Xeros (reduced water and energy usage for textile and laundry)

- Xeros is focused on licensing sustainable proprietary technology solutions for the laundry and apparel industries. These deliver energy, water and pollution reductions in the production and care phase of clothing manufacture and consumer use. The largest contributors to climate change in the apparel value chains are bleaching, dying and finishing during production phase, and the use of clothing.
- The company is today focused on three technology platforms. XF Flitration provides solutions for capturing microfibres released during machine washing. Xeros now has multiple licensing agreements in place with approved manufacturers for XFilter technology, covering all major global washing machine brands. XC Care helps to make clothes last longer using reusable polymer spheres which reduces carbon, water and waste footprint. IFB Appliances' new domestic 9kg washing machine, featuring Xeros technology to save water and prolong garment life, is in progress for launch in India. XC Finish uses resuable polymer spheres to replace pumice and reduce water and chemicals use by 50% during garment finishing. A new licensing agreement has just been signed with global garment-finishing machine specialists, Yilmak, and distributor, KRM, to provide denim processing technology, to minimise water, chemical, and energy usage in the industry.

M&A IN THE CIRCULAR ECONOMY IS UNSTOPPABLE AND ACCELERATING

The trend is clear and unstoppable. We foresee accelerating corporate activity in the circular economy, led by increasing focus on ESG by consumers and investors, the latter's tendency shown in the graph below.



Source: Surveys conducted by McKinsey, PwC, Grant Thornton

"Recent trends in Germany's M&A landscape show a notable shift towards ESG-driven investments. We are witnessing a growing appetite for impact deals and investors are increasingly recognizing the long-term value and resilience of businesses that prioritize sustainable practices. This trend is not just a passing wave but a fundamental shift in investment philosophy, where positive impact and financial returns are seen as mutually reinforcing objectives."

Dr. Carsten Lehmann
Managing Partner
IMAP Germany

We expect the premium on circular economy transactions to widen further. As discussed earlier, movements like the Right to Repair are not only creating new business opportunities by directly addressing consumer and investor concern over the excessive waste of a linear economy, but also helping them measure, meaningfully, the real impact of their actions as opposed to relying on published data which can be opaque. If the amount of waste saved is less than 5%, then clearly resources are better utilised on more impactful measures. Companies that can help cut through the greenwashing and labels and provide transparent data are likely to attract exceptional revenues and valuations.

Ultimately, companies that have the right philosophy and intent, and can combine it with real impact on increasingly circularity will be the most sought after. Those companies that haven't embraced circularity need to reflect on it. Research from Amazon has shown more than 50% of UK investors have declined an investment in start-ups in the past year due to concerns over the company's sustainability credentials.

We have identified nearly 100 M&A deals in the UK in the past twelve months, reflecting PE funds increasing focus on ESG-led deals.

LIST OF CIRCULAR ECONOMY-RELATED M&A DEALS IN THE UK IN THE PAST YEAR

(Page 1 of 6)

Date	*Target*	*Value ($m)*	*Buyer*	*Focus area*
Oct-22	Bulb Energy	NA	Octopus Energy	Clean & Smart Energy
Nov-22	Lewis & Graves Partnership	NA	Atlas FM	Disposal & Recycling
Nov-22	Idec Group	NA	Keltbray Group (Holdings)	Energy Management & Storage
Nov-22	PRIMA	NA	ResourceWise	Biofuel
Nov-22	Jordan Environmental	NA	HSL Compliance	Environmental Consulting
Nov-22	Patol	NA	Sdiptech AB (publ) (OM:SDIP B)	Disposal & Recycling
Nov-22	TC Bibby & Sons	NA	Cleanology	Disposal & Recycling
Nov-22	Procensol Consulting	NA	Roboyo Group	Process Automation
Nov-22	Maple TopCo	NA	Various	Smart Energy
Nov-22	Power Control	NA	Legrand Electric	Batteries
Dec-22	Mick George	NA	Hanson	Disposal & Recycling
Dec-22	Prolec	NA	KINSHOFER GmbH	Industrial Automation
Dec-22	Tc East Anglia One Ofto	130.8	Transmission Capital Services	Clean Energy & Tech
Dec-22	TriConnex/eSmart Networks	95.4	FWCP Spark (UK) Holdco	Energy Efficiency & Smart Energy
Jan-23	Infinity Asset Management	NA	Copperwood Financial, Inc.	Clean Tech
Jan-23	The TALL Group of Companies	NA	Parseq	Industrial Automation
Jan-23	Enviro Technology Services	NA	Cura Terrae	Climate Tech

Sources: S&P Capital IQ

LIST OF CIRCULAR ECONOMY-RELATED M&A DEALS IN THE UK IN THE PAST YEAR

(Page 2 of 6)

Date	*Target*	*Value ($m)*	*Buyer*	*Focus area*
Jan-23	Wakefield Acoustics	4.5	CECO Environmental (NASDAQ:CECO)	Industrial Automation
Jan-23	C & M Scientific	NA	Scientific Laboratory Supplies	Water Purification
Jan-23	Nexus Vehicle Management	NA	Equistone Partners Europe	Climate Tech & Electric Vehicle
Jan-23	Offshore Helicopter Services UK	NA	Ultimate Aviation Group	Energy Efficiency
Jan-23	Hydro Flo Environmental	NA	Hydrogen EnGergy & Power Group	Water Purification
Jan-23	Eltrium	NA	TAE Power Solutions, LLC	Energy Management & Storage
Jan-23	Mira Ugv	NA	Iveco Defence Vehicles S.p.A.	Autonomous Vehicles
Jan-23	Power by Britishvolt	10.2	Recharge Industries Pty	Energy Storage
Feb-23	Mina Digital	NA	FLEETCOR Technologies, Inc. (NYSE:FLT)	Climate Tech & Electric Vehicle
Feb-23	Sella Controls	NA	HIMA Paul Hildebrandt GmbH	Industrial Automation
Feb-23	Red Box Recorders	NA	Uniphore Technologies Inc.	Industrial Automation
Feb-23	Magma Moulding	NA	Brook Mill	Plastic reduction
Feb-23	Future Biogas Group	33.6	3i (LSE:3IN)	Biomass & Clean Tech
Mar-23	JBM Solar Projects	NA	RWE (XTRA:RWE)	Clean Energy
Mar-23	J. Foley Electrical	NA	J R Rix & Sons	Climate Tech & EV
Mar-23	ReNew Energy Global Plc	268.6	Canada Pension Plan Investment	Clean Energy
Mar-23	Torpedo Factory Group plc	3.7	Aukett Swanke Group (AIM:AUK)	Industrial Automation

Sources: S&P Capital IQ

LIST OF CIRCULAR ECONOMY-RELATED M&A DEALS IN THE UK IN THE PAST YEAR

(Page 3 of 6)

Date	*Target*	*Value ($m)*	*Buyer*	*Focus area*
Mar-23	LDC (Managers)	NA	Safari Bidco	Smart Energy
Mar-23	Bennamann	51.0	CNH Industrial N.V. (NYSE:CNHI)	Clean Energy
Mar-23	Vohkus	NA	Specialist Computer Centres	Disposal & Recycling
Mar-23	Synecore /Meesons Futures	NA	H.I.G. Capital, LLC	Sustainable Buildings
Mar-23	Concept Life Sciences	19.2	Limerston Capital	Environmental Consulting
Mar-23	Neo Environmental	5.6	Origin Enterprises plc (ISE:OIZ)	Environmental Consulting
Mar-23	Renewable Oil Services	NA	Muehlhan Wind Service A/S	Clean Energy
Apr-23	Indian Energy	4.0	FA Power Renewables Private	Clean Energy
Apr-23	Levelise	NA	BUUK Infrastructure No 2	Energy Efficiency
Apr-23	Ecosphere+	NA	Zero Imprint .	Climate Tech
Apr-23	Gapp Automation	NA	Rubix Group International	Industrial Automation
Apr-23	Pelagian	NA	OEG Offshore	Clean Tech
Apr-23	Transcend Packaging	NA	ITOCHU Corporation (TSE:8001)	Green Consumer Goods
Apr-23	Sureserve Group plc	278.0	Cap10 Partners LLP	Water Purification & Smart Energy
Apr-23	Envevo	NA	TowerBrook Capital Partners	Electric Vehicle
Apr-23	Celtic Vacuum	NA		Environmental Consulting
Apr-23	Ocean Marine Systems	NA	Hundested Propeller A/S	Industrial Automation

Sources: S&P Capital IQ

LIST OF CIRCULAR ECONOMY-RELATED M&A DEALS IN THE UK IN THE PAST YEAR

(Page 4 of 6)

Date	*Target*	*Value ($m)*	*Buyer*	*Focus area*
Apr-23	Pineapple Power Corporation plc	148.9	Element-2	Clean Energy
Apr-23	Parafix Tapes And Conversions	NA	ADDEV Materials SAS	Clean Tech
Apr-23	Canopy Simulations	NA	Michelin (ENXTPA:ML)	Autonomous Vehicles
May-23	Future Work Force	NA	AROBS Transilvania Software S.A. (BVB:AROBS)	Industrial Automation
May-23	I2 Analytical	NA	Normec Group	Environmental Consulting
May-23	Flowline	NA	FM Conway	Disposal & Recycling
Jun-23	UK Waste Solutions	NA	Reconomy (UK)	Disposal & Recycling
Jun-23	Evolution Water Services	NA	Phenna Group	Water Hygiene
Jun-23	Net Zero Infrastructure Plc	NA	LINE Hydrogen (Australia) Pty	Clean Energy
Jun-23	MSS Group	NA	Stellex Capital Management	Water Purification
Jun-23	L.C.M. Systems	NA	Interface Inc.	Industrial Automation
Jun-23	Ecofficiency	NA	Reconomy (UK)	Disposal & Recycling
Jun-23	Carbon Capture & Sequestration	NA	Hydrogen Utopia International	Climate Tech
Jun-23	Wessex ECOEnergy	5.10	Good Energy Group PLC (AIM:GOOD)	Electric Vehicle
Jun-23	Boston	NA	Source Code La Tribune	Automation
Jun-23	Ventient Energy Services	NA	Renantis S.p.A	Clean Energy
Jul-23	Trident Water Solutions	NA	Phenna Group	Water Purification

Sources: S&P Capital IQ

LIST OF CIRCULAR ECONOMY-RELATED M&A DEALS IN THE UK IN THE PAST YEAR

(Page 5 of 6)

Date	*Target*	*Value ($m)*	*Buyer*	*Focus area*
Jul-23	Ecometrica	NA	EcoOnline UK	Environmental Consulting
Jul-23	NoBlue	NA	Elevate 2	Industrial Automation
Jul-23	Kerridge Commercial Systems	NA	CapVest Partners LLP	Industrial Automation
Jul-23	Dual Fuel	NA	Green House Capital	Fuel Cells
Jul-23	Little Fish (UK)	NA	Seidor Logistics SL	Process Automation
Jul-23	Hydro International	NA	Oldcastle infrastructure, Inc.	Water Treatment
Jul-23	Bateman Skips	NA	RSK Group	Disposal & Recycling
Aug-23	Alteration Earth PLC	160.8	Verdant Earth Technologies	Clean Tech
Aug-23	NextWind Capital	750.0	Various	Clean Energy
Aug-23	Trios Group	NA	Arcus FM	Energy Efficiency
Aug-23	Harries Automation & Controls	NA	Actemium UK	Industrial Automation
Aug-23	Kinovo plc*	NA	Rx3 Holdings	Clean Energy
Aug-23	Waterco	NA	Employees	Environmental Consulting
Aug-23	Lorch Schweisstechnik	23.8	DAIHEN Corporation (TSE:6622)	Industrial Automation
Aug-23	Osirium Technologies PLC	7.5	Sailpoint Technologies Uk	Industrial Automation
Aug-23	BMM Energy Solutions	NA	Drax Group plc (LSE:DRX)	Climate Tech
Sep-23	Zenobe Energy	1,067.0	KKR (NYSE:KKR); Infracapital	Climate Tech

**Possible offer rescinded*

Sources: S&P Capital IQ

LIST OF CIRCULAR ECONOMY-RELATED M&A DEALS IN THE UK IN THE PAST YEAR

(Page 6 of 6)

Date	*Target*	*Value ($m)*	*Buyer*	*Focus area*
Sep-23	Centreco (UK)	NA	DCC plc (LSE:DCC)	Clean Energy
Sep-23	Tomtech (Uk)	0.63	Light Science Technologies (AIM:LST)	Industrial Automation
Sep-23	SulNOx Group PLC	NA	Tergeo	Climate Tech
Sep-23	Kiloh Associates	NA	LaBella Associates,D.P.C.	Environmental Consulting
Sep-23	Enval	NA	Greenback Recycling Technologies	Recycling
Sep-23	Occam Underwriting	NA	Brown & Brown	Clean Tech
Sep-23	Hambro Perks	NA	Phoenix Group Holdings plc (LSE:PHNX)	Clean Tech
Sep-23	Virtus Energy	NA	RSK Group	Climate Tech
Oct-23	Devon Contract Waste	NA	Recycling and Waste Recovery	Disposal & Recycling
Oct-23	Tedd Engineering	NA	Metso Oyj (HLSE:METSO)	Industrial Automation
Oct-23	Banks Renewables	1,008	Brookfield Renewable Partners L.P. (TSX:BEP.UN)	Clean Energy
Oct-23	Cliniwaste	NA	Mitie Group plc (LSE:MTO)	Disposal & Recycling
Oct-23	Chemical Treatment Services (Ireland)	NA	HSL Compliance	Clean Tech

Sources: S&P Capital IQ

RELEVANT IMAP REFERENCES

GUYOT environnement

Waste recycling specialist
FRANCE

Acquired 100% of Business Operations

PEDRO JOSE ESNAOLA, S. L.

Recovery, processing and sale of all kinds of scrap and reusable materials
SPAIN

IMAP
ADVISED ON SALE OF COMPANY

HBL Investment Partners

Independent PE firm with a focus on the DACH region
GERMANY

Acquired Majority Control of Business Operations

zahnen TECHNIK

Electrical, mechanical and process engineering for water and wastewater plants
GERMANY

IMAP
ADVISED ON SALE OF COMPANY

---

emz

Mid-cap private equity firm
GERMANY

Acquired Majority Control of Business Operations

PIPERSBERG

Full-service provider of gas and water meters
GERMANY

IMAP
ADVISED ON SALE OF COMPANY

1852

Private equity investor
GERMANY

Acquired Majority Control of Business Operations

KÜBLER

Innovation leader for energy and CO2-saving hall heating systems
GERMANY

IMAP
ADVISED ON SALE OF COMPANY

HILLENBRAND

Leading industrial group
UNITED STATES

Acquired 100% of Business Operations

HERBOLD MECKESHEIM

Leading manufacturer of recycling machines
GERMANY

IMAP
ADVISED ON SALE OF COMPANY

Growth equity investment fund
IRELAND

Acquired Investment Interest in Seller's Business

XOCEAN

Ocean data collection for marine sector
IRELAND

IMAP
ADVISED ON FUND RAISE

Nextalia

Asset management company
ITALY

Acquired Investment Interest in Seller's Business

DALMA MANGIMI SPA

Production of sustainable feed ingredients
ITALY

IMAP
ADVISED ON PURCHASE OF COMPANY

---

infranity
Invest.Impact.

Infrastructure fund
FRANCE

Acquired a Minority Stake

IEL

Producer of electricity of renewable origin
FRANCE

IMAP
ADVISED ON PURCHASE OF COMPANY

JGI ZN ZINC NACIONAL

Joint Venure between Jean Goldschmidt International S.A. and Zinc Nacional S.A.
GERMANY

Acquired Zinc Recycling Division of

HMG Recylex Group

Leading European recycling company for waste containing lead and zinc
GERMANY

IMAP
ADVISED ON SALE OF COMPANY

SCHWARZ

Largest European food retailer group
GERMANY

Acquired 100% of Business Operations

erfurter

Largest pasta producer in Germany
GERMANY

IMAP
ADVISED ON SALE OF COMPANY

Private equity firm
GERMANY

Acquired Majority Control of Business Operations

Hermann Maschinenbautechnologie

Leading manufacturer of large-scale hydraulic steelwork solutions
GERMANY

IMAP
ADVISED ON SALE OF COMPANY

Black and Veatch Corporation

Engineering, consulting, and construction company
UNITED STATES

Acquired 100% of Business Operations

B/RD

Full-service utility contractor and storm restoration solutions provider
UNITED STATES

IMAP
ADVISED ON SALE OF COMPANY

RELEVANT IMAP REFERENCES

oetinger aluminium
Manufacturer of secondary aluminum
GERMANY
Acquired 100% of Business Operations
›AS Oxidwerke»
Aluminum salt slag recycling plant
LUXEMBOURG
IMAP
ADVISED ON SALE OF COMPANY

CRANE
Manufacturer of highly-engineered, technology-differentiated products
UNITED STATES
Acquired 100% of Business Operations
BAUM
lined piping excellence
Manufacturer of corrosion-resistant lined pipes and equipment
GERMANY
IMAP
ADVISED ON SALE OF COMPANY

GENCAP AMERICA
Private investment firm
UNITED STATES
Acquired Majority Control of Business Operations
Aquasol CORPORATION
Manufacturer of water-soluble welding consumables
UNITED STATES
IMAP
ADVISED ON SALE OF COMPANY

Susterra
VC investing into water technologies
HUNGARY
Acquired Investment Interest in Seller's Business
INWATECH Környezetvédelmi Kft.
Water cleaning technology provider
HUNGARY
IMAP
ADVISED ON SALE OF COMPANY

RANTUM CAPITAL
Private equity fund
GERMANY
Acquired 100% of Business Operations
DPG
Deutsche Elektro Prüfgesellschaft
Security testing and documentation services for electronic devices
GERMANY
IMAP
ADVISED ON SALE OF COMPANY

ABE CAPITAL PARTNERS
Private equity fund
SPAIN
Acquired Investment Interest in Seller's Business
leofat
Advanced treatment of biofuels for reutilization in specialty chemicals
SPAIN
IMAP
ADVISED ON PURCHASE OF COMPANY

LEA PARTNERS
Private equity investor
GERMANY
Acquired Majority Control of Business Operations
S&F DATENTECHNIK
SOFTWARE • CONSULTING
Software provider for the environmental and waste management industry
GERMANY
IMAP
ADVISED ON SALE OF COMPANY

GreenMo Rent
Green mobility providers
Market leader in the full-service rental of electric vehicles
NETHERLANDS
Acquired Majority Control of Business Operations
e-bike-to-go
Leading e-bicycle-as-a-service provider
NETHERLANDS
IMAP
ADVISED ON SALE OF COMPANY

BEIJERTECH
Industrial group specialized in component production and supplies
SWEDEN
Acquired Majority Control of Business Operations
inu
Energioptimerar fastigheter
Building automation systems
SWEDEN
IMAP
ADVISED ON SALE OF COMPANY

Undisclosed
Investment company
GERMANY
Acquired Majority Control of Business Operations
RAMPF
SINCE 1926
Manufacturer of steel molds for the concrete stone industry
GERMANY
IMAP
ADVISED ON SALE OF COMPANY

UPWELL WATER
Financing and acquisition services of water assets
UNITED STATES
Acquired 100% of Business Operations
Aquatech
End-to-end water technology and service solutions
UNITED STATES
IMAP
ADVISED ON RECAPITALIZATION OF COMPANY

TQ
Automotive solution provider
GERMANY
Acquired 100% of Business Operations
gpstuner.com
Provider of bike and e-bike navigation solutions
HUNGARY
IMAP
ADVISED ON SALE OF COMPANY

IMAP

The Circular Economy

Sector report 04 - 2023

Contact

Karri Vuori
Managing Partner
Email: karri.vuori@imap.co.uk

Graham Cooke
Partner & Head of Debt Advisory
Email: graham.cooke@imap.co.uk

Sanjay Jha
Circular Economy Analyst
Email: sanjay.jha@imap.com
Mob: +44 784 734 7519

IMAP UK
33 St James's Square,
London SW1Y 4JS
United Kingdom

Tel.: +44 791 921 3159
Email: info@imap.co.uk
Web: www.imap.co.uk

About IMAP

IMAP UK is the United Kingdom team of IMAP, International M&A Partners. Since 1973, IMAP has been successfully guiding and helping clients thrive in competitive, ever-changing economies. Specializing in M&A, debt, equity, and corporate advisory services, it is consistently ranked in the world's Top 10 M&A advisors for mid-market transactions. Over the last 10 years, its team of over 450 M&A professionals worldwide in 49 countries have closed over 2,200 transactions valued at $130 billion. IMAP's clients are primarily mid-sized companies, as well as large domestic and international companies and corporations, family offices, and financial and institutional investors.

251+
DEALS CLOSED 2022

450+
M&A PROFESSIONALS

26+
$BN DEAL VALUE 2022

46+
COUNTRIES

Argentina · Belgium · Bosnia & Herzegovina · Brazil · Cameroon · Canada · Chile · China · Colombia · Congo · Croatia · Czech Republic · Egypt · Finland · France · Ghana · Germany · Hungary · India · Ireland · Italy · Japan · Mauritius · Mexico · Morocco · Netherlands · Oman · Panama · Paraguay · Peru · Poland · Portugal · Qatar · Romania · Senegal · Serbia · Slovakia · Slovenia · South Africa · Spain · Sweden · Thailand · United Arab Emirates · Uganda · United Kingdom · United States · Zimbabwe

IMAP | 50TH ANNIVERSARY