

Investment into the UK Circular Economy

Circular Economy Series

May 2024

IDEAS | PEOPLE | TRUST

BDO

BDO introduction

BDO Circular Economy Series



Todd Mills

Circular Economy
M&A

Despite a challenging M&A environment, the Circular Economy continued to thrive in 2023. Much talked about headwinds were responsible for a 15-20% decrease in UK private equity transactions compared to 2022, which makes the continued growth of Circular Economy related investment all the more impressive.

The number of UK Circular Economy deals increased 30% compared to 2022, the fifth year in a row of deal volume growth and the second largest year-on-year percentage growth since we commenced our data set. Total disclosed investment of £1.3bn represented 50% annual growth as average disclosed deal size increased from £9m to £11m. A driver of these statistics was the increased involvement of mid-market private equity in the Circular Economy with the percentage of Circular Economy transactions involving PE increasing from 17% to 21%.

When you consider the Circular Economy value proposition it is perhaps unsurprising that it continues to out-pace the general UK M&A market. The positive environmental impact of the Circular Economy is well documented. Approximately 45% of global emissions come from industry, agriculture and land-use and it is across these pillars that a circular approach to re-using materials and reducing waste can be most impactful. According to the 2023 Circular Gap Report, widely used linear economy principles mean that over 90% of materials are either wasted, lost or remain unavailable.

By transitioning to circular models, we have the opportunity to reduce single use material by 30%. In turn, Circular Economy strategies could help reduce global GHG emissions by 40 percent by 2050. But why is this of interest to a private equity investor? Financial rewards and positive environmental impact are intrinsically brought together by the simple concept of waste efficiencies. The economic benefits of investing in the Circular Economy are clear and compelling.

Trade players are also on the lookout for Circular Economy investments. Fuelled by the combined desire to hit ambitious net zero targets and to get ahead of the competition in finding truly sustainable solutions for specific industry challenges, the number of equity stakes acquired by trade players in Circular Economy businesses has more than doubled in 2023.

For example, Nestle invested £7m in Impact Recycling in 2023, whose pioneering technology enables the processing of hard-to-recycle flexible plastics, typically used in food packaging, into pellets that can be re-used. Wizz Airlines invested £5m in Firefly Green Fuels which specialises in a process that converts sewage sludge, a low-value waste product, into sustainable aviation fuel. Such investments have financial, competitive, reputational, operational and regulatory benefits making them an extremely interesting proposition for corporate venturing.

With an increasing interest from trade investors, we expect high quality Circular Economy businesses to attract premium valuations as the competition for assets heats up. However, the emergence of corporate venturing should not be seen as a bad thing for financial investors.

Collaborating with specialist trade players could be the perfect way to corroborate circular technologies and business models, reducing risk and increasing confidence of a successful outcome.



Why BDO are excited about the Circular Economy

The transition away from linear business models brings value creation to 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.

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BDO Circular Economy Series


The Circular Economy

The UK and global deals market experienced a 17% decline in volume in 2023, but despite the challenging macro-economic conditions, investment in the UK Circular Economy has continued to thrive.


In the UK the number of Circular Economy businesses receiving external backing has increased from 42 in 2018 to 184 in 2023.


In this report we consider:

- 01 **Who is investing in Circular Economy businesses in the UK?**
- 02 **The attitudes of UK Manufacturing SMEs towards the Circular Economy, and how they are evolving**
- 03 **What are the key challenges and considerations when raising growth equity?**
- 04 **Which sectors are most influenced by circular trends?**


Investment headlines 

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Investments in UK Circular Economy companies increased by 30% from 2022 to 2023, outperforming the UK M&A Market, where the total number of investments fell by 17%
- 

Investors have deployed over £3.5bn in Circular Economy companies over the past five years, with £1.3bn of disclosed investment in 2023
- 

Venture Capital investors accounted for 58% of 2023 UK Circular Economy investments with an average disclosed cheque size of £7.9m, which is up 60% from 2022 at £4.9m
- 

Mid-market Private Equity investors accounted for 21% of 2023 UK Circular Economy deal volumes, up from 17% in 2022
- 

Industrials and Manufacturing is the most prominent sector for Circular Economy investment for the third year in a row, accounting for 35% of deal volumes in 2023



UK Circular Economy investments

2023 highlights



Based on an average disclosed investment of £10.7m per transaction we estimate that the total **capital invested** into the UK Circular economy was in the region of **£2bn in 2023**



Venture capital accounted for **58%** of 2023 transactions, followed by mid-market **private equity (21%)**



Annual deal volumes have grown 30% from 142 in 2022 to **184 in 2023**



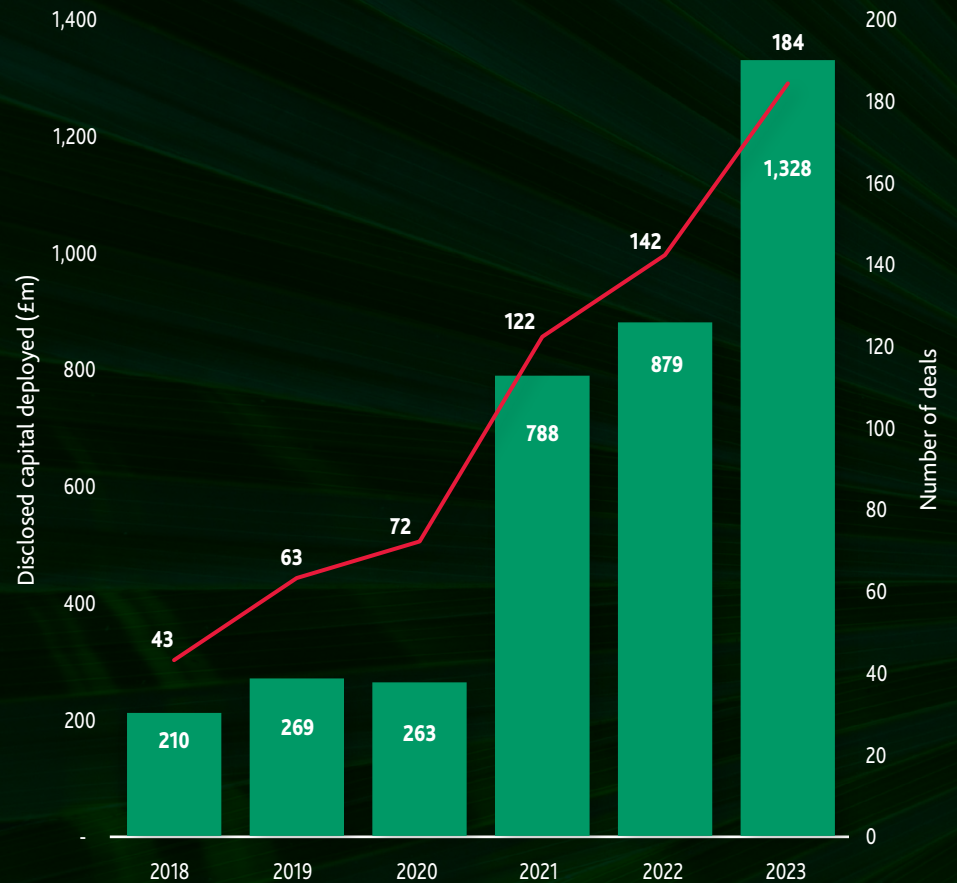
£1,328m capital deployed across **184** Circular Economy investments



Average disclosed cheque size is **£10.7m in 2023**, an increase of **15%** from **£9.3m** in 2022



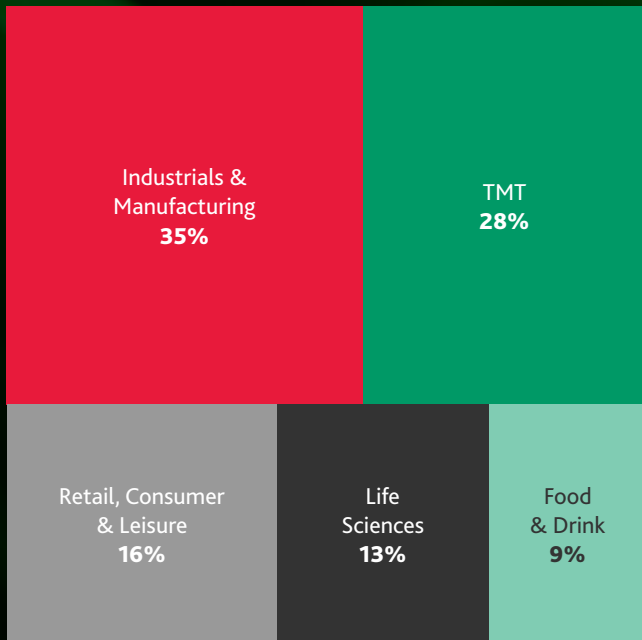
Disclosed **capital deployed** has increased by over 50% from £879m in 2022 to **£1,328m in 2023**



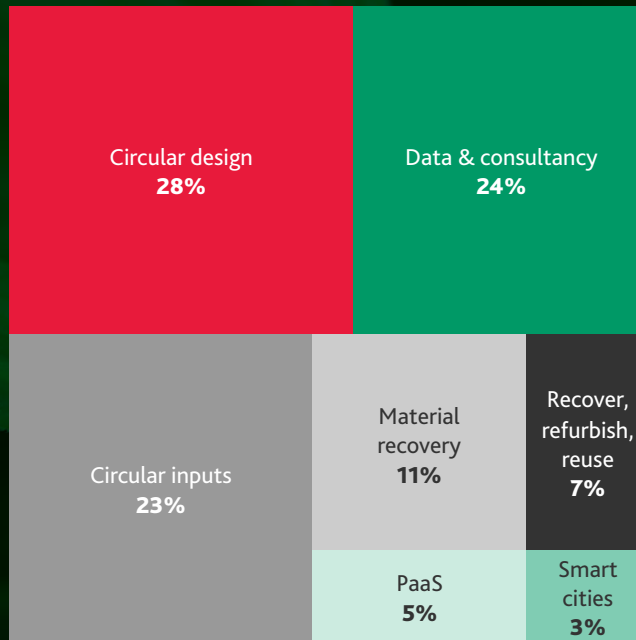
UK Circular Economy investment dashboard

Private Equity and Venture Capital investments account for 79% of 2023 UK Circular Economy investments

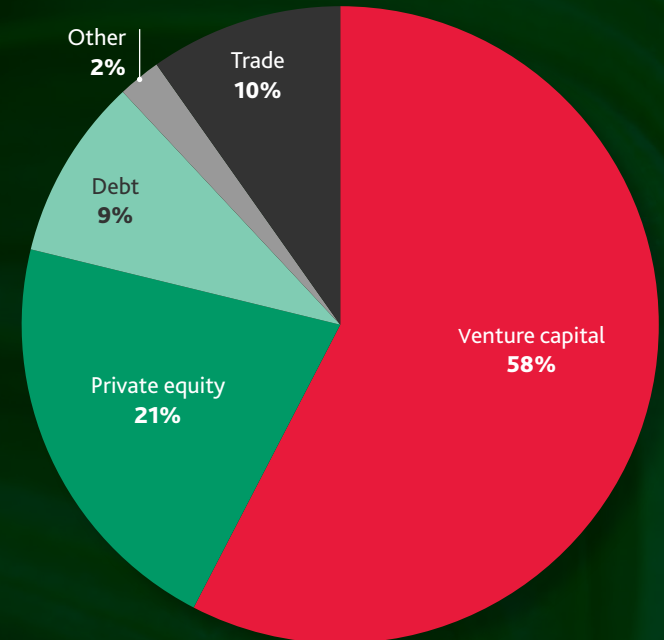
Deal volumes by sector 2023



Deal volumes by Circular Economy theme 2023



Deal volumes by investor type 2023



UK Circular Economy investor league table (2021–2023)

BGF has been the most active UK Circular Economy investor between 2021 and 2023

In 2023, Foresight was the most active, with five investments in the Circular Economy.

Lead investor	Circular design	Circular inputs	Data and consultancy	Material recovery	PaaS	Recover, refurbish, re-use	Smart cities	Total
BGF	6	5	1	1	-	2	-	15
Maven Capital Partners	2	1	4	-	1	-	2	10
Mercia	4	-	2	-	-	2	2	10
Clean Growth Fund	3	2	-	1	-	-	1	7
Circularity Capital*	4	1	-	-	1	-	-	6
Crowdcube Capital	1	3	1	-	-	-	-	5
Foresight	2	-	1	-	-	2	-	5
Green Angel Syndicate	2	1	-	-	-	-	2	5
HSBC	3	-	-	2	-	-	-	5
Scottish National Investment Bank	-	-	-	-	1	1	2	4
Total	27	13	9	4	3	7	9	72

* From 2021-2023 Circularity Capital has made 18 investments in growth stage Circular Economy business across Europe, including six 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.



Manufacturing – 2024 Circular Economy Survey

Are UK manufacturing SMEs embracing the Circular Economy?

Accelerating trends: more than one in four UK manufacturing businesses will cease to exist in 10 years' time if they continue to operate traditional linear business models.

Across each of the five years BDO has compiled data, the industrials and manufacturing sector has led the way in volumes of Circular Economy led transactions. In partnership with Make UK, we have surveyed over 200 SMEs in the sector to find out how attitudes towards the Circular Economy are evolving.

The fact that 26% of respondents (up from 19% a year ago) believe their business will fail if they do not transition from linear to circular business models is stark. But why is this the case, and what challenges do business face if they want to introduce circular practices?

Unsurprisingly customer attitudes are a key driver of manufacturer behaviours and attitudes. 72% of respondents confirmed that it is important to their customers that they operate a sustainable business, up from 62% a year ago. Consumer attitude to sustainability is changing at a remarkable pace and societal demand for sustainable goods and services has never been higher. Coupled with regulatory and reputational pressure on corporates to decarbonise supply chains, the direction of travel here appears set.

It therefore makes sense that 31% of respondents have sought to positively differentiate themselves from the competition through their circular or sustainability credentials.

The desire of corporates to not only decarbonise supply chains, but to be able to quantify and report on this has also driven an increase in the number of respondents who are actively tracking sustainability led KPIs (58% compared to 50% a year ago). This is good news for private equity investors looking to quantify and validate Circular Economy related value drivers, that differentiate manufacturers from the competition. It also allows investors to demonstrate ESG credentials to their own institutional investors.

40% of respondents believe that operating a circular business model will be more profitable than a linear model, up from 27% last year, which suggests an increase in manufacturer's understanding of the economic benefits of circularity. Certainly from a theoretical perspective, circular business models lend themselves nicely to increased margins for a variety of reasons.

At the very core of the Circular Economy is the desire to eliminate waste and to drive efficiencies. In almost all circumstances reducing waste directly results in reducing costs. Re-using raw materials over virgin single use inputs can often be cheaper.

Optimising routes to reduce travel time can simultaneously reduce direct costs (fuel, staff costs, spoilage) and carbon footprints.

Circularity also promotes the extension of asset life through maintenance and refurbishment allowing a product to be utilised, and therefore generate greater revenues from a single asset.

All of these circular options should, in theory, lead to improved profitability.



Manufacturing – 2024 Circular Economy Survey

50:50: half of UK manufacturing SMEs have made operational changes to make their business more circular



The survey results show that UK manufacturers are taking circularity seriously with 49% (44% – 2023) citing becoming a circular business as part of their business strategy.

50% have made operational changes to make their business more circular in the last three years and 56% plan to make operational changes that make their business more circular in the next three years.

These are encouraging percentages, but it raises more questions. Whilst 49% of manufacturers are embracing the Circular Economy as part of their strategy, there are 42% that aren't.

For the 56% planning to make circular operational improvements, 36% are not.

Why is this?

Well for a start, the number of respondents who believe circular models will be more profitable (40%) are outnumbered by those who do not (48%). It would be nice to think that some of the 48% may still look at introducing circularity for the greater good but it is difficult to expect business owners to change behaviours en masse without a financial incentive.

36% of manufacturers surveyed have a concern that using recycled, re-used or refurbished inputs would diminish the quality of product, service or process. In an environment where quality is often the key differentiator it is understandable why some have opted not to take the risk.

Finally, a third of respondents cite that despite wanting to transition towards circularity, doing so would simply be too disruptive to their business. Again, this is not altogether surprising given the stresses, strains and time constraints suffered by the average entrepreneur.

So what needs to happen to convince more UK manufacturing SMEs to embrace circularity?

Fundamentally, customer attitudes will likely be the driving factor. The sector is still in a position where positive ESG credentials can be used to positively differentiate a service or product. The 31% of respondents who use circularity as differentiator no doubt believe they possess an effective value driver.

However given the pace at which society's attitude towards sustainability continues to change, it won't be long before positive environmental credentials are seen as a minimum standard as opposed to a cherry on the top. The shift in views amongst manufacturers during just a year per our survey data, reveals that change is accelerating. For those who resist change without good reason, the lack of circular and sustainable practises will inevitably become a negative differentiator and dissuade customers from engaging. At the point the customer stops buying, it might be too late.



Manufacturing – 2024 Circular Economy Survey

Make UK survey results

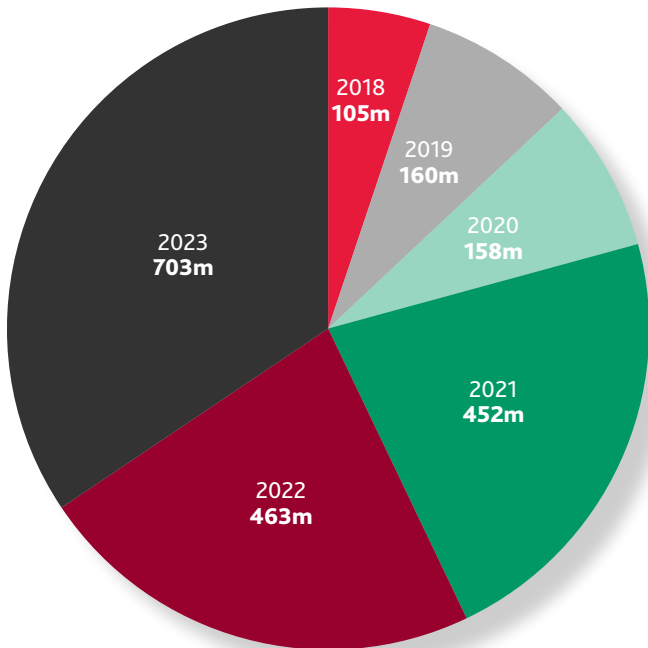


Securing growth capital in the Circular Economy

Challenges and solutions

UK Circular Economy deals backed by Venture Capital ('VC') investors increased for the fifth consecutive year in a row since we commenced our data set. In 2023 VC investors backed a total of 106 UK deals worth over £700m, up 52% from 2022, bringing the total cumulative value of Circular Economy VC deals since 2018 above £2bn.

Venture Capital deployed into the Circular Economy (£)



With growth in both the volume and cumulative value of transactions, it is surprising that VC investment into Circular Economy is going from strength to strength? When you consider the role of Venture Capital in facilitating the development and commercialisation of new and disruptive business models, it is perhaps logical that VC 'innovation investing' finds a natural home within Circular Economy. Indeed, VC investment accounted for approximately 60% of all capital deployed into Circular Economy in the UK in 2023.

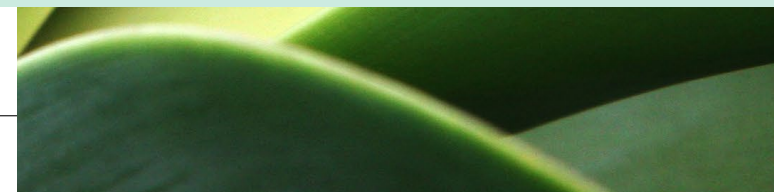
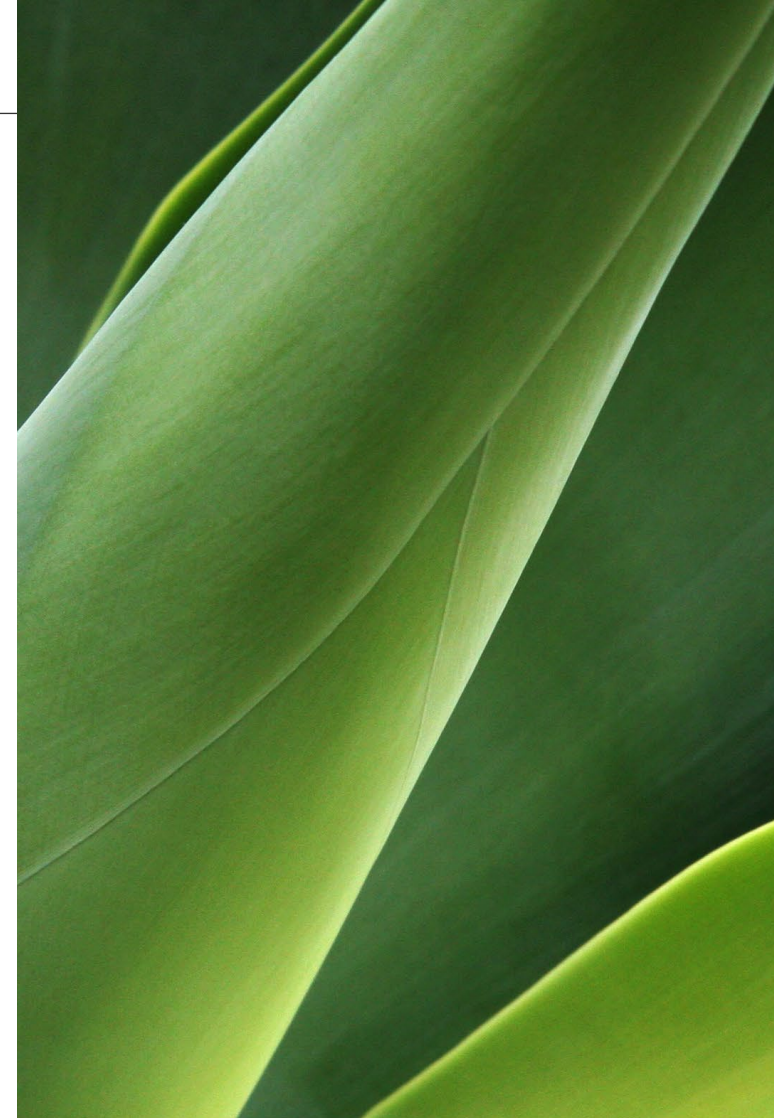
Despite the positive trends, raising growth equity has still presented challenges over the last year, leading to companies completing more internal bridge funding rounds. Institutional investors have remained cautious and highly selective on new deals as well as prioritising supporting their portfolio companies. However, investor interest in the Circular Economy remains strong with many funds specifically citing Resource Efficiency or Circular Economy within their investment strategy. Countering this, investment committees have raised their internal bars (impact and commercial) for assessing new investments. This heightened risk appetite reflects greater prioritisation of financial returns and in turn more conservative limited partner appetite for investing in their next funds.



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Securing growth capital in the Circular Economy

Challenges and solutions

What does this mean for companies looking to raise at the Series A and B stage in the Circular Economy?

We provide some suggestions below for Circular Economy entrepreneurs on current investor expectations around key issues and how to address these.

Convincing economics and pathway to profitability

Whilst the business will still be investing to fund growth, investors will want to see profitable unit economics that underpin the company's pathway to profitability. This includes sustainable gross margins which can be further enhanced through new product releases under its technology roadmap and economies of scale as the business expands. Investors and customers may accept a reasonable 'green premium' that prices in a product's superior environmental traits over competitors' comparable but less sustainable products. However, they would expect to see a credible flightpath towards price competitiveness in the near-term, especially given the currently challenging economic climate. Similarly, displaying a sufficient cash runway (at least 12 to 18 months) and robust management of monthly cash-burn are important, as transactions are taking significantly longer to close currently.

Scalable commercial traction with multiple customers

We have seen investors convey positive sentiment on companies' innovative technology products and their potential to transform industry (in terms of decarbonisation, circularity and operational efficiency benefits), but refrain from investing because the product is still being trialled by customers. Demonstrating technical and commercial validation by multiple customers and evidence of commercial take-up to underpin revenue visibly is important. The extent of this visibility of course will vary by business model. Service-driven businesses delivering Annual Recurring Revenue can forecast revenue visibility more confidently versus manufacturing businesses where contracts and orders tend to be significantly shorter. Businesses operating in regulated sectors (especially with specific rules governing marketable products) will need also to demonstrate compliance with relevant industry regulatory standards (and not be reliant on issue of future more environmentally-focused new standards to drive their growth).

A large and accessible target market driven by clear customer need

One of the first considerations growth investors will make before proceeding with a Circular Economy investment will be the size of the Total Addressable Market ('TAM') and its rate of growth. Ordinarily, investors like to see double digit year on year growth in a TAM that exceeds \$1bn in value. More specifically, they will want to understand what share of that TAM the company can credibly secure in the near-term – the Serviceable Obtainable Market ('SOM'). Investors will use this to validate the depth and scale of end customer demand for the company's products or services. Investors will analyse also how thoroughly companies have mapped out and tested new adjacent markets. Relevant examples include sustainable packaging brands that have expanded their target markets from food services into pharmaceutical industry. Displaying a clear go-to-market strategy with effective distribution channels, attractive sales conversion metrics and reasonable sales cycles help build a strong picture for investors of accessible market appetite.

Technology differentiation and customer value proposition

All companies with innovative technologies will need to demonstrate their superiority over potential competitors, and the Circular Economy sector is no different. Similarly, having in place a robust intellectual property strategy and protection mechanisms provide important barriers to entry. Investors – especially thematic funds – also will look for independent validation of the positive environmental impact (for example, a Life Cycle Analysis ('LCA') verifying the decarbonisation benefits). One additional observation, especially for Circular Economy companies targeting industrial processes, is demonstrating ease of use compared to incumbent processes. Customers being able to use new products without major renovation or capital expenditure help strengthen the value proposition and can accelerate end user adoption. BDO Growth Advisory team is ideally placed to continue supporting a wide range of Circular Economy entrepreneurs across their growth journey.

BDO Growth Advisory advised chill chain on their growth investment from Episode 1

Chill Chain has developed a technology platform for route optimisation, improving utilisation of road freight vehicles by allowing shippers and hauliers to combine loads. The platform drives a significant reduction in GHG emissions as HGVs are taken off the road because of a better utilisation of assets and load capacity.

BDO Growth Advisory advised the shareholders of DAME in Seed Extension investment from a Family Office

DAME is a developer of organic, reusable period products. The business is on a mission to reduce single use products and plastics in the market, with additional environmental benefit achieved from use of organic cotton in supply chain.

Circular Economy trends by sector

Industrials & Manufacturing sector represents 35% of 2023 Circular Economy investments

Industrials & Manufacturing

For the third year in a row Industrials & Manufacturing is the sector that has attracted the most Circular Economy related investment accounting for over a third of total UK Circular Economy deals by volume. A 25% increase in sector deal volumes is combined with total deal value soaring to over £400m of invested capital. Average disclosed deal size has increased from £6.7m to £12.2m.

The importance of extracting materials from waste remains at the forefront of the sector, as entrepreneurs are proactively finding new and improved ways processes to either produce product or energy from waste. In 2023, material recovery constituted 30% of investments in the Industrials & Manufacturing sector.

Firefly Green Fuels specialises in a transformative process of turning sewage sludge, typically considered low-value waste, into sustainable aviation fuel.

In early 2023, it secured a £5m investment from the airline, Wizz Air Holdings Plc. The aviation industry accounts for over 2% of annual global greenhouse gas emissions. Sustainable aviation fuel has the potential to cut climate-altering greenhouse gas emissions, such as carbon dioxide, in aviation by up to 80% compared to conventional jet fuel. The Wizz investment is a great example of the increased appetite of corporates to invest in sustainable technology in order to create reputational and operational value.

Nearly half of the deals in the sector relate to businesses embedding circular design principles into products, processes, and business models. A key theme within this category, and a tenet of the Circular Economy, are businesses designing business models which prolong the lifespan of assets, thereby keeping them in use for longer periods, reducing the need for new raw material extraction, and minimising potential waste.

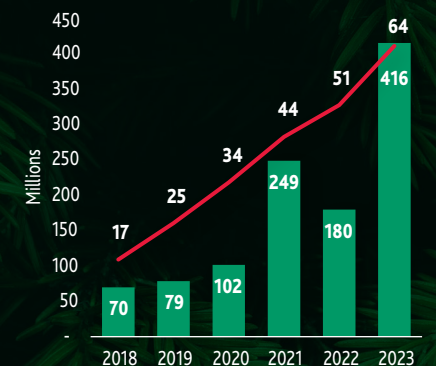
Investors continue to show a significant interest in businesses addressing this issue. AssetCool, a company specialising in the development and manufacturing of photonic coatings and materials aimed at enhancing the performance, reducing power losses, and reducing the operation expenditure of electricity networks, raised £2.25m in a Series A funding round. The round was led by Northern Gritstone and included existing shareholder, Northern Powerhouse Investment Fund.

Those championing sustainable circular inputs accounted for 14% of deals in the sector. One such business was Solasta Bio, which is addressing the challenge posed by toxic and harmful insect control practices which damage biodiversity. In 2023 it raised £4m in pre-Series A funding to develop the next generation of sustainable green insecticides.

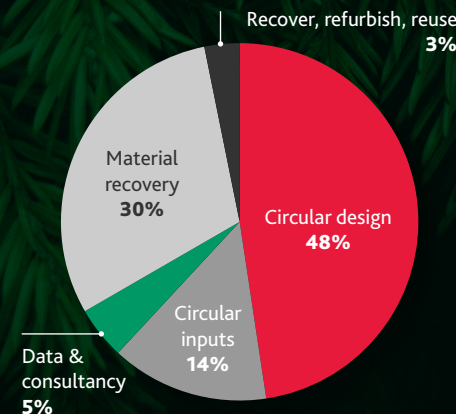


Industrials & Manufacturing

Circular Economy investments by volume and value 2018 – 2023



Circular Economy investment trends by deal volume 2023



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Circular Economy trends by sector

Societal desire to consume sustainable products has led to a significant investment in brands using circular, sustainable input materials

Retail, Consumer & Leisure

A challenging market meant that Circular Economy deal volumes remained flat in 2023, accounting for 16% of total UK Circular Economy deals. Not unsurprisingly that reflects an increased level of caution from investors who are being more and more selective when appraising opportunities in the sector.

Despite the cost-of-living crisis in the UK remaining a real obstacle for growth, consumer demand for sustainable products and services has driven a 50% increase in capital deployed into Circular Economy related retail, consumer and leisure businesses. What this tells us is that despite increased scrutiny from investors, they are willing to back the right businesses with an increasing level of conviction. Average capital deployed per Circular Economy deal increased by more than 40% in retail, consumer and leisure.

There remains strong appetite for businesses operating a Product as a Service (PaaS) model with investors attracted by economic benefits associated with subscription revenues and a value proposition that actively incentivises circular behaviours to prolong the lifespan of each product. PaaS accounted for 31% of Circular Economy sector investments in 2023, up from 23% in 2022.

Raylo, a consumer electrics subscription service, attracted two investments in the year totalling £115m, backers including Macquarie, NatWest and Channel 4 Ventures. Oodles Group, a raised £10m from Parisian investor Smart Lenders Asset Management to scale its affordable and flexible tech rentals platform internationally.

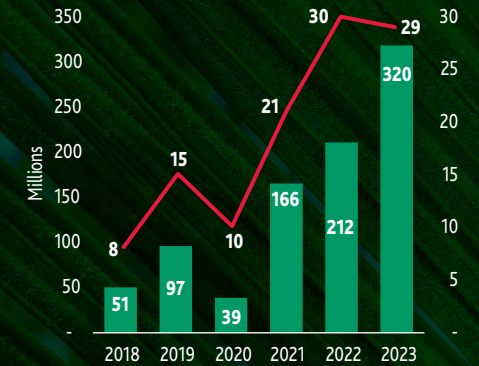
Circular design accounted for almost a quarter of sector deals, up from 7% in 2022 with investors paying closer attention to businesses reducing carbon impact through cleverly designed products. A great example is the investment in Kelda Showers by Macaulay Capital. Kelda Showers design water and energy efficient showers that use patented Air-Powered technology to atomise water into MACRO droplets.

Circular inputs continues to be an area of interest with focus on using circular materials to produce either products or packaging. Pulpex, a paper bottle maker, received Series C funding from investors including Diageo, to enable it to deliver the first commercial scale production line for paper bottles made of sustainably sourced fibre.

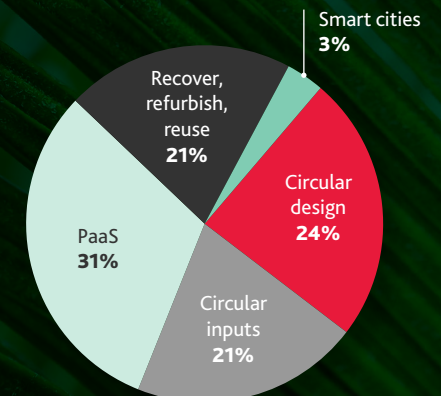


Retail, Consumer & Leisure

Circular Economy investments by volume and value 2018 – 2023



Circular Economy investment trends by deal volume 2023



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Circular Economy trends by sector

70% of food and drink deals relate to businesses using or creating more sustainable ingredients

Food & Drink

The number of Circular Economy investments in the Food & Drink sector increased from 11 in 2022 to 17 in 2023.

Circular inputs and circular design continue to account for over 90% of 2023 sector deals with focus around businesses producing more sustainable food systems or using more sustainable ingredients.

Businesses using either new or replacement ingredients that are more sustainable than traditional inputs accounted for 70% of sector Circular Economy investments. Using plant-based products continues to be a popular investment theme with the global market for meat alternatives expected to triple in size over the next decade from \$11.3bn in 2023 to \$35.9bn in 2033.

Investors including Lewis Hamilton and Swiss billionaire Ernesto Bertarelli took part in an \$18m Series B funding round for Neat Burger, a plant-based food group.

Away from meat-free, Dash Water is using wonky fruit that would otherwise be discarded as the main ingredient in producing and supplying zero-sugar, zero-calorie seltzer soft drinks. In 2023 it attracted investment in an £8.7m Series A funding round from a consortium of investors including Jonny Sexton, former Ireland rugby captain, and founders of Sipsmiths and Beavertown.

According to the Ellen MacArthur Foundation, almost one third of food produced is wasted while around 10% of the world's population goes hungry.

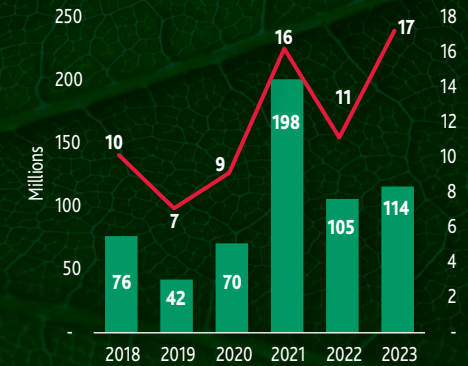
Designing more efficient food production and consumption systems is critical to reduce waste and has the potential to dramatically improve the carbon footprint of the industry. It is also a no brainer for consumers and businesses who in being less wasteful, can make material cost savings.

It's Fresh Ltd, a developer of food technology that helps extend the shelf-life of fresh fruit and vegetables throughout the food supply chain secured a £6.7m investment led by growth capital investor BGF to support its global growth strategy and expansion into new markets.

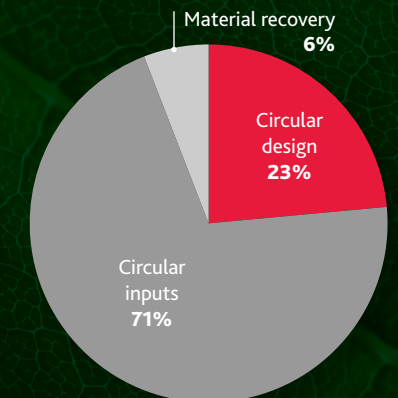


Food & Drink

Circular Economy investments by volume and value 2018 – 2023



Circular Economy investment trends by deal volume 2023



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Circular Economy trends by sector

Technology is critical to developing smarter cities, buildings and logistics

Technology, Media & Telecom (TMT)

In 2023, more than 25% of investments in the Circular Economy in the UK were directed towards the TMT sectors, with a disclosed capital of £414 million.

Accounting for 78% of TMT Circular Economy investments, data is playing a crucial role in addressing the Circular Economy a fact not lost on investors. In 2023 investment centred around three key themes; Resource Optimisation, Product Design & Monitoring and Supply Chain Transparency.

Resource optimisation

Data allows businesses and policymakers to understand resource flows, identify inefficiencies, and optimise resource usage. This includes tracking materials, energy consumption, and waste generation. Equiwatt is one of these companies' using data to optimise resource usage. It's using AI to pioneer change in the way households and EV drivers use energy.

The business raised development funding from Enterprise Ventures and Mercia Fund Management in May 2023.

Product design and monitoring

Data analytics can inform product design processes to make products more durable, reusable, and prolong their lifespan. By analysing data on consumer behaviour, product usage, and end-of-life disposal, companies can innovate more sustainable products or utilise assets to their fullest extent. Maven Capital Partners backed Sensoteq with a £3.1m funding round in November 2023. Sensoteq provide wireless sensor solutions for remote machine health monitoring which enables predictive maintenance of industrial applications, preventing costly downtime and increasing efficiency.

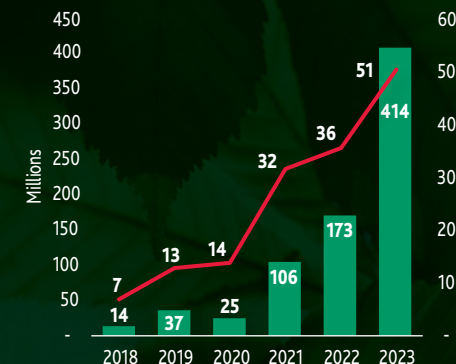
Supply chain transparency

Data enables transparency across the supply chain, facilitating the tracking of materials and products from extraction to disposal. This transparency helps identify opportunities for waste reduction, ethical sourcing, and improved logistics, ultimately leading to more sustainable supply chains. One company using data in this way is VivaCity, which has developed an AI solution that provides detailed and anonymous data insights to help optimise transport networks, improve urban infrastructure efficiency and save lives. It received funding of £7m in February 2023 from EnBW New Ventures and included existing investors Foresight Group and Gresham House Ventures.

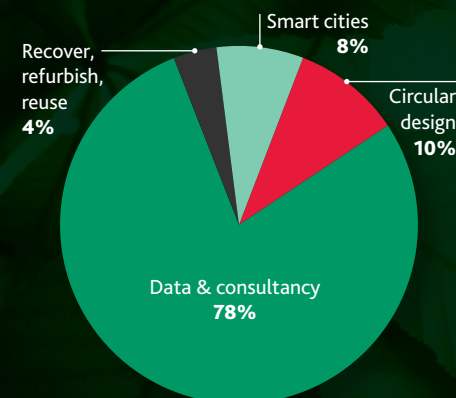


Technology, Media & Telecom (TMT)

Circular Economy investments by volume and value 2018 – 2023



Circular Economy investment trends by deal volume 2023



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Circular Economy trends by sector

The life sciences sector is making a vital contribution to the UK Circular Economy

Life Sciences

The life sciences sector is playing an increasingly important role in advancing the Circular Economy with the number of deals increasing by 64% from 2022 to 2023.

Circular inputs accounted for 65% of deal volume in the sector, with a particular focus on biodegradable materials and bio-based products. These companies are actively involved in developing biodegradable materials sourced from natural origins, offering an alternative to conventional plastics, and promoting the natural degradation of waste, thus lessening environmental impact. Bio-based products, derived from renewable sources like plants, algae, or bacteria, are reducing reliance on finite resources and cutting down greenhouse gas emissions.

One bio-based product company that raised investment in 2023 is Kelpi, a climate technology startup utilising seaweed to produce innovative biopolymers for bioplastic packaging. Kelpi successfully secured approximately £3m in a seed funding round led by Green Angel Syndicate and Science Creates Ventures. Kelpi is working in partnership with a number of global packaging companies to deliver recyclable, biodegradable coatings, turning paper, card and fibre into long shelf-life, sustainable packaging options.

Investors also continue to show a significant interest in businesses and products that are designed around circular principles. NovNat Tech's current focus is the global water scarcity crisis. NovNat Tech has developed an 'atmospheric water harvester' to help address the global water shortage, secured funding from Innovate UK to develop a novel technology that can generate water out of air.

About two billion people worldwide don't have access to safe drinking water today, and roughly half of the world's population is experiencing severe water scarcity for at least part of the year. These numbers are expected to increase, exacerbated by climate change and population growth. NovNat Tech solution is designed to address resource efficiency and resilience to water scarcity by diversifying water sources, reducing dependency on freshwater withdrawals, and promoting decentralised water management systems. By creating closed-loop systems and reducing reliance on finite water resources, communities and businesses can better adapt to water scarcity challenges.



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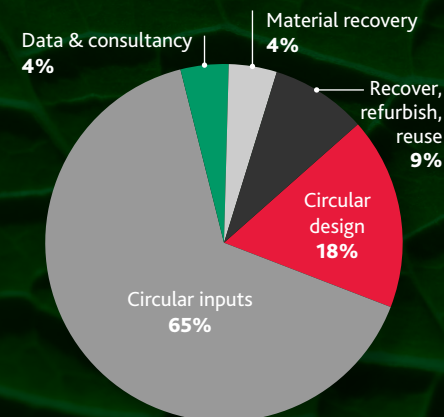


Life Sciences

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