

INVESTMENT INTO THE UK CIRCULAR ECONOMY 2022

CIRCULAR ECONOMY SERIES

MAY 2023



IDEAS | PEOPLE | TRUST



BDO INTRODUCTION

BDO CIRCULAR ECONOMY SERIES



TODD MILLS
CIRCULAR ECONOMY | M&A

“

The circular economy is increasingly being seen by management teams as an opportunity to drive growth and build competitive advantage alongside delivering measurable, positive environmental impact, despite the current macro-economic conditions. As a result, this represents a compelling opportunity for investors to support the rapidly expanding cohort of innovative growth-stage companies enabling this transition. Companies and management teams deserve investors that understand and focus on this area and are supportive of the development of circular solutions. ”

CIRCULARITY CAPITAL

Circularity Capital manages a 215m euro fund, the largest specialist circular economy private equity fund in Europe.

2022 has picked up from where 2021 left off when it comes to investment in the UK Circular Economy.

As both deal volumes and capital deployed continues to increase it has been a privilege to speak to so many Circular Economy entrepreneurs as they look to transform the UK economy.

Whilst it is pleasing to see the momentum behind the Circular Economy continuing, the investment landscape is not without challenges. For each of the 142 deals completed in 2022 referred to in our report there is another early stage Circular Economy business which has been unable to raise the investment they require. But why is this?

There is no doubt that investors are more knowledgeable about both the Circular Economy and the economic rewards on offer for backing the right investee company.

Analysis by Bocconi University of 200+ listed European companies across 14 industries has shown that the more circular a company is, the lower its risk of defaulting on debt, and the higher the risk-adjusted returns of its stock.

However by its very nature, the Circular Economy is disruptive, meaning more often than not the companies operating within the space are presenting entirely different business models or processes to private equity investors.

Circular Economy entrepreneurs are much sought after, but they must be able to demonstrate and articulate two things;

- ▶ A clear commercial growth plan including identifying and quantifying the addressable target market
- ▶ Why consumers or businesses will transition to their product, service or solution over either legacy linear or new competing circular alternatives.

This can be challenging when they are often, and commendably so, purpose driven, with economic reward sitting either behind or alongside impact in terms of personal priorities.

It can also be extremely difficult for an entrepreneur to have the discipline to leave behind an outstanding idea that simply doesn't have the addressable market to excite investors.

As Circular Economy M&A advisors, it is our job to continue bridging the gap between investors and entrepreneurs by ensuring that business owners can turn Circular ideas or concepts into an investment ready opportunity.

At the same time investors must continue to recognise that Circular Economy entrepreneurs are focused on profit and sustainability in equal measure, and that to motivate these business owners they must both be recognised as priorities.

The positive correlation between circularity and profitability is increasingly acknowledged by investors. In order to stand out from the crowd, investors need to demonstrate they understand the how and the why.

WHY BDO ARE EXCITED ABOUT THE CIRCULAR ECONOMY?

THE TRANSITION AWAY FROM LINEAR BUSINESS MODELS ALIGNS VALUE CREATION WITH SUSTAINABILITY GOALS

01

SOCIO-ENVIRONMENTAL

Supporting the Circular Economy to grow and succeed will deliver multiple benefits across society and the environment. Reducing waste and inefficiencies is just the start.

02

MULTI-DIMENSIONAL

The Circular Economy touches all sectors. It provides a framework for all to challenge current linear processes and do things better and more efficiently, using less to deliver more.

03

CIRCULAR ENTREPRENEURS

Circular business models provide endless opportunities for the UK's talented entrepreneurs to do things differently; redesigning processes, developing new products and creating value add services.

04

PRIVATE EQUITY

The UK private equity market has more capital to deploy than ever before. ESG continues to move ever higher up the investor agenda, making circular businesses extremely attractive.

05

EXPERTISE ENABLING GROWTH

BDO's core expertise has been built on advising entrepreneurs and private equity backed businesses. Now, the Circular Economy is creating the perfect environment for both to thrive and grow hand in hand.

GET IN TOUCH WITH OUR CIRCULAR ECONOMY SPECIALISTS

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BDO CIRCULAR ECONOMY SERIES

THE UK CIRCULAR ECONOMY – 2022

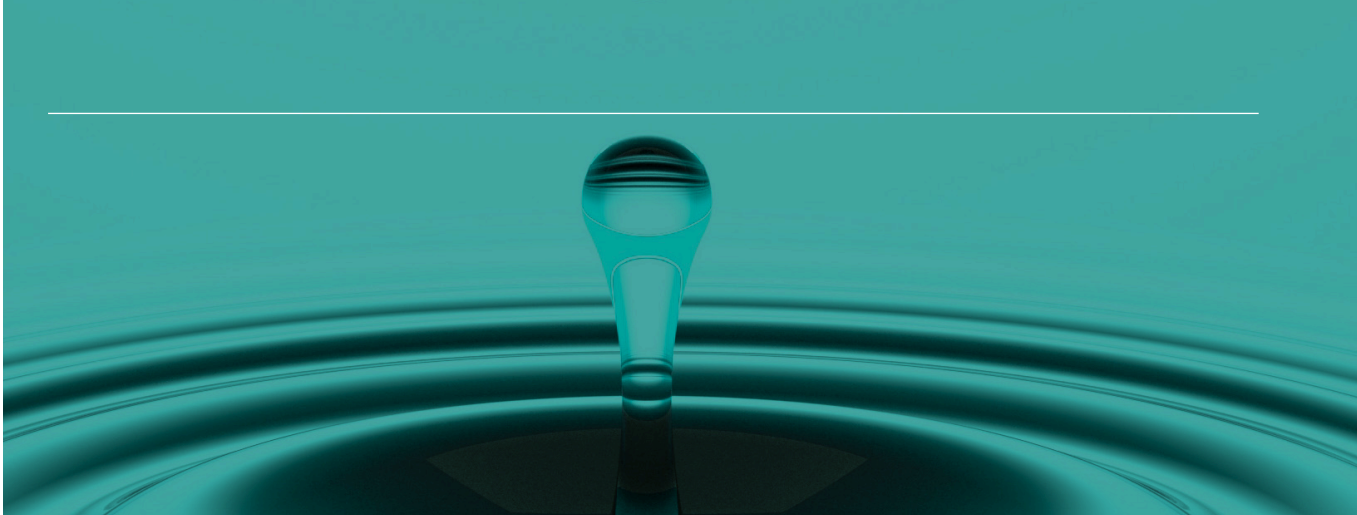
Despite challenging macro-economic conditions, 2022 has been another record year for Circular Economy investment in the UK.

In the UK the number of Circular Economy businesses receiving external backing has increased from 42 in 2018 to 142 in 2022.

ESG is higher on investors' agendas than ever before and companies operating circular business models are continuing to prove a compelling investment proposition.

In this report we consider:

- 01 WHO IS INVESTING IN CIRCULAR ECONOMY BUSINESSES IN THE UK?
- 02 WHY PRIVATE INVESTMENT IN UK CIRCULAR ECONOMY BUSINESSES IS OUTPACING INVESTMENT IN THE OVERALL UK MARKET?
- 03 HOW INVESTORS' ATTITUDES TOWARD THE CIRCULAR ECONOMY ARE EVOLVING?
- 04 WHICH SECTORS ARE MOST INFLUENCED BY CIRCULAR TRENDS?



INVESTMENT HEADLINES



INVESTMENTS IN UK CIRCULAR ECONOMY COMPANIES INCREASED BY 18% FROM 2021 TO 2022, OUTPERFORMING THE UK M&A MARKET, WHERE THE TOTAL VOLUME OF INVESTMENTS FELL BY 12%



INVESTORS HAVE DEPLOYED OVER £2.4BN IN CIRCULAR ECONOMY COMPANIES OVER THE PAST FIVE YEARS, WITH £879M OF DISCLOSED INVESTMENT IN 2022



VENTURE CAPITAL INVESTORS ACCOUNTED FOR 62% OF 2022 UK CIRCULAR ECONOMY INVESTMENTS WITH AN AVERAGE DISCLOSED CHEQUE SIZE OF £4.9M



MID-MARKET PRIVATE EQUITY INVESTORS ACCOUNTED FOR 17% OF 2022 UK CIRCULAR ECONOMY DEAL VOLUMES



INDUSTRIALS & MANUFACTURING IS THE MOST PROMINENT SECTOR FOR CIRCULAR ECONOMY INVESTMENT FOR THE SECOND YEAR IN A ROW, ACCOUNTING FOR 36% OF DEAL VOLUMES IN 2022

UK CIRCULAR ECONOMY INVESTMENTS

2022 HIGHLIGHTS

UK CIRCULAR ECONOMY INVESTMENTS 2022



£879M OF DISCLOSED CAPITAL DEPLOYED ACROSS **142** CIRCULAR ECONOMY INVESTMENTS



ANNUAL DEAL VOLUMES GROWN 16% FROM 122 IN 2021 TO **142** IN 2022



DISCLOSED **CAPITAL DEPLOYED** HAS INCREASED BY OVER 10% FROM £788M IN 2021 TO **£879M** IN 2022



AVERAGE DISCLOSED CHEQUE SIZE IS **£9.3M** IN 2022



BASED ON AN AVERAGE DISCLOSED INVESTMENT OF £9.3M PER TRANSACTION WE ESTIMATE THAT THE TOTAL **CAPITAL INVESTED** INTO THE UK CIRCULAR ECONOMY WAS IN THE REGION OF £1.3BN IN 2022



VENTURE CAPITAL ACCOUNTED FOR **62%** OF 2022 TRANSACTIONS, FOLLOWED BY MID-MARKET **PRIVATE EQUITY (17%)**



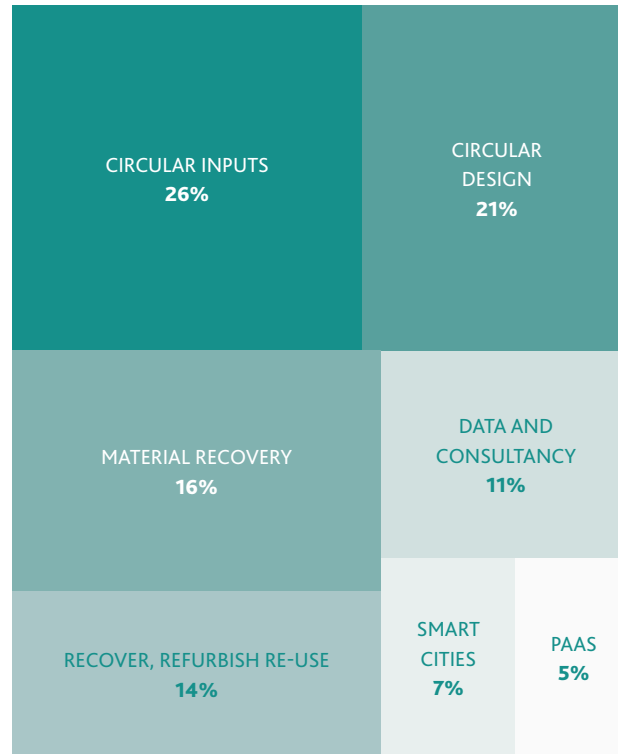
UK CIRCULAR ECONOMY INVESTMENT DASHBOARD

PRIVATE EQUITY AND VENTURE CAPITAL INVESTMENTS ACCOUNT FOR 79% OF 2022 UK CIRCULAR ECONOMY INVESTMENTS

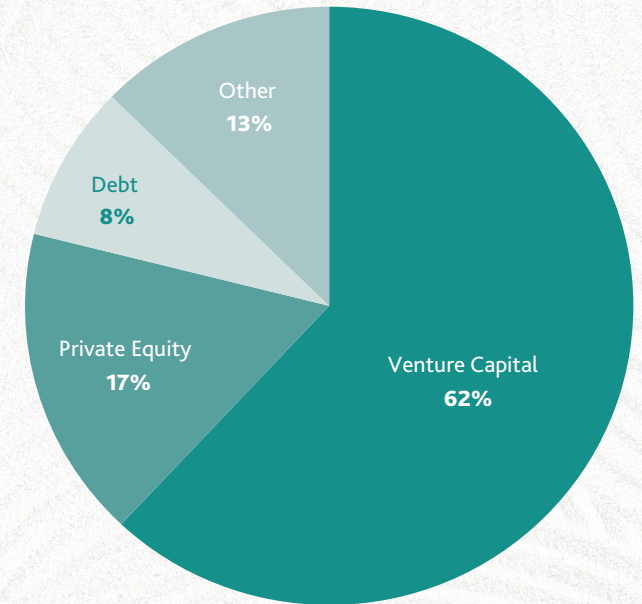
DEAL VOLUMES BY SECTOR
2022



DEAL VOLUMES BY CIRCULAR ECONOMY THEME
2022



DEAL VOLUMES BY INVESTOR TYPE
2022



UK CIRCULAR ECONOMY INVESTOR LEAGUE TABLE

BGF HAS BEEN THE MOST ACTIVE UK CIRCULAR ECONOMY INVESTOR BETWEEN 2020 AND 2022

LEAD INVESTOR	CIRCULAR DESIGN	CIRCULAR INPUTS	DATA AND CONSULTANCY	MATERIAL RECOVERY	PAAS	RECOVER, REFURBISH, RE-USE	SMART CITIES	TOTAL
BGF	4	3	1	1	-	-	-	9
Mercia	4	-	-	2	-	2	1	9
Maven Capital Partners	2	2	2	-	-	-	2	8
Circularity Capital*	5	1	-	-	1	-	-	7
Development Bank of Wales	1	1	-	-	1	1	2	6
Green Angel Syndicate	1	1	-	-	-	-	3	5
HSBC	2	-	-	3	-	-	-	5
Santander	-	-	-	2	1	1	-	4
Total	19	8	3	8	3	4	8	53

* From 2020-2022 Circularity Capital has made 14 investments in growth stage circular economy business across Europe, including 7 in the UK.

CIRCULAR DESIGN – A product, process, service or business model that has been designed to directly deliver or facilitate circularity.

CIRCULAR INPUT – A product, process or service that is produced or delivered using sustainable inputs including those where legacy linear raw materials have been replaced by circular alternatives.

DATA AND CONSULTANCY – Data that is gathered, analysed and interpreted that allows businesses and consumers to increase the sustainability and circularity of their decisions.

MATERIAL RECOVERY – A process that produces or facilitates the production of energy, product or material from waste.

PAAS – A business model allowing customers to consume products on a temporary and flexible basis, reducing the quantity of products required in the economy.

RECOVER, REFURBISH, RE-USE – A business model designed to extend asset life through refurbishment, repair and maintenance or allows component asset parts to be recovered and re-used.

SMART CITIES – The use of different types of technology and sensors to collect data to manage assets, resources and services more efficiently.

PRIVATE EQUITY VIEW

ARE PRIVATE EQUITY FUNDS ALL BECOMING IMPACT FUNDS? CAN THEY AFFORD NOT TO BE?

With ESG continuing its advance up the private equity agenda, we sat down with three of the UK's most active private equity houses to discuss how the Circular Economy is playing a role in their investment strategies.



LEE DONALDSON



MARTIN MCLAREN



ROSHNI BANDESHA



If you'd like to get in touch with Lee, Martin or Roshni to discuss how they might be able to help you grow your business then please do reach out either via BDO or on linkedin.



Q1: HOW IMPORTANT ARE ESG CONSIDERATIONS WHEN CONSIDERING A POTENTIAL INVESTMENT?



Integrating ESG considerations is not only the right thing to do, but makes commercial sense. We firmly believe that integrating these considerations drives both value protection by managing and mitigating risk, and value creation by enhancing investment return.

Stakeholder scrutiny on, and demand for, ESG is growing significantly. Regulators are driving the agenda and seeking increased disclosure from investors, and the businesses they invest in, on their ESG credentials. Consumers are similarly expecting more of the companies they purchase from and want to do business with a company that reflects their own ethical values and principles. This means that a company's environmental and social characteristics are increasingly important to investors when assessing consumer facing businesses.

ESG has significantly broadened as a concept; the focus is now much wider than just energy and climate, as we increasingly understand the interdependencies that exist between climate, biodiversity, and natural resources. A growing focus on circularity, and how circular principles can be embedded in business models to reduce costs and drive efficiencies, is a direct result of this.



ESG is at the forefront of our approach to investment decisions. We are seeing consumers shifting their focus to more ethical and sustainable products and services, while regulators are increasing scrutiny on the ESG credentials of underlying assets.

We are mindful of our stakeholders' increasing interest in ESG, and therefore we have a responsibility to manage and disclose the impact of our investments. Rather than simply achieving a minimum standard, we believe a positive ESG story can and should be at the heart of any business value creation plan.

Our investment horizons typically range between three and five years, and businesses who materially drive positive environmental and societal change during this period are more likely to yield a premium on investor returns.



Investing with purpose is a core element of BGF's strategy and founding mission. ESG principles are embedded throughout the business and in our investment process. They also form part of our value creation toolkit when working with portfolio companies.

BGF plays an important role in helping investees to devise an ESG approach, including identifying, implementing, and measuring their ESG improvements over time.

BGF is a generalist investor that backs companies across many sectors. Yet we have a particular commitment to support companies, tackling some of the most important environmental and social issues facing us today. To that end, BGF has invested in 40 climate & sustainability-focused companies since 2011, providing over £300 million to support businesses tackling issues such as decarbonisation, resource efficiency, and environmental improvement.

PRIVATE EQUITY VIEW

INVESTORS HAVE MOVED BEYOND SIMPLE NEGATIVE SCREENING AND HAVE A FAR MORE DEVELOPED VIEW OF THE ROLE ESG CAN PLAY IN VALUE CREATION



Q2: HOW HAS ATTITUDE TOWARDS ESG EVOLVED OVER THE LAST FIVE YEARS?

BGF

Investors have moved beyond simple negative screening and have a far more developed view of the role ESG can play in value creation. While good governance has long been a prerequisite for investors when selecting prospective businesses, demonstrating a commitment to addressing environmental and social impact is now becoming non-negotiable.

ESG has become a crucial issue for portfolio companies at every scale, with SMEs generally recognising the importance of sustainable practises on their growth ambitions. Despite this, many businesses still lack the internal resource or experience to develop and incorporate a holistic ESG strategy, so guidance from external partners is often highly important.

I joined BGF in 2021 as the head of ESG and Sustainability. As part of my role, I'm responsible for embedding BGF's sustainability strategy and integrating ESG within new and existing portfolio companies.

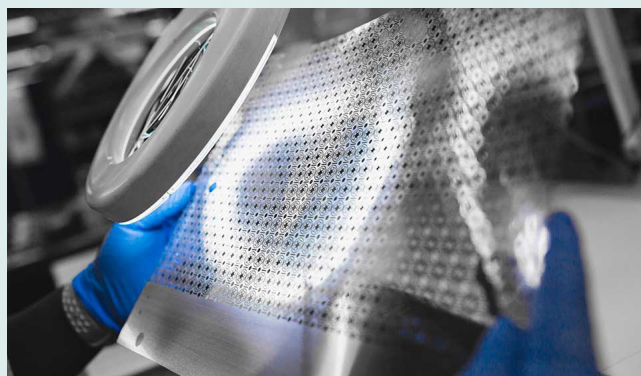
In addition to being a Signatory to the Principles for Responsible Investment, BGF has set up a clean growth advisory board to aid the firm in making the most impactful investments in the climate and sustainability sector.

LDC

Our attitude has moved from compliance and risk mitigation to value creation. Previously, ESG was the concern only of impact investors; now almost all firms recognise the importance of ESG in achieving long-term value creation.

At LDC, reflecting how important ESG is to us as a business, we've had a full-time role dedicated solely to ESG since 2022.

ESG is a consideration now in every exit process; investors want to understand the ESG credentials of the ESG business they are buying and how this aligns (or not) with their own commitments and portfolio objectives.



LDC investee business, Precision Micro, recycled or re-used 97.4% of materials in 2021.

MAVEN

We have witnessed a significant shift in priorities over the last five years. Previously, a positive ESG story was the sole domain of a smaller number of impact investors, with the rest of the market viewing this as a 'nice to have'.

Fast forward to now, ESG is central to all investment decisions, including portfolio management, and are a key part of the value creation plan.

We have responded to these market changes, and our ESG Committee consists of senior staff members from our Compliance Department, Investment Team and Investor Relations to ensure there is a clear focus and robust challenge at all levels of the organisation. Furthermore, we have a dedicated ESG & Compliance Analyst who reports to the ESG Committee on our portfolio, processes and regulatory changes.

PRIVATE EQUITY VIEW

INVESTORS HAVE MOVED BEYOND SIMPLE NEGATIVE SCREENING AND HAVE A FAR MORE DEVELOPED VIEW OF THE ROLE ESG CAN PLAY IN VALUE CREATION



Q3: HOW DO YOU MEASURE THE SUSTAINABILITY IMPACT OF BOTH POTENTIAL INVESTMENTS AND YOUR CURRENT PORTFOLIO?

MAVEN

In the last five years we have made significant progress in growing and refining our monitoring capabilities. This has been accelerated through Maven investee company, Turnkey, a specialist technology platform providing real time reporting and detailed insights into company ESG performance.

All new equity investments, regardless of size, are required to complete our annual checklist covering a variety of metrics including carbon footprint output from travel, and diversity and inclusion statistics, to ensure responsible actions and appropriate representation across the Maven portfolio.



90% of baby wipes in the UK contain plastic taking up to 500 years to decompose. Maven investee company, Pura, is on a mission to keep nappies out of landfill.

LDC

We have developed an in-house ESG Framework that can be tailored to each investment to ensure we assess the most material issues given a company's size, sector, and location of operations. We use this to assess ESG maturity and impact consistently across all our portfolio.

Our goal is to embed a culture of incremental improvement on ESG for all our companies so we can demonstrate the value we have added through ESG over our hold period.

We have developed a set of ESG metrics to monitor across our portfolio businesses. These metrics are aligned with external frameworks and initiatives to ensure that we collect consistent and comparable data to allow us to effectively benchmark our portfolio companies against their in- and out-of-sector peers.

This will also be vitally important for our companies; with the rise of greenwashing and the increased scrutiny businesses face regarding their ESG claims and performance; having robust, accurate, and complete metrics will help to mitigate risk around greenwashing and help our businesses to communicate in a transparent and credible way.

BGF

Every BGF investment is thoroughly assessed by our investment committee, with an ESG score awarded to every prospective investment. BGF uses external parties to help assess the ESG credibility of potential investments enabling the firm to determine a rating. To monitor ongoing performance, BGF conducts Annual ESG Health Checks to assess progress and to help portfolio companies remain on track to meet their sustainability goals and stay ahead of market developments.



BGF investee company, Accleron, is creating the world's most sustainable lithium battery.

PRIVATE EQUITY VIEW

CIRCULAR ECONOMY BUSINESSES ARE A WIN-WIN; REDUCING BOTH ENVIRONMENTAL IMPACT AND OPERATIONAL COSTS



Q4: WHAT IS ATTRACTIVE ABOUT CIRCULAR BUSINESS MODELS?



They are win-win; reducing both environmental impact and operational costs (for example in terms of raw materials/ resource extraction and product disposal).

Some of our portfolio companies have already embraced circular principles for their benefit:

- ▶ **Precision Micro:** Invested £5m to reconfigure processes and introduce specialist machinery, resulting in production of waste ferric chloride being reduced by 51%. Overall, they recycled 97.4% of materials in 2021 (including, where possible, re-using certain materials in their processes)
- ▶ **A-Gas:** Lifecycle Refrigerant Management (LRM) is key in delivering a sustainable future for the industry. Their recovery and reprocessing of materials resulted in 7.5m tonnes of avoided carbon emissions in 2021
- ▶ **Boxpark:** Recycle/reuse practices have been adopted across sites. Waste, including single-use plastics, is also 100% diverted from landfill, thereby avoiding significant waste disposal/landfill tax charges.



In many cases, circular business models are more resilient and shielded from macroeconomic events. Recent disruption to global trading routes, exacerbated by the Covid-19 pandemic and higher oil prices, has placed greater focus on the sustainability of supply chains.

Business models exhibiting an element of protection to short term market fluctuations are always attractive to potential investors.

There is an added attraction as the regenerative nature of a circular business model means that it has less of an environmental impact up and down its supply chain – being where the majority of a business' emissions are generated. A circular business model counters this problem, lessening the dependency on lengthy and often turbulent supply chains, whilst also reducing the need for extracting raw materials.

Notable portfolio companies with positive ESG credentials include:

- ▶ **Guru Systems:** A supplier of IoT solutions to clients such as energy companies and property developers, designed to help reduce carbon footprint and operating costs, meet regulatory obligations, and deliver the most cost-effective service to customers
- ▶ **Liftango:** A Demand Responsive Transport provider, offering innovative and flexible solutions for both public and private sector organisations to create more efficient, cost-effective, and environmentally friendly transport provisions

- ▶ **Pura:** A fast-growing baby care brand which specialises in environmentally friendly baby wipes and nappies. Currently, 90% of baby wipes in the UK contain plastic, which combined with disposable nappies can take 500 years to decompose. Pura is on a mission to keep nappies out of landfill and turn them into everything from housing materials, to notice boards for schools and nurseries
- ▶ **Turnkey:** A specialist technology platform providing real time reporting and detailed insights into company ESG performance.



BGF invests in a broad range of businesses that adopt best practices from the circular economy. This for us means companies looking at ways of reducing waste for themselves and increasingly for their customers.

Two examples of this are BGF investments in Blancco, which is reducing the impact of IT and tech equipment and Aceleron, which is creating the world's most sustainable lithium battery packs in a full circular economy approach – serviceable, upgradable and recyclable.

There is a growing demand especially from customers for companies delivering on the principles of the circular economy. As the regulatory pressures on sustainable operations increase, these businesses will also be uniquely positioned as they won't need to retrofit this requirement.

PRIVATE EQUITY VIEW

THOSE COMPANIES WITH ROBUST CIRCULAR BUSINESS MODELS ARE DISRUPTORS IN THE MARKET, PROVIDING ATTRACTIVE INVESTMENT PROPOSITIONS GIVEN THEIR INNOVATIVE STRATEGIES TO REDUCE, REUSE AND RECYCLE RESOURCES



Q5: TO WHAT EXTENT DO YOU BELIEVE CIRCULAR BUSINESS MODELS DRIVE RETURNS?

MAVEN

Circularity is essential to the ESG transition, responding to shifts in consumer and regulatory demand. This trend is only going one way, and those companies with robust circular business models are disruptors in the market, providing attractive investment propositions given their innovative strategies to reduce, reuse and recycle resources, whilst achieving their commercial objectives.

Recent global events have reminded us of the benefits of a resilient supply chain – something which circular business models have in abundance – meaning they will often benefit from both a competitive advantage in the market, and a premium valuation.

Maven has a range of investment solutions to suit most businesses, from Growth Capital to expand an early stage businesses, or Private Equity to support a buy and build strategy, management buyout, or to finance equity release. Maven can investment £1 million to £20 million and are sector agnostic, with offices in 11 key cities and a strong regional presence.

[Private Equity Firm](#) | [Investment Firm](#) |
[Maven Capital Partners](#) mavencp.com



A business which embeds the principles of circularity is ultimately a more resilient business for the future (and more 'future proofed' for future regulation given the expected line of travel).

Circularity is going to become the norm in the future, so those businesses that can demonstrate a commitment now are likely to benefit from competitive advantage, better margins, and attract higher valuations.

Businesses who embed circular principles will also be more likely to go into an SFDR Article 8 or Article 9 fund; as capital is increasingly allocated towards these 'greener' funds, there could well be a 'greenium' attached to these businesses.

LDC has partnered with more than 675 management teams since 1981 and have a portfolio of more than 90 businesses across the UK, across all major sectors of the UK economy including Business Services, Consumer, Healthcare, ICT, Industrials, Media and Technology. LDC is based in every part of the UK and is committed to investing in at least 100 businesses nationally over the next five years.

[LDC](#) | [Private Equity Investment Firm](#) |
[Mid-Market Businesses](#)



Circular economy models tend to be very attractive to exit partners. Not only do they lead to greater cost efficiencies and as a result profitability for investors and investees, but they also help diversify portfolio risk and build a positive reputation for the investor as well. Sustainable investment is not just good for the planet, it makes good business sense too.

BGF was set up in 2011 and has invested over £3.5 billion in more than 500 companies, making it one of the largest and most experienced growth capital investors in the UK and Ireland. BGF is a long-term patient investor, making initial investments between £1 million to £20 million for a minority equity stake. It invests in growing businesses across all regions and sectors, through its network of 15 offices.

[BGF](#) | [Growth funding](#)
[for ambitious businesses](#)

CIRCULAR ECONOMY TRENDS BY SECTOR

INDUSTRIALS & MANUFACTURING SECTOR REPRESENTS 36% OF 2022 CIRCULAR ECONOMY INVESTMENTS

INDUSTRIALS & MANUFACTURING – CIRCULAR TRENDS

Industrials & Manufacturing is the sector that has attracted the most Circular Economy related investment. In 2022 51 of the 141 Circular Economy UK transactions we have reviewed fall into the sector, attracting disclosed investment of £180m at an average of £6.7m per disclosed transaction.

The recovery of materials from waste continues to be a critical consideration for the sector with entrepreneurs developing innovative methods to deliver product or generate energy from waste. Material recovery accounted for 35% of 2022 circular sector investments.

Plastic accounts for around a quarter of consumer packaging, yet recycling plastic remains a headache with less than 10% recycled. Impact Recycling is striving to improve this, and with backing of £2.7m from IW Capital continues to develop its plastic recycling technology that separates post-consumer mixed rigid plastic waste into high-quality consumer-grade plastic packaging.

Econic Technologies is a great example of a business turning waste into energy incorporating waste CO2 as a feedstock using their innovative catalyst technologies, reducing the reliance on expensive fossil fuels. Econic Technologies received investment of £10.4m in 2022 from OGCI Climate Investments.

Those designing circularity in to products, processes and business models (27%) and those using sustainable circular materials (22%) continue to play a crucial role in the sectors transition towards circularity.

A key theme within both of these categories is the built environment which accounts for 40% of deals across both categories. The built environment uses almost half the materials extracted globally every year and is a significant contributor to greenhouse gas emissions. Investors have poured capital into businesses that help reduce this carbon impact and seek sustainable raw materials to replace legacy virgin materials. As the Circular Economy could reduce global CO2 emissions from building materials by 38% by 2050.

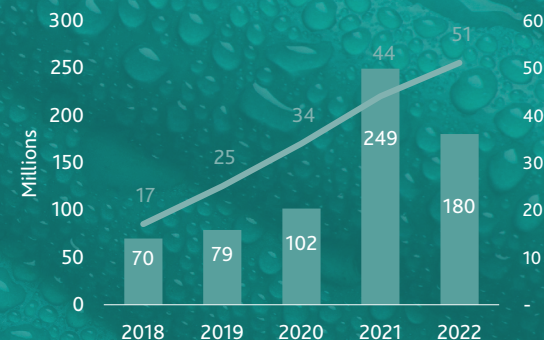
RE-KKUR received debt funding in 2022 to grow its business manufacturing extruded uPVC plaster bead, using recycled industrial plastic material, and Tepeo received £10.5m from BGF to scale up the manufacturing of zero carbon domestic heating solutions.



INDUSTRIALS & MANUFACTURING

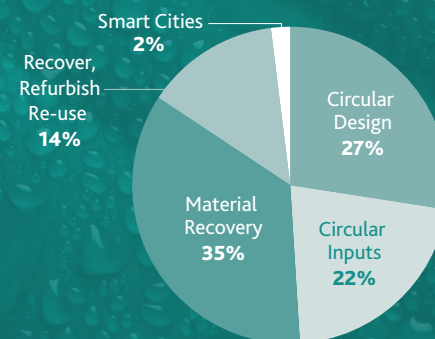
CIRCULAR ECONOMY INVESTMENTS BY VOLUME AND VALUE

2018 - 2022



CIRCULAR ECONOMY INVESTMENT TRENDS BY DEAL VOLUME

2022



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ECUBE

THE WORLD'S LEADING CIRCULAR AIRCRAFT END-OF-LIFE SERVICES PROVIDER

THE CHALLENGE

In 2010, two executives from Rolls-Royce, Tim Schmidt and Mike Corne, met to discuss an opportunity related to what is called Used Serviceable Material, or USM. This term covers aircraft parts and components that can be removed from an aircraft (usually a Boeing, Airbus, or other commercial aircraft) and reused on another aircraft to replace worn or damaged ones.

USM is therefore a circular product – every component that can be removed, repaired and reused on another aircraft removes the need to manufacture an equivalent part from new (and potentially use more precious raw materials).

The use of USM in 2010 remained the preserve of a few budget and second-tier carriers. However, Tim and Mike saw the opportunity to create a business that professionally and accurately harvested these parts from retired aircraft and so provide a reputable and reliable source of USM for the broader market, with the belief that the market would grow. Aircraft disassembly was also an underserved market, dominated by aircraft graveyards around the world, where old aircraft were scavenged for materials and essentially left to rot, with little thought as to value maximisation or environmental sensitivity.

Initially, carriers were attracted to the economics of sourcing USM, with up to 60% savings available compared to new OEM parts but were concerned about the perception of sourcing used parts. These economic considerations, however, became more acute through the pandemic, with airlines looking to reduce costs. Further, environmental concerns have also come to the fore, and carriers are understanding that the re-use of parts saves the manufacture of a new part and hence reduces its carbon footprint. As such, the acceptance of USM in the aerospace supply chain has vastly increased, with more and more carriers now accepting of replacing parts on aircraft in their fleet with USM.

Tim and Mike predicted some of these trends back then (albeit nobody could have predicted COVID) and decided to set up ecube as the 'new kid on the block' in the industry – an environmentally focussed provider of end-of-life services to the airline industry, providing a broad range of services to enable aircraft owners to maximise the value of the airframe and responsibly reuse or recycle as much material as possible at the end-of-life.

ABOUT ECUBE

Founded upon years of aviation industry knowledge and expertise, ecube has been pioneering in the ever-growing aircraft end-of-life sector since 2011.



“

Every component that can be removed, repaired and reused on another aircraft removes the need to manufacture an equivalent part from new.

”

ECUBE

THE BUSINESS IS AIRCRAFT FLEET RECYCLING ASSOCIATION ACCREDITED,
AND OPERATES GLOBALLY FROM SITES IN THE UK, SPAIN AND USA

HOW IS ECUBE HELPING PROVIDE THE SOLUTION?

ecube set up as a location where owners of end-of-life aircraft can send their aircraft to be sold to a party that values the airframe and engines for their constituent parts. Typically aircraft are 14 years old or more (some as young as 8!) but generally the point of retirement will tie in with the end of a long lease period and the cost of a heavy maintenance overhaul prior to re-leasing versus the value that could be achieved for the aircraft if sold as parts. When aircraft are sent to ecube's facilities, they are kept live and serviceable until de-registered (or fly away for another short lease, in some instances), when they have been typically been purchased (typically by a parts company or MRO) for disassembly.

Whilst ecube generates revenue from parking and maintenance activities when the aircraft is on the ground, the business' primary focus is to work with the asset owner to ensure the asset is monetised as soon as possible, by making introductions to buyers and facilitating the transaction through provision of a tax efficient location to buy and sell aircraft (via formal arrangements with the tax authorities). Through being proactive and driving towards a transaction, aircraft owners (lessors and airlines) stand the best chance of achieving a good price in a short timeframe for their asset and aircraft are not sat on the tarmac with parts deteriorating over time.

Once the aircraft is sold, ecube seeks to engage with the buyer to arrange for the disassembly to commence. In most cases, it is in the asset owner's best interests to sell the parts as soon as possible in order to improve the IRR on the transaction. ecube delivers industry leading disassembly times of three-five weeks, for a harvest list of typically 500 to 1,500 parts from an aircraft, from nose cones to avionics to escape slides! These parts are tagged, carefully packaged, then shipped to maintenance providers worldwide to support the repair and maintenance of operational aircraft. Once the USM is removed, ecube seeks a home for as much of the airframe as possible with B2B up-cycling (flight decks sold to flight training/simulator companies, for example), consumer upcycling (such as repurposed British Airways Club Europe seats as office chairs) and the recycling of what remains. As a result, over 90% of the aircraft by weight that lands at ecube avoids landfill.

In doing all this, ecube has pioneered an approach to driving the circular economy in aerospace parts, delivering a first class services to airlines, lessors, parts companies and MROs and driving environmental standards across the end-of-life aircraft disassembly market.

The business now has a new and experienced leadership team, under CEO Lee McConnellogue, that has deep connections with the broader airline industry and is open in three sites globally, St Athan, Wales; Castellon, Spain; and the newly opened facility in Coolidge, Arizona, enabling it to serve its customer base globally.



VISIT ECUBE

<https://www.ecube.aero/>



CIRCULAR ECONOMY TRENDS BY SECTOR

SOCIETAL DESIRE TO CONSUME SUSTAINABLE PRODUCTS HAS LED TO SIGNIFICANT INVESTMENT IN BRANDS USING CIRCULAR, SUSTAINABLE INPUT MATERIALS

RETAIL, CONSUMER & LEISURE – CIRCULAR TRENDS

In the UK, the market for ethically and sustainable consumer goods has increased four fold in the last 20 years, with over two thirds of UK consumers feeling strongly about the issue. This is reflected in the 30 investments made into Circular Economy businesses in Retail, Consumer and Leisure in 2022.

Consumers desire to consume sustainable products has led to businesses using circular inputs proving most popular with investors in 2022, accounting for 40% of sector transactions. Investors ran towards trainer brands Wild Loci and Hylo Athletics, whose athletic footwear ranges are manufactured using recycled, renewable and biodegradable materials. The former achieved investment of £4m from a consortium of investors including Hollywood star, Leonardo DiCaprio.

While established brands have traditionally shied away from second-hand retail, they are now wading into the pre-owned and rental markets. This is creating the incentive for investment into entrepreneurial, agile, and innovative SMEs that are contributing to these markets, with investors gaining confidence over future exits.

Driven by the rise in interest in second hand fashion, consumers are placing increasing importance on businesses facilitating the recovery, refurbishment or re-use (RRR) of products in order to extend the useful life of assets and slow industry consumption.

Investor appetite has followed suit with RRR accounting for 27% of 2022 deal volume in the consumer sector, up from 14% in 2021. Thrift Retail, an online platform for buying and selling second hand clothing, shoes and accessories attracted two investment rounds in 2022 led by PB Capital. DAME received venture funding to scale its sustainable and re-usable sanitary products.

Investors continue to be attracted towards rental based business models ('Product as a Service'), with consumers desire to own assets decreasing. Consumers benefit from decreased capital costs and the knowledge they are participating in more sustainable practice. PaaS accounted for 23% of 2022 investment in the sector with investors benefiting from consumer demand, whilst also being able to maintain and rent items multiple times, increasing return on assets. Circularity Capital led a £16.75m growth capital round in children's cycle subscription service Bike Club which offers families the chance to subscribe to new or refurbished bikes and scooters online and exchange them as their child grows.



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RETAIL, CONSUMER & LEISURE

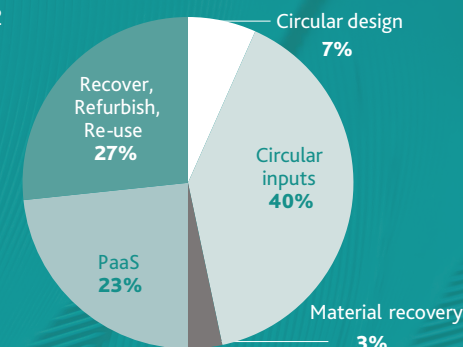
CIRCULAR ECONOMY INVESTMENTS BY VOLUME AND VALUE

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CIRCULAR ECONOMY INVESTMENT TRENDS BY DEAL VOLUME

2022



THIS IS UNFOLDED

UNFOLDED WAS FOUNDED IN 2021 TO REMOVE THE WASTE FROM FASHION RETAIL

Fashion is the second biggest producer of global emissions, behind only agriculture, but it doesn't need to be! It's estimated that 80 billion items of new clothing are made every year and 30% of these are never even sold... that's approximately 26 billion items of clothing made every year that go straight to landfill or to be recycled without ever being worn.

Unfolded is on a mission to remove this waste from the fashion industry! We do this by only making clothes that consumers actually want through our new retail model.

We make limited collections of clothes (approx 20 items) designed in collaboration with our 15,000+ customer community - ensuring that we only design clothes that shoppers actually want. We then use a connected factory to consumer supply chain and only start production after we start taking orders - enabling us to match supply against demand. This also allows us to deliver our clothes directly from our sustainable factories cutting out logistics and storage wastage.

Furthermore consumers are invited to swap items with each other over returning, delivering a sub 10% return rate compared to the 40%+ industry standard.

“

26 billion items of clothing made every year are never worn.

”

By making our clothes in this way we've created a solution that's better for the environment but also drives significant savings as we avoid having to build in the high margins for wastage and unsold stock that traditional retailers do.

These savings are used to drive positive change for consumers and the people who make our clothes. Firstly, by making our clothes affordable (we are firm believers that buying sustainably should be an option available to everyone), secondly we pay our garment workers higher wages and ensure they have good working conditions and thirdly we create long term societal change by funding children's education around our manufacturing factories in India.

This approach ensures our clothes are better for the planet, better for the people who make them and better for the people who buy them!

Our long term vision is to power tens of brands to operate this new model of retail worldwide and replace the damaging traditional and fast fashion retail models. We're doing this by opening up our platform for others with engaged communities to build their own brands on. In the next 12 months we hope to have five different brands utilising the platform around the world.



THIS IS UNFOLDED

THE THIS IS UNFOLDED STORY AS TOLD BY CO-FOUNDER AND CEO CALLY RUSSELL

Unfolded was founded in 2021 and is built on knowledge by the teams almost ten years working within the fashion industry to support retailers to remove waste from their retail model. The founders previously built Mallzee, a consumer shopping app, to 1.5m downloads and then utilised the data generated to help big retailers make better stock purchasing decisions. The learnings from this showed the scale of the problem but also the lack of a strong desire to change from big companies.

During COVID and the disruption that this caused within the retail industry, the company moved further down the supply chain with a charity initiative called Lost Stock. This saw us sell mystery boxes of clothes to consumers and donate the earnings to a charity supporting garment workers in Bangladesh.

In just seven months we sold over 125,000 mystery boxes of clothes worldwide, generating revenue of £4.8m and allowing us to support 113,000 garment workers and their families in Bangladesh for a month each during the pandemic!

If you've been thinking Unfolded sounds familiar you might have seen me on Dragons' Den receiving three offers of funding including from Peter Jones who called Unfolded a genius idea and Deborah Meadon who stated that we are properly disrupting the market. Instead of taking the Dragons offer the company has raised investment from VC funds and sector angels in both the UK and US.



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CIRCULAR ECONOMY TRENDS BY SECTOR

CIRCULAR INPUTS ACCOUNTED FOR 55% OF CIRCULAR ECONOMY INVESTMENTS IN THE SECTOR WITH PLANT-BASED AND LOCAL PRODUCE TAKING CENTRE STAGE

FOOD & DRINK – CIRCULAR TRENDS

The Food & Drink sector provided the backdrop for 8% of Circular Economy related investments in 2022.

According to the Ellen MacArthur Foundation, for every pound spent on food, two pounds worth of health, environmental, and economic waste is created. Half of these costs — totalling £5 trillion each year globally — are the result of the way food is produced, and food waste is handled.

Circular input accounted for 60% of CE investments within the sector with plant based and local produce taking centre stage. Demand for plant-based food is expected to soar to more than \$162 billion by 2030, up from just \$29.4 billion in 2020. Consumers are the main driver of this shift towards a plant-based menu, as the number of vegans in the UK quadrupled between 2014 and 2019. Food industry experts believe this trend will only continue, with 46% of British adults considering reducing their intake of animal products in the future, 48% of British adults already having plant milk in their diets, and 58% of adults now using at least one plant-based meat alternative in their diet.

With such transformational growth in market size the sector has attracted a lot of interest from investors and trade buyers alike. A recent example is trade investor Samworth Brothers taking a minority stake in meat alternative plant-food Tiba Tempeh.

Away from plant-based, investors continue to back business using circular inputs to make food production more sustainable. Circularity Capital provided growth capital to Cocogreen, a business which designs and manufactures low-carbo, high-yield coir growth substrate for berries, salads and citrus fruits.

Investors also continue to show a significant interest in business who are designed around circular business models. Modern Milkman received two rounds of funding in 2022 including a £50m Series C round in November. The funding received from Insight Partners and ETF Partners will help the business develop its sustainability proposition through the development of RFID technology to track the return and re-use of glass bottles with the intention of reducing the industries reliance on plastic.

Rooser has built a tech enabled platform to make the \$250 billion global fishing industry more efficient — and thus the process overall more traceable and less prone to waste. Rooser successfully raised a Series A led by Index Ventures.



FOOD & DRINK

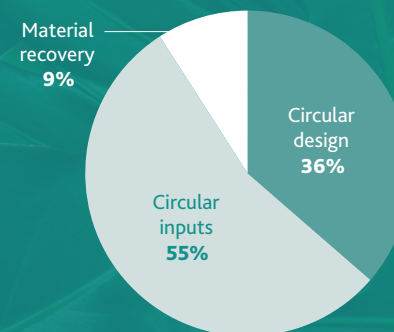
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COCOGREEN

HOW THE CIRCULAR ECONOMY IS DRIVING THE FUTURE OF FOOD PRODUCTION



David Mowat, co-founding partner of Circularity Capital, shares insight into the fund's investment in Cocogreen, a UK headquartered business that enables its global blue-chip customers to accelerate plant growth, sustainably.

In December 2021, Circularity Capital invested in Cocogreen, a global leader in the manufacture of high-yield growth substrate for berries, salads, citrus fruit and avocados. Cocogreen uses a by-product of the global coconut industry, which is refined through proprietary product and process technologies. Cocogreen substrate acts as a foundation to high value crops traditionally grown in the open field; enabling landowners and food producers to increase yield productivity and reduce fertiliser pollution. This ultimately leads to more available land for other uses such as housing, infrastructure or more efficient food production.

Cocogreen's products are increasingly being used as an alternative to peat-derived growing media, which are increasing being phased out by regulators globally, with the horticulture industry looking for more sustainable alternatives to preserve natural resources for future generations.

Peatlands are widely regarded as unique ecosystems that serve as highly effective carbon sinks, with huge amounts of stored carbon dioxide released when peat is harvested. Peat extraction also damages habitats for rare species of flora and fauna and negatively impacts peat's ability to prevent flooding and filter water.

In international markets where Cocogreen has successfully proven its circular model, it has reached an enviable market leading position and fully displaced the long-standing dependency on peat, through innovation coupled with a circular business model. Cocogreen is proving to customers that investing in a sustainable product solution and updating practice pays.



COCOGREEN

HOW THE CIRCULAR ECONOMY IS DRIVING THE FUTURE OF FOOD PRODUCTION

This has led to the increasing loyalty of many household food brands, who partner with Cocogreen to push forward their own ambitions to move towards a more circular model, while ensuring best practice and supporting solutions that vastly reduce the carbon emissions associated with peat extraction – simply by switching their supply source to a sustainable option.

Demand outstrips current manufacturing capacity. As the company accelerates its rapid expansion and internationalisation strategy, Circularity Capital's hands-on approach of backing businesses capturing value through circular business practices plays a key role in supporting long-term sustainable advantage which has already proven to be the latest best practice in commercial horticulture.



Thomas Ogden, co-founder and CCO at Cocogreen, commented:

“

It was really important to find an investor who not only shared our mission, values and ambition, but also had the specialist expertise to support our founder-led circular business as we continue to expand globally.

Circularity Capital's knowledge, expertise, skills and network is unique and will continue to prove pivotal in our rapid growth trajectory. They appreciate our pioneering solutions, understand our positive sustainability impact and are bringing additional insight to our experienced team.

”

Cocogreen demonstrates that horticulture and agritech can be both circular and successful, with new and innovative solutions not only able to meet the demands of global customers, but also set the standards in environmental and social performance. Indeed, its business model achieves both profit and purpose, while alleviating many of the challenges experienced by some of the sector's more traditional solutions.



CIRCULAR ECONOMY TRENDS BY SECTOR

DATA AND CONNECTIVITY IS CRITICAL FOR MAKING OUR CITIES AND BUILDINGS SMARTER AND MORE EFFICIENT

TECHNOLOGY, MEDIA & TELECOM (TMT) – CIRCULAR TRENDS

In 2022, a quarter of Circular Economy related investments in the UK were into the TMT sector attracting disclosed capital of £173m.

Accounting for 42% of TMT Circular Economy investments, data is of critical importance to the circular economy transition. Moving from linear to circularity requires new and disruptive business models, and being able to accurately quantify the impact of circular practices is required to guide investors and decision makers towards the business models to back.

All of these investments relate to platforms using data to maximise energy efficiency or articulate carbon impact of purchasing decisions. In the UK there is a significant bottleneck in the supply of energy resources, made worse by the cost of living crisis. Tech entrepreneurs are required to help businesses and home owners make their properties more energy efficient both from a cost and environmental perspective.

Intelligent Building Group has developed a suite of smart hardware and software products that capture energy usage data and reduce energy consumption for commercial, industrial and residential developments, by installing effective tamperproof controls. In 2022, the business was backed by Maven who led a Series A investment round.

Smart Cities & Buildings continue to be of interest to investors accounting for 25% of TMT Circular Economy investments in 2022. Over half of these investments relate to businesses looking to transport and delivery systems more efficient and sustainable.

Chill-Chain's technology enables effective use of client resources, be that fuel, time, trucks or driver capacity, driving positive environmental impact. The business received Series A funding led by Episode 1 in 2022. Outspoken Logistics, trading as Zedify received £4m funding led by Enterprise Ventures to expand its zero emissions delivery service for local businesses.

Recover, Refurbish and Recycling investments accounted for 11% of total deals in 2022. With around 53.6 million metric tons of e-waste produced every year worldwide and 83% of e-waste not being collected, there is a huge opportunity for entrepreneurial businesses to grow. We expect the number of deals in this space to increase in 2023 as corporate customers, increasingly aware of their own carbon footprint look to Circular IT providers to reduce its impact. ETB Technologies was one such provider who sold a majority stake to Roko in its Circular IT business supplying refurbished servers, storage and network equipment.



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TECHNOLOGY, MEDIA & TELECOM (TMT)

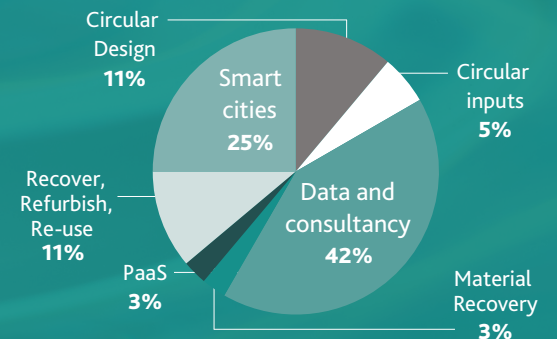
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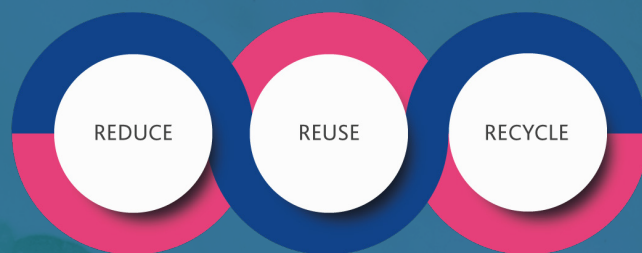
SMART CAPITAL TECHNOLOGY

TECHNOLOGY IS PLAYING A CRITICAL ROLE IN THE TRANSITION TO A CIRCULAR ECONOMY, WHICH IS NOW AT THE FOREFRONT OF BUSINESS LEADERS' OBJECTIVES TO ACHIEVE NET ZERO TARGETS

Although not always visible to consumers, critical technology infrastructure is key to economic growth and is required in all businesses globally small or large. To implement and maintain this infrastructure, annual investment in excess of \$300bn is required globally. When technology is refreshed, this creates a huge volume of waste, with over 2m tonnes of e-waste produced per year in the UK alone.

SCT's IT services proposition includes inventory as a service which provides a device replacement service within as little as two hours across Europe. SCT provides its service to Managed Service Providers, Systems Integrators and IT Outsourcers who then provide those services to end user businesses across all sectors including; Healthcare, Financial Services, Retail and more.

SCT's service offering is ideally placed to support businesses in the evolution of change required for Circular Economy transition in the technology space. Core to its strategy are circular principles:



- ▶ REDUCE: Extending the life of optimal technology infrastructure and reducing the need for just in case technology
- ▶ REUSE: Repair and re-use where economically and environmentally viable
- ▶ RECYCLE: Secure and environmental disposal.

SCT supports several hundred thousand end user devices ensuring that when their customers' device stops working, SCT will arrive rapidly to get their infrastructure back up and running to mitigate impact to their customers' service and ensure their business can continue to generate returns. This can help retailers process purchases, office workers to access web applications, consumers access websites, healthcare workers save people's lives, to name just a few benefits.

When a call to replace a device is logged SCT's first assessment is whether the existing device could still be used. This is then re-considered by the engineer arriving on site to check if the existing device can be utilised subject to the rapid uptime needs of the end user. By prioritising re-use when possible SCT can save up to 10% of devices being removed.

When a device is removed, it is replaced with a fully functioning device owned and managed by SCT. The original device is removed and returned to SCT's central repair lab to be fully tested utilising specially trained engineers.

These engineering experts will assess if they can fix the collected device balancing the financial costs, security, and environmental costs. The output is that up to 80% of devices can be fixed and re-used to support other customers utilising the same device.

For the remaining 20% of devices, SCT will assess if subcomponents can be utilised for future repairs, and are broken down to be recycled in a secure and environmentally friendly manner in accordance with regulatory standards. Customers can gain a certificate of secure and environmental disposal.

This results in 100% of the returned devices being re-used or recycled in some form and end users critical infrastructure is used for a longer period of time.



SMART CAPITAL TECHNOLOGY

TECHNOLOGY IS PLAYING A CRITICAL ROLE IN THE TRANSITION TO A CIRCULAR ECONOMY, WHICH IS NOW AT THE FOREFRONT OF BUSINESS LEADERS' OBJECTIVES TO ACHIEVE NET ZERO TARGETS

CASE STUDY 1

An end user in the Telecommunications sector utilising 11,000 networking switches, access points and routers has been able to increase the average life of their assets by 20% by working with SCT whilst enhancing its uptime and generating financial savings of over 25%.

CASE STUDY 2

An end user in the Retail sector who utilizes 6,000 headsets for its retail staff to communicate in store effectively uses SCT to ensure high uptime of active devices to keep their headsets switched on whilst now utilising SCT's repair lab to fix and environmentally dispose of damaged devices.

SCT is actively supporting some of the world's largest businesses who require their supply chain to have the highest level of environmental and sustainability credentials – in addition to the exceptional on time delivery performance that's another reason why they select SCT as their partner of choice to support the transition to a Circular Economy.



WestBridge backed the carve-out and MBO of SCT in March 2022, and continues to support the company's journey towards becoming a global provider of sustainable IT solutions. Sustainability is at the heart of SCT's business ethos. Its core inventory-as-a-service (IaaS) proposition provides the flexibility to address the needs of older estates, encouraging the refurbishing and re-use of used IT technology parts, thereby growing end-of-service-life (EOSL) value, and contributing to a circular economy.

WestBridge is a private equity buyout firm, focussed on investing in lower mid-market B2B companies. WestBridge operates across the UK with offices in London, Manchester and Cardiff. The firm's approach is to support niche market leaders operating in fast growing sectors, systematically deploying its Value Creation Model to accelerate growth and deliver outperformance. The WestBridge funds are benchmarked as top quartile for their vintages.

WestBridge understands the importance of responsible investing in creating and protecting value. Rather than only investing in companies with strong ESG credentials, WestBridge works with all of its portfolio companies to rapidly enhance their ESG footprint through structured continuous improvement which is externally benchmarked against the relevant sector best practice. WestBridge, therefore ensures that ESG strategy is a core part of its Value Creation Model as it supports management teams to scale businesses in a sustainable and responsible way.



VISIT

www.smartct.com

What are the regulations on WEEE waste? | [SCT \(smartct.com\)](http://SCT (smartct.com))



CIRCULAR ECONOMY TRENDS BY SECTOR

THE LIFE SCIENCES SECTOR IS MAKING A VITAL CONTRIBUTION TO THE UK CIRCULAR ECONOMY

LIFE SCIENCES – CIRCULAR TRENDS

ESG considerations for the Life Sciences sectors have often been most keenly focused in the social benefits their products offer patients, however with 20 investments made into circular life sciences business in 2022, the sector is becoming increasingly aware of its environmental impact.

Large corporates like health-tech giant Philips are leading the way. It has embedded circular principles into its delivery of its large scale medical equipment such as imaging, as well as smaller medical equipment and homecare products. Initiatives include a product-as-a-service model for its large imaging equipment, take-back schemes, and upgrade and refurbishment programmes.

Investment into UK SMEs is evenly split between businesses using or developing circular inputs (43%) and businesses that deliver business models, products or processes that are circular by design (36%).

Across our other sectors, typically circular inputs covers businesses that are replacing a legacy material with a more sustainable one in production of a product or service. Within the Life Sciences sector, investment focus is on businesses that are creating more sustainable inputs.

The Life Sciences sector continues to make a strong contribution towards more sustainable and efficient agriculture systems in the UK through Circular design. GrowUp Farms received £100m development capital to fund the construction of a new vertical farming facility in Kent. It is the first of multiple planned low-carbon indoor farms designed to use 5% of the water required in more conventional growing environments. At the other end of the investment scale, Glaia received seed funding of £1m from Green Angel Syndicate to develop its technology that allows plants to harvest light more efficiently and facilitates the processes involved in biomass production resulting in increased crop yields.

Finally the Life Sciences sector is playing a critical role in finding new innovative ways of extracting product from waste. Epoch Biodesign, a research company specializing in the development of enzymes that transform plastic waste into chemicals raised \$11m seed funding from Lowercarbon Capital and Mialgae received £2.3m investment led by the Conduit Impact Fund to continue to develop its biotechnology platform which uses waste from the food and drink industry as a feedstock to produce microalgae rich in Omega-3 oils.



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LIFE SCIENCES

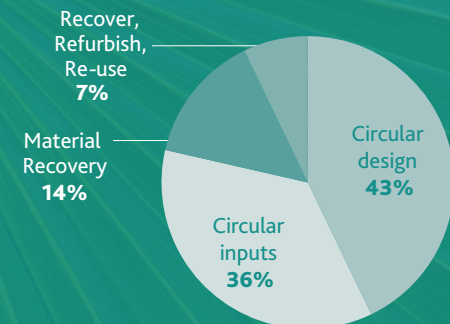
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