



Achieving ESG Initiatives on a Commercially Profitable Basis

WHAT'S INSIDE: SUSTAINABILITY/ ESG CASE STUDIES

- The world's first 100% PET-free paper bottle, an eco-friendly alternative to single-use plastics
- A simple, low-cost water purification system for markets with access to non-potable water

PLUS:

- Upcycling Brewer's Byproduct into Food Ingredients Reduces Waste, Adds Income
- Creating New Revenue-Generating, Natural Ingredients from Food Processing Waste
- Elevating Solar Panels Leverages Farmland to Generate and Share Renewable Energy
- Combining Cross-Industry Technologies Leads to Unique, Sustainable Food Packaging Material

Introduction

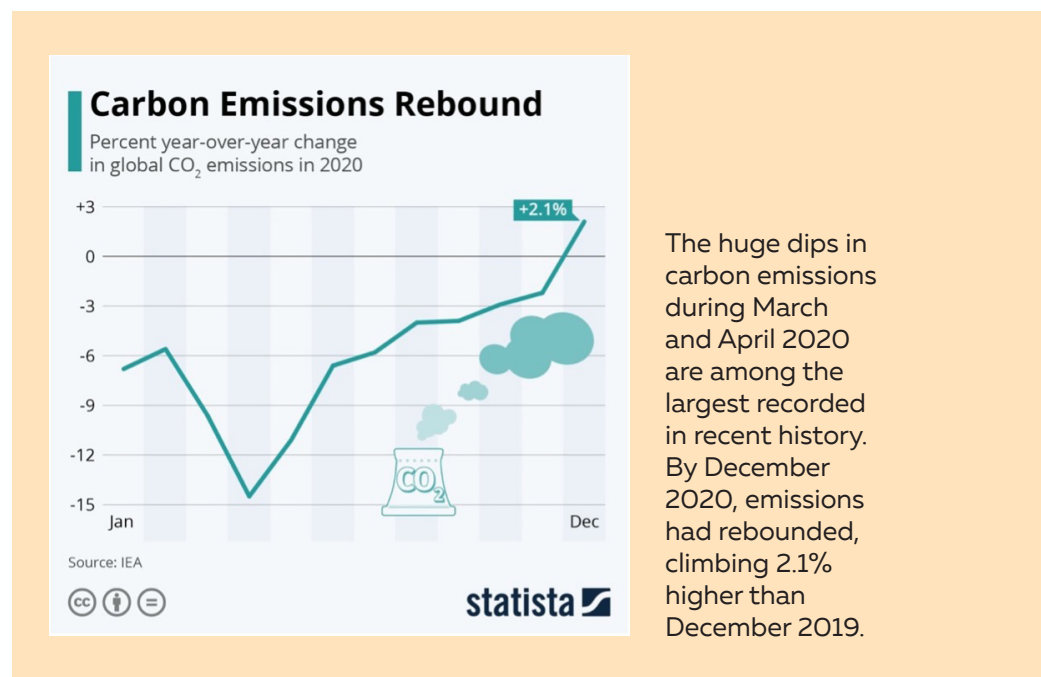
The sustainability movement has weathered previous crises, from 9/11 to the crash of 2008, only to emerge stronger.

Yet for businesses still reeling from pandemic-related losses and the economic downturn, prioritizing sustainability and Environmental, Social and Governance (ESG) goals can be challenging. For more than 10 years, Pilot Lite has been helping corporates accomplish sustainability and environmental initiatives while simultaneously adding long-term value. Today, more than ever, viewing sustainability through a commercial deployability lens will help businesses achieve ESG goals on a commercially profitable basis.

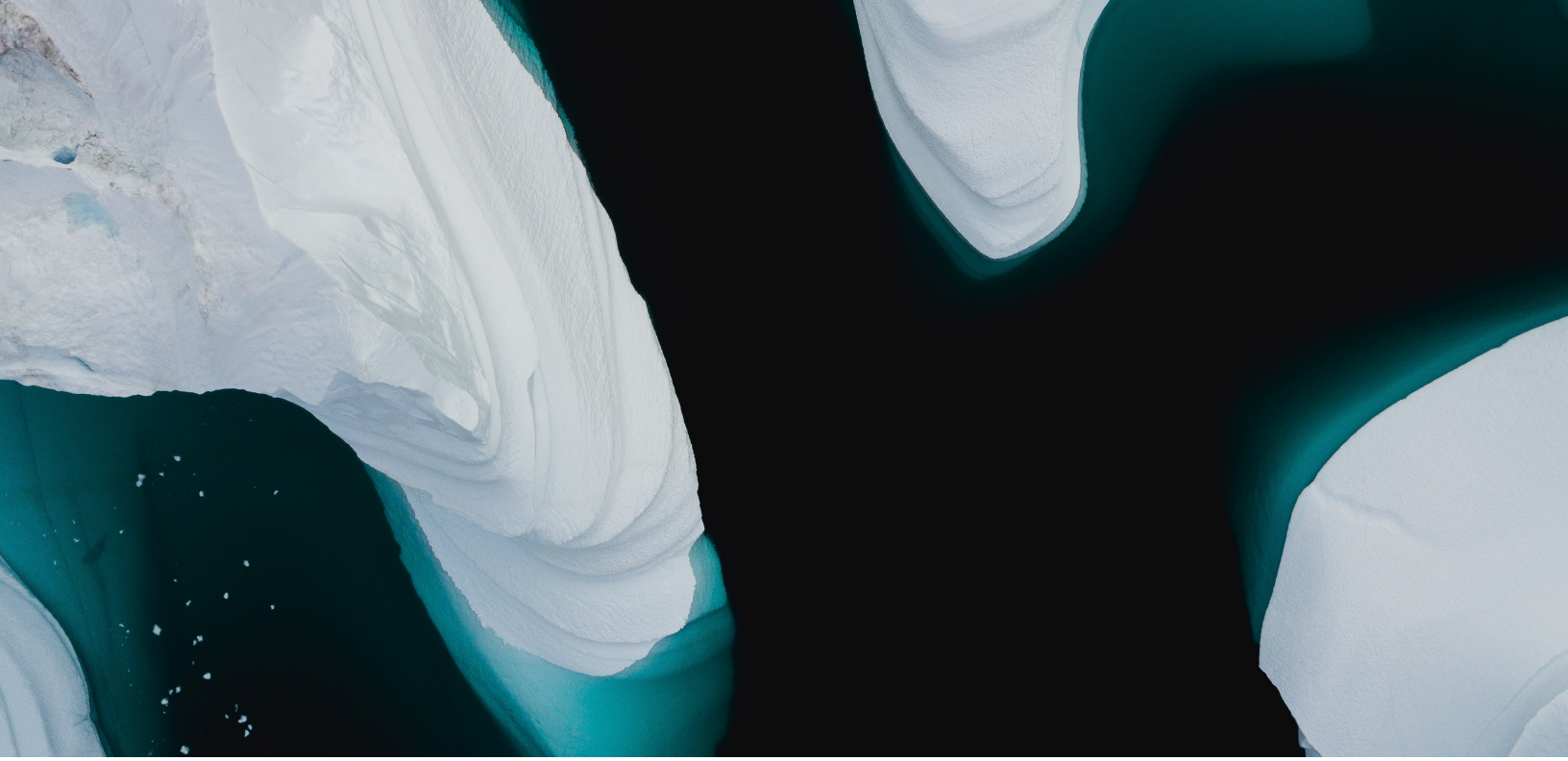
Read on for expert opinion on the forces that will shape the post-pandemic sustainability movement and examples of how we shifted ESG projects from cost centers to profit centers.

Will the Covid-19 Pandemic Stall Sustainability Efforts or Spur a Green Recovery?

We experienced the largest decline in global carbon dioxide (CO₂) emissions in history in early 2020. After rising steadily for decades, global CO₂ emissions [fell by 6.4%](#) during 2020 as Covid-related lockdowns reduced car and air travel. But a rapid rebound in energy demand—and emissions—in late 2020 underscores the risks of returning to business as usual.



"The historic 6.4% dip occurred only because many parts of the world came to a forced standstill as a result of Covid-19," said David



Waskow, head of the international climate programme at the World Resources Institute, in [Nature](#). “Without substantial collective action to curb emissions, 2020 will register as little more than a blip in the global carbon record.”

What happens to emissions in 2021 and beyond will require a social and economic transformation. By changing the way we produce and consume energy, we have the opportunity to repair the planet as we recover from the economic downturn of 2020.

“It’s time to flick the green switch,” said UN Secretary-General António Guterres in a [2020 speech](#). “The international community has a chance to not simply reset the world economy, but to transform it to a sustainable one driven by renewable energy that will create new jobs, cleaner infrastructure and a resilient future.”

Here’s a look at the global stakeholders shaping our collective response to the climate crisis in 2021 and beyond.

Investors: Socially Responsible Investing Continues to be a Promising Avenue of Growth

COVID-19 stalled or stopped some trends forever while accelerating and intensifying others, writes futurist and CSR specialist Jim McClelland in [Raconteur](#).

“Sustainability was one of the lucky ones,” Tickr co-founder Tom McGillicuddy told McClelland. “The returns from sustainable and impact investments have consistently outperformed the stock market since the beginning of the pandemic. The industry no longer has to sell a principle or a morals-based argument, it can now point to returns as well.”



Indeed, [the share of investment capital](#) being channeled into the fight against climate change has been continually growing over the last several years. Between 2012 and 2018, investment in assets with explicit sustainability goals grew by 15 percent per year. [Assets under management](#) in funds that abide by ESG principles surpassed \$1 trillion for the first time on record in August 2020.

Investors will be holding funds accountable, however, monitoring company disclosures for authentic impact investment strategy rather than marketing hype. [Asset manager BlackRock](#) has asked the CEOs of companies in which it holds shares to explain how they plan to achieve net-zero emissions by 2050.

Public Policy: Setting Ambitious Goals to Cut Greenhouse Gas Emissions

As the Covid pandemic swept the globe last year, the European Union, China, Japan and the United Kingdom each announced ambitious plans to cut emissions over the coming decades.

At its 2021 summit meeting on climate change, the US pledged to roughly halve its greenhouse gas emissions by 2030. In the UK, the government [plans to mandate](#) financial disclosures on how organizations and assets will both be impacted by and impact environmental change by 2025. The European Union is also planning for a cross-border carbon tax, using the proceeds to fund sustainability initiatives.

According to the UN, the world's pledges so far are only enough to reduce global emissions to [less than 1% below 2010](#) levels by 2030—far from where we need to be.



Consumers: Buying into Sustainability and Pressuring Businesses to Act

We're seeing a rise in environmental consumerism as buyers become increasingly concerned about the carbon footprint of businesses they do business with—and companies are feeling the pressure to act.

[A National Retail Federation and IBM study](#) of shopping found 80 percent of shoppers believe sustainability is important and nearly 60 percent would change shopping habits to reduce environmental impact. Among sustainability-minded shoppers, the majority said they'd pay a 35 percent premium for sustainable and environmentally responsible brands.

[While some companies](#) have already committed themselves to deep, long-term reductions in greenhouse gas emissions, others will be forced to act by customers, investors and governments.



Businesses: Is What's Good for the Planet Good for Business?

The big question is how will businesses respond to pandemic-induced economic pressures and the looming global climate crisis. Opinions are divided.

"Many have been quick to conclude that, in the wake of the COVID-19 pandemic, the priority will be the economic recovery of individual companies and whole economies, and that sustainability will have to take a back seat," Craig Smith and Ron Sooneus write in [Boards and Sustainability: From Aspirations to Action](#) report. "However, other voices suggest that the pandemic could, instead, increase our attention to sustainability, especially climate change."

Joel Makower asks rhetorically in [Green Biz](#): "Why, in the midst of all this human and economic carnage, should companies be focused on anything besides keeping their doors open?" He argues that companies have a firm understanding of the value of corporate sustainability.

"Unlike previous economic downturns, sustainability isn't being jettisoned in the spirit of corporate cost-savings. It's being kept alive as part of a pathway back to profitability."

Survey results from the Boards and Sustainability report reveal there's growing evidence that firms with high ESG integration will better withstand the crisis and subsequent economic downturn. Of the 234 business leaders—including CEOs, CFOs, board chairs, and sustainability officers—surveyed, the majority (73%) felt that ignoring sustainability would affect their company's ability to create long-term value.

[Makower](#) cites 5 reasons why sustainability is going strong:

- 1 Corporate sustainability is a long-term evolution: companies have set the wheels in motion for long-term structural change
- 2 Companies understand that sustainability engenders resilience
- 3 Investors see sustainability as material
- 4 There's a growing call for a business-led 'green recovery'
- 5 Companies understand the world is watching: they want to be able to attract and retain customers and talent.

The evidence makes a strong case for businesses to embrace sustainability both to create long-term value and to help mitigate the global climate crisis.

"If anything, the green recovery idea has simply provided a big boost to an established trend," Tim Cockerill, investment director, at Rowan Dartington says in *Raconteur*. "Financial returns and environmental principles go hand in hand. The more businesses become sustainable, the more that'll drive change and consumer behavior; one thing feeds the other."

"Sustainability is no longer only about the environment, no longer a tick-box exercise. It has developed into a more holistic and broader view that you could call long-term value creation."

- Craig Smith,
INSEAD and Ron Sooneus,
Camunico and INSEAD



Achieving ESG and Sustainability Initiatives on a Commercially Profitable Basis

Pilot Lite approaches ESG and sustainability initiatives with a commercial deployability lens to identify opportunities for cost savings, revenue generation and collaborative ventures. When working with corporate clients, we analyze business operations, supply chain partners, product lines and business models looking for opportunities to:

- eliminate supply chain and operational waste
- identify sustainable and eco-friendly packaging alternatives
- substitute synthetic ingredients with natural alternatives
- create new revenue-generating products/businesses that can be deployed by client or launched by Pilot Lite.

More than
80%
of the 9,500 companies
in the [UN Global Compact](#), the largest corporate sustainability initiative in the world, have committed to advancing one or more of the 17 Goals set forth by the United Nations.

SUSTAINABLE DEVELOPMENT GOALS



When it comes to aligning your business practices with the UN Sustainable Development Goals (SDGs), we agree with a CEO commission chaired by former Unilever CEO Paul Polman. According to the commission's report, meeting the SDGs represents a \$12 trillion business opportunity.

To capitalize on those opportunities, we recommend clients committing to a few SDGs and the specific sub-goals that are most central to their business. We also suggest:

- identifying strategies with potential profitability
- validating solution and business model
- exploring partnerships and consortia that can help you achieve goals
- incorporating sustainability goals into corporate strategy and operations
- embedding your commitments into your core business
- exploring opportunities to mitigate negative impacts of products or activities on environment
- re-allocating resources to advance goals.



Read on for brief case studies of sustainability/ESG projects completed by Pilot Lite on behalf of our clients and Pilot Lite Capital, our investment arm.

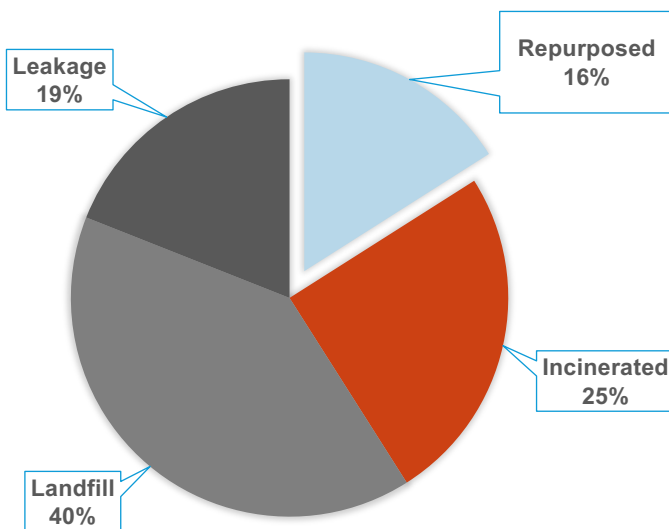
Only **9%** of the more than **9.2B tons** of plastic packaging produced globally has been recycled



Diageo and Pilot Lite Collaborate to Produce World's First PET-Free Paper Bottle

The world's oceans will be inundated with plastic waste over the next 20 years, according to a [new report](#) published in Science. The multi-national research team predicts that if we continue at current "business as usual" rates, the scale of plastic entering the world's oceans will triple by 2040. To reduce plastic waste, the researchers say, we must use every available solution, including recycling and—perhaps most importantly—not producing plastic at all.

Current Estimates of Global Plastic Disposal



"We are constantly striving to push the boundaries within sustainable packaging and this bottle has the potential to be truly groundbreaking."

- Ewan Andrew,
Chief Sustainability Officer, Diageo PLC

"The Pulpex consortium is well positioned to deliver sustainable packaging at scale and across industries, having impact beyond what any organization could achieve alone. We're proud to be a part of it."

- Simon Lowden,
Chief Sustainability Officer, PepsiCo

"We believe in tackling plastic waste through innovation and collaboration."

- Richard Slater,
Chief R&D Officer, Unilever



PULPEX AND STORA ENSO JOIN FORCES

Pulpex has formed an exclusive partnership with [Stora Enso](#), a leading global supplier of renewable solutions in packaging, to use the company's formed fiber materials for its eco-friendly paper bottles. The partnership also leverages Stora Enso's formed fiber technologies and ability to convert end-products at an industrial scale. All of Stora Enso's wood fiber pulp comes from sustainable, verified sources.



As part of its pledge to make all of its packaging recyclable, reusable or compostable by 2025, spirits maker Diageo enlisted Pilot Lite to scout for eco-friendly, scalable alternatives to glass and plastic (PET) packaging.

When we were unable to identify a complete solution, Pilot Lite assisted Diageo in developing a single-mold, PET-free, pulp-based bottle capable of holding a range of liquids. Together, Diageo and Pilot Lite established the Pulpex Limited sustainable technology packaging company to commercialize and scale the technology.

DIAGEO



PEPSICO



GlaxoSmithKline
Consumer Healthcare

Made of wood pulp from 100% renewable feedstocks and responsibly managed forests, the Pulpex bottle enables CPGs to significantly lower the carbon footprint of glass (90% savings) and PET (30% savings) bottles. Pulpex bottles are renewable and recyclable in curbside collection in standard waste paper streams, which have a far higher yield than plastic waste streams.

The innovative Pulpex technology enables CPGs to successfully transition a portion of their glass and plastic packaging to sustainable, recyclable pulp using existing industrial manufacture and filling infrastructure. This key component of the Pulpex innovation allows corporates to accomplish ESG initiatives on a commercially profitable basis.

Other leading global CPGs including PepsiCo, Unilever, GSK Consumer Healthcare and Castrol have joined Diageo in committing to using Pulpex for specific brands, ensuring a widespread adoption of the paper bottle.

SUSTAINABLE DEVELOPMENT GOALS





80%
of Nigerians lack access
to potable water at
home

Purifying the Drinking Water of Africa's Emerging Middle Class

Pilot Lite is developing Refresh, a simple, low-cost yet highly effective water purification system for markets where water is available but unfit for human consumption.

Refresh is based on a patented disinfection, flocculation and quenching technology originally developed by a global CPG. The technology neutralizes bacteria, viruses and waterborne cysts and removes solid particles and other impurities to create potable water to EPA and global health standards. When the CPG was unsuccessful in identifying a profitable business model for the innovation, the technology became orphaned and was acquired by Pilot Lite.

REFRESH: POTABLE WATER IN 20 MINUTES

The Refresh prototype converts an existing contaminated water source to potable water in a convenient consumer format similar to the coffee capsule model. The Refresh system is capable of providing 50 liters or approximately 3 days of clean drinking water for a typical family.

1

Once the unit is filled with contaminated water, a purification pod is inserted and a powder mixture is released.

2

The water is then agitated for two minutes, activating the three-step process of disinfection, flocculation and quenching.

3

After 20 minutes, potable drinking water is ready to be poured from the tap.



Pilot Lite is currently refining the technology and developing a business model for Refresh. To ensure its commercial viability, we considered some of the critical failures of other water provision efforts across Africa and Asia, especially those that targeted the bottom of the pyramid.

With Refresh, we take a fundamentally different approach to address the market by:

- Targeting in-home applications for middle income consumers in Nigeria, or 6.2m Nigerian households
- Identifying other potential markets including communal and commercial applications for schools, community centers, health clinics and similar locations and small-scale industrial applications
- Leveraging local sales models, including Nigerian entrepreneurs
- Building commercial momentum and ensuring viability via multi-income streams
- Offering a solution that has superior taste and flavor profiles, eliminating as much of the lingering chlorine aftertaste as possible while ensuring that the water remains potable.

SUSTAINABLE DEVELOPMENT GOALS





The world produces an average of **42M tons** of BSG every year

Upcycling Brewer's Byproduct into Food Ingredients Reduces Waste, Adds Income

Brewers' spent grain (BSG) is a primary byproduct of beer making that is also highly nutritious and functional. Traditionally overlooked and undervalued, millions of tons of BSG ends up wasted every year.

Upcycling BSG for other purposes allows breweries producing large quantities of wastewater and spent grain to move toward a more circular and sustainable future. In addition to keep BSG from landfills, transforming the rich bio-wastes into food ingredients, livestock feed, fuel and other raw materials offers brewers the potential for cost-savings and income opportunities.



We identified an opportunity for a Pilot Lite client, a large global brewer, to enter the protein ingredients business. At the time of the engagement, the \$7.7bn market for plant-based proteins was growing faster than population and economic growth at 5.5% per year.

Using our venture validation methodology, Pilot Lite evaluated multiple market opportunities, more than 1,800 patents and 90 protein products to determine how to maximize the value of the brewer's spent grain. We assessed each opportunity within a framework that included market sizing and competitive landscape, conversion technologies, channel and go-to-market strategy, operating models and financials.

Pilot Lite evaluated 15 different BSG conversion technologies and performing test runs and quality evaluations on two. Our final recommendation included technology and market partners to convert and sell the client's BSG into protein ingredients for nutrition bars, creating \$73m of incremental NPV over 5 years. We also secured co-investment for the project from a corporate venture capital arm.



1:3

Producing 1 kg of Greek yogurt produces up to 3 kgs of acid whey

Creating New Value-Added, Natural Ingredients from Food Processing Waste

Waste management is another area where food and beverage manufacturers can make a significant impact on the environment. Acid whey is generated in the production of many cultured dairy products, including cottage cheese and Greek yogurt. There are limited uses for thin, runny byproduct. It can't be dumped because it's toxic to the natural environment. Consequently, the handling and disposal costs of acid whey are significant for the dairy industry.

Pilot Lite assisted a client, a leading global food corporate, with a project to convert acid whey into usable ingredients. The initiative involved identifying multiple biocultural conversion technologies capable of processing acid whey waste into 55 new, value-added and natural ingredients, many of which served as replacements to chemically synthesized ingredients currently in use. Pilot Lite developed a business model and infrastructure for selling the recovered ingredients into the food industry.

The ESG initiative provided the client with an opportunity to reduce waste and its associated removal costs, produce all-natural ingredients, and access new revenue streams and joint venture models—a win for the company, the consumer and the environment.



SUSTAINABLE DEVELOPMENT GOALS





Elevating Solar Panels Leverages Farmland to Generate and Share Renewable Energy

Renewable energy is increasingly important for meeting the global demand for electrical power—and to reduce our dependence on fossil fuels. To combat the global climate crisis, stakeholders around the world have committed to reducing CO2 emissions. A central pillar of these efforts involves revolutionizing the energy sector, which accounts for [2/3 of global emissions](#), to include more clean energy sources. Once regarded as unreliable and too expensive, renewable sources including solar and wind power have become more affordable due to increasing economies of scale, more competitive supply chains and technological improvements.

For a major tobacco grower, we explored the installation of renewable solar panels on farmland, which can be accomplished without materially impacting crop production. Our approach involved elevating solar panels above tobacco crops to allow the plants to grow while also generating power. Traditionally, solar panels are permanently mounted on the ground. Enabling the solar panels to serve a dual purpose would allow excess electricity generated to be sold via the transmission grid, producing a revenue stream which would be shared in part with farmers.

By leveraging the client’s access to farmland, this sharing model would enable the tobacco grower to become a large, low-cost producer of renewable energy. With tens of thousands of acres generating solar power, it would create an energy surplus that could be shared with local communities and jurisdictions with an inadequate investment in energy production.





Packaging
accounts for
40%
of plastic pollution

Combining Cross-Industry Technologies Leads to Unique Sustainable Food Packaging Material

Packaging is one of the largest contributors of waste to landfills. Unfortunately, most packaging is designed as [single-use](#) and is typically thrown away rather than reused or recycled. Of the 78 million metric tons of plastic packaging produced globally every year, only 14 percent is recycled. According to US EPA, containers and packaging make up a major portion of municipal solid waste.

Many Pilot Lite clients in the food and beverage industry are looking for ways to make more sustainable packaging, from increasing recycling rates to exploring recycled and alternative materials. When a global food client asked us to help eradicate foil packaging from their supply chain, we explored and evaluated sustainable packaging options by performing an in-depth analysis and validation of:

- end-of-life scenarios
- sustainability claims
- global supply base
- current state of waste management.

We created a solution by combining three cross-industry technologies to develop a unique packaging alternative. The new paper material is processed with a method that provides the packaging with a metallic appearance without impacting recyclability and biodegradability. This new material was also cheaper than the original packaging material.

To implement the packaging change within the company, we identified investment and partnership options, which included Pilot Lite capital becoming a co-investor.





Mike Anstey

CEO & Co-Founder
Pilot Lite Group

About Pilot Lite & Venture Management

[Pilot Lite](#), parent company of Pilot Lite Ventures and Pilot Lite Capital, is a pioneer and international leader in venture management, with a successful track record helping Fortune 500/FTSE 100 corporates accelerate the commercialization of innovation.

Pilot Lite approaches sustainability and Environmental, Social and Governance (ESG) initiatives with a commercial deployability lens to identify opportunities for cost savings, revenue generation and collaborative ventures.

For more information or to discuss your needs, sustainability efforts, contact us at info@pilotlitegroup.com or +44 20 3393 6490.