

systemiq capital

# Climate Report

June 2024



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Looking Ahead

# Foreword

At Systemiq Capital, our investment focus is shaped by two factors: the urgent need to confront the climate crisis and the immense potential of scalable companies offering transformative climate tech solutions.

At the heart of our portfolio is a group of exceptional founders who are able to "swoop and soar", diving deep into the details of their solutions while also engaging with the broader system in which they operate. We work closely with our founders, providing support and guidance as they navigate the challenges of scaling their businesses and delivering meaningful environmental impact.

2023 marked a notable shift in the venture capital landscape, with a decline in funding for the first time after years of ballooning growth. Rising interest rates and fears of recession led to greater caution amongst private investors, resulting in a 30% decrease in climate tech funding to \$32 billion<sup>1</sup> and overall deal activity decreasing for the first time since 2020. Amidst this market volatility and shrinking capital, this year tested the resilience of climate startups.

Our portfolio of 16 active companies has demonstrated remarkable resilience despite these challenges.



**Investment Themes** 



#### FOREWORD

Looking Ahead

In 2024 we closed our second fund and witnessed the core technologies we invest in digitisation, electrification, and industrial biotech scale faster than ever.



Circulor now has the largest data pool in existence on the provenance of materials in the battery supply chain: Charm Industrial has removed over 7.000 tonnes of carbon from the atmosphere, the largest amount permanently sequestered by any company; and Basecamp Research's new model, BaseFold, improves the accuracy of Google DeepMind's 2020 breakthrough protein folding system AlphaFold by as much as  $6x^2$ .

In 2024 we closed our second fund and witnessed the core technologies we invest in – digitisation, electrification, and industrial biotech - scale faster than ever. The ambitions of our portfolio – such as Zero Avia's goal for their hydrogen-electric engines to reduce aviation carbon emissions by one gigatonne by 2040, and Ren's vision to take every Fortune 500 corporation to 100% renewable energy – continue to inspire us. As such, the past year has only reaffirmed our belief in our mission.

Yet the climate crisis continues to grow more urgent with each passing day. In 2023, we breached 1.5°C of global warming on average and, for the first time on record, global temperatures reached over 2°C above pre-industrial levels<sup>3</sup>. Our current emissions trajectory puts us on a path towards catastrophic and irreversible damage to both human and ecological systems.

To achieve net-zero emissions globally by 2050, an estimated \$3-5 trillion per year must be invested in clean energy infrastructure, technologies, and solutions by 2030<sup>4</sup>. We firmly believe that companies solving these global challenges today will become the market leaders of tomorrow.

In this report, you will see how we've grown since our last report. We have made five new investments and our portfolio companies have raised over \$730m of additional capital. We have also expanded our team to include nine dedicated members and grown our pool of climate advisors and partners. We invite you to explore this report, where we share our insights, progress, and most importantly the inspiring stories of the companies and people building climate solutions.

We thank our friends, partners, advisors and investors for their ongoing support. Your belief that we can improve the odds for humanity is the foundation for our shared success.

We hope you enjoy it.

Systemiq Capital Team

#### FORFWORD



#### Looking Ahead



systemiq capital

# About us

We are a venture capital firm laser-focused on finding and adding value to exceptional climate tech founders.

We invest in European and North American companies at late seed to Series A/B that harness the power of digitisation, electrification, and industrial biotech. These companies sit within or between our four climate specialisms: sustainable food and materials, clean transport, climate intelligence and finance, and climate restoration. Our portfolio companies have climate and biodiversity impact at the core of their business. When they succeed commercially, they directly drive decarbonisation and nature restoration, accelerating the transition to a sustainable and resilient economy.

#### Accelerating progress together

"Climate" is not a sector, but a set of challenges that cross-cut many sectors and technologies. As such, climate founders have a better chance of success if they are plugged into the web of knowledge of climate experts, policymakers, corporates and activists. Our close strategic relationships with Systemiq Limited and Purpose Venture Group support this.

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#### **ABOUT US**





#### Looking Ahead

# Our partners



#### SYSTEMIQ

#### Our relationship with Systemig Limited

Our identity and focus are closely aligned with our sister company, Systemiq Limited; we believe that solving the climate crisis requires systemslevel change to fundamentally reshape the way we live our lives. We physically co-locate in our London headquarters and share our knowledge and networks to collectively drive this change.

While Systemig Limited offers advisory services and coalition building to accelerate climate progress; Systemiq Capital finds, funds, and supports entrepreneurs poised to transform climate-critical systems.

features of Systemiq other funds.

**Judy Marsden** Global Head of Philanthropy, CVC Capital Partners (LP)

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#### OUR PARTNERS



## One of the distinguishing Capital is their relationship with Systemiq Limited, which enables the team to draw on the insights and network of the consultancy business. This should prove to be a USP compared to

Looking Ahead



#### SYSTEMIQ

#### Our mutually beneficial relationship manifests itself in three main ways:

#### Leveraging deep sector expertise

Systemiq Limited produces leading analyses on system change requirements and priority intervention areas to advance climate progress. These insights guide our investment strategies and help us identify critical areas with great potential to achieve system change.

to scale, guide effective standards development, and forge the partnerships needed to amplify the impact of our portfolio companies. Ultimately, combining our portfolio's solutions and our network's expertise drives progress and sustainability transitions faster.

#### Providing invaluable networks to support our entrepreneurs

Over the years, Systemiq Limited has built an extensive network of sustainability leaders; including corporate professionals, policymakers, activists and technical experts. By leveraging these connections, we can accelerate solutions

#### Sharing insight into innovation

As early-stage climate tech investors, Systemig Capital provides Systemig Limited front-row access to breakthrough innovations across our four climate specialisms. By engaging directly with our portfolio companies, they gain insights into the real-world viability of solutions, which helps inform their advisory services.

Looking ahead, we mutually see clear opportunities to deepen this two-way relationship in service of amplifying climate impact. Our goal is to create a whole greater than the sum of our parts as we move into a critical decade for climate.

#### **OUR PARTNERS**



Looking Ahead



# **PURPOSE** VENTURE GROUP

#### Our relationship with Purpose Venture Group

In April 2024, we announced our new partnership with Purpose Venture Group (PVG) to accelerate and scale venture-backed solutions to climate change. Our teams have a long history of working together on climate solutions, and we are already benefiting from PVG's wealth of experience in venture building, public and private markets, go-to-market strategy and scaling organisations such as Opower, Lyft, Centerbridge, IDEO, the White House, and more,

Our collaboration with PVG will support us to continue to find exceptional entrepreneurs in the U.S. and connect them to our rich climate ecosystem, as well as provide a launch pad for our European founders setting their sights on a U.S. go-to-market. We look forward to doing more together as our partnership matures.



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#### OUR PARTNERS



Looking Ahead

# This report



#### In the following pages, we reflect, look ahead, and take a deep dive into ten of our portfolio companies.

We begin by outlining the four elements that form our approach to driving systemic change through investment. We then share the lessons we've learned and delve into what climate impact means to us, detailing how we work with our portfolio companies to measure and report on this impact.

The main focus of this report is our exceptional portfolio companies. We interviewed leaders from ten of our portfolio companies, chosen to give a good overview of our investment themes, and showcase the companies we have been most actively involved with since the last report, given their scale and maturity. We explore the problems they are solving, their progress so far, and their plans for the future. Unless otherwise stated, all the data you see comes directly from the companies.

In closing, we reflect on our guiding principles and share our outlook for the future.

We loved hearing more about the amazing impact our portfolio companies are having while producing this report, and we hope you do too.

#### **Companies interviewed for this report**







Ohme

**USJ** 











### BASECAMP **RESEARCH**

### **CHARM**

Looking Ahead



# Our approach to climate investing

We capture the value of change by backing high-growth businesses offering the solutions of tomorrow.

To achieve the Paris Agreement, we must build an economy that stabilises the climate and regenerates nature for generations to come. Innovation has a crucial role to play in the transformation of economic systems that is required and ongoing. We call this "system change".



**Karl Fletcher** Climate Tech Investor, Montpelier Foundation (LP)

Investment Themes





## We really like the idea of system change, looking at a problem holistically rather than at a specific angle, and finding points of leverage to have the most impact.

Looking Ahead



#### Our approach to driving system change in support of the climate transition involves:



#### Targeting key systems for climate disruption

We have identified four high-impact systems in which we have deep sector knowledge: sustainable food and materials. clean transport, climate intelligence and finance, and climate restoration. Within each of these, there is a significant role for technology to play in enabling emission reductions and the preservation of our natural ecosystems.

#### Mapping specific system change drivers

Within each system, we leverage the work of Systemig Limited to understand the key technology adoption curves, policy levers, infrastructure priorities and other dynamics that can catalyse large-scale transformation. Through this, we identify high-potential intervention points capable of driving system change.

#### Investing in transformative solutions

Our portfolio companies' solutions typically leverage one or more of three technological disruptors: digitisation, electrification, and industrial biotech. These technologies are highly scalable, and so have huge potential for widespread adoption.

### Leveraging our platform to scale impact

To support our portfolio companies, we leverage our network of investors, corporate partners, activists and policymakers to help scale their impact faster; while simultaneously sharing insights, learnings, and follow-on opportunities back to our network. This creates a positive feedback loop, delivering both increased financial return and advancing system change across our portfolio.

#### OUR APPROACH TO CLIMATE INVESTING





Looking Ahead

# What we have learnt

We are constantly learning in order to continue finding exceptional climate-tech founders and support them to scale in the best way we can. As we reflect on the past two years and the stories and feedback from our founders, four lessons stand out to us:

#### The ability to "swoop and soar" is vital for climate tech founders

Running a climate tech startup requires a particular type of founder. They are disrupting the status guo, and so must maintain a view on how their company influences the systems they operate in, bringing others along on the journey. At the same time, they must be deep in the details of fine-tuning their solution. This, alongside their steadfast commitment to their individual missions. is what enables our founders to ride through the lows, capture the highs, and ultimately succeed.

#### The best opportunities are found at the intersections

Some of the best opportunities are found in the intersections of our four sector vertices and three core technological disruptions, in the form of both software and hardware solutions. This systems lens has helped us identify companies with high growth potential, that don't fit nicely into single categories. Our latest investments – Ren and Qflow – are examples of this, both sitting between 'food and materials' and 'climate intelligence and finance'.

**Transparency and** trust is vital

In a challenging year, we've seen that transparency and trust between us and our portfolio companies are as vital as ever. This has solidified what we've always known – that good governance is one of the top priorities at early-stage companies.

#### **Reporting must align with** purpose to add value

With the launch of Fund II, we pledged to work with our portfolio companies to develop bespoke climate impact KPIs suited to their individual missions and began reporting as an Article 8 fund. We have done so with the aim of ensuring reporting remains a service to impact, not a barrier. By tying impact targets to true drivers of business performance, we ensure our goals and efforts are focused on success. In the next section, we delve deeper into how we do this.

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#### WHAT WE HAVE LEARNT



# Measuring and reporting on climate



#### What climate impact means to us

The climate and biodiversity impact of our funds is defined by the outcomes and effects of our portfolio companies' products and services. Over the past year, we have enhanced our approach to collaborating with founders on measuring and reporting this impact.

#### How we build and report impact KPIs

Our founders naturally have the deepest understanding of their climate impact. Upon deciding to invest, we work together to identify two or more impact-related KPIs relevant to their technology or sector. These are reported annually to track progress.

We believe that impact KPIs should reflect the maturity of a company and not be overly burdensome. For example, Hoxton Farms are tracking the amount of cultivated fat produced at their pilot facility, while Basecamp Research reports on the number of proteins in their database.

These KPIs are often "inputs" to theoretical climate impact calculations, such as reduced carbon emissions, water consumption or nature protection. As our companies are early-stage, we only begin to measure these impacts once a threshold is reached and the impact has become material enough to be calculated and reported. These thresholds can be maturity, revenue or time-based.

As we invest in companies where financial and impact success are intertwined, we do not publicly report our portfolio companies' impact KPIs.



#### How we help our portfolio with their climate approach

We provide a sounding board to our founders who are building robust impact approaches in-house. We do so by directly leveraging some of the groundbreaking work that our sister company, Systemiq Limited, has been doing with corporates and funds on defining their impact tracking and reporting strategies.

Climate solutions fall into one of two archetypes: solutions that directly replace an incumbent product or solutions which make a process or product more climate efficient. The following recommendations are appropriate for both.

> Good public impact frameworks exist that can be used to help create an impact calculation methodology, such as section 1 of the Project FRAME methodology.

Impact can be measured by analysing the base case and comparing this to the improved case, where the solution is applied.

It is important to distinguish between 'potential' and 'realised' impact when reporting results. Potential impact is a scenario exercise calculating maximum theoretical impact, while realised impacts are calculated based on real data in a given year.

Impact measurement remains an intellectual exercise rather than exact science in most cases. Hence it is worth rethinking the approach rather than falling into rabbit holes around attribution (i.e. how much impact is actually coming from my solution?) or impact drivers (i.e. what if this side functionality of my solution drives some impact?).

It is important to be transparent about the methodology used. This includes highlighting potential flaws, what could be done better in the next iteration and referencing sources.

Impact measurement and reporting remains a nascent and evolving space, and as such, we are consistently working to enhance our methodologies, learning in tandem with the wider market.



Highlights

#### MEASURING AND REPORTING ON CLIMATE



Looking Ahead

# Systemiq Capital highlights



3

exits from portfolio companies



2

funds allocated to climate companies



\$730M+

additional capital raised by portfolio companies

**OUR CO-INVESTORS INCLUDE** 

andreessen. horowitz

**Climate Innovation Fund** 

CLIMATE SOLUTIONS



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#### LOWERCARBON CAPITAL







SYSTEMIQ CAPITAL HIGHLIGHTS

# Investment Themes



#### SUSTAINABLE FOOD AND MATERIALS

How goods are produced.



### CLIMATE INTELLIGENCE AND FINANCE

How goods and services are financed.



#### **CLEAN TRANSPORT**

How goods and people move around.



#### **CLIMATE RESTORATION**

How we stabilise the Earth's systems.

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#### **OUR INVESTMENT THEMES**

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Looking Ahead

# Our portfolio companies

Sustainable food and materials

![](_page_16_Picture_3.jpeg)

![](_page_16_Picture_6.jpeg)

Clean transport

ZEROAVIA

Ohme

TRC

BEDEO

**Climate intelligence** and finance

**USJ** 

JUPITER

CoolPlanet

![](_page_16_Picture_16.jpeg)

Qflow

apolitical

![](_page_16_Picture_19.jpeg)

![](_page_16_Picture_20.jpeg)

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**OUR PORTFOLIO COMPANIES** 

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![](_page_16_Picture_29.jpeg)

![](_page_16_Picture_30.jpeg)

### BASECAMP **RESEARCH**

**CHARM** 

![](_page_16_Picture_33.jpeg)

Looking Ahead

# Sustainable food and materials

Across our sustainable food and materials investment theme, this year we doubled down on **Controlled Environment** Agriculture (CEA) and critical minerals.

Within CEA, in 2023, the vertical farming industry experienced a wave of bankruptcies. While we remain cautious about vertical farms, we believe the future for greenhouses is bright. This is due to the increasing frequency of extreme weather events, including droughts in core agricultural regions such as California and France, and strong consumer preference for fresher, cleaner produce. Existing greenhouse players in mature markets, like the Netherlands, are seeking solutions to hedge against highly erratic European energy costs and a shortage of both skilled and unskilled labour. Meanwhile, new markets with massive potential acreage are coming online in the U.S. and Saudi Arabia. We may see biological fertilisers become undisputed leaders in the CEA space before they dominate in-field agriculture, in tandem with an acceleration of the transition to hybrid grower/AI systems, reducing labour bottlenecks while vastly improving optimisation of the growing environment.

![](_page_17_Picture_4.jpeg)

#### SUSTAINABLE FOOD AND MATERIALS

![](_page_17_Picture_12.jpeg)

Looking Ahead

![](_page_18_Picture_1.jpeg)

Across the food value chain. we remain convinced that the success of alternative proteins is simply a case of being cheaper, tastier and healthier than meat. From the developments we've seen this year, this is a matter of 'when' not 'if'. For example, in aged cheese, which is notoriously hard to replicate without dairy, we've seen a 'digital twin' of the human flavour experience deliver some exceptionally compelling taste test results.

In materials, we've accelerated our work across critical minerals. We have a particular focus on copper and have deep connections with major copper miners through our networks. Copper is essential to nearly all energy transition infrastructure, and we're on track for a massive supply deficit by 2030<sup>5</sup>. We have been drilling down into solutions that can deliver nearterm increases in copper production while reducing the environmental impact of mining. This led us to investigate solutions that improve the efficiency of copper extraction from ores, and secondary extraction from tailings. Examples include silicon membranes perforated with nanopores that can be tweaked to selectively allow different metallic ions to pass through, and bacteria that dramatically improve copper recovery from heap leaches.

Funding for sustainable materials is also rising, as big infrastructure players and governments combine financial heft. Cement and steel are leading the charge, with a single company, H2 Green Steel, raising €1.5bn in equity in 2023<sup>6</sup>, the largest Venture Capital round in Europe. Advancements in bio-based materials for sustainable packaging underscored the global push towards more sustainable production and consumption practices.

But we still have a long way to go, and we remain focused on providing capital to entrepreneurs disrupting these systems. Our portfolio companies continue leading the way in decarbonising highemission production processes, enabling the circular economy and providing alternative products.

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#### SUSTAINABLE FOOD AND MATERIALS

![](_page_18_Picture_13.jpeg)

![](_page_18_Picture_15.jpeg)

Looking Ahead

## Sustainable food and materials

COMPANY	CLIMATE CHALLENGE	COMPANY'S SOLUTION
HOXTON FARMS	High environmental impact of industrial animal agriculture.	Producing cultivated animal fa hybrid meat alternatives that n and texture of conventional me
Carculor	Opaque supply chains leading unmanaged climate and ESG risks.	Tracking materials through sup using blockchain and digital tw
<b>BRIMSTONE</b>	Decarbonising the 2+ gigatonne/year cement industry.	A new process for cement proc that is carbon neutral and proc same end-product.
Interviewed for this report Other portfolio companies		

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Looking Ahead

![](_page_20_Picture_1.jpeg)

**Global demand** for livestock products is projected to increase

70% by 2050<sup>8</sup>.

#### THE PROBLEM

Animal agriculture is estimated to be responsible for 20% of global greenhouse gas emissions<sup>7</sup>. This is primarily due to methane emissions from cattle, deforestation for pasture and feed crop land, and energy used in the production, processing, and transportation of animal products. Without alternatives, these impacts are expected to rise, with global demand for livestock products projected to increase by 70% by 2050<sup>8</sup>. Although more than 90% of consumers who buy plant-based meat are flexitarians<sup>9</sup>, 51% try meat alternatives once and don't repurchase due to taste<sup>10</sup>.

#### **COMPANY OVERVIEW**

In their London-based pilot facility, Hoxton Farms cultivates real animal fat - without the animals - using a unique approach: combining cell biology and mathematical modelling. This cultivated fat can then be added to plantbased meat products, which helps solve a major challenge in the plant-based protein industry: making hybrid meat alternatives that look, cook and taste as good as the real thing – maybe even better.

![](_page_20_Picture_8.jpeg)

Highlights

**Investment Themes** 

#### SUSTAINABLE FOOD AND MATERIALS HOXTON FARMS

![](_page_20_Picture_15.jpeg)

Take stem cells from a pig and freeze.

Put a small number of cells in a cultivator.

Switch the cells diet to begin the fat tissue maturing process for the next 10 days.

Harvest real fat tissue.

Looking Ahead

![](_page_20_Picture_22.jpeg)

![](_page_21_Picture_2.jpeg)

## Interview with Max Jamilly

**CO-FOUNDER, HOXTON FARMS** 

#### How does your product compare to alternatives?

Feeding people with our fats combined with alternative proteins can all but end intensive animal agriculture. Cultivated beef and pork have been shown to have a 92% and 45% reduction in CO<sub>2</sub>e/kg respectively compared to traditional farming<sup>11</sup>. Plant oils, currently used in meat alternatives, are high in saturated fat, require many filler ingredients and are often sourced through unfair labour practices. With our fat, you get a low-carbon solution, with a cleaner label, a just supply chain, and the product tastes incredible too.

#### How does your business model help you achieve your impact?

Most cultivated companies focus on B2C muscle products. Fat is a lot more scalable, defensible and unique than muscle – you only need 10% fat in a product to completely change the way it tastes. We own almost the entire tech stack and our process is maximised for cost and scale by our team of mathematicians and machine learning engineers. We're also B2B. Co-launching products with our B2C partners allows us to hedge across lots of different partnerships, product types and countries.

Last year we opened the UK's first facility for making cultivated fat. It's a 14,000 square foot space that will be making hundreds of kilograms of fat every month. This will serve as our proof of concept that we can produce cultivated fat economically and scalably, and to receive regulatory approval.

#### What are your plans for the future?

In the long-term, our vision is pretty simple: to become the largest supplier of cultivated fat in the world. What that means is everyone who would have been

eating fish or meat continues to cook the same recipes, but with a hybrid product that they enjoy just as much. That product contains a combination of plant-based protein and cultivated fat and, of course, the fat comes from Hoxton Farms.

**Max Jamilly** Co-Founder

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#### SUSTAINABLE FOOD AND MATERIALS HOXTON FARMS

![](_page_21_Picture_21.jpeg)

![](_page_21_Picture_22.jpeg)

![](_page_22_Picture_2.jpeg)

### Cultivated beef has been shown to have a 92% reduction in CO<sub>2</sub>e/kg compared to traditional cattle farming<sup>11</sup>.

Max Jamilly Co-Founder, Hoxton Farms

![](_page_22_Picture_5.jpeg)

![](_page_22_Picture_6.jpeg)

The former chief strategy officer for Impossible Foods, Nick Halla, is the latest addition to Hoxton Farm's board, bringing his experience of scaling and expanding an alternative meat company worldwide.

### **HOW IS HOXTON FARMS CONTRIBUTING TO WIDER** SYSTEMS CHANGE?

If they can help satisfy meat-loving consumers with more sustainable alternatives, it could transform our food system at a massive scale.

#### **OUR PARTNERSHIP**

"Through their relationship with Systemig Limited, Systemig Capital have access to valuable data, can make introductions to key players in the space and they really understand our customers. They are helping us navigate the world of sustainability and build the most climate-friendly product possible."

**Max Jamilly** | Co-Founder, Hoxton Farms

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![](_page_22_Picture_21.jpeg)

#### By making alternative proteins taste and feel more like real meat, Hoxton Farms aims to shift global diets away from animals and towards plant-based options.

![](_page_22_Picture_25.jpeg)

![](_page_23_Picture_1.jpeg)

Producing batteries is the biggest source of embedded emissions in electric vehicles<sup>12</sup>.

#### THE PROBLEM

Regulators, investors and consumers are putting increasing pressure on companies to better understand and improve their supply chain practices. This is particularly challenging for businesses with complex supply chains, as this often leads to a lack of transparency. The electric vehicle (EV) industry faces unique challenges in this regard. As a sector that prides itself on producing environmentally friendly vehicles, the high emissions associated with the manufacturing process pose a significant problem. Producing batteries used to power EVs is the biggest source of embedded emissions, accounting for 40-60% of total production emissions<sup>12</sup>.

#### **COMPANY OVERVIEW**

Circulor tracks raw materials through complex supply chains, digitally mapping their journey from the mine site all the way to their final use. Their solution allows businesses to comply with regulations, demonstrate responsible sourcing practices, and improve their overall environmental impact. They specialise in the battery supply chain, working with leading auto-manufacturers to provide 'battery passports' digital records that provide details on materials, manufacturing processes, and embodied carbon.

#### BATTERY PASSPORTS

Consumers

![](_page_23_Picture_10.jpeg)

**Transaction history** 

![](_page_23_Picture_12.jpeg)

![](_page_23_Picture_13.jpeg)

![](_page_23_Picture_14.jpeg)

#### SUSTAINABLE FOOD AND MATERIALS CIRCULOR

![](_page_23_Picture_23.jpeg)

![](_page_23_Picture_24.jpeg)

Mines

Mineral | Ownership | Ouantity Grade | Provenance | Barcode

![](_page_23_Picture_28.jpeg)

Processing

Looking Ahead

![](_page_24_Picture_1.jpeg)

## Interview with Douglas Johnson-Poensgen

#### What makes you different?

We have by far the biggest data pool on the provenance of materials within the battery supply chain and the actors within it. With this, we are able to abstract the information that is useful for the buyer of the final product, as well as enable individual actors within the supply chain to understand their relative performance, and improve this, in order to improve their competitiveness in the market.

### How does your business model help you achieve your impact?

We grow our impact by scaling our solution. Soon we will work with companies that collectively make up more than 65% of the battery supply chain, 50% more than our competitors combined. Natural adjacencies to electric vehicles include construction, food and renewable energy. Increasing demand for product passports and circular solutions, as well as legislation, are all drivers for transparency and traceability in supply chains across these industries. In the last year, we've won tenders with SQM, ACC, Siro, Tesla and two other large U.S. auto-manufacturers. Working with leaders in the industry creates a gravitational pull, making us the natural solution for others in the sector.

#### What is your long-term vision?

In the next 15 to 20 years, we believe the digitalisation of supply chains will be ubiquitous in the way that Enterprise Resource Planning (ERP) platforms are, driven by consumer expectations and growing regulatory requirements. We have the potential to become the Visa of the battery supply chain – where each company pays a tiny clip of the cost of moving materials through the supply chain to us, in return for verifying the end product.

**Douglas Johnson-Poensgen** Founder & CEO

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#### SUSTAINABLE FOOD AND MATERIALS CIRCULOR

![](_page_24_Picture_20.jpeg)

#### HOW IS CIRCULOR **CONTRIBUTING TO WIDER** SYSTEM CHANGE?

#### Circulor is an enabler of change.

The transparency and traceability provided by their solution is a key input to larger system change, such as enabling a circular economy and ethical sourcing.

#### **OUR PARTNERSHIP**

"Systemig Capital's vision of driving system change fits with what we are trying to achieve. Through Systemig, we also have access to deep sector knowledge, making them a strategic investor that we can work alongside."

**Douglas Johnson-Poensgen** Founder & CEO, Circulor

In the last year, we've won tenders with SQM, ACC, Siro, Tesla and two other large U.S. auto-manufacturers.

**Douglas Johnson-Poensgen** Founder & CEO. Circulor

![](_page_25_Picture_10.jpeg)

![](_page_25_Picture_11.jpeg)

**Investment Themes** 

#### SUSTAINABLE FOOD AND MATERIALS CIRCULOR

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Looking Ahead

# Clean transport

**Our clean transport** investment theme focuses on innovative solutions for the movement of both people and goods.

We invest across road transport, shipping and aviation which are all undergoing a transformative shift towards direct and indirect electrification. Promising innovations are emerging also in supply chain optimisation – including better inventory management and order forecasting to minimise waste and inefficiencies. Additionally, traceability and verifiability solutions, such as Digital Product Passports, are being developed to ensure transparency and accountability throughout the supply chain.

Over the past two years, investments and policies accelerating clean transportation have soared – venture funding into mobility tech startups doubled to over \$70 billion in 2022<sup>13</sup>. In 2023, the U.S. extended electric vehicle tax credits under the Inflation Reduction Act<sup>14</sup>, and the Department of Energy announced a \$2.8 billion grant to support innovation in battery technologies<sup>15</sup>.

![](_page_26_Picture_5.jpeg)

**Investment Themes** 

#### **CLEAN TRANSPORT**

![](_page_26_Picture_13.jpeg)

Looking Ahead

![](_page_27_Picture_1.jpeg)

The EU agreed to new CO<sub>2</sub> emission standards for cars and vans, aiming for a 55% and 50% reduction in emissions from cars and vans respectively by 2030<sup>16</sup>.

Electric vehicle adoption is growing exponentially. Unsurprisingly, electrification is moving fastest for vehicles with the shortest asset life. The initial wave was in micromobility, and now electric cars are following the hockey stick curve of exponential technology adoption. In 2023, 18% of all new cars sold – 14 million vehicles – were electric, up from around 14% in 2022, 9% in 2021 and less than 5% in 2020<sup>17</sup>. The next wave will be the heavy-duty sector, driven by regulations and cost curves. Whilst vans and trucks only account for 10% of all internal combustion engine (ICE) vehicles, they are responsible for 70% of ICE  $CO_2$  emissions<sup>18</sup>. Aviation and shipping have been the slowest to electrify, given the long asset life of ships and airplanes. We believe that the next decade will see road transport going fully electric, with aviation and shipping lagging into the 2030s.

As transport goes electric, the traditional transport sector is gradually merging with the energy sector. New infrastructure nodes are starting to emerge with EV charging, connecting mobility assets with power markets as new platforms are created to avoid spikes in electricity demand. Yet, as electricity demand increases with EVs, primary demand for transport will decrease by four times with higher efficiency of electric motors. ICE vehicles waste about 80% of the energy they consume, whilst electric vehicles can convert 87% of the input energy to motion<sup>19</sup>.

![](_page_27_Figure_5.jpeg)

**ICE** vehicles waste about 80% of the energy they consume, whilst electric vehicles can convert 87% of the input energy to motion<sup>19</sup>.

We believe that the best companies going after transport electrification are those that understand the deep system effects of the merging between the transport and energy sectors, and those that understand how to partner with asset owners to create a new, more efficient energy infrastructure.

Our portfolio companies are leading the way with technologies spanning hydrogen-electric engines for aviation and smart charging solutions. We remain dedicated to financing the transition to sustainable global transport solutions.

Highlights

**Investment Themes** 

#### **CLEAN TRANSPORT**

![](_page_27_Picture_16.jpeg)

Looking Ahead

## Clean Transport

COMPANY	CLIMATE CHALLENGE	COMPANY'S SOLUTION	
	Tackling the significant greenhouse gas emissions produced by the aviation industry.	Developing the world's first ze emission aviation powertrain u hydrogen-electric power.	
Ohme	Uptake of electric vehicles slowed by the challenges of home charging.	Cheaper, more efficient home smart charging software and l	
TRC	Public transport systems relying on decades-old, inefficient routes.	Advanced routing algorithm for to enable more convenient, dy	
BEDEO	Massive increase in pollution and emissions from last-mile delivery.	Bespoke design and manufact commercial vehicles, including	
Interviewed for this report Other portfolio companies			

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#### CLEAN TRANSPORT

![](_page_28_Picture_10.jpeg)

erousing

charging using hardware.

or public transport namic routes.

ture for light retrofitting.

Looking Ahead

![](_page_29_Picture_1.jpeg)

Air travel is responsible for around

2.5%

of global carbon emissions<sup>20</sup>.

#### THE PROBLEM

Air travel is responsible for around 2.5% of global carbon emissions, but the sector's overall impact on global warming is closer to  $3.5\%^{20}$ . This is due to the effect of other harmful pollutants released, such as nitrous oxides depleting the ozone layer, and water vapour trapping heat at high altitudes. Despite growing regulatory pressures and an increased focus on reducing emissions, the aviation industry is struggling to find and put in place effective solutions to mitigate its environmental impact.

#### **COMPANY OVERVIEW**

ZeroAvia is leading the way in zero-emission aviation technology. Their hydrogen-electric powertrains replace conventional engines, emitting only water vapour and heat when in operation. They have flight tested a number of prototypes, including an engine for a 19-seat plane, and are now working towards their first commercial passenger flight.

#### THE HYDROGEN ECOSYSTEM

![](_page_29_Figure_10.jpeg)

![](_page_29_Figure_11.jpeg)

Hydrogen-electric propulsion system

Aircraft

Highlights

CLEAN TRANSPORT ZEROAVIA

![](_page_29_Picture_21.jpeg)

![](_page_29_Figure_22.jpeg)

![](_page_29_Figure_23.jpeg)

Looking Ahead

![](_page_29_Picture_25.jpeg)

![](_page_30_Picture_1.jpeg)

## Interview with Gabriel Lepine and Julian Renz

VICE PRESIDENT, FINANCE | VICE PRESIDENT, STRATEGY, ZEROAVIA

#### What makes you different?

We'll be the first company to commercialise a zero-emission aviation solution, so we have a first-mover advantage. In 2023 we successfully conducted 10 test flights with our 19-seat aircraft, the largest aircraft at the time powered with a hydrogen-electric engine, paving the way for certification and commercialisation.

#### How does your business model help you achieve your impact?

Our secret sauce is our proprietary technology, which we own and develop in-house, including the first aviation certified electric motor, our unique fuel cell systems, and our world-leading silicon carbide inverter. We have a power-by-the-hour business model, meaning we sell the engine but also provide recurring services. Part of this is fuel provision, giving us control over ensuring green hydrogen is being used, which

we will either procure or produce ourselves. We've also had inquiries from other transport sectors seeking to use our technology, which we're exploring, but our core focus will be aviation.

#### What is your long-term vision?

Our goal is to save one gigatonne of carbon emissions by 2040 and to achieve a 95% lifecycle assessment carbon reduction compared to traditional aircraft engines. We plan to have our first commercial product, for up to

20-seat planes, flying by 2025, to scale up to 80 seats by the end of 2027. It's a huge industry – \$600 billion annual industry spend – and our hydrogen-electric technology will be able to work on all aircraft sizes. Ultimately, we will redesign aircrafts to optimise for our hydrogen-electric propulsion.

Gabriel Lepine Vice President. Finance

Julian Renz Vice President. Strategy

CLEAN TRANSPORT ZEROAVIA

![](_page_30_Picture_21.jpeg)

## TIME

ZeroAvia ranked #1 Greentech Company by TIME<sup>21</sup>.

2024 Global **Cleantech 100 List of Exceptional Innovators**<sup>22</sup>.

Looking Ahead

#### COMPARED TO TRADITIONAL TURBINES<sup>23</sup>. **HYDROGEN-ELECTRIC ENGINES HAVE:**

![](_page_31_Picture_2.jpeg)

40% lower

fuel and maintenance operating cost.

![](_page_31_Picture_5.jpeg)

### Our goal is to save one gigatonne of carbon emissions by 2040.

Based on a lifecycle analysis for each ZA product against conventional jet fuel turbine engines.

#### **Gabriel Lepine**

VP of Strategic Finance, ZeroAvia

#### HOW IS ZEROAVIA CONTRIBUTING **TO WIDER SYSTEM CHANGE?**

#### ZeroAvia aim to change the system of aviation, which involves not just the engine but also working with aircraft manufacturers, infrastructure providers, and fuel providers.

They have recently been awarded the California Energy Commission Grant to develop high-efficiency liquid hydrogen refuelling trucks, and have signed an agreement with Scottish Power to collaborate on developing low-carbon hydrogen supply to key airport locations.

### **EXPERIENCE WITH SYSTEMIQ CAPITAL**

"We chose Systemig Capital as an investor because of their knowledge of the space – we've done a lot of work on the hydrogen economy together. Access to Systemig Capital's network has been extremely helpful - we were introduced to World Economic Forum early on and met one of our board members through a Systemig Capital introduction."

Julian Renz | Director of Government Programs & Impact, ZeroAvia

![](_page_31_Picture_23.jpeg)

Looking Ahead

# Chme

70% of people in the UK have access to off-street parking<sup>24</sup>, a large proportion of whom are early EV adopters<sup>25</sup>.

#### THE PROBLEM

In order to encourage adoption of electric vehicles (EVs) at scale, home charging solutions need to be more accessible for consumers in terms of set-up, affordability, and convenience. As EV adoption expands, the load on the electric grid also grows, creating complexity around clean energy availability to support on-demand charging needs. Innovative systems are needed to protect consumers from increased demand pressure and costs, while also managing elevated EV-related grid loads.

#### **COMPANY OVERVIEW**

Ohme provides end-to-end charging solutions for at-home EV charging. Their technology integrates with dynamic energy tariffs, enabling a charging system that is smarter, greener and cheaper. Ohme has established key partnerships with automotive giants like Mercedes, Hyundai, and Polestar, supporting their vision to become a leading global player in smart EV charging.

![](_page_32_Picture_7.jpeg)

![](_page_32_Picture_8.jpeg)

![](_page_32_Picture_9.jpeg)

SKODA

![](_page_32_Picture_10.jpeg)

![](_page_32_Picture_11.jpeg)

Highlights

#### CLEAN TRANSPORT OHME

![](_page_32_Picture_20.jpeg)

![](_page_32_Picture_21.jpeg)

![](_page_32_Figure_22.jpeg)

#### Mercedes-Benz has recently appointed Ohme as its official home charge point provider.

Looking Ahead

Chme

![](_page_33_Picture_1.jpeg)

## Interview with David Watson **CEO & CO-FOUNDER, OHME**

Why did you found Ohme?

70% of people in the UK have access to off-street parking<sup>24</sup>, a large proportion of whom are early EV adopters<sup>25</sup>. At the same time, more renewable energy on the grid means more imbalance of energy supply. We saw a clear need to enable smart EV charging that helps lower the cost of this imbalance for the grid, as well as provide cheaper energy for EV car users.

#### What makes you different?

We were the first to offer a smart charging solution for EVs that charges when there's excess

energy on the grid and stops charging when there's not enough. This enables cheaper access to energy for customers, and ensures the grid is balanced. We have real time integration with Octopus Intelligent and OVO Charge Anytime tariffs, giving customers access to the most cost efficient energy. As you can only do both with the Ohme box we have become one of the biggest home charging platforms in the UK. We now have partnerships with the likes of Motability, Volvo and Mercedes, all of which are big companies that help to push us forward.

#### How does your business model help you achieve your impact?

111

Our solution makes it easy to lower your carbon footprint and save money in a way that doesn't affect your quality of life. The more connected devices we have in the system, the greater value we can offer from our flexibility services in the next couple of years, we'd like to be the biggest smart charging platform and provider of home charging in Europe. Ultimately, we want to be the biggest global supplier of smart EV chargers, and be a key player in building the smart grid.

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#### **CLEAN TRANSPORT OHME**

<u>\_</u>}

![](_page_33_Picture_17.jpeg)

#### What changes are needed to accommodate the growth of EV adoption?

Presently there are more than 1 million electric cars in the  $UK^{26}$ . but if you fast forward to five years' time, there will be over 6 million<sup>27</sup>. If you were to turn all of those chargers on simultaneously, this would require a huge amount of energy. To facilitate this demand, we need to change the way energy is used and consumed on the grid.

**David Watson** CEO & Co-Founder

Looking Ahead

![](_page_33_Picture_22.jpeg)

With an estimated 130,000 EVs expected to join Motability **Operations' fleet over** the next 18 months. its collaboration with Ohme in 2023 alone has helped to save more than **13,500 tonnes of CO\_2^{28}.** 

![](_page_34_Picture_2.jpeg)

## 109,000 tonnes

of carbon avoided in 2023.

Presently there are more than 1 million electric cars in the UK<sup>24</sup>, but if you fast forward to five years' time, there will be over 6 million<sup>25</sup>.

**David Watson** CFO & Co-Founder. Ohme

### HOW IS OHME CONTRIBUTING **TO WIDER SYSTEM CHANGE?**

The system operator, the national grid, and local network operators are working on new systems that will utilise EVs to help balance the grid.

Ohme is conducting a pilot with the national grid to evaluate using EV batteries for distributed clean energy supply during periods of peak demand. This could unlock the vast flexible capacity in consumer EV chargers to sustain infrastructure balance.

### **EXPERIENCE WITH** SYSTEMIQ CAPITAL

"We went with Systemiq Capital because of their beliefs and what they're trying to achieve. They've massively helped us by making introductions to their network and providing insights from their experience and broader ecosystem."

**David Watson** | CEO & Co-Founder, Ohme

#### CLEAN TRANSPORT OHM

![](_page_34_Picture_20.jpeg)

![](_page_34_Picture_22.jpeg)

![](_page_35_Picture_1.jpeg)

# Climate intelligence and finance

As climate change impacts intensify, access to detailed climate data and insights will become increasingly important for companies and investors.

However, information remains fragmented and key environmental data is still not routinely factored into core business decisions.

Within climate intelligence and finance, three key areas require focus: standardised measurement and reporting of environmental impacts; supply chain transparency; and quantification of climate risks. In recent years, we have seen some progress but slower than needed.

Highlights

#### CLIMATE INTELLIGENCE AND FINANCE

![](_page_35_Picture_13.jpeg)

![](_page_35_Picture_14.jpeg)

Carbon accounting systems have spread but remain hard to compare across sectors; blockchain solutions have improved traceability, but full supply chain visibility is still a challenge; and environmental risk models have rapidly improved but lack integration into strategic and capital planning.

Incoming reporting frameworks – such as the EU's Corporate Sustainability Reporting Directive (CSRD) and the Taskforce on Nature-related Financial Disclosures (TNFD) – are increasing businesses' accountability for environmental impacts, and fostering a standardised approach to climate risk assessment. This will drive demand for innovative solutions that enable companies to measure, track and report carbon and biodiversity data. Meanwhile, digital product passports will soon become mandated in the EU<sup>29</sup>, and in the U.S. the Inflation Reduction Act (IRA) requires supply chain traceability in order to claim tax credits<sup>30</sup>, thereby radically increasing the scope of transparency in global trade.

Moving forward, enhanced accessibility of actionable data that helps companies reduce their environmental impact is needed. Our portfolio companies are providing quality data capture, supply chain visibility and practical applications off the back of this. We will continue to find and support pioneering innovators across climate intelligence and finance, to improve accessibility and adoption of these solutions.

![](_page_36_Picture_4.jpeg)

Highlights

**Investment Themes** 

![](_page_36_Picture_12.jpeg)

Looking Ahead

## Climate intelligence and finance

COMPANY	CLIMATE CHALLENGE		COMPANY'S SOLUT	ΓΙΟΝ
rsu	Lack of mechanisms for companies with supply chains to meet renewable energ	complex global y commitments.	Aggregating renewable ene large-scale renewable energ	rgy demand within reg gy projects.
O CoolPlanet	The world's highest emitting businesses have the most difficult path to net-zero.	The world's highest emitting businesses have the most difficult path to net-zero.		n to improve energy ef
Qflow	Lack of data to enable decreased emboo emissions and the transition to circular o	Lack of data to enable decreased embodied emissions and the transition to circular construction.		d analysis platform to 1.
apolitical	Governments set the course on climate yet often lack the latest training tools.	action,	Training and knowledge sha	ring platform for gove
JUPITER	Trillions of dollars of assets are at risk d changes in climate.	assets are at risk due to physical Forecasting of physical climate risks across asset level.		ate risks across seven
Electron	Lack of scalable platforms and markets participation in distributed energy flexib	to enable wider ility services.	Multi-market platform conner operators and flexibility serv	ecting distribution syst vice providers to unloc
Interviewed for this repo	rt Other portfolio companies			
& About Us Our	Approach Highlights		emes Our Portfoli	• Lo

![](_page_37_Picture_4.jpeg)

gions to unlock financing for new

fficiency, manage and reduce

help construction players reduce

ernments.

perils and at portfolio or

stem operators, transmission system ck distributed flexibility at scale.

ooking Ahead

# **NSU**

Supply chains can be responsible for up to

95%

of companies' total emissions<sup>31</sup>.

#### THE PROBLEM

An increasing number of Fortune 500 companies have commitments to reach 100% renewable energy but are unsure how to execute on these targets. The complexity lies within their supply chains, which can be responsible for up to 95% of their total emissions<sup>31</sup> and can comprise hundreds, even thousands, of suppliers spread across multiple regions<sup>32</sup>.

#### **COMPANY OVERVIEW**

Ren helps businesses with large supply chains meet their carbon reduction targets. By consolidating regional renewable energy demands, Ren unlocks the demand for large-scale renewable project development. This enables businesses to meet their carbon commitments on schedule. in a more cost-effective manner.

#### **REN'S CUSTOMERS AND SOLUTION**

## GAP

![](_page_38_Figure_11.jpeg)

Highlights

CLIMATE INTELLIGENCE AND FINANCE **REN** 

![](_page_38_Picture_19.jpeg)

Looking Ahead

![](_page_39_Picture_1.jpeg)

## Interview with Eric Jen and Morgan West

FOUNDER & CEO | CO-FOUNDER & HEAD OF PRODUCT, REN

#### Why did you found Ren?

When I was the Director of Renewable Energy at Nike, I realised the scale of the impact you can have by helping a Fortune 500 business to become 100% renewable, as well as the challenges that exist in achieving that. We help large businesses that are making ambitious renewable energy commitments but don't have a clear idea of how to achieve them.

#### What makes you different?

We map out a company's entire supply chain and get emissions data from each supplier. We then aggregate demand across facilities in the same regions, sometimes combining demand across different companies. As many of these businesses are working towards the same goals and even share the same industrial parks, we saw a gap in the market to aggregate this demand and source renewables to meet it. We knew this had the potential for huge impact.

#### What is your long-term vision?

Our focus is getting as many businesses as we can to 100% renewable energy. In time, we want to look at additional supply chain factors like water and waste, but we are focusing on energy first. Longer-term, we aim to create global visibility and transparency into corporate supply chains – mapping out facilities with their energy, emissions, and ESG data.

Eric Jen	Morgan V
Founder	Co-Found
& CEO	Head of P

Vest er & roduct

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#### CLIMATE INTELLIGENCE AND FINANCE REN

ЧЧ

We want to take every Fortune 500 corporation to 100% renewable energy.

**Eric Jen** Founder & CFO, Ren

Looking Ahead

![](_page_39_Picture_23.jpeg)

![](_page_40_Picture_1.jpeg)

### Each one of our clients consumes the same amount of energy as a mid-sized country.

**Eric Jen** Founder & CEO. Ren

![](_page_40_Picture_4.jpeg)

### HOW IS REN CONTRIBUTING **TO WIDER SYSTEM CHANGE?**

#### Ren aggregates undiscovered renewable energy demand that hasn't been qualified, quantified or packaged.

This level of demand from major brands and their suppliers can be leveraged to support renewable energy project development through improved incentives and procurement mechanisms.

### **OUR PARTNERSHIP**

"We weren't raising when we met with Systemig Capital, but the intelligence of their team and link with Systemiq Limited convinced us they had the ability to propel us forward. Europe is quickly becoming a focus for us due to the incoming EU legislation, and Systemig Capital is well-placed to help us penetrate that market."

Eric Jen | Founder & CEO. Ren

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![](_page_40_Picture_19.jpeg)

## 

**CoolPlanet's** software enables them to collect, analyse and action data to deliver both energy efficiency and decarbonisation solutions.

#### THE PROBLEM

Energy-intensive companies need to reduce their carbon footprint and improve energy efficiency, while also navigating a complex web of regulations, reporting requirements, and stakeholder expectations. These companies need to understand how to reduce their environmental impact, but do so in a way that is economically viable and sustainable over the long term.

#### **COMPANY OVERVIEW**

CoolPlanet's software enables them to collect, analyse and action data to deliver both energy efficiency and decarbonisation solutions. They work with carbon-heavy organisations to provide guidance across the entire net zero journey; combining real-time emissions analytics, net zero consulting, and implementation support.

#### **COOLPLANET'S PROCESS**

![](_page_41_Picture_8.jpeg)

#### **Discovery phase**

Collect and analyse historical data from clients' facility systems and networks to showcase potential value and feasibility.

![](_page_41_Picture_11.jpeg)

Implementation planning Incorporate real-time live data feeds that enable dynamic analyses for ongoing optimisations.

![](_page_41_Figure_14.jpeg)

#### Early insights and savings

Identify quick optimisation wins and implement easy low-cost changes.

![](_page_41_Picture_17.jpeg)

#### Solutions mapping

Map out larger decarbonisation projects to facility portfolios and carry out customised software enhancements.

![](_page_41_Picture_20.jpeg)

#### Scaled deployment

Deploy developed solutions across entire building and factory networks.

Highlights

#### CLIMATE INTELLIGENCE AND FINANCE COOLPLANET

Looking Ahead

![](_page_41_Picture_32.jpeg)

![](_page_42_Picture_2.jpeg)

## Interview with Ben Churchill

CHIEF STRATEGY OFFICER, COOLPLANET

#### What makes you different?

Many companies come to us who have set targets but don't have plans in place to achieve them – we don't just give them a plan, we execute it for them. We initially built our software to help us deliver heavy metal projects, where we were installing a lot of equipment, but quickly realised the software was our USP. Our sweet spot is taking existing decarbonisation technologies and deploying them effectively. For example, in steel production you can optimise the process through

electrification, buy green Power Purchase Agreements and assess demand response to give baseload green capacity to the grid. If you do all of these things together, you can significantly decarbonise steel.

#### How does your business model help you achieve your impact?

One company we are working with has a carbon footprint bigger than France, one bigger than Ireland and one bigger than the Netherlands. By decarbonising these companies, the impact we can have is huge.

#### What is your long-term vision?

Decarbonisation needs to happen on a huge scale and somebody needs to solve this problem. We want to position ourselves to be the Salesforce for decarbonisation. creating the segment of enterprise decarbonisation technology.

Ben Churchill **Chief Strategy Officer** 

![](_page_42_Picture_13.jpeg)

In 2023, CoolPlanet announced a partnership with KPMG to enhance their decarbonisation offering through the use of data analytics to examine, model and predict carbon performance across portfolios of assets, providing a much clearer picture on the necessary action levers to support clients in reaching their decarbonisation goals.

![](_page_42_Picture_15.jpeg)

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CLIMATE INTELLIGENCE AND FINANCE COOLPLANET

Ъ

![](_page_42_Picture_23.jpeg)

Looking Ahead

#### **IMPACT METRICS**

![](_page_43_Picture_2.jpeg)

![](_page_43_Picture_3.jpeg)

in energy spend saved.

![](_page_43_Picture_5.jpeg)

![](_page_43_Picture_6.jpeg)

One company we work with has a carbon footprint bigger than France, one bigger than Ireland and one bigger than the Netherlands.

**Ben Churchill** Chief Strategy Officer, CoolPlanet

### HOW IS COOLPLANET **CONTRIBUTING TO WIDER** SYSTEM CHANGE?

grid functionality.

By addressing both aspects, CoolPlanet helps its clients maximise the benefits of clean energy adoption while supporting the decarbonisation of the grid. To give consumers and sustainability solution providers a voice in policy discussions, they co-founded the Digital Energy and Sustainability Coalition (DESC). DESC advocates for regulations to support grid efficiency improvements, opening up opportunities to accelerate a sustainable transformation.

Highlights

**Investment Themes** 

ΠЫ

### CoolPlanet offers a holistic solution that combines behind the meter efficiency and optimisation work with a deep understanding of

![](_page_43_Picture_23.jpeg)

## Qflow

Construction generates

40% of all waste<sup>35</sup>.

#### THE PROBLEM

Construction is responsible for 11% of global  $CO_2$  emissions<sup>33</sup>, 40% of global material resource use by volume<sup>34</sup>, and generates 40% of all our waste<sup>35</sup>. This problem is only getting worse – raw material usage and associated greenhouse gas emissions are predicted to double by 2060<sup>36</sup>. The lack of understanding of embodied carbon across the sector, partly due to limited visibility of resource consumption and waste production, is hindering progress towards emission and waste reduction targets.

#### **COMPANY OVERVIEW**

Qflow's vision is to create a more efficient and resource-conscious construction industry. Their tech makes data capture simple and automated for construction contractors. developers, and project owners; helping them better track, manage, and dispose of materials, reducing both waste and embodied carbon.

#### **QFLOW'S SOLUTION**

![](_page_44_Figure_9.jpeg)

— Automated tasks

— Manual tasks

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#### CLIMATE INTELLIGENCE AND FINANCE **QFLOW**

![](_page_44_Picture_20.jpeg)

Looking Ahead

![](_page_44_Picture_22.jpeg)

![](_page_45_Picture_1.jpeg)

![](_page_45_Picture_2.jpeg)

## Interview with Jade Cohen

**CO-FOUNDER & CPO, QFLOW** 

#### What makes you different?

Most alternative solutions rely on manual data entry, and that's where the gap is. We provide formal tracking without relying on human input; resulting in an automated, efficient process with more trusted data and holistic information capture. We also integrate into existing processes, so there's minimal disruption to the status quo.

#### How do you help companies improve?

We help with process improvements, giving insights into companies' waste and material profiles and supply chain risks. Based on the results, we can suggest suppliers, but we're also working on more detailed recommendations – such as demonstrating potential carbon savings from specific decisions. We plan to prevent waste through

giving companies the exact digital footprint of a building, so when they come to retrofit, deconstruct or reutilise buildings, they understand exactly what value exists that can be utilised.

#### Jade Cohen

Co-Founder & CPO

Highlights

#### CLIMATE INTELLIGENCE AND FINANCE **QFLOW**

![](_page_45_Picture_19.jpeg)

![](_page_45_Figure_20.jpeg)

Looking Ahead

#### **IMPACT METRICS**

![](_page_46_Picture_2.jpeg)

9,690 tonnes

of carbon emissions avoided.

## 31,471 tonnes

of waste diverted from landfill.

![](_page_46_Picture_7.jpeg)

£14bn

deployed on construction projects across the UK.

![](_page_46_Picture_10.jpeg)

in savings per project.

All stats as of end of Sept 2023.

![](_page_46_Picture_13.jpeg)

Our goal is to help the construction industry avoid 1 million tonnes of carbon by 2025.

Jade Cohen Co-Founder & CPO, Qflow

### HOW IS QFLOW CONTRIBUTING **TO WIDER SYSTEM CHANGE?**

Data provision is one of the enabling factors, amongst many others, to support the construction industry's transition towards a circular economy.

part in enabling.

#### **OUR PARTNERSHIP**

"Systemic Capital initially appealed to us due to their relationship with Systemig Limited and expertise within sustainability. They work with us like a partner, always being honest and upfront with no smoke and mirrors. They have added a lot of insight to our U.S. expansion strategy and have made some helpful introductions."

Jade Cohen | Co-Founder & CPO, Oflow

Investment Themes

ΠЫ

Logistics, regulation and new materials are all challenges that need to be solved at the same time - which Oflow is committed to play their

![](_page_46_Picture_32.jpeg)

# Climate restoration

Climate restoration aims to rebalance the Earth's systems by removing excess greenhouse gases, protecting and restoring declining biodiversity, and scaling solutions for humanity to adapt to a changing climate.

An important component of this is giving market value to the benefits provided by ecosystems. Valuing ecosystems includes but goes beyond carbon, encompassing a broad range of benefits that ecosystems provide, including biodiversity, water filtration, air quality improvement, and cultural services. These ecosystem services are essential to the global economy and human well-being, yet are often undervalued or not valued at all in economic systems and decision-making processes.

In 2023, financial flows into nature-based solutions mirrored significant progress towards universally agreed standards for managing and reporting on nature risks. In September, after two years of intensive work with industry stakeholders, the Taskforce for Nature Related Financial Disclosures (TNFD) released their final recommendations for corporates and financial institutions to manage and disclose their nature related risks.

![](_page_47_Picture_5.jpeg)

#### CLIMATE RESTORATION

![](_page_47_Picture_13.jpeg)

Looking Ahead

![](_page_48_Picture_1.jpeg)

### \$542B

![](_page_48_Picture_3.jpeg)

Regulators are moving in tandem to implement aggressive new targets for ecosystem restoration. Over a period of two weeks in February 2024, Europe agreed to restore 20% of its land and sea by 2030<sup>37</sup>, and the UK launched its biodiversity net gain market<sup>38</sup>. Companies like Naturemetrics, a Fund I portfolio company, are working right at the centre of this transition.

As Science Based Targets initiative (SBTi) commitments move into implementation phase, we've continued to hear from companies with agriculture supply chains that reducing – and potentially removing – their scope 3 emissions is at the core of their transition plan. Soil health is central to this, but commercialising

soil science continues to be fraught with challenges. However, the paradigm of 'cheap and scalable based on remote sensing data' vs 'expensive and not scalable based on in-field sampling' is guickly becoming outdated as more sophisticated products enter the market. These new products may leverage proprietary access to large, long-term and publicly funded soil databases that can only now be effectively productised due to advances in computational power.

Other companies are focused on field-level innovation that dramatically improves the farmer experience. Examples include a lunchbox sized 'lab in a box' that can effectively assess a spoonful of soil's carbon content, giving the farmer a near-immediate readout and removing the typical week-long lab test cycle; and a large language model (LLM) that reduces the time it takes for European dairy farmers to fill out their emission reporting data from five hours to 30 minutes, paid for by dairy buyers such as FMCGs. This incentivises farmers to share their emissions data with large corporations that have SBTi commitments but struggle to access farm-level data.

Restoring our ecosystems back to equilibrium requires exponentially scaling up solutions across mitigation, adaptation and restoration. To meet the goals of the Paris Agreement and the more recently agreed Global Biodiversity Framework, finance flows to nature-based solutions must reach \$542 billion a year by  $2030^{39}$ . Our portfolio companies provide innovative solutions in both carbon removal and biodiversity insights. We will continue to look for more solutions that have the potential to support our natural ecosystems.

Highlights

**Investment Themes** 

#### CLIMATE RESTORATION

![](_page_48_Picture_16.jpeg)

Looking Ahead

## Climate restoration

COMPANY	CLIMATE CHALLENGE	COMPANY'S SOLUTION	
NATURE METRICS DNA-BASED MONITORING	Expensive and difficult to accurately measure biodiversity, leading to nature loss.	Next-generation biodiversity n and metrics using DNA sequer	
BASECAMP RESEARCH	Unprecedented rates of nature and biodiversity loss from extractive industries.	Leveraging artificial intelligend machine learning to accelerate discovery and development of proteins for sustainable biopro	
	Lack of scalable and cost-effective carbon removal and reduction solutions to help hard-to-abate industries reach net zero.	Converting agricultural waste for underground storage and u syngas replacement in steel m	
Interviewed for this report Other portfolio companies			

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#### CLIMATE RESTORATION

![](_page_49_Picture_10.jpeg)

monitoring ncing.

ce and e the <sup>:</sup> novel oducts.

into bio-oil use as a clean nanufacturing.

Looking Ahead

![](_page_50_Picture_1.jpeg)

We are making biodiversity truly measurable at scale to underpin global goals and accelerate finance into nature.

#### THE PROBLEM

The world is facing a biodiversity crisis, with species loss occurring at an unprecedented rate due to climate change and habitat destruction. Genetic diversity within species is declining globally, threatening the adaptability and resilience of species to environmental changes. This loss of biodiversity has far-reaching consequences; 75% of the world's food crops depend at least in part on pollination, yet nearly one in six species of pollinators are at risk of extinction<sup>40</sup>. With the rapid pace of environmental change, there is a need for timely and accurate data to inform decision-making at both the businesses and government level.

#### **COMPANY OVERVIEW**

NatureMetrics uses environmental DNA (eDNA) analysis to provide comprehensive biodiversity insights that are richer and quicker than traditional methods, which are often labour-intensive, time-consuming, and sometimes invasive. NatureMetrics caters to a wide range of clients, including environmental consultancies, government agencies, research institutions, and conservation organisations. They help with impact assessments, monitoring biodiversity for conservation projects, and tracking ecological changes over time.

![](_page_50_Picture_7.jpeg)

High-resolution data is collected on the ground using simple sampling kits.

Changes in species and ecosystems can be tracked across space and time, and decisions made off the back of this data.

Highlights

**Investment Themes** 

#### CLIMATE RESTORATION NATUREMETRICS

![](_page_50_Picture_18.jpeg)

Samples are analysed at centralised labs in the UK and Canada.

#### **NATUREMETRICS** SOLUTION

The full range of species present is identified.

Looking Ahead

![](_page_51_Picture_1.jpeg)

## Interview with Kat Bruce

FOUNDER, NATUREMETRICS

#### What problem are you solving?

Biodiversity is a classic big data problem, but until recently we haven't been able to turn nature into data at sufficient scales to use big data analytics, such as AI and machine learning.

We realised back in 2015 that eDNA solved this problem, unlocking data at unprecedented scale and giving us the opportunity to deliver a new generation of simple, accurate metrics driven by the full complexity of the natural world.

#### How will your business model help you achieve your impact?

We developed initially for an existing market that had an identified need – but we were able to make it faster, cheaper and safer for them to get better data. The emerging markets are all upside growth for us. The challenge is, how do we grow fast enough to capitalise on the opportunity in front of us? We're starting to integrate complementary solutions with ours. For example, acoustic solutions are perfect for monitoring forest birds, whereas eDNA excels

with aquatic and soil samples. If you link up both of these, alongside satellites, you start to have a really powerful monitoring suite.

#### What are your plans for 2024?

We are working on aggregating and building on the data we've produced with our eDNA, bringing in other sources of data as well as machine learning and AI to be able to extrapolate insights and package up suites of indicators and metrics for different use cases. We're continuously improving our digital platform and delivering all

of our data and insights through that, for example, we can now view species detections on a map. This year, we will release remote sensing analytics to provide habitat metrics alongside species ones. We're actively piloting models that combine these two data types to predict biodiversity

#### What is your long-term vision?

value across landscapes.

We want to enable good quality biodiversity accounting globally, for all organisations and businesses. Impact on

### **Kat Bruce**

Founder

**Our Approach** 

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![](_page_51_Picture_25.jpeg)

biodiversity has to be evidenced. for that you need data to be able to flow from the ground all the way up to influence decision-making in investments, consumption and procurement.

Looking Ahead

![](_page_52_Picture_1.jpeg)

![](_page_52_Picture_2.jpeg)

NatureMetrics has partnered with Unilever to evidence the positive impact of regenerative farming practices in their supply chain, through measuring soil and insect biodiversity in Argentina, Canada, the UK and Europe.

![](_page_52_Picture_4.jpeg)

Impact on biodiversity has to be evidenced, for that you need data to be able to flow from the ground all the way up to influence decision-making.

#### Kat Bruce

Founder. NatureMetrics

### HOW IS NATUREMETRICS CONTRIBUTING TO WIDER SYSTEM CHANGE?

At their core, NatureMetrics enable the use of data as a tool to build trust between the stakeholders involved in behaviour change, all the way from banks to ecologists, using data as the common language to enable finance to flow as fast as possible to where it's needed.

They are working on novel methodologies to validate financial instruments, such as sustainability-linked bonds, blue carbon credit arrangements, and conservation banking structures. And they're doing this across all ecosystems – from kelp restoration to protecting endangered mangroves.

#### **OUR PARTNERSHIP**

"Systemig are such a knowledgeable partner. From the beginning, we felt they got who we are and what we were trying to do, and could bring a lot of value. We feel we can have the most open and honest discussions with them. Access to their network allows us to work with the wider ecosystem to work towards developing a new vision of how the world could work. We've been invited to things like the Space Partnership Program and looped into the Global Funds for Coral Reefs, which has been amazing."

**Kat Bruce** | Founder. NatureMetrics

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![](_page_52_Picture_21.jpeg)

![](_page_52_Picture_24.jpeg)

## BASECAMP RESEARCH

#### More than

99%

of proteins in nature remain undiscovered<sup>41</sup>.

#### THE PROBLEM

As biodiversity loss accelerates, nature's resources remain largely untapped. More than 99% of proteins in nature remain undiscovered<sup>41</sup>. The inability to efficiently identify and utilise these proteins holds up biotech product development, stalling the shift from petrochemicals to more sustainable alternatives.

#### **COMPANY OVERVIEW**

Basecamp Research is on a mission to make the protection and restoration of biodiversity economically attractive. Using artificial intelligence, genomics, and bioinformatics, Basecamp Research aims to accelerate the discovery and development of naturally occurring novel proteins with broad applications in food, pharmaceuticals, and bioremediation.

More IP can be generated.

#### More **people** on the ground are incentivised to contribute more to the platform.

Basecamp Research redistributes this value to nature.

Highlights

#### CLIMATE RESTORATION BASECAMP RESEARCH

New IP is generated from a natural ecosystem by Basecamp Research.

IMPACT **FLYWHEEL** 

This creates value through industry use.

Looking Ahead

## Interview with Glen Gowers

#### **CO-FOUNDER, BASECAMP RESEARCH**

#### What problem are you solving?

**Biotech companies often** encounter bottlenecks due to needing proteins that meet specific functional performance requirements. We fill this gap by aggregating biodiversity data from all parts of the world, currently covering about 50% of the planet, and using this to build new products. Currently, we have two main focus areas: biocatalysis, which uses enzymes to replace chemical steps in manufacturing, and genome editing therapeutics, a rapidly growing area with significant value and a crowded IP space. We plan to expand into diagnostics, food, and agriculture in 2024 and 2025.

#### What makes you different?

Our knowledge graph of natural biodiversity is the largest in existence. We know where proteins come from and how to get more, and our partnerships allow us to accomplish this quickly. For example, we now have the biggest database in the world of protein classes that will be crucial in developing new treatments for rare from natural ecosystems, which diseases. Everyone else is either pulling from the same public data sets, which have big limitations, or making synthetic changes to proteins in labs. We're building access to a completely new type of data, one that already exists in nature, and is already bigger than most public datasets.

#### How does your business model help you achieve your impact?

Biotechnology is one of the most credible routes away from petrochemicals. We enable businesses to make their manufacturing processes more sustainable, whilst engineering new types of products inspired by biology. We identify proteins remain pristine, then distribute the value back to those locations. This is made possible by our traceable data architecture. As of this year, we are bringing tangible value to our partners on the ground, in the form of equipment, data and capital flow, which goes towards

preserving the ecosystems providing us with novel proteins.

#### What is your long-term vision?

We've created an entire system where aggregated data is fueling new IP, so we're becoming the place to go when looking for a new biotech product. We aim to be as broad as possible, impacting as much new IP in the biotech industry as we can, then tying that value back to where it came from.

**Glen Gowers** Co-Founder

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![](_page_54_Picture_18.jpeg)

CLIMATE RESTORATION BASECAMP RESEARCH

# PROTEIN

**Basecamp Research** have recently expanded their collaboration with Protein Evolution, Inc. to develop novel enzymes that fully break down difficultto-recycle plastics - which account for **10% of global plastic** production<sup>42</sup> - into their constituent molecules.

![](_page_54_Picture_23.jpeg)

#### **IMPACT METRICS**

![](_page_55_Picture_2.jpeg)

countries from which data has been collected.

![](_page_55_Figure_5.jpeg)

of global biomes represented in database (using WWF's measure of distinct biomes).

![](_page_55_Picture_7.jpeg)

£200k

in direct investment deployed in partner countries.

We now have the biggest database in the world of protein classes that will be crucial in the developing new treatments for rare diseases.

**Glen Gowers** 

Co-Founder, Basecamp Research

### HOW IS BASECAMP RESEARCH **CONTRIBUTING TO WIDER** SYSTEM CHANGE?

#### **Basecamp Research is changing** how people perceive the value of biodiversity.

A forest would have previously been valued based on the price of its wood, agricultural potential, or tourist appeal. By treating upstanding biodiversity as a product asset class, Basecamp Research is creating a commercial reason to advocate for the protection of nature.

#### **OUR PARTNERSHIP**

"Systemig Capital understand both sides of what we do, adding credibility with industry partners and helping us build partnerships within the biodiversity sector. Their understanding of both biodiversity and biotechnology made them a natural choice to lead our Series A."

**Glen Gowers** | Co-Founder, Basecamp Research

![](_page_55_Picture_27.jpeg)

Looking Ahead

![](_page_55_Picture_30.jpeg)

![](_page_56_Picture_1.jpeg)

Hard-to-abate industries collectively contribute to

12%

of global carbon emissions<sup>44</sup>.

#### THE PROBLEM

Current climate action plans are insufficient to limit global temperature rise to 1.5 degrees Celsius<sup>43</sup>. Hard-to-abate industries, which collectively contribute to 12% of global carbon emissions<sup>44</sup>, are not decarbonising quickly enough to meet their net-zero targets. There is an urgent need for scalable, cost-effective carbon removal solutions in tandem with innovative methods of decarbonising these challenging industries.

#### **COMPANY OVERVIEW**

Charm Industrial has developed a process to convert waste biomass into bio-oil. They take this bio-oil and safely inject it into underground geological formations, where it is permanently stored. This sequestered carbon is quantified into verifiable carbon removal credits that both businesses and consumers can buy to offset their emissions. But they aren't stopping there. This same bio-oil can be used for cleaner steel production, by using it as a reactant in the iron-making process, which produces 80% of steelmaking's emissions. The resulting  $CO_2$  from the iron-making can be captured and sequestered dually, decarbonising heavy industry and removing carbon from the atmosphere. Through these dual methods, they aim to help return the atmosphere to pre-industrial levels of  $CO_2$ .

#### **CHARM'S PROCESS**

![](_page_56_Picture_10.jpeg)

GROW

![](_page_56_Picture_12.jpeg)

**PYROLYSE** Charm builds pyrolysers to convert biomass into bio-oil in a self-sustaining reaction.

![](_page_56_Picture_14.jpeg)

TRANSPORT Charm's carbon-rich bio-oil is transported to the injection well site.

![](_page_56_Picture_16.jpeg)

INJECT

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**Investment Themes** 

![](_page_56_Picture_26.jpeg)

Charm collects agricultural residues after the crop has been harvested.

Charm pumps the bio-oil underground where it sinks and solidifies in place.

![](_page_56_Picture_34.jpeg)

![](_page_57_Picture_1.jpeg)

## Interview with Harris Cohn

HEAD OF SALES, CHARM INDUSTRIAL

#### What makes you different?

Unlike other engineered removal technologies, we don't require carbon-free electricity or large amounts of land for our carbon removal process to work. We use nature's natural ability to capture carbon and permanently sequester this carbon in abandoned oil wells in the form of a carbonrich liquid, requiring very little new infrastructure. This gives us massive advantages for low-cost scale and has a positive impact on the societies we operate in. As the first entity that started putting bio-oil underground for

permanent removal. we have long been a standard setter in how we transparently report on carbon removals. In terms of commercial transactions. we were the first company to get a big offtake agreement from Frontier (the \$1B+ advanced market commitment founded by Stripe, Shopify, Google, Meta, and McKinsey). We're also the only ones using bio-oil in iron production. Our process sequesters 70% of the carbon originally in the biomass, in comparison to biochar alternatives, which sequester around 20%.

#### What is your long-term vision?

We want to commercialise carbon-negative iron through our use of bio-oil in the production process, as well as continue our biosequestration credits. We aim to sell our first full iron product in 2027.

Harris Cohn Head of Sales

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**Our Approach** 

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![](_page_57_Picture_18.jpeg)

#### CLIMATE RESTORATION CHARM INDUSTRIAL

### JPMorganChase 🖨

JP Morgan has signed a deal with Charm Industrial to remove and store 28,585 tonnes of  $CO_2$  over five years, as part of their ambition to both reduce emissions as well as support the scale and evolution of carbon removal technologies.

Looking Ahead

![](_page_57_Picture_23.jpeg)

#### **IMPACT METRICS**

![](_page_58_Picture_2.jpeg)

## 7,183 tonnes

of carbon removed from the atmosphere on a net basis (Feb 9<sup>th</sup>, 2024).

![](_page_58_Picture_5.jpeg)

Our mission is to return the atmosphere to 280 parts per million pre-industrial levels.

Harris Cohn Head of Sales. Charm Industrial

### HOW IS CHARM INDUSTRIAL **CONTRIBUTING TO WIDER** SYSTEM CHANGE?

#### Trust and transparency are vital in carbon markets, and Charm Industrial works hard to champion both.

They operate a public carbon removal ledger, tracking the full lifecycle emissions of every batch they inject, so stakeholders can verify permanent sequestration. To help raise industry standards, they chose a registry which does not accept payment from carbon removal suppliers leading to a high bar of scientific rigor and resolving a key over-crediting incentive. As a founding member of the Carbon Removal Alliance, Charm helps advocate for supportive policies across a range of carbon removal technologies.

### **OUR PARTNERSHIP**

"Systemig Capital's team is always willing to help us, whether thinking through big ideas or connecting us with their extensive network." They're some of the best investors I've worked with, in terms of being available to our requests and then executing on them."

Harris Cohn | Head of Sales, Charm Industrial

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![](_page_58_Picture_22.jpeg)

![](_page_58_Picture_24.jpeg)

# Our beliefs

Having reflected on the progress of our portfolio companies, our unwavering conviction remains that companies providing solutions to the climate challenge are well-positioned to deliver outsized financial returns in the coming years. Our investment strategy and decision-making processes continue to be shaped by our set of guiding beliefs.

#### Climate change is a system challenge

Transforming a system requires big, foundational changes that touch on everything from how it's built, to how it operates and the core principles and values upon which it relies. With the accelerating pace of climate change, evidenced by recordbreaking temperatures and increasing incidents of extreme weather events, this kind of transformation isn't just a nice to have; it's a must. We invest in companies that have the potential to drive these shifts, with the aim to help fundamentally change the way we live and work.

#### There is no climate without nature

The health of our planet, ourselves and our economy are all dependent on the strength of our natural ecosystems. We believe in guantifying the value of nature and establishing vital connections between nature and our economy. By investing in solutions that mitigate emissions, help us adapt to climate impacts, and preserve biodiversity, we aim to tackle climate change while also strengthening our natural defences against its effects.

### Success and impact go hand-in-hand

We back high-growth businesses that offer climate solutions. As they scale, so does their impact. With this model, there is no impact versus returns tradeoff – they are intimately linked. As detailed earlier in the report, we are leaning into this with our Fund II companies by setting clear impact targets directly tied to business success.

#### Investment in software alongside hardware is needed

We recognise the distinct vet complementary roles of software and hardware in climate solutions. Tools and platforms are needed to enhance efficiency and make informed decisions, while changes in physical infrastructure and technological advancements are required for longlasting change. Investing in both allows us to tackle the complex issues of climate change from both angles.

### There is power in collaboration

We believe real growth happens when like-minded people come together. We connect our portfolio companies with individuals, organisations and collective bodies working to solve the same problems. Through collaboration, our companies can supercharge their growth and together we can amplify our contributions to wider climate success.

Highlights

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#### **OUR BELIEFS**

![](_page_59_Picture_20.jpeg)

# Looking ahead

We are now seven years into our journey, and even more convinced that impact and scale go hand in hand. **Our portfolio companies** have climate solutions at the core of their business, so their potential impact grows in lockstep with their commercial success.

2023 brought no shortage of global challenges; from lingering pandemic impacts to inflationary pressures, interest rate hikes and continued supply chain disruptions. While these market factors have affected fundraising for startups and funds alike, cost curves in electrification and biotech continue declining whilst advances in AI make it easier to find efficiencies in industrial processes and engage every employee to do more with less. Most importantly, the underlying driver behind climate tech – the growing climate emergency – remains unchanged and will continue driving some of the best minds in the world to scale climate solutions.

We move forward confident in our belief that scalable business models underpinned by positive environmental impact will define the marketplace of tomorrow. Several promising trends give us optimism that climate tech investment and adoption will continue to accelerate. On a macro level: climate policy is strengthening, largely due to worsening extreme weather events; major corporations are making increasingly ambitious environmental commitments; and consumers are putting pressure on the industries with which they interact to incorporate sustainability into their products and operations from energy and travel, to food and fashion.

![](_page_60_Picture_5.jpeg)

#### LOOKING AHEAD

![](_page_60_Picture_13.jpeg)

Looking Ahead

As we look to the year ahead, we expect the three foundational technologies of our age – digitisation, electrification and industrial biotech – to continue to scale and be used in novel ways to help accelerate the climate transition.

![](_page_61_Picture_2.jpeg)

#### DIGITISATION

Digitisation has given rise to the mainstream use of AI, which will continue to transform the way our world operates. Its application in climate tech – with use cases already demonstrated across optimising complex systems, predictive climate analytics, and discovering new materials - is just beginning. As AI capabilities grow more powerful, the technology will act as a force multiplier for climate progress across mitigation, adaptation and restoration.

![](_page_61_Picture_5.jpeg)

#### **ELECTRIFICATION**

Electrification of transport, heating, and industrial processes is expanding rapidly as batteries improve, supply chains mature, and clean power is more accessible. As costs fall and charging solutions improve, the demand for electric vehicles continues to rise; whilst advancements in hydrogen fuel cell systems offer greener solutions to sectors such as aviation, shipping and manufacturing, that are difficult to directly electrify.

![](_page_61_Picture_8.jpeg)

#### **INDUSTRIAL BIOTECH**

Industrial biotech is providing alternatives to traditional fossil-based products. New technologies are dramatically improving the identification and performance of bio-based chemicals and materials, as well as reducing emissions from the production process.

#### LOOKING AHEAD

![](_page_61_Picture_18.jpeg)

Looking Ahead

Climate tech investment is evolving as it continues to expand and mature, and we are seeing an increasing number of successful entrepreneurs coming into the space, joining compelling technical founders.

We believe measuring impact differs for every company, there is no one-size-fits-all approach. We will continue to work closely with each portfolio company to determine impact targets that represent both commercial success and climate impact.

This next year is all about executing against our investment thesis, focusing on making new investments and supporting our portfolio companies to grow so that they can reach their true impact potential.

Just as with our portfolio, our success is intimately linked to our impact – we succeed when our investments are successful in growing their businesses and impact in unison. Together, we can help accelerate the transition to a more sustainable world.

![](_page_62_Picture_5.jpeg)

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#### LOOKING AHEAD

![](_page_62_Picture_13.jpeg)

Looking Ahead

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![](_page_63_Picture_40.jpeg)

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Looking Ahead

# Appendix

#### What does ESG mean to us?

We discussed earlier our approach to measuring and reporting on impact, resulting in two or more impact KPIs that our portfolio companies report to us annually. In contrast to impact, ESG metrics are not designed to measure positive impact on the environment and society, but rather how well a company manages its environmental, social and governance risks and priorities. Where impact is outward-looking, ESG is inward-looking and focuses on how a company operates.

#### Our approach to ESG with our portfolio companies

There are certain business models and sectors we do not invest in, loosely modelled on the International Finance Corporation's exclusion list. During due diligence, we look to understand a founder's approach to ESG and the extent to which they have considered ESG risks in their business. We ask a set of questions, which mirror the Principle Adverse Indicators under SFDR, that help us to understand if there are any ESG "red flags".

Upon investment, we have a session with the company to discuss any guestions on reporting requirements and any areas highlighted in our ESG due diligence, making an action plan if required.

Annually, we ask our portfolio companies to do the following to ensure we remain aligned on both impact and ESG measurement and reporting:

- Report on progress on their impact KPIs.
- Complete an ESG guestionnaire.
- Participate in a review meeting with the Systemig Capital team to discuss the above and set targets and an action plan for the next year, which should be agreed by the company's board.
- Discuss their climate impact with our annual climate report team and review information in the report pertaining to their company.

![](_page_64_Picture_12.jpeg)

![](_page_64_Picture_19.jpeg)

#### APPENDI

Looking Ahead

![](_page_64_Picture_22.jpeg)

#### **ESG AT SYSTEMIQ CAPITAL**

Our Fund II is an Article 8 fund under EU SFDR (Sustainable Finance Disclosure Regulation).

We have chosen this classification as it allows us to market the Fund as promoting sustainability and environmental characteristics.

Alongside our portfolio companies, we have taken steps to integrate ESG principles into our internal operations, aiming to promote sustainability and responsibility within our firm.

#### Environment

We track our annual carbon footprint across scopes 1, 2 and partial scope 3 emissions, which includes business travel, upstream transportation and distribution and purchased goods and services. Our footprint was 150 tonnes CO<sub>2</sub>e in 2023 and as expected, travel accounts for the majority (57%) of our total emissions. We try to minimise the environmental consequences of our travel with a preference for video calls where possible, using public transport, flying economy and opting for eco-friendly hotels.

#### Social

We remain a female-run and led fund, with our female Managing General Partner who serves on the investment committee. as well as more than 50% of the team being women. Our policies promote an ethical, equitable and supportive workplace across family leave, equal pay, diversity, and more.

#### Governance

Our Board of Directors provides oversight on ESG issues and meets guarterly, while the Executive Committee handles day-to-day decisions. We have additional committees dedicated to compensation and investments.

![](_page_65_Picture_11.jpeg)

#### Collaboration

We actively engage with collaborative networks working to advance ESG integration and climate solutions globally, including: VentureESG, which enables sharing of insights and promotion of ESG best practices among 300+ VC funds: Leaders for Climate Action. which connects 3.000+ sustainability practitioners for peer learning; and the Venture Climate Alliance, which aligns leading VCs to accelerate the transition to global net zero emissions. Through research, events, collective policy work and opensource tools, these communities enable us to integrate the latest ESG advancements and contribute meaningfully towards shared goals of ethical, sustainable investing.

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![](_page_65_Picture_21.jpeg)

![](_page_65_Picture_22.jpeg)

We have a female Managing General Partner who serves on the investment committee. as well as more than 50% of the team being women.

Looking Ahead

![](_page_65_Picture_25.jpeg)

# References

- "\$32bn and 30% drop as market hits pause in 2023." CTVC, 5 January 2024, 1. https://www.ctvc.co/32bn-and-30-drop-as-market-hits-pause-in-2023/.
- 2. Smith, Tim. "How this UK startup improved DeepMind's AlphaFold 6x." Sifted, 11 March 2024, https://sifted.eu/articles/deepmind-basecamp-alphafold-startup.
- 3. "Copernicus: 2023 is the hottest year on record, with global temperatures close to the 1.5°C limit | Copernicus." Copernicus Climate Change Service, 9 January 2024, https://climate.copernicus.eu/copernicus-2023-hottest-vear-record.
- "Transitioning to a green economy will cost the world another \$3.5 trillion a year." 4. The World Economic Forum, 28 January 2022, https://www.weforum.org/ agenda/2022/01/net-zero-cost-3-5-trillion-a-year/.
- "The global copper market is entering an age of extremely large deficits MINING. 5. COM." Mining.com, 25 July 2023, https://www.mining.com/the-global-copper-marketis-entering-an-age-of-extremely-large-deficits/.
- "H2 Green Steel raises €1.5 billion in equity to build the world's first green steel plant 6. - H2 Green Steel." H2 Green Steel, 7 September 2023, https://www.h2greensteel. com/latestnews/h2-green-steel-raises-15-billion-in-equity-to-build-the-worlds-firstgreen-steel-plantnbsp.

- 7. Neslen, Arthur. "'The anti-livestock people are a pest': how UN food body played down role of farming in climate change." The Guardian, 20 October 2023, https://www.theguardian. com/environment/2023/oct/20/the-anti-livestock-people-are-a-pest-how-un-fao-playeddown-role-of-farming-in-climate-change.
- "Creating a Sustainable Food Future | World Resources Report." World Resources Institute, 8. https://research.wri.org/wrr-food.
- "How Beyond Meat became a \$550 million brand, winning over meat-eaters with a vegan 9. burger that 'bleeds.'" CNBC, 21 January 2019, https://www.cnbc.com/2019/01/21/how-billgates-backed-vegan-beyond-meat-is-winning-over-meat-eaters.html.
- 10. "Plant-based retail market overview | GFI." The Good Food Institute, https://gfi.org/ marketresearch/#introduction.
- 11. "Ex-ante life cycle assessment of commercial-scale cultivated meat production in 2030." CE Delft, https://cedelft.eu/publications/rapport-lca-of-cultivated-meat-future-projections-fordifferent-scenarios/.
- 12. "The race to decarbonize electric-vehicle batteries." McKinsey & Company, 23 February 2023, https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/the-race-todecarbonize-electric-vehicle-batteries.
- 13. "Defying gravity, 2022 Climate Tech VC funding totals \$70.1B, up 89% on 2021." HolonIQ, https://www.holonig.com/notes/2022-climate-tech-vc-funding-totals-70-1b-up-89-from-37-0b-in-2021.
- 14. "Credits for new clean vehicles purchased in 2023 or after | Internal Revenue Service." IRS, https://www.irs.gov/credits-deductions/credits-for-new-clean-vehicles-purchased-in-2023or-after.
- 15. "Biden-Harris Administration Awards \$2.8 Billion to Supercharge U.S. Manufacturing of Batteries for Electric Vehicles and Electric Grid." Department of Energy, 19 October 2022, https://www.energy.gov/articles/biden-harris-administration-awards-28-billionsupercharge-us-manufacturing-batteries.

#### REFERENCES

![](_page_66_Picture_22.jpeg)

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- 16. "Intro." Climate and Energy in the EU, https://climate-energy.eea.europa.eu/topics/ transport/emissions-from-cars/intro.
- 17. Ukpanah, Inemesit. "Electric Vehicles: A Deep Dive into the Statistics and Trends for 2024." GreenMatch, 15 March 2024, https://www.greenmatch.co.uk/electric-vehicles.
- 18. "The Global Electric Vehicle Market In 2024 Virta." Virta, https://www.virta.global/en/ global-electric-vehicle-market.
- 19. "EV vs ICE: Surprising differences in efficiency, cost, and impact." WiTricity, https://witricity. com/media/blog/ev-vs-ice-surprising-differences.
- 20. Ritchie, Hannah. "What share of global CO2 emissions come from aviation?" Our World in Data, 8 April 2024, https://ourworldindata.org/co2-emissions-from-aviation.
- 21. "ZeroAvia ranked No.1 Top Greentech Company by TIME." ZeroAvia, 7 March 2024, https://zeroavia.com/zeroavia-named-americas-top-greentech-company-by-time/.
- 22. "ZeroAvia Named on the 2024 Global Cleantech 100." ZeroAvia, 11 January 2024, https://zeroavia.com/zeroavia-named-on-the-2024-global-cleantech-100/.
- 23. ZeroAvia: Home, https://zeroavia.com/.
- 24. Parking & Electric Vehicles." Energy Systems Catapult, https://es.catapult.org.uk/report/on-street-parking-and-electric-vehicles/.
- 25. "Electric Vehicle Charging Research. Survey with electric vehicle drivers. Research report." GOV.UK, https://assets.publishing.service.gov.uk/media/628f5603d3bf7f037097bd73/ dft-ev-driver-survey-summary-report.pdf.
- 26. "1 Million EVs On UK Roads | <strong>Celebrating a Green Milestone: The UK Charges Ahead with Over 1 Million EVs</strong>." Aston Barclay, 28 February 2024, https://www.astonbarclay.net/ev-hub/ev-hub-news/2024/january/1million-evs-on-uk-roads.

- 27. de Prez, Matt. "EVs expected to outnumber diesel cars on UK roads by 2030." Fleet News, 18 February 2021, https://www.fleetnews.co.uk/news/latest-fleet-news/electric-fleetnews/2021/02/18/evs-expected-to-outnumber-diesel-cars-on-uk-roads-by-2030.
- 28. "Ohme and Motability Operations continue to help drivers embrace EVs" Fleet World, https://fleetworld.co.uk/ohme-and-motability-operations-continue-to-help-driversembrace-evs/.
- 29. "The EU's new Digital Product Passport (DPP): everything you need to know." Worldfavor Sustainability Blog, https://blog.worldfavor.com/the-eus-new-digital-product-passportdpp-everything-you-need-to-know.
- 30. Bettle, Lucas. "What the Inflation Reduction Act Means for OEMs and Auto Suppliers." ERA Environmental Management Solutions, 8 February 2024, https://www.era-environmental. com/blog/inflation-reduction-act-automotive-industry#IRA-2024.
- 31. Cox, Emma, and Casey Herman. "Tackling the Scope 3 Challenge." PwC, https://www.pwc.com/gx/en/issues/esg/scope-three-challenge.html.
- 32. Webb, Jonathan. "How Many Suppliers Do Businesses Have? How Many Should They Have?" Forbes, 28 February 2018, https://www.forbes.com/sites/jwebb/2018/02/28/howmany-suppliers-do-businesses-have-how-many-should-they-have/.
- 33. "Embodied Carbon." World Green Building Council, https://worldgbc.org/advancing-netzero/embodied-carbon/.
- 34. Husam Sameer, Stefan Bringezu, "Life cycle input indicators of material resource use for enhancing sustainability assessment schemes of buildings", Journal of Building Engineering, Volume 21, 2019, https://www.sciencedirect.com/science/article/abs/pii/ S2352710218303929.
- 35. "24 Construction Waste Statistics." BigRentz, 26 February 2024, https://www.bigrentz.com/blog/construction-waste-statistics.

#### REFERENCES

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Looking Ahead

![](_page_67_Picture_39.jpeg)

- 36. "Tracking progress." Globalabc, https://globalabc.org/our-work/tracking-progress-globalstatus-report.
- 37. "Nature restoration: Parliament adopts law to restore 20% of EU's land and sea | News." European Parliament, 27 February 2024, https://www.europarl.europa.eu/news/en/pressroom/20240223IPR18078/nature-restoration-parliament-adopts-law-to-restore-20-ofeu-s-land-and-sea.
- 38. Burke, Mike, and Mike Priaulx. "Biodiversity net gain: where to start Natural England." Natural England, 29 January 2024, https://naturalengland.blog.gov.uk/2024/01/29/ biodiversity-net-gain-where-to-start/.
- 39. Hawker, Emmy, and Dan Grandage. "Capital Flows not Supporting Nature Commitments - ESG Investor." ESG Investor, 13 December 2023, https://www.esginvestor.net/capitalflows-not-supporting-nature-commitments/.
- 40. "Pollinators, Pollination and Food Production." IPBES, https://files.ipbes.net/ipbes-webprod-public-files/spm\_deliverable\_3a\_pollination\_20170222.pdf.
- 41. "No-one is looking for sequences with anywhere near the scale and depth that we do" The Biologist, https://www.rsb.org.uk/biologist-interviews/an-insatiable-appetite-forsequences-3.
- 42. "Making Polyurethane and Nylon Infinitely Recyclable with Basecamp Research." Protein Evolution, https://www.protein-evolution.com/perspective/making-polyurethane-andnylon-infinitely-recyclable-with-basecamp-research.
- 43. "New Analysis of National Climate Plans: Insufficient Progress Made, COP28 Must Set Stage for Immediate Action." UNFCCC, 14 November 2023, https://unfccc.int/news/newanalysis-of-national-climate-plans-insufficient-progress-made-cop28-must-set-stagefor-immediate.
- 44. "How To Decarbonize Hard-To-Abate Industries." Oliver Wyman, https://www. oliverwyman.com/our-expertise/insights/2023/nov/how-to-decarbonize-hard-to-abateindustries.html.

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**Investment Themes** 

#### REFERENCES

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