



**MILLTRUST**  
INTERNATIONAL  
*Sustainable Prosperity*

# EAST WEST

THE MAGAZINE OF  
MILLTRUST INTERNATIONAL GROUP

INTRODUCING EAST WEST PRIVATE WEALTH  
BRITISH INNOVATION FUND II  
MILLTRUST LAUNCHES BRITISH CARE INVESTMENTS

Fall 2023

This magazine is printed on sustainably sourced paper  
For Professional, Accredited and/or Institutional Investors Only

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“ It is my sincere hope that we might make a small contribution to making the world just a little bit better, through balanced advocacy and our life-changing investments.

Simon Hopkins

”

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# Around the Business

## Recent Group Awards

Following on from our success in 2022, we are thrilled to share that Milltrust International Group has been named 'Best Asset Management Firm serving Family Offices and Private Banks (Greater China)' and 'Best Fund Manager (South-East Asia)' at the prestigious annual **WealthBriefingAsia Awards 2023**.



WINNER  
Fund Manager (South-East Asia)  
Milltrust International Group



WINNER  
Asset Management Firm Serving Family Offices and Private Banks (Greater China)  
Milltrust International Group

## Our Venture Company Updates

- Nov 2022: **Roslin Technologies** successfully raised its £11m Series A funding round led by Novo Holdings including Nutreco, Kairos Capital Group, Esco Life Sciences and Alchimia.
- September 2023: After a successful £1.3m raise in May, **Jiva.ai** for its prostate diagnostics and AI platform expansion. Jiva currently has about £2m committed out of its current £2.5m minimum raise, with Inherent Capital leading with a £1m commitment.
- May 2023: **Polymateria** secured £20 million funding round led by Singapore- based impact private equity fund ABC Impact and sustainable chemical company Indorama Ventures.
- **IRNovate Pte Ltd** – Milltrust Ventures supported and invested into the recent seed round for this pioneering company founded by Dr Kamarjit Singh Mangat, a world- renowned interventional radiologist from the National University Hospital in Singapore. His pioneering work in innovating the current percutaneous and trans jugular method of taking a liver biopsy with a new life saving technology will avert death in many otherwise risky procedures and encourage more patients with suspected liver disease to accept a biopsy they may have otherwise shunned. It will also provide a better understanding of the progression of disease and the most appropriate treatment, changing the trajectory of liver disease which affects up to 30% of the global population.
- Sept 2023: **Vivent** successfully secured an investment from Pymwymic, facilitated by Milltrust, to advance their ground-breaking sustainable agriculture technologies.

## About Milltrust International Group

Under a single mantra of *Sustainable Prosperity*, Milltrust International Group is a specialist, award-winning investment organisation co-headquartered in London and Singapore, offering a range life-changing investment solutions seeking to address some of the greatest themes of our generation including the development of emerging economies, rising food demand, technological revolutions and climate change. Clients include pension funds, sovereign entities, family offices, entrepreneurs and HNWIs. The firm operates in a regulated capacity across multiple jurisdictions including the UK, Singapore, Ireland, Cayman, and Mauritius.

## Milltrust Launches East West Private Wealth

Milltrust recently unveiled its latest endeavour, **East West Private Wealth**, in an announcement resonating with the ethos of embracing a world of diverse influences. This ambitious undertaking underscores the organisation's conviction in the emergence of a multipolar world, where the synergy between Eastern and Western wisdom is of paramount significance. Moreover, the primacy of sustainability is integral to every decision undertaken by East West Private Wealth. The initiative invites families with a deep understanding of both hemispheres and a steadfast commitment to sustainability, seeking to weave together a collective endeavour that transcends geographical boundaries. East West Private Wealth extends a heartfelt invitation to those who resonate with its vision to partake in its mission. Distinguished by its pioneering approach, East West Private Wealth functions as a distinctive multi-family office proposition. This novel framework provides patrons with access to premier investment management and a range of international counterparties, all through a singular point of contact. In a world characterised by complexity and interconnectivity, East West Private Wealth emerges as a guiding light, illuminating the path towards prosperous and sustainable global engagement.

## Milltrust Co-Investor Platform

The **Milltrust Co-Investor Platform** features uniquely differentiated private market investment opportunities centred on the core philosophy of delivering Sustainable Prosperity. More details on page 12.

Signatory of:



# A Message from the CEO

Simon Hopkins, CEO & Founder, Milltrust International Group

This edition of East West magazine coincides with the launch of our new sustainability-focussed multi-family office, **East West Private Wealth (EWPW)**.

Powered by **Milltrust International Group**, our award-winning sustainability-focussed investment organisation, co-headquartered in London and Singapore, **EWPW** is based in the Lion City, the global centre for private wealth with over USD 5.6 trillion of assets under management. Nonetheless, our new firm has a global reach, looking after clients on every continent and serving their global needs from team members based in London, Switzerland, Monaco, and the UAE. This independent advisory and investment management platform will unlock the investment landscape for ambitious entrepreneurs and families, providing long-term financial security as well as real sustainable impact through a bold new approach. **EWPW's** cutting edge comes from its team's long-standing and award-winning experience, based on a powerful global network of partners. This includes established managed accounts with asset managers in Latin America, Africa, India, and China, and banking relationships with over a dozen financial counterparties. Our group has consistently been voted the best asset manager serving family offices and private banks in the Asia Wealth Briefing Awards in recent years.

As the founder and Chair of **East West Private Wealth**, I am personally committed to bringing my nearly four decades of experience in structuring the complex affairs of international investors to this new **Multi-Family Office**, supported by a world-class team of experts.

In keeping with our two-decade-long experience working together as a team, we will continue to prioritise safety, transparency, and liquidity without sacrificing the search for alpha. We believe investors are looking for an alternative to the homogenised mainstream wealth management offering, and **EWPW** will deliver to clients a skill-based investment approach, focussed on originality, flexibility, and best of breed. Leveraging a proven ability to work across varied asset classes and geographies, our plan is that **EWPW** will adopt a collaborative approach to provide genuinely bespoke investment solutions, addressing return requirements and personal impact aspirations in a single holistic package.

Capitalising on **Milltrust International's** existing investment platforms such as the **British Innovation Fund II**, **Climate Impact Asia Fund**, and **Global Emerging Markets Fund**, **EWPW** already benefits from an unparalleled network of original product. This will be complemented by a growing team of advisers led by our new Chief Investment Officer **Gary Dugan**, who I have known for over 35 years. In addition to our discretionary portfolio management service, **EWPW** will provide rich opportunities to pursue non-cyclical investments, and exposure to cutting-edge companies creating measurable and sustainable impact in areas such as health, environment, and global food systems. These are all long-term secular themes that will continue to be the focus of international capital flows for the foreseeable future.

**EWPW** is quite simply the most important company I have established in my professional career, having previously founded the UK's first research firm sourcing and rating active managers at Global Fund Analysis, and built the first research-led fund of funds at Fortune Asset Management, which we sold to Close Brothers in 2006. It brings together the wealth of experience and knowledge of an expert team of investment professionals with collective lifetimes of experience, delivering uncorrelated returns as well as highly trusted, personalised client relationships.

The original team that came together to launch **Milltrust**, today continues to deliver institutional-quality asset management services to some of the world's largest public pension funds, as well as to families and entrepreneurs across the globe. Innovation is the cornerstone of our business, with over 80 early-stage investments in science and technological breakthroughs, including **Vaccitech** (now listed on NASDAQ), **Deep Instinct**, and **Viome**. I am delighted to be supported by co-founder **Alexander Kalis**, who takes on the expanded role of Group Head of Investments and Head of Sustainability at Milltrust International Group. He has over two decades of experience in top-tier asset management firms such as Edmond de Rothschild Asset Management and Santander Asset Management.

In addition, **EWPW** Chief Investment Officer, **Gary Dugan**, an accomplished investment professional with a career spanning 38 years across Europe, the Middle East, and Asia, leads on strategy and asset allocation. Gary held CIO positions at Coutts and Emirates NBD, as well as serving as a MD at Barclays, Merrill Lynch, and JP Morgan before becoming CEO of Purple Asset Management and founding The Global CIO Office. In Singapore, we operate under the aegis of First Estate Capital Management, helmed by **Dennis See** and **Henry Soediarko**, long-standing Directors at Milltrust and veteran fund managers. With this impressive team of able and experienced investment professionals, I am confident we can justify the faith and expectations our clients place in us.



# Introducing East West Private Wealth

**Bridging Global Wealth with Integrity**  
East West Private Wealth (EWPW), an affiliate of Milltrust International Group and operating in a regulated capacity as First Estate Capital Management in Singapore, stands as a premier, global Multi-Family office, dedicated to offering unparalleled wealth management services. With a presence spanning from Singapore to London, Monaco, Geneva, and the UAE, our global reach is anchored in the Asia Pacific – the heartland of burgeoning private wealth.

Our commitment? A truly holistic approach to your financial needs. At EWPW, we pride ourselves on:

## Independence

Our advisory platform is powered by a proprietary, investment engine, ensuring unbiased and tailored advice.

## Transparency

With a crystal-clear fee structure you always know where you stand.

## Flexibility

Our investments approach is unconstrained, adopting to the ever evolving, financial landscape.

## Sustainability

Curated by a team of seasons specialists, our suite of open-architecture solutions not only ensures prosperity for our clients, but also champions, eco-conscious decisions for a better planet.

At EWPW, we are not just managing wealth, we are crafting legacies - for you and for generations to come.

Visit us on [www.ewpw.com](http://www.ewpw.com)



## Investments

- Discretionary Portfolio Management
- Advisory & Execution
- Asset Management
- Private Investments

## Family Office Services

- Wealth Planning
- Private Mutual Funds
- Strategic Philanthropy
- Trusts & Fiduciary Services

## Rooted in Asset Management Excellence

At the heart of East West Private Wealth, lies our legacy with the Milltrust brand. Since 2010 Milltrust International Group has been at the forefront of crafting, innovative, alpha-generating investment solutions. Our team, a blend of seasoned entrepreneurs, astute wealth managers, and savvy investors, boasts a proven track record of success.

## Envisioning a Balanced Future

At East West Private Wealth, we believe in a world where the pursuit of personal wealth harmonises with our planet's well-being. Our commitment is to sustainable, ethical, and visionary investments. These not only ensure enduring financial security for families and individuals, but also safeguard our earth and its inhabitants.



# The Opportunities Arising in South-East Asia Wealth Management

Simon Hopkins featured in FundForum Edge

The world is changing fast. And with it, the demands of a new generation of wealth stewards who have inherited substantial wealth from family members, and have different priorities and objectives to their forebears. In Asia, where wealth has been created by families in business or through real estate, as Asian cities have blossomed, these next gen investors now have far more complicated lives than before, with homes in Europe, businesses in China, and banking and residency in Singapore for example. Their children are being educated in the UK and USA and their focus is less on manufacturing or agriculture but more on investing and making wealth work for them. With this comes a new focus on impact and sustainability, but not at the expense of profits and progress.

Temasek recently recast much of the intergenerational investment of its citizens' wealth as "Ecosperity", a rather clumsy term that nonetheless is redolent of doing the right thing ecologically and in terms of wellbeing, two concepts that are not always obvious bedfellows.

At Milltrust, in the 13 years since we set up our business in Singapore, we have sought to project an image of Sustainable Prosperity. Conscious of the challenges of the rapidly growing, youthful population of most of the developing world, especially South-East Asia, we have sought to invest into companies, both public and private, that are respectful of the fine balance between progress and the protection of our finite resources, those that are leading on innovation and are respectful of shareholders rights.

So what's next? With no private pension fund industry to speak of and a local mutual fund industry that is a mere rounding error for the giant asset managers and ETF providers, who now dominate the industry, institutional asset management is being leapfrogged in the region by wealth management in much the same way that fixed line telephones were bypassed by cell phones. Asset managers have let down their investors, driving down investment returns by group think and passive investing. Meanwhile, deposits in Singapore private banks are ballooning at a record pace surpassing USD 3 trillion.

Nonetheless, a recent survey of the clients of private banks in Singapore showed that over 70% were very significantly dissatisfied with their relationship managers, owing to a slew of factors including lack of transparency, an unmet desire for holistic services, lack of personalisation and low levels of personal connection with clients. If the private wealth opportunity is not to go the same way as the race to zero in the asset management industry, where only the biggest players are assumed to be able to win the volume game, and the outcomes for investors measured against their anodyne peer group statistics are abysmal, then a new formula is required.

Step forward the Multi-Family Office. Under this structure, investors sit at the same table with their advisors to evaluate the merits of investment strategies and products. Fees are transparent and aligned with investor outcomes, and access to skill-based investing is prioritised above the commoditised services that can be acquired cheaply but at the expense of returns.

Relationship managers are given the flexibility to offer a far wider array of investment solutions than typically on offer at a private bank, and to benefit from the flexibility that allows them to live and work wherever they choose, with the support of a platform that takes care of all aspects of the business infrastructure including compliance, training, sourcing, payroll and HR.

Building links around the globe with a club of business leaders and industry experts that have allowed us to offer highly remunerative investments in real assets, private equity, hedge funds and venture, from real estate in Africa, to farmland in Australia, infrastructure in Asia, health and agri-food innovation from leading universities, and wellness and security innovation from top drawer places of learning.

The stewardship of family wealth is set to dominate the investment landscape in Asia for some time to come, compounded by the challenges faced by the wealthy of Hong Kong who have been coming to Singapore in their droves. With over 25 years of experience in the region and our HQ in Singapore, we are set to focus on this market for the foreseeable future, and all within the framework of Sustainable Prosperity for those who engage with us.



**Over a Decade of Distinction in Global Wealth Solutions**

For over 10 years, we have stood as a trusted wholesale provider, delivering multi-asset class portfolios tailored for our international clientele. Managed by seasoned professionals, our global wealth solutions offer a diverse investment spectrum across all asset classes, meticulously crafted to align with our clients' unique needs.

**Risk-Adjusted Investment Portfolios**

**Cautious Portfolio: Low Risk**

This portfolio is suitable for investors who are seeking to take lower risk in order to preserve the real value of their portfolio. It is appropriate for investors seeking a greater return than simply holding cash, who are prepared to accept an element of volatility in order to enhance the portfolio's long-term income or growth potential.



Performance Target (Annualised)



Volatility Target (Annualised)  
<6%



Asset Classes (Expected Average Weight)  
60% Fixed Interest  
20% Equities  
20% Alternatives

**Balanced Portfolio: Medium Risk**

This portfolio is suitable for investors who are willing to take a medium level of risk to grow the real value of a portfolio. They must be willing to accept a greater level of volatility to enhance the long-term income and growth potential whilst the portfolio will be subject to frequent and, at times, significant fluctuations in value.



Performance Target (Annualised)



Volatility Target (Annualised)  
<15%



Asset Classes (Expected Average Weight)  
25% Fixed Interest  
65% Equities  
10% Alternatives

**Aggressive Portfolio: Higher Risk**

This portfolio is suitable for investors who are willing to take higher levels of risk in order to achieve higher returns. As an investor you must be able to take on significant levels of volatility that may lead to substantial swings in portfolio valuations over time.



Performance Target (Annualised)



Volatility Target (Annualised)  
<13%



Asset Classes (Expected Average Weight)  
5% Fixed Interest  
90% Equities  
5% Alternatives





# Global Emerging Markets Funds

Milltrust generates alpha through partnerships with on-the-ground specialist investment teams with strong local access, an informational edge, and phenomenal track records.

The investment approach includes a robust in-house asset allocation framework which tilts the portfolios to the geographies and asset classes that stand to benefit the most in the short to medium term; this is combined with the bottom-up expertise from our specialist teams to create high conviction, liquid portfolios.

The Milltrust flagship strategy is the Milltrust Global Emerging Markets ("GEMS") strategy which started in 2012.

The Milltrust GEMS strategy invests through segregated accounts on the Milltrust multi-manager single custodian platform which provides investors with a cost-effective, transparent, and efficient way of accessing a complete Emerging Markets portfolio managed by country specialist teams adopting an ESG framework.

### Delivering winning solutions since 2012

- High alpha: >6% annualised alpha since 2012
- Top decile versus peer group
- Proven capital protection: <75% downside capture
- Strong risk-return profile: high return and low volatility.
- ESG Analysis

**Our Local Teams consist of:**

- over **60** dedicated Investment Professionals with
- over **1,000** Years' Experience and
- over **4,500** Company Meetings per annum

**They represent the best of the best:**

- **Top Decile** Track Records
- Generated **Significant Alpha**
- **Award-Winning**, Top Money Managers



## Milltrust Global Emerging Market Fund (GEMS)

Structured as an ICAV (Irish Collective Asset Management Vehicle), an Irish-domiciled, regulated open-ended investment company.

### Regional Sub-Strategies

Each sub-strategy is managed by specialist, locally based investment teams.

Structured as Cayman-domiciled open-ended accounts under the Milltrust International Investments SPC (Cayman) umbrella.





# Climate Impact Asia Fund

Sustainability is a key priority for us at Milltrust and nowhere is this truer than in the realms of climate change where the imperative to tackle global warming through the adoption of new and sustainable technologies has become critical.

Milltrust has launched The Climate Impact Asia Fund out of collective concern and passion to make a meaningful contribution towards addressing climate and environmental issues.

Most countries worldwide have made pledges towards carbon neutrality in the coming decades. These unfolding positive macro climate policies have provided strong tailwinds for the performance of equities facilitating the transition to a low carbon economy.

### A Proven Strategy

- Low correlation to general indices offering diversified return profiles to investors
- Dark Green Filter (>50% revenues from green sources)
- Strong risk-return profile: higher return and lower volatility than indices
- ESG Analysis
- Impact: Climate and Conservation

**“Investing in Climate Action”**

**Strategy:**

- Long only Equity Strategy (ESG) focussed on generating both strong investment returns and impact
- Asia Pacific Region

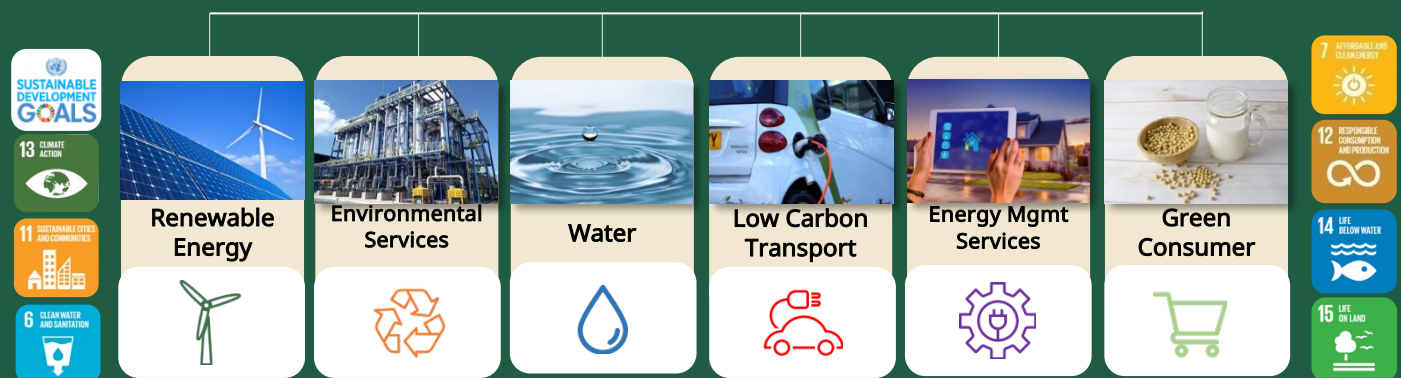
**Impact:**

- Our impact strategy is acutely aligned to the UN Sustainable Development Goals



**The Climate Impact Asia Fund (CIAF)**  
 Structured as a Cayman-domiciled open-ended SP under the Milltrust International Investments SPC (Cayman)

### Key Climate Impact Sectors



Achieving net-zero by 2050 may well prove to be the largest reallocation of capital in history, an increase of spending between \$1 trillion and \$3.5 trillion a year.

McKinsey, 2022

## CIAF Scoops Three New Awards

The Climate Impact Asia Fund has won three awards at the WealthForGood Awards 2023.

By Henry Soediarko



The UN-backed Intergovernmental panel on Climate Change (IPCC), in its latest report released at the end of February 2022, mentioned the effects of climate change in which it warns that “the speed of global warming has exceeded the pace of efforts to protect billions of vulnerable people”. Among the findings in the new report:

- The effects of melting glaciers and thawing permafrost in some areas are “approaching irreversibility.”
- Half the world is already living with “severe water scarcity” during part of the year.
- A worldwide rise in heat-related illness and death, with more food-borne and infectious disease, can be expected without adaptation.
- Agricultural productivity growth has slowed, and weather extremes have put the food security of millions of people at risk.
- In land ecosystems, as many as 14% of animal species studied will likely face a “very high” risk of extinction at a warming level of 1.5°C.
- Global temperature has also increased 0.5 points from 2000 to date, which is worrying as it has been achieved within just a quarter of a century.

Investing in the right climate impact companies not only succeeds in being an ESG investment, but also helps to lower CO2 emissions through their product and technological innovation in various sectors. For example, renewable energy (wind and solar), EVs (electric vehicles), and battery makers (that help to power EVs and stabilise renewable energy supply in the long run) increase the potential to have a circular economy (imagine using renewable energy to power the manufacture of EVs).

In 2021, over 57 million people were affected by climate disasters across Asia Pacific according to the International Federation of Red Cross and Red Crescent

Societies (IFRC). South Asia has been the worst hit, with millions of people affected by multiple disasters and little time to recover from one to the next.

- In India, more than 18 million people have been severely impacted by floods and cyclones that year, according to data from the Indian Government, Disaster Management Division. In Bangladesh, more than half a million people have been swamped by floods, with hundreds of villages marooned for weeks at a time. Around one third of Nepal suffered floods or landslides with many occurring outside of the traditional monsoon season.
- In China’s Henan Province, 13.9 million people were affected by severe flooding in July.
- In South-East Asia, Indonesia has been worst affected by disasters, with more than one million people swamped by flooding according to the Indonesian Government Regional Disaster Authority. Drought, combined with associated economic collapse – which unfolds slowly but with devastating consequences – has affected more than 22.8 million people in Afghanistan, according to the latest Integrated Food Security data.



# CIAF Scoops Three New Awards (Cont'd)

If you invested into BYD 10 years ago, the largest EV manufacturer in China and the fund's core holding, it would have returned 1600% or 33% annually. There are plenty of opportunities to invest in Asia's growing number of companies that are involved in lowering CO2 emissions through their technological innovation and government policies that are yet to be discovered. The fund's mission is to pick these winners early.

One of the fund's core holdings, BYD (1211.HK), creates positive environmental impacts by manufacturing EVs, PHEVs, and electric buses. BYD enables clean energy transport adoption, significantly reducing GHG emissions from transportation. BYD also generates a significant environmental and social impact by selling solar PV modules. In terms of environmental impact, BYD's solar PV modules enables a significant reduction in CO2, CH4, NOx, SO2, and other GHG emissions, slowing down the rate of climate change, contributing to meeting the 1.5-degree goal.

There have been some arguments whether EVs are greener than ICEs due to the carbon generated during the mineral extraction process, but the truth is that EV's offer much more upside potential in lowering CO2 emissions in the longer run. Whilst the fund is positive on batteries and EVs, it does not invest in the lithium and nickel miners as they are not renewable.

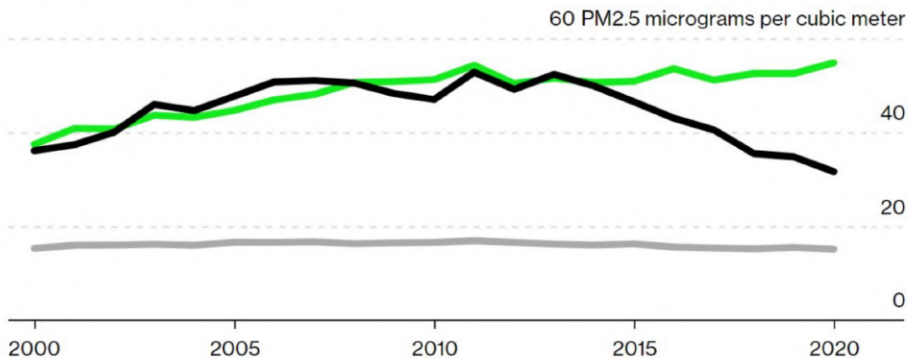
According to the University of Chicago's Energy Policy Institute, China has been as successful in increasing its air quality in 7 years as the US has in 3 decades. This helps to lower the global smog level average that approximately adds up to 2 years life expectancy if sustained. This is a testament to the commitments that the Chinese government have made on reducing CO2 emissions that will be a major tailwind to drive technological innovation and adoption on CO2 emission, and why we believe Asia is now a compelling investment destination for climate and ESG investors.



## Blue Skies

China has slashed air pollution in recent years

China South Asia Rest of the World



Source: University of Chicago

# British Innovation Fund II

The British Innovation Fund II follows on from the success of The British Innovation Fund I, investing into high potential and impactful early stage (pre-seed/seed/Series A), university ventures where deep and incontrovertible science is at the core of the commercial proposition.

Our One Health theme is centred on the healthcare of tomorrow, the evolution of food, and the progression towards a more sustainable planet.

Our unparalleled university and national lab networks, primarily in the UK, Europe and Singapore, provide access to a thriving ecosystem of well-supported start-ups benefiting from robust policies and government assistance, ensuring their growth and development.

The British Innovation Fund I (BIF) was an AIFMD-compliant patient capital venture capital fund investing in innovative spinouts stemming from top-tier UK university research. The fund was backed by some of the **leading local government pension schemes** in the United Kingdom and was exited to a single public pension fund at the end of 2021.

**Strategy:**

- **Early-stage** (pre-seed, seed, series A) innovations with **commercialisation potential for global impact**
- With teams based in London & Singapore, we screen and identify carefully curated investment opportunities where incontrovertible science is at the core of the commercial proposition.

**Impact:**

- Aligned to the following **UN Sustainable Development Goals**



## The British Innovation Fund II



One Health

Food

Plant-Based Protein  
Fermentation  
Cultivated Technologies  
Infrastructure  
Scalable Production

Health

Personalised Medicine  
Big Data & Artificial  
Intelligence  
Medical Devices

Planet

Animal Science  
Plant Science  
Circular Economy Solutions

## Milltrust Co-Investor Platform

Milltrust International has partnered with CoInvestor, the alternative assets platform, to digitise our private market investment services. On our website, you will now find a **digitalised platform featuring a 24/7 monitored deal room of pre-screened and curated investment opportunities focussed on agri-food, healthcare, and environmental themes.**

The platform allows access to both Milltrust's own venture fund investments and single company co-investment opportunities, allowing investors to build their own portfolio in a manner that suits their investment preferences.

Sign up to the Milltrust Co-Investor Platform today:  
[www.milltrust.vc](http://www.milltrust.vc)



# INNOVATORS

## Attomarker: Testing for Personalised Health & Societal Well-Being

By Alexander Kalis

**Andrew, it's a pleasure to speak with you today and to discuss the fascinating work behind Attomarker. Could you explain what Attomarker is and how important testing is for personalised health and well-being for society?**

Andrew Shaw (AS): Personalised medicine is a rapidly evolving pro-active paradigm for healthcare, individualising the patient's symptoms, precision diagnosis, and personalised treatment. Precision Medicine is data-hungry and requires better biomarker profiles to treat individuals as personalised endotypes, phenotypes, and theratypes.

Whilst medicine in the UK is mainly focussed on the treatment of symptoms, this marks a distinct shift to prophylaxis, where diseases with high associated healthcare burdens and costs are prevented from arising in the first place.

Attomarker is focussed on four global pandemics: COVID-19, Obesity, Food Allergy and Antimicrobial Resistance (AMR).



*Simon Hopkins undergoing a Covid-19 Triple Antibody test, undertaken by Attomarker's Liscar 6 device*

Attomarker has developed a technology for measuring multiple biomarkers in blood and saliva, indeed all bodily fluids, to provide a personal profile in 7 minutes. The data is sent to the Cloud for Big Data and AI to determine a personalised patient healthcare pathway across multiple healthcare settings: at the bedside, in the operating theatre, at the pharmacy, and at home. The platform technology is endlessly applicable, with an assay possible for any protein/biomarker for which an antibody pair (capture and detection) can be raised. The challenge comes in choosing the right biomarkers to detect; recent research revealed that 98% of discovered clinical biomarkers never make it to clinical application – there is huge redundancy in the biomarker market and those that make a meaningful contribution to affecting the patient care pathway are sought above all others.

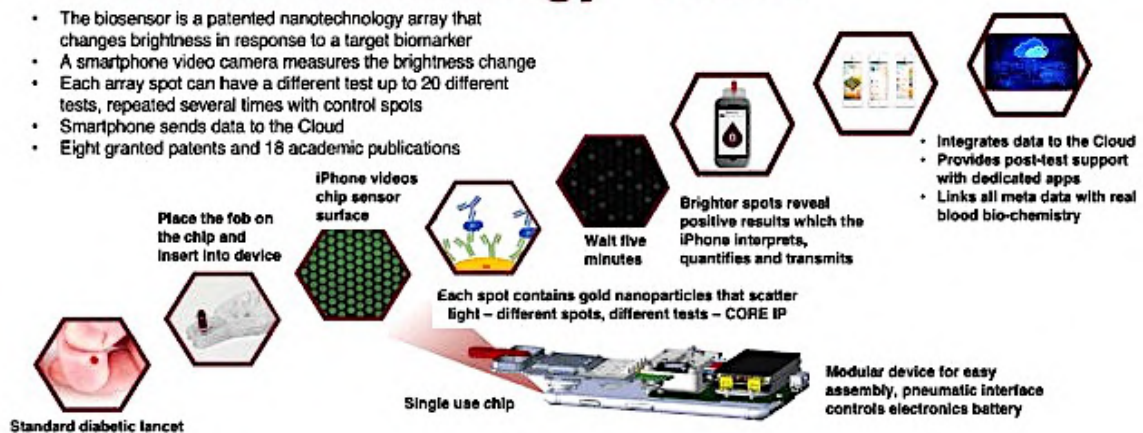
**You mention COVID-19, how has Attomarker adapted the COVID-19 pandemic?**

Attomarker responded to the pandemic in 2020 and on the 23rd of March 2020 in London's St Thomas' Hospital, we measured our first patient response to SARS-CoV-2: total IgG, antibodies to Membrane, Spike 1, Spike 2, Nucleocapsid, Envelope along with C reactive protein – the test worked the first time!

**What does your COVID-19 Triple Antibody Test show and demonstrate?**

Live testing of Attomarker's MHRA-approved Triple antibody test through its CE marked device shows that immunity from the COVID-19 vaccine (or from the virus itself) greatly varies from person to person. Attomarker is rapidly building up its scientific understanding and knowledge that will be able to tell the immunity days of the vaccine on a person, when one should get boosted, and when someone is expected to become susceptible to catching the disease.

## How the Technology\* Works



\* Illustrated here for the hand-held device but principles are the same for the Liscar 6 bench-top device

### What is the technology behind Attomarker?

The Liscar 6 is the bench-top version of the Attomarker technology. It received in 2020 a MHRA emergency approval for antibody testing in the pandemic, got its CE mark in April 2021 and is now deployed in 2 clinics in a roll-out plan of 25 clinics in 2021. The hand-held version of the technology has completed an FDA Protocol for accuracy and precision for a CRP test and requires one more design spin to take it to market. Both instruments will perform up to 20 tests simultaneously in 7 minutes from 10 µL of blood/saliva sample and transmit the data to the Cloud for analysis.

### At what stage are you in the regulatory approval process?

We have two CE marks: for the Covid-19 Triple Antibody Test and the Liscar 6 benchtop instrument. These can be deployed wherever a CE mark is accepted. The Triple Antibody Test has been approved by the UK's Medicines & Healthcare products Regulatory Agency (MHRA).

### Can you explain how it works?

Attomarker's biosensor is a patented nanotechnology array that changes brightness in response to a target biomarker. A smartphone video camera then measures the brightness change and each array spot can have up to 20 different tests, repeated several times with control spots. After, the smartphone sends data to the Cloud.

### Beyond COVID-19, what other applications can Attomarker's technology pursue and what is the market opportunity?

We will focus on three non-COVID Pandemics: Diabetes is estimated to be a \$2.5 trillion market by 2030 with cases at an all-time global high. Attomarker will provide @Home regular liver function testing to help identify route to remission from Type 2 diabetes. Additional small sample volumes for childhood diabetes will also be a critical target. Regular testing shows progress and can be used in gamification.

Food allergies is estimated to be a \$25bn market by 2030 with food allergies also at an all-time global high. Attomarker will provide in-clinic testing of food allergy from new-born and throughout life. Small sample volumes will allow umbilical blood test and testing of children before their first milk which is important as most allergies develop in childhood. Heel prick or finger prick samples will provide paediatric screening.



This article originally appeared in Impact Entrepreneur Magazine, [www.impactentrepreneur.com](http://www.impactentrepreneur.com), <https://impactentrepreneur.com/testing-for-personalized-health-and-society-well-being/>



Attomarker is currently going through a fundraise of £3 million. The proceeds will be used for regulatory compliance, marketing, and test development.





# Cushioning the Cancer Surge in the Elderly

A profile on health insights data platform, Oncoshot

By Alexander Kalis

Cancer is one of the leading causes of death worldwide. The World Health Organisation (WHO) estimated cancer as the first or second leading cause of death in 112 of the 183 countries examined in 2019. In another 23 countries, it was the third or fourth leading cause.

By 2030, we anticipate 26 million new cancer cases and 17 million new cancer deaths per year, largely accounted for by the growth and ageing of populations. One in six people will be aged 60 years or over. That translates into 1.4 billion people, up from 1.2 billion in 2020. By 2050, this number will nearly double to 2.1 billion.

People are living longer; life expectancy beyond 60 is almost guaranteed. This contributes to growth in both the size and proportions of older persons in our populations. While this phenomenon known as population ageing started in high-income countries such as Japan, where 30% of its people are already above 60 years, it is now low- to medium-income countries that are going through this change.

So how do we care for present and future cancer sufferers and the people around them? One Singaporean medical oncologist proposes enhancing the enrolment of patients into cancer clinical trials.

Whilst practising, Dr Huren Sivaraj had trouble understanding the landscape of clinical trial options for his patients at any point during their treatment journey. Trial options were not transparent or visible within the healthcare institution.

He found that when there is poor visibility of trials, oncologists often continue to offer the standard of care treatments instead of considering clinical trials for late-phase developmental cancer therapies that can be implemented alongside the standard ones.

Trial options tend to be offered after patients have exhausted all standard therapy options. By this point, patients are typically deconditioned and symptomatic, let alone fit enough to participate in trials.

When it comes to clinical trial enrolment, doctors typically rely on their register of patients and maybe a few others through doctor-to-doctor referrals. The issue with this is that not enough doctors refer their patients to other doctors and investigators resulting in difficulty when it comes to recruiting eligible patients.

A major reason for this is the lack of a robust communication system able to connect patients, doctors, and the pharmaceutical companies that conduct the clinical trials. It is estimated that 85% of all clinical trials will experience delays, with 94% experiencing delays lasting longer than a month and poor patient recruitment as a significant contributor. The financial consequences of this can cost anywhere between USD \$600,000 to USD \$8 million per day of delay.

Dr Sivaraj felt that if his patients could access developmental therapies sooner and throughout the entire treatment journey, they would have improved survival outcomes. Hence, Dr Sivaraj founded Oncoshot in 2018 with co-founder Ruslan Enikeev, a data science engineer and creator of Map of the Internet — a popular web traffic data-visualisation tool.

Addressing SDG 3 – Good Health and Well-being, Oncoshot is a health insights exchange platform that leverages its proprietary clinical trial matching artificial intelligence (AI) technology to address the inefficiencies of cancer clinical trials. It targets the rigorous clinical trial enrolment process that requires a careful and meticulous approach to choosing participants that fit strict eligibility criteria.

The Oncoshot platform serves as a bridge between leading regional healthcare institutions, contract research organisations (CROs) and global biotechnology and pharmaceutical companies to facilitate data-driven cancer clinical trials while accelerating enrolment into actively recruiting ones.

# Cushioning the Cancer Surge in the Elderly Cont'd

When developing a trial, companies traditionally depend on researchers' approximations and historical data from comparable trials to work out enrolment forecasts. Realistically, the circumstances encompassing each trial differ too inordinately to anticipate based on past experiences. In addition, historical data does not account for patient deaths which may cause an overrepresentation of potentially eligible patients.

The Oncoshot platform generates relevant hospital-approved real-time potential matches for trials in minutes, sorting through over 100,000 de-identified patient profiles spanning its three initial markets. With the traditional approach, this process can take weeks to months.

The clinical trial ecosystem in Singapore has been advancing rapidly with plenty of help and collaboration from the public and private sectors. However, many institutions struggled to find an ideal model for collaboration with data in a manner that meets their security, privacy, and access requirements.

To ensure patient data is secured, only patient data relevant to the specific clinical research is first de-identified and restructured before being transferred to the healthcare institution's on-premise, Oncoshot platform, where it is analysed to provide population-level insights. The Oncoshot platform can be deployed within the trial site's server so that patient-level data stays within the institution's internal cyber security system.

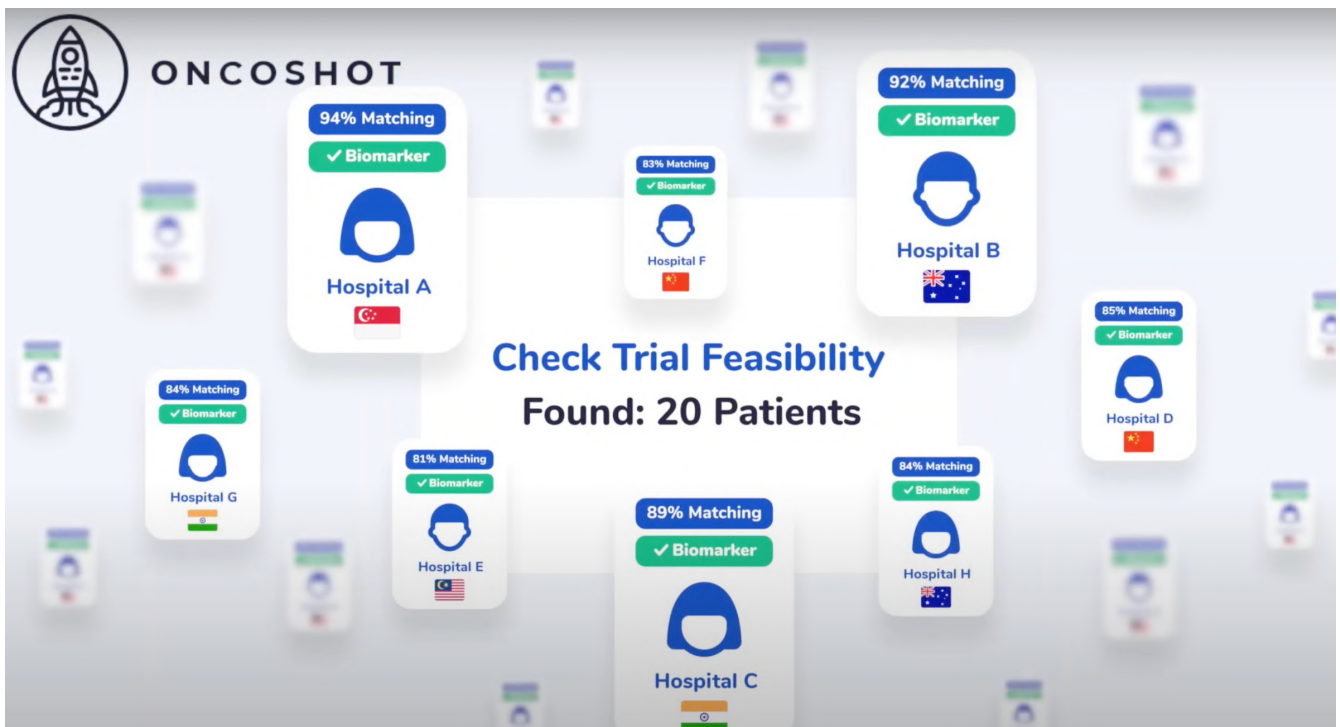
Furthermore, Oncoshot's platform is appraised by PriceWaterhouseCoopers (PwC), a leader in IT risk consulting and security and the Singapore government's choice IT consultant for reviewing the National Electronic Health Record system.

Presently, Oncoshot's partners include pharmaceutical companies such as AstraZeneca and Novartis, CROs, and six cancer research organisations spread across Singapore, Australia, and India.

This article originally appeared in Impact Entrepreneur Magazine, [www.impactentrepreneur.com](http://www.impactentrepreneur.com), <https://impactentrepreneur.com/cushioning-the-cancer-surge-in-the-elderly/>



Oncoshot's early investors included the US venture arm of Mass Mutual and Milltrust Ventures. The company will embark in a series A funding round in Q2 2024



*Pictured: Oncoshot Platform  
Source: Oncoshot*



# INNOVATORS

## Polymateria Secures £20 Million in Series B Funding

*The funding round, which includes industrial partner Indorama Ventures, marks a major milestone in Polymateria's efforts to tackle plastic pollution globally.*

*Polymateria's biotransformation technology safely returns commonly polluted plastic items to nature without leaving any microplastics or toxic residue, and has gained significant traction among customers worldwide.*

Polymateria, the British company which has pioneered biotransformation technology, today announced the successful completion of its Series B funding round. In a major boost to its mission to combat plastic pollution, Polymateria's £20 million funding round was led by Singapore-based impact private equity fund ABC Impact and sustainable chemical company Indorama Ventures.

Proceeds from the funding round will be used to accelerate commercialisation of Polymateria's biotransformation technology on a global scale. Lee Davy-Martin, Co-Founder and Board Member of Polymateria, said:

"I'm tremendously excited to be embarking on the next step of Polymateria's journey. We founded Polymateria to make a real difference to one of the world's biggest environmental challenges. With the backing of investors like ABC Impact and Indorama Ventures, we are well on the way to achieving our mission.

The Company's biotransformation technology has uniquely proven full biodegradation of plastic items into water, CO<sub>2</sub> and biomass without leaving any microplastic or toxic residue in the open environment. The technology can be deployed with no changes to existing manufacturing processes and is compatible with existing recycling streams, giving it unrivalled scalability. Recent high-profile customers include Twickenham Rugby Stadium, the Chicago Marathon and 7-ELEVEN Taiwan.

*Sugandhi Matta, Chief Impact Officer at ABC Impact, commented: "With the strength of Polymateria's scientific underpinning and the vast scalability of its technology, we believe that the solution developed by the company can help address challenges in plastic packaging related pollution. We look forward to helping the team expand its commercialization reach and further generate impact at scale in Asia."*

*IYash Lohia, Chairman of the ESG Council at Indorama Ventures, said: "We're delighted to be following our money into Polymateria's Series B round. What started as a relationship between customer and technology provider has now become a strategic alliance.*

*VL is excited by the potential of Polymateria's biotransformation technology and we look forward to seeing it rolled out on supermarket shelves with many of the world's most recognised brands."*

Polymateria has appointed Sugandhi Matta to its board, which is chaired by the Blackstone Group International Partners Chair, Marc Bolland.

This article originally featured on [polymateria.com](https://polymateria.com) in Apr-2023



*Pictured: Polymateria's lab in Imperial College London  
Source: Imperial College London*



*Pictured: Self-destructing cup from Polymateria*



# Cody Genetics: Breeding the Animals You Need

Developing the next generation genetic tools  
to reduce inhumane practices

By Alexander Kalis

Unbeknownst to most, it is estimated that around 600,000 male calves are killed on dairy farms every year when they are just a week old. "Dairy farms need female cows to produce milk but with little demand for male calves many farmers can't afford to keep them beyond birth", as stated in The Guardian. Similarly, this practice affects other livestock, including over 7 billion, day-old male chicks that are culled each year for their inability to lay eggs.

For decades, a large proportion of our protein production has been produced in this manner. Such questionable human-animal relations have led to untold suffering for livestock. Furthermore, as world population powers ahead to 9.7 billion by 2050, leading to a rise in demand for food by 70% from today's levels, and with farming costs set to continue to increase alongside other industry costs, farmers will have no choice but to become more economical to survive. It is therefore imperative that we utilise human ingenuity to stem these practices.

Co-founded in 2021 in Tel Aviv by Yaniv Dolev, a veterinary surgeon and seasoned entrepreneur with over 15 years of experience in founding start-ups, include founding Moebius Medical in 2008, which culminated in an exclusive global licensing deal with Sun Pharma in December 2016, Cody Genetics offers a solution to increase the efficiencies of farming, reduce the need for gender culling, and thereby promote animal well-being by enabling farmers to produce more for less resources.

Cody Genetics' unique technology uses genetic editing tools to create bulls and boars that can ejaculate sexed semen to breed the animals that are needed by farmers today, contributing to more sustainable animal production, increasing breeding companies' income, and improving animal health altogether. Importantly, the offspring of those breeders are not gene-edited and do not carry any foreign DNA, and therefore fully comply with EU and other global regulations. Cody Genetics uses the CRISPR-Cas9 technology, the 2020 Nobel Prize winning invention, to edit genes in an innovative and proprietary manner. The first generation was highlighted by editors of a peer review scientific journal that described their approach as an important step toward generating sex-ratio biasing applications for agriculture.

The technology was developed by Professor Udi Qimron, Dr. Ido Yosef, and Dr. Motti Gerlic of the Department of Clinical Microbiology and Immunology at Tel Aviv University's Sackler School of Medicine, revealing a genetic ability in mammals that can produce only females. A similar system based on identical principles could produce only males, if desired. Cody Genetics has partnered with Tel Aviv University, SION (Israeli Company for Artificial Insemination & Breeding Ltd), and is working with scientists from Roslin Technologies in Scotland, a world leader in animal science and genetics, to further develop this promising technology in livestock.

The company's vision is to build a global network of veterinary embryology laboratories that will supply genetic and genomic support to animal breeding companies. Thus, Cody Genetics' ability to influence the sex of livestock is an enormous scientific leap forward to increase these efficiencies, whilst also addressing the inhumane, but-often-hushed, animal welfare challenges in practice today. The company aligns with SDGs 2 - Zero Hunger, 12 - Responsible Consumption and Production, and 15 - Life on Land.

The current solution of the cattle breeding industry is the mechanical sorter. This machine sorts the cattle sperm and female straws can be obtained. However, this solution is expensive and reduces dramatically the semen yield. This solution is not applicable at all in swine breeding due to the large volume of boars' ejaculate. In addition, the low-quality semen is not acceptable by the farmers.

The market trend for cattle sexed semen in cattle is growing by 56% globally per annum and is exceeding expectations. Cody Genetics is directly challenging the current industry practice which typically sorts sperm cells using flow cytometry. It is expensive, not 100% accurate, has a low rate of conception, and the flow cytometer cannot sort the boar sperm. The gene-editing technology offered by Cody's technology is much more efficient. For example, the earnings per bull can be increased 4-10 times from approximately USD \$200,000-300,000 to USD \$2,500,000/bull. In the swine industry, Cody Genetics addresses a huge unmet need that today has not had any solution other than the soon-to-become illegal piglet castration practice without anaesthesia.



# Breeding the Animals You Need Cont'd

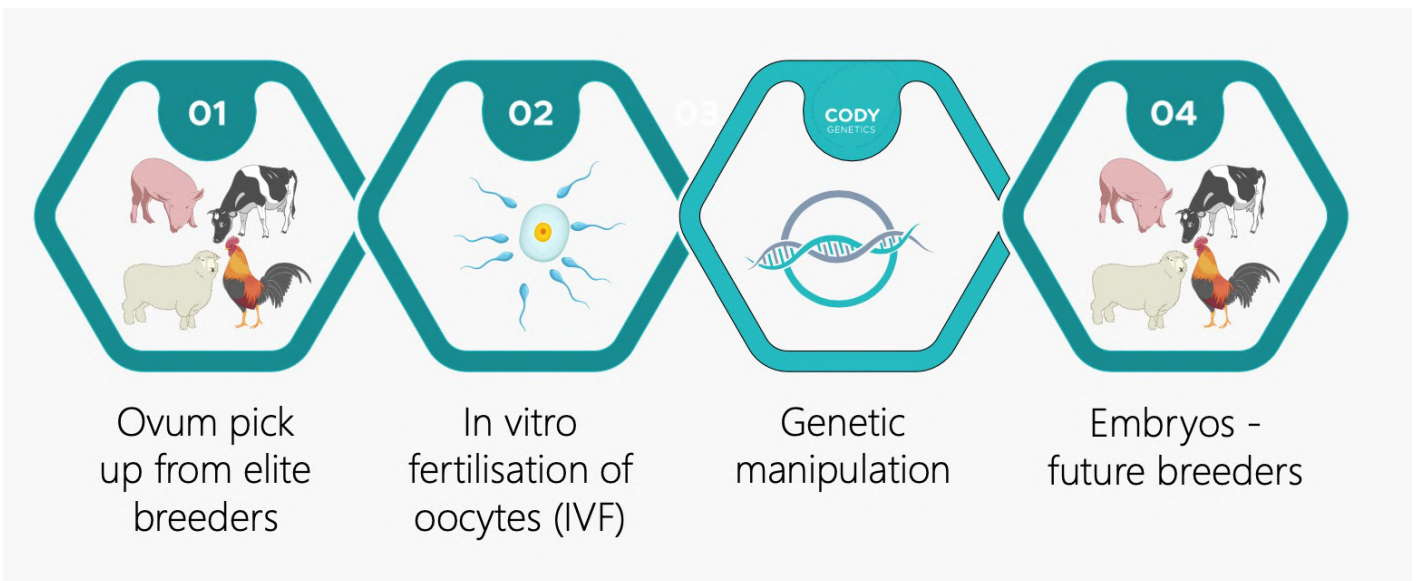
Cody Genetics will edit the embryo in a way that the future bulls and boars will be able to ejaculate already sexed semen that have the same quality and quantity of spermatozooids as normal semen. The elegance of this approach is the offspring of those breeders will not carry any gene edits or foreign DNA and are therefore considered identical to naïve animals.

Cody's business model is to become a service company receiving sperm and oocytes from breeding companies' elite animals. Cody creates single sex producing embryos from this material and either ships the edited embryo back to the breeding company or produces a full-grown animal and ships them back to the breeding company. The revenue will be generated via royalties. According to Cody Genetics, the total available market potential is up to USD \$3 billion for cattle and pigs.

This article originally appeared in Impact Entrepreneur Magazine, [www.impactentrepreneur.com](http://www.impactentrepreneur.com), <https://impactentrepreneur.com/breeding-the-animals-you-need/>



Cody Genetics is actively seeking approximately \$500K in a Convertible Loan Note to finalise its current funding round to conclude the finalise its mice work. The company will subsequently launch a next round in 2024, supported by Milltrust Ventures, for approximately \$1.2m to robustly transition into the livestock phase.



*Pictured: Cody Genetics' solution in practice. Cody generates animals that only produce progeny of the required sex. The genetic edits that Cody is using are non-heritable.*



# Green Bioactives: Revolutionising Sustainable Production of Plant-Derived Ingredients

By Alexander Kalis

Green Bioactives is leading a revolutionary approach in the production of plant-derived ingredients, utilising groundbreaking plant cell culture technology. This innovative method allows for the sustainable and reliable production of valuable plant-derived ingredients, which are integral to various applications essential to daily life, including pharmaceuticals, cosmetics, food ingredients, nutraceuticals, and crop protection products.

## Sustainable and Reliable Production

The technology developed by Green Bioactives enables the production of these ingredients without the need to destroy trees or natural habitats, addressing the challenges of obtaining such compounds at the required volume sustainably. This is a significant advancement, considering the global inclination towards natural products and the growing concern among consumers regarding the sustainability of the sourcing of their products.

## Addressing Unmet Needs

Professor Gary Loake, a world-leading plant biologist from the University of Edinburgh and the founder of Green Bioactives, identified the need to alter the production methods of plant natural ingredients. He developed this unique plant cell culture technology at the University's Institute for Molecular Plant Sciences and the Centre for Engineering Biology, aiming to overcome the limitations of current technologies that depend on culturing dedifferentiated plant cells, known for their low yield and vulnerability to stresses during the manufacturing process.

## Overcoming Challenges in Plant Product Harvesting

The conventional methods of harvesting plant natural products are often uneconomical due to low yields and the extensive time some plants take to reach maturity for harvest. They are also unsustainable and resource-intensive, causing destruction to environments, and unreliable, with supply chains being compromised by seasons, adverse weather, crop diseases, land, and water shortages. Green Bioactives' technology addresses these challenges, offering a more economical and sustainable solution.

## Product Milestones and Innovations

Since its seed round, Green Bioactives has achieved significant product milestones, including the development of GBL-Memory<sup>1</sup>, a patented memory enhancement complex containing Fructooligosaccharides and L-theanine, proven to improve Total Memory.

Furthermore, the company is set to launch GBL-Skin<sup>1</sup> Liquorice (*Glycyrrhiza glabra*) in Q4 2023, a highly sustainable skincare ingredient produced using their Plant Cell Culture Technology. Another notable innovation is GBL-Skin<sup>2</sup> Saponin (*Quillaja Saponaria*), a natural emulsifier for use in cosmetic products, highlighting the versatility and sustainability of their technology.

## Outlook

Green Bioactives is at the forefront of sustainable innovation, transforming the production of plant-derived ingredients through its pioneering plant cell culture technology. By addressing the unmet needs in the production of plant natural ingredients and overcoming the challenges associated with conventional harvesting methods, the company is not only meeting the growing demand for natural and sustainably sourced products but is also contributing to the preservation of natural habitats and biodiversity. The advancements made by Green Bioactives are paving the way for a future where sustainability and innovation go hand in hand in delivering products essential to our daily lives.

Green Bioactives is planning a £1.25 million fundraise to significantly expand its production capacity and meet the growing demand for its sustainable products like GBL-Skin<sup>1</sup>. This follows a £2.6 million seed raise in 2022 in which Milltrust Ventures participated. The company intends to intensify sales in Europe and North America, targeting the rising market for sustainable and natural products in these regions.



# BugEra: Bio-Fuel of the Future

In July 2022, Milltrust announced its investment into BugEra – an Insect Biotechnology company harnessing the natural potential of insects for novel bio solutions and a sustainable future

By Alexander Kalis & BugEra

BugEra develops and produces innovative strains of Black Soldier Fly (BSF) and specialises in genetic engineering for insects, enhancing the fly's natural traits through genetic editing and modifications. This has led to the creation of the patent-pending Modified Black Soldier Fly (M-BSF) Platform. The oil derived from BSF is highly suitable for the biofuel industry, including biodiesel, renewable diesel, and Sustainable Aviation Fuel (SAF), with the demand for the latter two expected to quintuple by 2024. However, this growth is limited by the availability of biomass.

The price of soybean oil, a conventional source of biofuel, has surged from USD \$660 per tonne in 2018 to over USD \$1,400 per tonne in 2021. BugEra's technology bridges the BSF and biofuel industries, offering an alternative to crop oils and promoting organic waste recycling. The M-BSF Platform facilitates the development of sustainable and safe products and supports the expansion of the BSF industry by endorsing organic waste upcycling and circular economy principles. BugEra's business model is noted for its sustainability and flexibility, requiring minimal infrastructure overheads. Milltrust has chosen to invest in BugEra after assessing over 60 Black Soldier Fly producers, following a previous investment by a leading US-based biofuel producer.

## A Look into the Black Soldier Fly

**Insects are rising stars in the world of agriculture and food tech alike.** They provide a sustainable source of protein and need minimum land and resources. Among them, the black soldier fly is gaining momentum. It is praised for its composting abilities and high-quality protein content.

BugEra is currently in a pre-seed round, having previously secured investments from notable entities including Milltrust Ventures, with \$0.7m still open. They are actively planning a subsequent \$3.7m seed round to further their biotechnological developments, specifically around the M-BSF Platform and the BSFx2 strain.

**What is the Black Soldier Fly used for?** Alternative protein: they are a great source of animal protein for humans and animals alike. When dried, they contain up to 50% of high-quality protein. Animal feed: animals, especially chickens, love them. Black soldier fly larvae not only provide nourishment, but also a natural, stimulating pastime. After all, ranging for insects is much more fun for hens and positively impacts their welfare. Waste management and composting: they can eat almost any organic waste, making them perfect for dealing with discarded foods or agricultural wastes.

**Why does this matter?** The fact that adult black soldier flies would not attack crops is very important. This means that the risks associated with a BSF colony getting out of hand are very low. They will not attack crops or disrupt the local ecosystems. The fact that adult black soldier flies would not attack crops is very important. This means that the risks associated with a BSF colony getting out of hand are very low. They will not attack crops or disrupt the local ecosystems.

**Is Black Soldier Fly farming sustainable?** Insects need much less water, land, and energy to produce the same amount of feed as soy – a popular protein source for poultry farms nationwide. They also thrive in densely populated environments. What's more, you can farm black soldier flies locally, close to where they are needed. Soy on the other hand usually comes from South America, including areas with high deforestation risk. It travels for thousands of miles, contributing to more carbon emissions.

**How nutritious are they?** The black soldier fly larvae contain up to 40% of high-quality protein, as well as necessary vitamins, fats, and amino acids. They are also rich in antimicrobial, medium-chain fatty acids which have proven gut health benefits. Their shell is made of chitin, which is a great source of fibre that further boosts gut health.

# SPOTLIGHT ON THE FOOD INNOVATORS



## Roslin Technologies: How Cutting-Edge Science Can Solve the Looming Protein Crisis

By Alexander Kalis

With the global population expected to reach 9.7bn by 2050, demand for food is set to increase by over 70% over the coming decades. To meet this demand, it is estimated that meat production will need to double whilst dairy & fish production will need to almost triple. Simultaneously, we will have to manage the ongoing effects of climate change that come with livestock methane emissions, as well as the land and water use involved in traditional livestock farming. This looming protein crisis presents major environmental and food security concerns for the world, which only cutting-edge science can help to address. Cultivated meat offers a viable solution while also contributing to some of the key UN Sustainable Development Goals, including (3) Zero Hunger, (13) Climate Action, (14) Life Below Water, and (15) Life on Land.

Enter Roslin Technologies. Launched in 2017 as the largest European AgTech start-up, Roslin Tech is based in Edinburgh's Midlothian Science Zone, the largest single concentration of animal science in Europe. The company has a close partnership with the Roslin Institute, part of the University of Edinburgh in Scotland, which is famous for cloning Dolly the sheep.

Today, Roslin Tech develops disruptive biotechnologies for the AgTech and FoodTech markets with the aim to improve how we produce proteins. They are driven by a vision of the world where everyone has access to affordable, nutritious, and responsibly produced food. Roslin Tech estimates that just cultivated meat alone can reach a value of USD \$25-100bn by 2030 with further alternative protein markets being developed.

Roslin Tech's core capabilities are in animal stem cells and genomics. They have developed the world's first perpetually self-renewing, pluripotent stem cells for animals that will accelerate the development of cultivated meat. Their unique technology allows for the development of cell lines from multiple species including pig and cow. Additionally, they also work on superior breeding stock for insect protein production, another key piece of the alternative protein market.

Cultivated meat (also known as cultured or lab-grown meat) is comprised of animal cells, but grown outside of the animal in controlled laboratory settings. Cells are isolated via simple biopsy from a living animal and then cultured in vitro, without harming the animal.

By adding specific factors into the media, the cells are then grown over time. They are stimulated to differentiate into muscle or fat, or other types of cells as required. Following this, the cells are harvested and assembled into a traditional meat format with the help of tissue engineering.

The main challenge with producing cultivated meat today lies in the expenses involved in scaling up the production to meet the growing demand for food. The volumes of stem cells currently being produced are optimised for small-scale applications. When it comes to manufacturing the quantity of cells needed for commercial food supply, the costs involved increase until economies of scale are reached.





# How Cutting-Edge Science Can Solve the Looming Protein Crisis Cont'd

The lack of publicly available cell lines is the key gatekeeper in getting new companies to enter the field however, and commercially available iPS cell lines are a key requirement for the cultivated meat industry going forward. This is the area in which Roslin Tech has chosen to dedicate its resources, positioning itself as the first-to-market provider to these aspiring new ventures. Moreover, the stem cells produced by Roslin Tech are undifferentiated cells that have the intrinsic capacity to self-renew, meaning they can continuously divide and develop into the different types of cells required by the cultivated meat industry.

Another challenge is optimising the taste and nutritional value of cultivated meat. Further research in profiling the cells is required for producing more complex meats like a steak which has a more intricate texture and flavour profile versus a hamburger patty, for example.

Despite such challenges, Roslin Tech's understanding of stem cells and their cultivation has been rapidly evolving and has continued to grow since cultivated meat was first unveiled in 2013. As these cell lines begin to be mass-produced, the costs of the technology involved is expected to fall, which in turn will help the technology to be widely adopted by the marketplace.

The worldwide meat market is worth USD \$945 billion per annum and the new 'meat alternatives' market, such as plant-based meat recently hyped by the likes of Beyond Meat and Impossible Burger, is estimated to generate USD \$3.2 billion per annum, with a predicted annual growth of 17%.

Comparably, Roslin Tech predicts that cultivated meat, an industry that has already received over USD \$500 million in investments over the last 3 years, could expect a similar market size and growth trajectory once commercialised, and potential hybrid products will allow for even greater market penetration.



*Pictured: Roslin Technologies lab  
 Source: Roslin Technologies*



This article originally appeared in Impact Entrepreneur Magazine, [www.impactentrepreneur.com](http://www.impactentrepreneur.com), <https://impactentrepreneur.com/how-cutting-edge-science-can-solve-the-looming-protein-crisis/>

Recognising the significant opportunity in Smart Proteins, Milltrust has partnered with Earth First Food Ventures to launch the Smart Protein Fund. This fund aims to provide the necessary financial resources to companies in the alternative protein space, allowing them to expand their operations and bring their products to market.



*Pictured: Milltrust and partners Earth First Food Ventures impressed with Ivy Farm's cultivated meat tasting*



*Pictured: Milltrust and partners Earth First Food Ventures Team on cultivated meat lab visit with Ivy Farm in Oxford*

# From Sugar to Steak: The Magic of Precision Fermentation

By Laurence Ingles-Le Nobel

At Milltrust, we understand that the future of food production is of paramount importance as the world population continues to grow, and the pressure to produce food in a sustainable manner increases. The reduction of dependence on traditional farming methods is crucial to meet the demands of the future. One of the many answers, with its cost-effective and sustainable approach, may be precision fermentation.

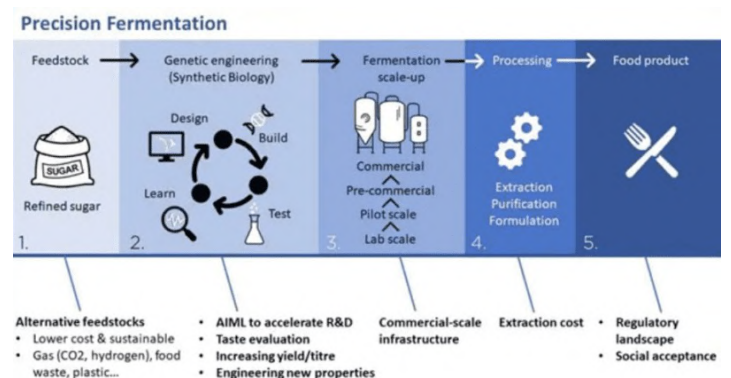
Precision fermentation saw a meteoric rise in 2022, propelled by the surging demand for sustainable and alternative food production methods. In particular, the dairy industry embraced precision fermentation technology with open arms, driven by the need to address their own greenhouse gas emissions after years of the spotlight solely being on the meat industry. Investment in alternative dairy, specifically fermented protein and not plant-based, has seen a significant increase in recent years. In 2015, 2016, and 2017, funding for this area was under \$25 million each year. By 2021, funding had reached an all-time high of \$1.7 billion [Pitchbook FoodTech report 2021]. The most significant transactions were two late-stage rounds, each totalling \$350 million, for Nature's Fynd and Perfect Day. The numbers are impressive; the Global Precision Fermentation Market size is expected to reach \$11.8 billion by 2028, rising at a market growth of 41.5% CAGR during the forecast period.

Across the alternative protein industry, precision fermentation is growing the quickest, representing 1.5m tonnes of new capacity every year or 4,000 tonnes per day [Pitchbook AgTech report 2022]. From China to India to the Middle East, precision fermentation start-ups are proliferating globally, indicating the growing prevalence and investment in this technology across various regions and industries.

Fermentation has been used in food production for hundreds of years; for example, beer, wine, yogurt, bread, cheese, pickles, sauerkraut, kimchi, soy sauce, miso, and many more. The three main types of fermentation — biomass, precision, and gas — each have their own unique advantages when it comes to producing alternative proteins. Biomass fermentation is the most common type of fermentation, and it involves the use of microorganisms to convert organic matter into a variety of products. Gas fermentation is the second type of fermentation, and it involves the use of microorganisms to convert gases, such as

carbon dioxide, into valuable alternative proteins. Precision fermentation, heterologous production, is a targeted approach that genetically modifies microorganisms to create specific alternative proteins, such as enzymes, antibiotics (penicillin has been created this way for decades), and now food. It aims to produce high-quality alternative proteins, similar to traditional food sources, at a lower cost, and with minimal environmental impact.

Precision fermentation involves using microbes as cell factories to produce specific ingredients by manipulating their DNA through strain engineering. This allows for the directed production of a desired molecule or compound, such as a protein, by altering the host organism's genetic instructions. Initially, the microflora and genetic blueprint responsible for producing the targeted substance are obtained. These are then incorporated into a fermentation vessel containing water, essential nutrients, and a carbohydrate substrate. These tanks are frequently of substantial size, akin to industrial structures. The microorganisms metabolize the sugars, forming the desired product, which is subsequently purified and dried into a powdered form. This powder, by no means the finished product, can be incorporated as an ingredient in other products, such as plant-based protein or cultivated meat. Many companies are already benefitting from precision fermentation; for example, Every (egg proteins), Geltor (collagen and gelatin), Mycotechnology (meat and dairy), and Perfect Day (milk protein).





# The Magic of Precision Fermentation Cont'd

In traditional farming, the animals are the bioreactors. Animals eat basic food grains and then convert them into nutrients. However, you have a limited control over the production process, unpredictable results, risk of pathogenic transmission and animal-borne pathogens, and a much higher environmental impact. Precision fermentation will never fully replace traditional methods and nor should it, however it does help solve these issues, it uses 99% less water, 97% less greenhouse gases, and up to 60% less energy use than the exact same process through animals [Perfect Day, Inc.].

Optimising the type and cost of the substrate used to feed the microbes is crucial for achieving economic viability and sustainability in fermentation processes, as it is one of the major expenses for most companies in the industry. Currently, sugars are the predominant substrate employed within the fermentation industry. As the field progresses, an increasing number of companies are likely to adopt methanol as a substrate. The utilization of methanol as a raw material is sustainable (not always, but it can be produced in an environmentally friendly manner) and has advantages over gaseous fermentation, such as its liquid form, which makes it more amenable to fermentation.

Scaling up precision fermentation technology currently poses three main challenges: achieving a cost-competitive price for sustainable protein compared to traditional sources, supply of the bioreactors themselves (currently only large multinationals such as DuPont and Cargill supply them), and regulatory hurdles.

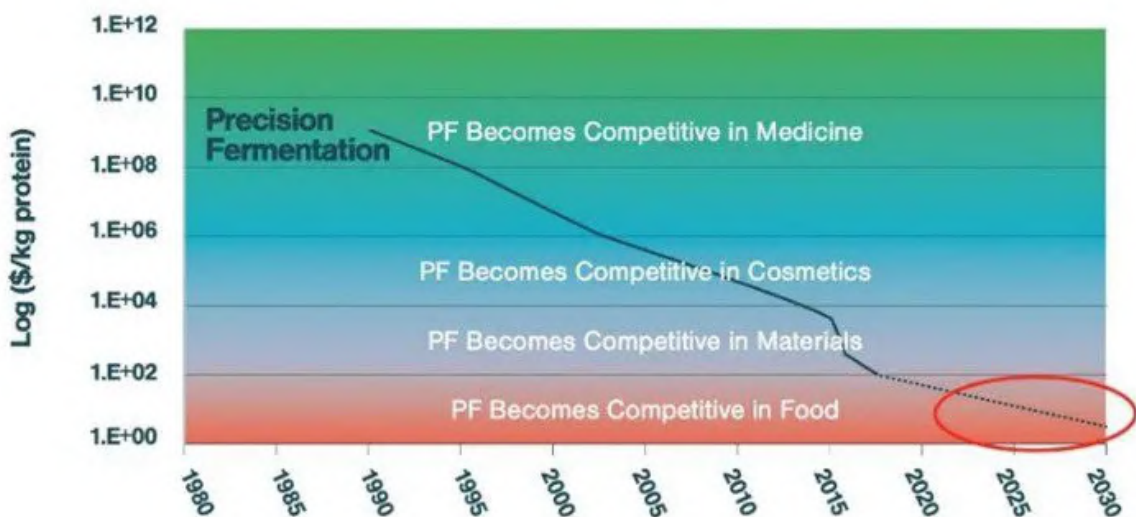
Liberation Labs is a company that addresses the issues related to scaling up precision fermentation; their 600 and 4,000 M3 facilities are purpose built for precision fermentation, driving reduced cost, increased yield, and process efficiency for novel food manufacturing. The company recently closed a \$20m seed funding round, led by Agronomics and Siddha Capital, to continue their efforts in this area.

To conclude, precision fermentation is a technology that has the potential to revolutionise the way we produce food. Its ability to produce high-quality ingredients that are identical to traditional food sources, at a fraction of the cost, and with a reduced environmental impact makes it an attractive option for food manufacturers.

This article originally appeared in Impact Entrepreneur Magazine, [www.impactentrepreneur.com](http://www.impactentrepreneur.com), <https://impactentrepreneur.com/from-sugar-to-steak-the-magic-of-precision-fermentation/>



**Figure 5. PF Disrupting More Industries as Costs Fall**



*Pictured: Scaling up process; Source: RethinkX*



# Revolutionising the Palate: Shandi Global's Pioneering Plant-Based Shawarma

A Culinary Innovation: Sustainable, High-Protein, and a Gastronomic Delight

By Alexander Kalis

In the diverse culinary world, Shandi Global, a leader in plant-based culinary development, has launched an innovative plant-based shawarma. This creation is expanding the realms of vegan cuisine and was proudly presented at Byblos Grill in Singapore during a week-long culinary event, drawing international attention.

## **A Blend of Flavours: FOREVER by Shandi**

The shawarma, part of the FOREVER by Shandi range, was first introduced at the respected FHA Food & Beverage 2023 in April. It has since explored various culinary scenes, appearing in the lively night markets at the University of Melbourne through collaborations with UMSU International and the Melbourne Alternative Protein Project.

## **Pursuit of Excellence: Dedication to Quality**

Located in Singapore, Shandi Global runs a cutting-edge manufacturing facility where advanced high moisture extrusion shapes unique plant-based specialties. A team of culinary experts is committed to developing high-quality products, enabling Shandi Global to align its prices with traditional meat, balancing affordability and excellence.

## **Culinary Strategies: Broadening Boundaries**

Shandi Global is weaving its innovative products into the culinary traditions of Southeast Asia, Australia, and Canada. Its creations are featured in 22 outlets in Singapore and included in 2,000 school meals every day. The strategic introduction in Australia has received notable recognition in the vegetarian community, with competitive pricing facilitating market penetration.

## **Financial Growth: Self-Sustained Expansion**

Shandi Global is experiencing swift growth, with a current Annual Recurring Revenue (ARR) of approximately \$3M, expected to escalate to \$8M by the end of the year, propelled by recognition in Australia. The company has been self-financed, but the success in exports requires an increase in working capital and diversification to manage this growth carefully.

## **Creative Integration: Protected Culinary Techniques**

Shandi Global employs a distinctive 5-patent process, incorporating natural, non-GMO ingredients like pea protein, chickpeas, quinoa, flax seeds, brown rice, and coconut oil. The company's plant-based chicken, with a 30% protein content, aligns with the protein content of real chicken meat. The innovative removal of the "beany" taste enables Shandi Global to produce a product that closely resembles chicken in flavour and texture.

## **Visionary Approach: Affordable and Sustainable**

With a focus on sustainability, affordability, and nutrition, Shandi Global aims to produce culinary creations that appeal to a wide range of tastes and are available to everyone. The company collaborates with renowned flavour and quality houses like Givaudan and Callebaut to ensure the precision of each culinary element.

## **Culinary Prelude to the Future**

Shandi Global is leading a culinary transformation with its high-protein vegan shawarma, introducing a new chapter in the plant-based culinary narrative. The company's commitment to developing culinary innovations is a promise of a future where sustainability and creativity coexist, meeting the increasing demand for plant-based options. The strategic expansions and partnerships are contributing to a new trend in the culinary world, promoting plant-based diets as a global culinary preference and encouraging a sustainable and inclusive food environment.

Shandi Global is currently going through a Series A fundraising round led by Milltrust International, targeting USD 10 million. The company has been backed by investors such as Tolaram Group and Brinc. This move is strategic to enhance working capital and oversee expansive growth.



# British Care Investments

British Care Investments (BCI) is a healthcare real-estate investment vehicle created with aim of providing shareholders with an assured return supported by solid contractual agreements through investment in a diversified portfolio of care home assets in the United Kingdom and leasing them to 'Tier 1' operators.

The Fund is the result of a unique collaboration between experienced real asset manager Milltrust International and world-renowned care home operator, AcalisCare.

BCI will provide shareholders with a combination of an attractive contractually assured yield and capital appreciation by investing in a diversified portfolio of care home assets in the United Kingdom. Coupon targeting of 5.75% average returns with a total return expectation of >7% per annum.

Significant tailwinds are being driven by demographic changes, consolidation of smaller homes, a new regulatory framework (CQC), demand and supply imbalances, and increasing demand for high-quality care home accommodation.

Launching end of Q4 2023 with a pre-identified portfolio of high-yielding assets, BCI provides a unique opportunity for shareholders to capitalise upon the current unique market conditions:

- A growing demand for care homes,
- Limited supply of care facilities that will not meet that demand,
- Increased requirements for specialist care,
- A highly fragmented market that presents unique opportunities in and of itself.

The growth in demand comes from that fact that the population of elderly people (aged 75-84) is forecast to almost double over the next 50 years, from 6 million to 12 million. The over 85 population group are expected to double within only 20 years to 3.4 million. In addition to this, most of these individuals will spend that last 15 years of their life with some ill health.



Milltrust brings a **13-year track record** in managing investments, including Public Funds and Private Funds.

AcalisCare brings **18 years of Care Home management across the Globe** and has the required expertise to improve and manage care homes effectively. The team is highly experienced in sourcing, managing and exiting properties in the Care Home sector.

**Together, we combine world-class expertise in investment and care home management to bring you British Care Investments.**

Dementia is an example of a disease prevalent in the elderly population. 1.5 million people are expected to live with dementia in the UK by 2050, and just under 40% of people in the UK with some form of dementia are living in care homes, which increases the demand for specialist care.

Although the demand for care homes and specialist care is clear, there is a **failure of supply to match this rising demand**. There has been a 17% decrease in the total number of beds from 2012 to 2021; from 11.3 to 9.4 (beds per 100 over 75s). More than 100,000 new beds will be required in the next 10 years, with an estimated for 350,000 in 2050. **The COVID-19 pandemic has exacerbated this shortfall, lowering the number of registered care home beds by 2.4%.**

The quality of care in existing care homes is highly fragmented, as most of the market is constituted of small or single owner care homes. According to the CQC 21% of homes are either 'inadequate' or 'need improvement'. **This presents opportunities for consolidation and improvement in both professionalism and in efficiencies.**

# What Drives Our Team

In a recent interview, CEO, Simon Hopkins discusses the genesis of Milltrust International and what motivates our team.

**Impact investing and sustainable prosperity have been central themes in your career, particularly through Milltrust International. What are some of the most significant positive outcomes or impacts you've witnessed from these initiatives, and how do you measure success in terms of sustainability and social responsibility?**

My early career as an investment banker gave me a taste of how important it is to stand up for the rights of shareholders when powerful actors conspire to undermine the rights and interests of less powerful or minority investors. However, our more recent focus on championing the shift to net zero and a decarbonised planet far exceeds all my prior campaigns in terms of the order of magnitude of the threat and indeed the challenge.

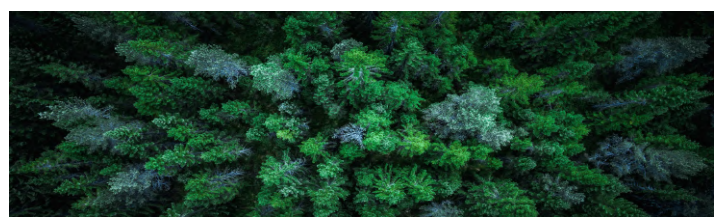
In recent weeks Gallup published the Hope Index, a poll which today shows that pessimists exceed optimists by the highest margin since polling began in 1999. Yet who could be blamed for the notion that we are heading for some sort of apocalypse when one consumes mainstream media. The BBC for example is forever trumpeting the immigration crisis, when in fact we have a shortage of labour never previously witnessed. The war in Ukraine and the impact on inflation and gas prices are blamed for the economic malaise, and yet most commodity prices including oil and gas have fallen below levels seen prior to the conflict. Most people seem to believe that global poverty is on the rise, when in fact despite the COVID economic shut down, it is actually on a long-term downward trend. Livelihoods are for the most part improving, and so is the shift to alternative energy, with more capacity set to come on stream in the 5 years through to 2027 than the entire power capacity of China today. Much of this change is happening in China from where we have a bird's eye view.

Furthermore, the adoption of new technologies that will have a marked benefit on the health of the planet and its population of both humans and animals is also reason to be cheerful. Most of the news around AI for example has been scaremongering about the likelihood of it taking over from humans. Meanwhile, it has given new impetus to drug discovery and helps understand the linkages between lifestyle, diet and genetics, and congenital disease progression, where lifestyle and dietary changes can, in fact, allay the onset of disease.

**Milltrust Ventures focuses on long-term secular themes like Health, Food, and Planet. How do you identify and prioritise promising investment opportunities within these sectors, and what qualities do you look for in innovative companies or startups seeking funding?**

If there is a single objective to what we are trying to do at Milltrust, it is to try and leave the world a better place that we found it. We call this sustainable prosperity, and at the root of this concept is health of the planet, our food systems and ultimately the human race – we have labelled this concept – “One Health”. This is the other end of the spectrum to Climate Impact, where the impact of our capital is measurable on global emissions reduced or litres of water saved. Here, these massive challenges can seem dauntingly out of reach for the relatively small sums of money we are investing - the apparent futility of the recycling movement, the unassailable challenge of our dependence on fossil fuels and the powerful lobbies that preserve the status quo, or the profligacy with which the human race consumes and disposes of goods with reckless abandon. We can't live in healthy co-existence with a broken food system where almost a billion people are, on the one hand malnourished and live on less than a dollar a day, and yet the affluent societies are plagued by obesity and heart disease caused by the wrong sorts of food.

Whilst our rivers and oceans are polluted by micro plastics and chemicals, little appears to change and the good intentions of a small number of adopters of more responsible practices are dwarfed by the massive growth in plastic usage, which seems inexorable. Ultimately, our health priorities need to be completely turned on their head, with a greater focus on prevention rather than extending life by a few months and pandering to Big Pharma's greed-driven agenda. Big Pharma has corrupted government policy, and yet government should be there to serve as the checks and balances that prevent any egregious, commercially-driven agenda.





# What Drives Our Team Cont'd

**From your diverse roles and board memberships across different organisations, you've been involved in supporting breakthrough science, innovation, and social causes. How do you balance your time and commitments between these various endeavours, and what motivates you to engage in such a wide range of activities?**

My professional life has taken me around the world with stints in France, Hong Kong, Singapore, Latin America and Africa. In this respect I have been deeply fortunate. For as long as I can remember, I had wanted to travel and explore the planet. This has given me a tremendous vantage point from which to garner a better understanding of how the world works, from grand designs of globalisation to the very parochial world of smaller, less connected nations. Whilst few countries can entirely escape the long reach of the modern world, the contrasts have become starker with many countries slipping back in terms of economic development, simply unable to compete on a global scale.

Selling my first asset management endeavour, Fortune Asset Management to London-listed Close Brothers in 2006, gave me the freedom to refocus the next decade of my life on the developing world, with stints on the boards of some of the largest investors in Africa and China. The current decade is a new journey, bringing to bear the relationships I have built on several continents to the companies we are backing in the areas you outline above.

The rewards associated with being an owner (albeit a minority owner) of these companies is another order of magnitude in satisfaction for me, when one recognises that our own funds have contributed to the improving livelihoods in parts of the world that have become part of one's personal human experience.

**Beyond your professional endeavours, what are some of your personal goals and passions that you hope to pursue in the coming years? How do you strike a balance between your personal interests and the demands of your diverse professional responsibilities?**

What I have learned, contrary to popular belief is that being in an entrepreneur is not without stress. However, it's not the type of stress that comes from working for people whose values and motives are at odds with yours, or that you simply don't like them breathing down your neck. It's the stress associated with the constant involvement that owning and running a business entails. It's literally impossible to put down for any length of time. Fortunately, I am doing what I love, investing into themes and ideas I am passionate about, and with the support of my team, my wife and kids, hopefully making the world just a little bit better than how we found it.



## Investment Team



**Simon Hopkins**, *CEO & Founder, Milltrust International Group*

Simon has been a distinguished figure in the international investment management industry for over three decades. He began his career at S.G. Warburg and UBS, and occupied senior positions at HSBC James Capel and Nomura. Subsequently, he founded, developed, and exited an award-winning alternatives investment advisory, Fortune Group, which was acquired by LSE-listed Close Brothers Group. In 2010, Simon established sustainability-focussed Milltrust International in Singapore, with its mantra of "Sustainable Prosperity". It operates an award-winning, FCA authorised, investment platform concentrating on three key secular themes: the evolution of Emerging Markets, with long-term ESG focussed investments across 32 developing countries, Agricultural Investments, and Science & Technological Innovation. Since 2016, the Singapore-based Venture Fund Management Company, Milltrust Ventures, a Milltrust affiliate regulated by the Monetary Authority of Singapore, has made over 80 successful private investments focussed principally on the themes of Health, Food and Planet. The public equity funds managed by the group include the multi award-winning Global Emerging Markets Fund range and Climate Impact Asia Fund. Simon acts as an adviser to the board and was previously an investment manager at CerraCap Ventures, an early-stage technology investor based in California. He is chairman of the board of Swallowcourt Holdings, a UK social care operator, and until 2022, was a founding director of Roslin Technologies (University of Edinburgh). Simon was also a founding director of Novare Fund Manager, one of the largest indigenous African asset management firms, and CITIC Investment Partners' One Belt One Road Fund. Today, he resides in Singapore where he chairs the global multi-family office East West Private Wealth, and Milltrust International Group. He is a member of NUS Medicine International Council, Singapore, where he contributes to the Kickstart investment committee, aiding and mentoring breakthrough science. He earned his degree with honours from the University of Bristol's Faculty of Law in 1986, and in 2017, Simon completed the FT Non-Executive Director Diploma in Hong Kong.



**Alexander Kalis**, *Group Managing Director & Co-Founder, Milltrust International Group*

Alexander Kalis holds the position of Managing Director & Co-Founder of Milltrust International Group which also includes Milltrust's global multi-family office, East West Private Wealth. In his capacity as Group Head of Investments & Sustainability, he oversees the investment teams, which operate across both Public Equities and Private Markets. Within the Public Equities sector, Alexander co-manages the multiple-award-winning Climate Impact Asia Fund. This trailblazing environmental impact equity fund, launched in partnership with WWF-Hong Kong, has been a significant initiative, with Alexander playing an instrumental role in its inception. Additionally, he shares portfolio management responsibilities for the Milltrust Global Emerging Markets Fund. In the realm of Private Markets, Alexander spearheads the Group's venture capital investments with a focus on Food, Health, and Planet. He serves as Portfolio Manager of Milltrust's Venture Capital and Real Assets funds, notably The British Innovation Fund II and British Care Investments. He also oversees Milltrust's co-investment platform, offering unique direct investment opportunities in ground-breaking early-stage companies to professional investors. Prior to the acquisition in November 2021 of Milltrust's AgTech and Science-centric subsidiary, Milltrust Agricultural Investments, Alexander managed the \$100m British Innovation Fund I and the MAI Buy & Lease Australia and New Zealand farmland funds. Separately, Alexander serves as an Independent Expert at EIT Climate-KIC, Europe's premier public-private partnership dedicated to addressing climate change through mitigation and adaptation strategies. This institution is backed by the European Institute of Innovation and Technology. With a professional journey spanning over two decades, Alexander has been associated with elite asset management entities such as Edmond de Rothschild Asset Management and Santander Asset Management, managing several USD billion in assets for institutional clients. He founded Think Alternative Advisors LLP, an Emerging Markets research and advisory firm, which later merged with Milltrust International Group in 2010. A polyglot, Alexander is proficient in English, French, and Dutch. He is an alumnus of the Université Catholique de Louvain in Belgium, where he earned a Master's in Management, graduating with honours.



**Eric Anderson**, *Managing Partner, Milltrust International LLP*

Eric Anderson is Managing Partner of Milltrust International LLP. He serves as the Head of Multi-Asset Public Investments and Global Asset Allocation at Milltrust, and he is also the Portfolio Manager of the flagship Milltrust Global Emerging Markets Fund. Eric is the architect behind the Milltrust Emerging Markets Platform. The award-winning Milltrust Global Emerging Markets Fund has been in the top decile of its peer group since its inception, according to data compiled by Bloomberg. Eric brings over two decades of international investment industry experience from the United States, Europe, and Asia. He has a successful track record in building an award-winning asset management business and an industry-recognized investment research and consultancy firm. Eric was previously Managing Partner at Think Alternative Advisors LLP, an Emerging Markets research and advisory firm which was acquired by Milltrust International Group in 2010. Before that, he was employed at Credit Suisse, Ortus Capital Management, and State Street Global Advisors. Eric holds a degree in International Economics from the University of California, Berkeley.



**Dr Bernard Ng**, *Chief Scientific Officer, Milltrust Ventures*

Dr Bernard Ng is a leader in medical and clinical affairs with extensive experience on global, regional, and local levels in the Pharmaceutical and Consumer Health industry. He previously held the esteemed position of Vice President, Head of Global Medical & Clinical Affairs for Bayer Consumer Healthcare. Bernard is an active advocate for leveraging digital technologies and data to create disproportionate value for healthcare professionals, patients, and consumers. He obtained his Doctor of Medicine from the National University of Malaysia and his MBA from the University of Melbourne. Bernard is a staunch believer in the Disruptive Strategy model by Clayton Christensen from Harvard Business School. To deepen his understanding of the disruptive power of platforms in today's competitive environment, he also attended a digital transformation course at IMD, Lausanne.



**Hadyn Craig**, *Director & Portfolio Manager, Milltrust Ventures*

Hadyn Craig serves as a Director & Portfolio Manager at Milltrust Ventures. An experienced agriculture and investment professional from New Zealand, Hadyn brings two decades of experience in the international agri/food sector, covering multiple markets in Asia Pacific, Europe, and the Americas. He harbours a passion for long-term opportunities in the natural capital sector, directing capital towards innovations and initiatives that contribute to sustainable growth. Hadyn's career originated in New Zealand, involving agri service business and the management of farms and real estate assets. He has been associated with New Zealand's largest meat processing company, Silver Fern Farms. Presently, Hadyn is dedicated to identifying leading innovations for the British Innovation Fund II as a member of the Milltrust Investment Committee and is developing investment initiatives that contribute to improved outcomes for natural capital.



## Investment Team (Cont'd)



**Harry Paul**, *Principal, Milltrust Ventures*

Harry Paul is a life science investor with over 30 years of executive experience in the sector. He has held several international commercial and management roles at Roche and Boston Scientific and most recently served as the CEO of Tharos, an animal health start-up specialising in gut microbiome research. Additionally, he runs his own consulting company, advising health sector companies on international business development. Beyond his expertise in life science, Harry has also invested in agriculture in Latin America and has played a pivotal role in developing several investment projects in the region. He collaborated closely with Milltrust on their agricultural assignments in Latin America from 2013 to 2015. A keen linguist, Harry is proficient in Spanish, Portuguese, French, and Italian. He holds a degree in Genetics and Microbiology from Leeds University.



**Celine Lin**, *Associate, Milltrust Ventures*

Celine Lin joined Milltrust International Group in Singapore as an Associate in October 2022. Before becoming a part of Milltrust, she completed several internships at financial institutions in Singapore, including Golden Gate Ventures and Startech Global Ventures (Sinar Mas Family Office), and also at the Longhu Technology and Innovation Center in China. Here, she evaluated early-stage VC deals, pre-IPO transactions, and Fund of Funds investment opportunities. At Milltrust, Celine concentrates on evaluating investments and generating ideas in both public and private equity, as well as on general business development across the three verticals of emerging markets, climate impact, and healthcare. She holds a master's degree in Technopreneurship and Innovation from Nanyang Technological University and an undergraduate degree in Finance from Hong Kong Baptist University, where she was awarded the "Scholarship for Excellent Student". Celine, a Chinese National, is fluent in English, Mandarin, and Cantonese.

## Family Office Team



**Dennis See, Director, East West Private Wealth & Founder, First Estate Capital Management**

Dennis See is the Chief Executive and Founder of First Estate Capital, which East West Private Wealth operates from in Singapore. Dennis leverages his vast experience in the fund management industry to develop innovative products and fresh direction for the company. Dennis started out as an economist/analyst at JM Sassoon & Co and was soon spearheading the Singapore/Malaysia Research for the Sun Hung Kai Securities Group in the early 1980s. New York heavyweight Chemical Bank appointed Dennis as Director of Asia Pacific Research and a member of the Investment Committee in the Trust and Investment Division from 1982 to 1986. He spent the next eight years with the Banque Indosuez Group to build both the Private Banking operations and the Asset Management subsidiary in Singapore. In 1994, Dennis started PointWorth Management, one of Singapore's first exempt-license fund-managers and went on to secure several mandates and awards. PointWorth Management was dissolved by shareholders agreement in 2012 and Dennis joined the Milltrust International Group as executive director of their Singapore subsidiaries where he helped to formulate, advise and experience the group's launches of various products and services in fund management and family office investments.



**Gary Dugan, CIO, East West Private Wealth**

Gary Dugan is a seasoned investment professional with a wealth of experience spanning 38 years, with a geographical focus on Europe, the Middle East, and Asia. He has a well-established history in the field, having served as Chief Investment Officer at several renowned institutions, a testament to his profound knowledge and insight into the industry. Gary initiated his journey in the financial sector in London, where he underwent extensive training with premier asset management firms. In 1993, he joined JPMorgan Securities as a European equity market strategist. Here, he distinguished himself by producing innovative research on corporate restructuring and earned recognition as a trusted advisor to eminent sovereign wealth funds and the European Parliament. Subsequently, Gary assumed the role of head of multi-asset portfolios at JPMorgan Asset Management. In this capacity, he managed investments for notable mandates like the GIC and the Brunei government and offered his counsel to JPMorgan's Private Banking business, showcasing his multifaceted expertise. Gary has also held significant CIO positions at Barclays and Merrill Lynch and has been instrumental in shaping the financial landscape in the UAE, collaborating with some of the region's largest banks. His contributions were acknowledged when he was named Private Banker of the Year in 2015 (MENA). Known for his astute market foresight, Gary accurately foresaw bear trends in equity markets in 1987, during the tech boom, and amidst the 2007 financial crisis. He also made a bullish call on equity markets on March 17th, 2009. Currently, Gary is the CIO at East West Private Wealth. Before this role, he was the CEO of Purple Asset Management and founded The Global CIO Office, an enterprise offering outsourced CIO services, reflecting his commitment to delivering premium financial advice. Gary is a recognised voice in the media, frequently contributing to notable publications and television programs, and is a valued speaker at conferences, offering his perspectives on macro and investment themes.



**Ghada Ragheb, Managing Director & Senior Relationship Manager, East West Private Wealth**

Ghada Ragheb, a seasoned and accomplished senior private banker, serves as a Managing Director and Senior Relationship Manager at East West Private Wealth. With over 15 years of profound experience in private banking within the Middle East region, Ghada has a distinguished track record of establishing and maintaining enduring relationships with Ultra High Net-Worth clients and eminent families, regularly managing a book of USD \$400M of AUM and averaging an annual revenue generation of USD \$4.5M. Before joining East West Private Wealth, Ghada held the role of Director and Senior Private Banker at Citi in Dubai, where she specialised in a myriad of financial services including Discretionary Portfolio Management accounts, Funds, Structured products, and Offshore banking services, among others. Prior to Citi, she was an Executive Director and Senior Private Banker at Burgan Bank in DIFC, focusing on building their Arab client book from the GCC. Ghada's extensive experience also includes pivotal roles at globally renowned Investment Banks such as Deutsche Bank, Morgan Stanley, and Credit Suisse in DIFC, where she served as a Director and Senior Relationship Manager, primarily focusing on market coverage of GCC, with a special emphasis on Dubai and Abu Dhabi. Ghada's educational background includes a Bachelor's degree in Marketing from McGill University. She has been honoured with several awards including the Advisor of the Year Award and Top Producer Worldwide, and she holds certifications in Insurance, Registered Financial Specialist, and Wealth Management. Ghada is multilingual, proficient in English and Arabic, with a working knowledge of French.



**Henry Soediarko, Director, East West Private Wealth**

Henry Soediarko serves as a Director at Milltrust International's Singapore office and is a portfolio advisor and head of research for the award-winning Climate Impact Asia Fund. Employed by First Estate Capital Management, Henry brings his extensive knowledge and experience to his advisory role for the fund. With 12 years of experience in the Asian equity long short hedge fund industry, he has a diverse background encompassing roles as a portfolio manager, in trading, and risk management. Henry was most recently recognised as a top quartile Asian equity analyst at Smartkarma, where he integrated ESG analysis into his investment research. This aligns with his passion for addressing climate change through positive impact solutions and supporting companies that contribute to reducing the global carbon footprint. He has worked in various front office roles for long short Asian Equities strategies at prominent hedge fund firms in the region, including Creo Capital, Hachiman Capital, and Amoeba Capital. Henry holds an MBA from Vlerick Business School in Belgium and an MSc in Investment from City University Business School in England. A Singapore national, he is proficient in Bahasa Indonesia and English and is conversational in Dutch and Chinese.



**Rishabh Koradia, Associate, East West Private Wealth**

Rishabh Koradia is an Associate at East West Private Wealth in Singapore, where he contributes to strategic investment management services. He has a background in research analysis and has previously worked in roles at The Global CIO Office and PwC, focusing on various asset classes and portfolio management to suit client needs. Rishabh is fluent in English, Gujarati, and Hindi and holds a CFA Level 1 certification. He earned his Bachelor of Commerce from the University of Melbourne and a Diploma from Temasek Polytechnic.



## Finance & Operations



**Gary Thornton, FCA, Group Head of Finance and Operations, Milltrust International Group**

Gary Thornton is Head of Finance & Operations at Milltrust International Group and oversees the compliance and risk functions for the Climate Impact Asia Fund. He is a co-founder of Milltrust, and is responsible for finance, company and fund operations, legal and human resources across the Milltrust Group, and is a director of Milltrust International Group (Singapore) Pte. Ltd, Milltrust Ventures Pte. Ltd, and a partner of Milltrust International LLP. He also serves as a director of Milltrust International Investments SPC. Gary is an accounting and finance professional with over three decades of professional experience. Prior to joining Milltrust as a Partner, he worked as auditor of Fortune Group whilst at HW Fisher in London, then as finance director at Fortune, and more recently as head of finance and operations within the institutional team at Close Asset Management, a subsidiary of the UK-listed financial services group to whom Fortune was successfully sold in 2006. Gary's experience extends to fund structuring, compliance, and corporate governance. He has been instrumental in the structuring and launch of numerous funds including managed accounts, in Ireland and the Cayman Islands. Gary qualified as a chartered accountant with Moore Stephens, an international firm of accountants, in 1993, and became a Fellow of the ICAEW in 2004. He graduated from Trinity Hall, Cambridge with a Masters' degree in Modern Languages (French and German) and History of Art.



**Alister Randle, ACA, Financial Controller, Milltrust International LLP**

Alister Randle is Financial Controller at Milltrust International LLP where he is responsible for the group's management accounts, tax administration and balance sheet reconciliations as well as various ad hoc project work. He received a taste of the Financial Services sector when he worked as a manager in the financial services practice of Mazars providing audit and advisory services to a wide range of clients from multinationals to owner-managed businesses. The experience he gained, particularly in insurance, led him to take senior finance roles at Euler Hermes UK and then Chubb Insurance Europe. Alister is a qualified Chartered Accountant and has a Bachelor of Commerce (with Honours) in Accounting from Birmingham University.



**Devangana Yadav, Head of Operations, East West Private Wealth**

Devangana Yadav is a seasoned career banker and the current Head of Operations at East West Private Wealth in Singapore, bringing over 9 years of extensive experience in Banking & Financial Services. With a focus primarily on Client Servicing of HNI/UHNI segments, Devangana has a diverse background in Relationship Management, Transaction Execution, Operations, and KYC/Compliance across multiple banking verticals, including Startup space, Wealth Management, and Retail Branch Banking. Before her current role, Devangana served as an Associate Vice President at Trica in Mumbai, Maharashtra, India, and previously held the position of Assistant Vice President - Wealth Management at BNP Paribas. Here, she was responsible for various aspects related to client onboarding & KYC processes and played a pivotal role in managing client services, execution & transaction processing, and legal, compliance & controls. Devangana started her professional journey at ICICI Bank as an Assistant Manager, where she managed existing Privilege Banking client portfolios and was the overall in-charge of Operations, Service, and Compliance/Quality aspects of the branch, dealing with operational aspects related to Forex remittance, NRI segment, and processing of payments. Devangana holds a Master of Business Administration in Marketing from the University of Pune, where she also earned a Graduate Diploma in Foreign Trade. She completed her Bachelor of Business Administration at the University of Nagpur. Proficient in English, Hindi, Bengali, and Marathi, and with elementary proficiency in German, Devangana is a multilingual professional. She has earned certifications in NISM Series V-A, Mutual Fund Distributions, SAP Certified Associate - B1 Module (Production & Logistics), and NISM Series VI, Depository Operations.

## Advisory Team



**Dr Mark Ebert, CPA, Chairman, Milltrust International Managed Investments ICAV**

Dr Mark Ebert is a distinguished senior figure in the investment world, boasting over three decades of experience managing diverse sectors including investment banking, equity brokerage, private equity, and asset management. Mark began his illustrious career by qualifying as a Certified Public Accountant at Price Waterhouse. He then joined Citicorp Scrimgeour Vickers in London, where he played a pivotal role in trans-Atlantic M&A, before transitioning to UBS, eventually becoming the Head of Mergers & Acquisitions. Mark's journey also saw him becoming the co-head of Panmure Gordon, a renowned UK institutional broker, where he was instrumental in founding its private equity business, now known as Lyceum Capital. Subsequently, he joined Lombard Odier & Cie to oversee its investment banking activities, which encompassed its private equity funds business, now operating as Akina Partners. Mark has recently accomplished a PhD at the Royal Agricultural University, adding another feather to his cap of academic achievements. Holding UK/Swiss nationality, he currently resides with his family in Switzerland, continuing to make significant contributions to the investment sector with his extensive knowledge and multifaceted experience



**Johann Henn, Milltrust International Advisory Council**

Johann Henn is CEO of Optimum Financial Services Group. Mr Henn is also Chief Executive Officer at Alternative Investment Partners (AIP) in South Africa, which he founded. He is a renowned South African finance professional and entrepreneur and has previously served as Chief Executive Officer and Deputy Chairman at Novare Holdings which he co-founded. Mr Henn formerly worked for Sanlam Asset Management, the Development Bank of Southern Africa, the National Manpower Commission and Volkskas Bank. Mr Henn studied M.Comm in Economics and an MBA from University of Stellenbosch, South Africa.



**Christopher Graves, Director, Milltrust International Investments**

Christopher Graves is a veteran finance professional based in Geneva, Switzerland. He co-founded Connexion Capital in London and Geneva in 2005, a firm active in corporate finance, private wealth management, fund distribution, and real estate. Previously, he partnered with Simon Hopkins at the leading alternative investments manager, Fortune Group in London, where he was responsible for European business development, including representing Lazard Asset Management LLC Alternative Funds in Switzerland from 1999 to 2005. Before his tenure at Fortune Group, Christopher served as the General Manager of Nikko Bank in Geneva, where he was active in investment banking, institutional asset management, and private wealth management from 1994 to 1999, following roles in institutional sales at Nikko Securities in Tokyo, Geneva, and Milan from 1983 to 1994. Earlier in his career, he worked at Banque Scandinave in Geneva as a Japan market analyst from 1981 to 1983 and at Cargill in Ocean Transportation from 1976 to 1980. Christopher studied International Relations at Geneva University from 1978 to 1981 and completed the Program for Executive Development at IMD in 1995. He holds the CIIA Certified International Investment Analyst designation since 1993. He is a Swiss national.



**Rosalyn Breedy, Chairman, Milltrust International Advisory Council**

Rosalyn Breedy, Managing Director of Breedy Henderson Limited, is a highly regarded Corporate, Funds, and Financial Services lawyer with 30 years of experience in private practice, investment banking, and multi-family offices, specialising in Private Wealth. She is a respected authority in financial regulation, ESG, diversity, and inclusion, regularly sharing her insights through writings and speeches. Rosalyn provides holistic corporate and financial advice to an international clientele, focusing on innovation and the development of technology-centred business models. She establishes private funds, advises family offices, and acts on private equity and joint venture deals. She serves as a non-executive director for several companies, including LSE listed Aberdeen Small Companies Income Trust, and is the Chairman of the Milltrust International Advisory Council. Rosalyn holds esteemed positions at Saïd Business School at Oxford University and the Chartered Institute for Securities and Investment. Recognised for her industry knowledge and innovative insights, Rosalyn has earned accolades such as being ranked Band 1 for high-net-worth Family Offices and Fund structuring in the UK by Chambers & Partners and appearing in the 2020 Spear's 500 and the Top 10 of the 2&20 Top100 Most Influential People in Service Provision for the Investment Space in 2021.



## On the cover...

A familiar garden bird, the great tit can be seen around bird tables and feeders, as well as in woodlands and parks. Great tits are active feeders, hunting out insects and spiders among the smaller branches and leaves of trees in woodlands. But they are also well-adapted to gardens and towns and will visit birdtables, fighting off other, smaller tits to get to the food.

It is a widespread and common species throughout Europe, the Middle East, Central Asia and east across the Palearctic to the Amur River, south to parts of North Africa where it is generally resident in any sort of woodland; most great tits do not migrate except in extremely harsh winters.

The great tit is a distinctive bird with a black head and neck, prominent white cheeks, olive upperparts and yellow underparts, with some variation amongst the numerous subspecies. The female lays around 12 eggs and incubates them alone, although both parents raise the chicks. In most years the pair will raise two broods.

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