



**Brightlands
Venture
Partners**

2023 Impact Report

Impact investing for a bright future



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2023 Impact Report



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Impact Portfolio Companies

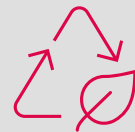
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BVP: an Impact Investor with Deep Expertise across 3 Sectors



Renewable Chemistry



Health



Agrifood

Foreword

What Drives Us



We are concerned about the big challenges our society is facing, such as climate change, loss of biodiversity and insufficient access to effective and affordable healthcare. While behavioural change is an important part of the solution, we also urgently need technological innovations.

As venture capital investors, Brightlands Venture Partners (BVP) focuses on the following sectors:



Renewable Chemistry

Changing the way our chemicals & materials are being manufactured today and helping the industry towards climate neutrality



Health

Allow for more preventive and (cost-)effective treatments while maintaining / improving the quality of care for patients



Agrifood

Contributing to an agrifood sector producing healthy food in a sustainable and regenerative manner

Without entrepreneurs and their inspiring and controversial plans, radical innovation would not be possible. We nurture their ideas and revolutionary technologies and help translate them into impactful products and services to make the world a better place. Their dedication, perseverance, agility and entrepreneurship inspire the BVP team every day.

We support entrepreneurs to flourish. We invest financially – so they can accelerate their growth ambition – but also provide industry & ecosystem connections, find co-investors and leverage our experience in building facilities and strengthening their teams.

We hope this Impact Report (our third annual edition) will help you get a deeper understanding of who we are, what we and our portfolio companies have already achieved, and what we expect to achieve in the future.

On our way towards a more sustainable and healthier world for generations to come!

Casper Bruens
Managing Partner BVP

BVP: Achieving Top-Quartile Returns through Impact Investments



What we delivered for our Investors and Portfolio Companies

Brightlands Venture Partners (BVP) is an independent venture capital fund manager domiciled in the Netherlands.

BVP focuses on investing in startups and scaleups that develop breakthrough technologies with global roll-out potential.

While BVP invests as early as of the seed stage, its commitment extends throughout a company’s growth cycle until exit.

BVP currently manages four different funds:

- ✦ **BVP Fund IV** founded in 2021
- ✦ **Brightlands Agrifood Fund** founded in 2017
- ✦ **Chemelot Ventures** founded in 2014
- ✦ **Limburg Ventures** founded 2004

Since BVP’s establishment in 2004, the company has always focused on the impact investment space with each of the aforementioned funds dedicating its capital to the transition to a more sustainable and healthier world.

BVP’s ambition is to finance, support and accelerate the growth of companies that address this transition whereby focusing on three sectors: *Renewable Chemistry, Health and Agrifood.*



BVP Focuses on the Following Sectors

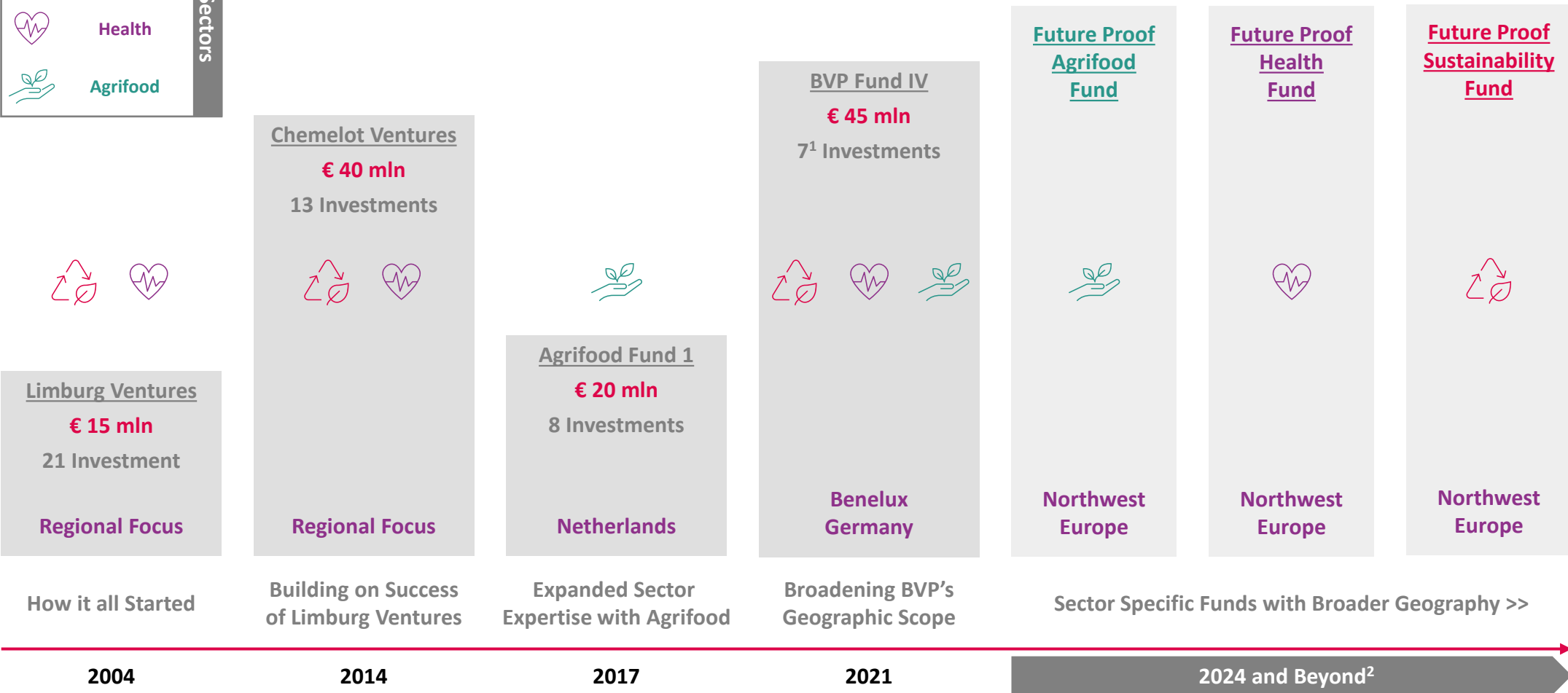


BVP: Evolving with Continued Focus on Impact and Financial Return



Sectors

- Renewable Chemistry
- Health
- Agrifood



¹ Investment Period until April 1, 2027 – Target is to invest in ca. 15-20 Companies

² BVP's intention is to launch new sector-focused funds in the next 3 years – can be subject to change

BVP: a Dedicated and Diverse Team

Healthy Balance of Different Expertise



Casper Bruens
Managing Partner



Marcel Kloosterman
Managing Partner



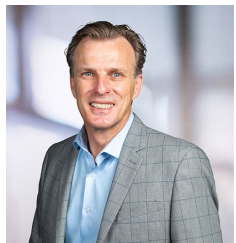
Kim de Boer
Partner



Marcel Lubben
Partner



Luc Starmans
Partner



Marcel Zijp
Sr. Inv. Manager



Olga Goor
Inv. Manager



Lex Westbroek
Inv. Manager



Roel van Wegberg
CFO



Silvia Hüntemann
Office Manager



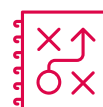
Ilias Bensat
Inv. Analyst



Abigail Forson
Inv. Analyst

- ❖ Founded in 2004, 50 Investments across 4 Vintages
- ❖ Impact Investor in Start-ups that generate a Positive Societal Impact through Game Changing Value Propositions
- ❖ A Team with a Deep Understanding and Background in the Domains of *Renewable Chemistry, Health and Agrifood*
- ❖ Supported by Seasoned and Well-connected Advisory Board Members with Strong Industry Knowledge and Network
- ❖ Strong in Selecting and Developing Excellent Start-up Teams
- ❖ Strategically Located in the Heart of Western Europe in Proximity to All Relevant Stakeholders
- ❖ Connecting Start-ups with an Extensive Industry & Ecosystem Network

This Strategy has been Crucial in:



**Reducing
Time-to-
Market**



**Increasing
Start-up
Success Rate**











**Achieving
Top-Quartile
VC Returns**



BVP's Added Value as an Investor

Bringing Portfolio Companies Up-to-Speed for Maximum Success

-  **Proximity to Teams** - enabling us to truly partner with them
-  Deep Understanding of **Route to Market** and **Value Chains**
-  **Execution-Driven** towards Value Inflection Points
-  Experienced Investor in **Demo and Scaling-up Production Facilities**
-  Connecting our Extensive **International Industry and Ecosystem Network** to secure Win-Win Partnerships
-  Proximity and **Availability of Test- and Research Facilities** in Network
-  Located in the Heart of Western Europe - Uniquely Positioned to **Leverage Western European Markets**
-  Experienced in **Building Syndicates** with other Reputable (VC) Investors and able to create Series A/B Scale-up Syndicates

BVP's Approach to Impact Reporting – the Upright Methodology



A Cross-Sector, Quantifiable and Independent Methodology

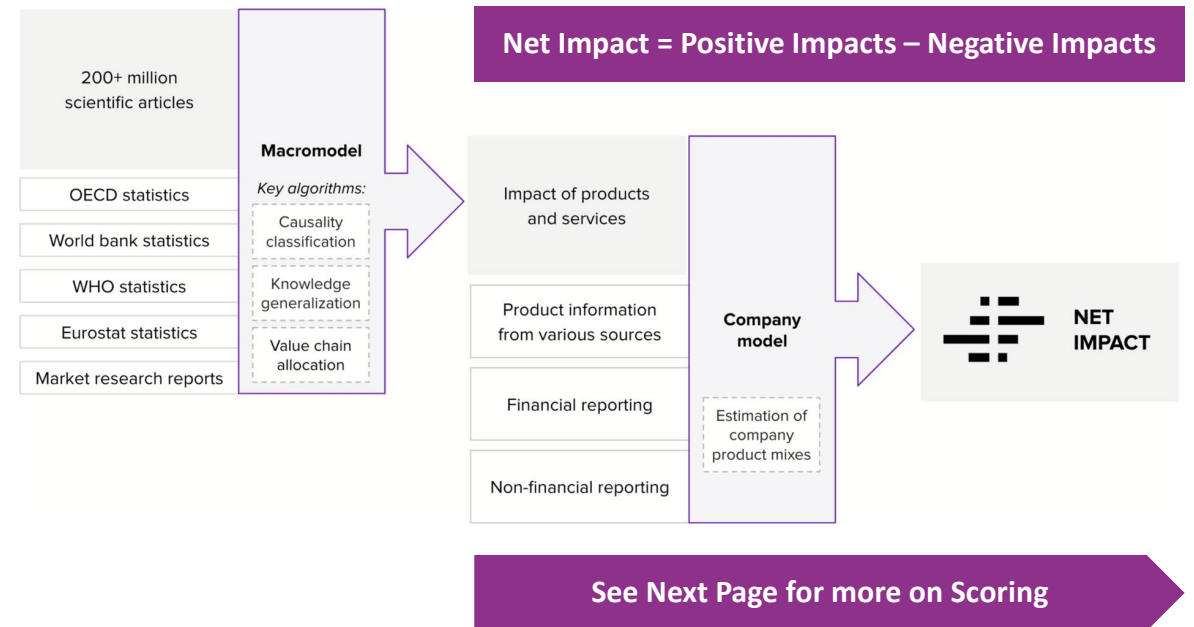
Measuring and reporting on impact is a complex task, particularly for early-stage companies that are often pre-revenue. To make impact more tangible and measurable, BVP collaborates with the Finnish company **Upright**. This partnership enables BVP to leverage Upright's innovative, data-driven quantification model that measures both the positive and negative impact created by our portfolio companies.

The model is based on machine learning, open-source science and company-specific data. With the use of Natural Language Processing, the model assesses the content of scientific articles and statistical databases to summarize its findings on how various products and services impact **Society, Knowledge, Health and Environment** along their value chain.

Through the measuring of both positive and negative impact, the Upright model is able to produce a **Net Impact Ratio**. The benefit of this metric is that it enables industry-agnostic comparisons and analysis of impact scales across diverse impact dimensions.

BVP believes that the ability to make such comparisons between industries and between impact dimensions is essential for uncovering the hidden trade-offs underlying BVP's decision-making. These trade-offs need to be uncovered to allow BVP to make an informed transition to a more sustainable and healthier world.

In this report, Net Impact Ratios are reported at fund level. This allows BVP to demonstrate the overall impact the BVP Funds contribute while respecting the confidentiality obligations vis-à-vis the portfolio companies. Notwithstanding, this year's impact report also includes a dedicated one-pager for each of the companies in the BVP portfolio. The one-pagers include a more qualitative analysis of the solutions the companies offer to combat global challenges, whilst also describing their impact potential and alignment with the Sustainable Development Goals (SDGs).



Upright's Methodology can be found in their Knowledge Base available through the following link: docs.uprightplatform.com

BVP's Approach to Impact Reporting – the Upright Methodology



The Scoring Mechanism

The Net Impact Score

The Net Impact of a company is the net sum of **Costs** (i.e. **Negative Impacts**) and **Benefits** (i.e. **Positive Impacts**) that the company creates. Costs and benefits include all types of costs and benefits - including externalities. Since the Net Impact is a measure of costs and benefits, it can also be referred to as the **Net Value Creation** of a company.

Net Impact is measured in 4 dimensions: **Environment, Health, Society and Knowledge.**

Examples of **Costs**: GHG emissions by a car factory, usage of highly-skilled labour by an IT company and damage to human health caused by sugar-sweetened beverages.

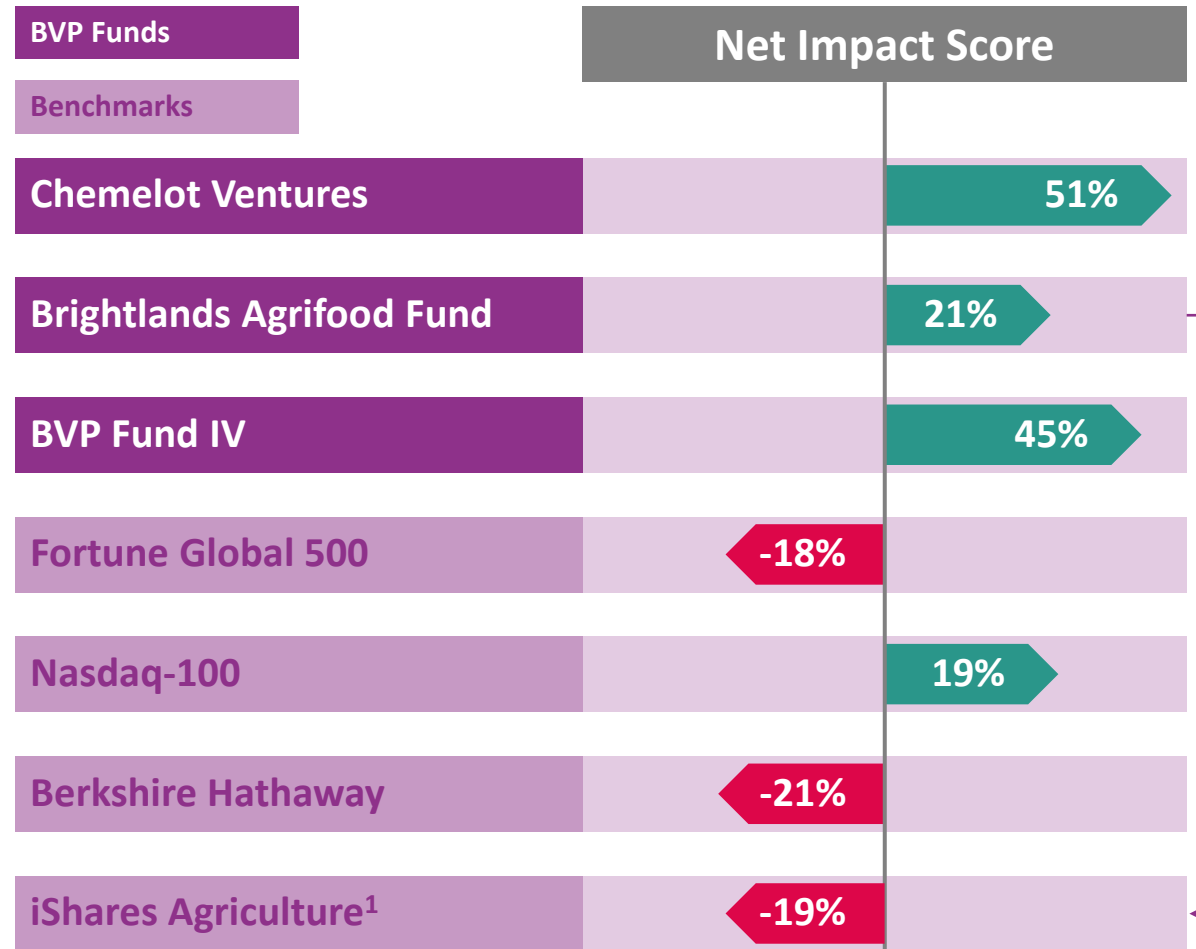
Examples of **Benefits**: improvements in health caused by a cancer medicine, knowledge created by research equipment and pollution removed by a catalytic converter.

How to Read the Score

Net Impact scores range between -100% (low) and +100% (high). A Net Impact Score of **>0%** means that the positive impacts a company (or a fund for that matter) creates outweigh its negative impacts. In other words, a Net Impact Score of **>0%** essentially means that the world is “better off” with the company as it has a **Positive Impact**. To the reverse, if a company or fund has a Net Impact Score **<0%** it harvests more than it sows and has a **Negative Impact**.

As reflected on the right, the BVP funds covered in this impact report, all have a positive Net Impact Score. For comparison, also various benchmarks have been included →

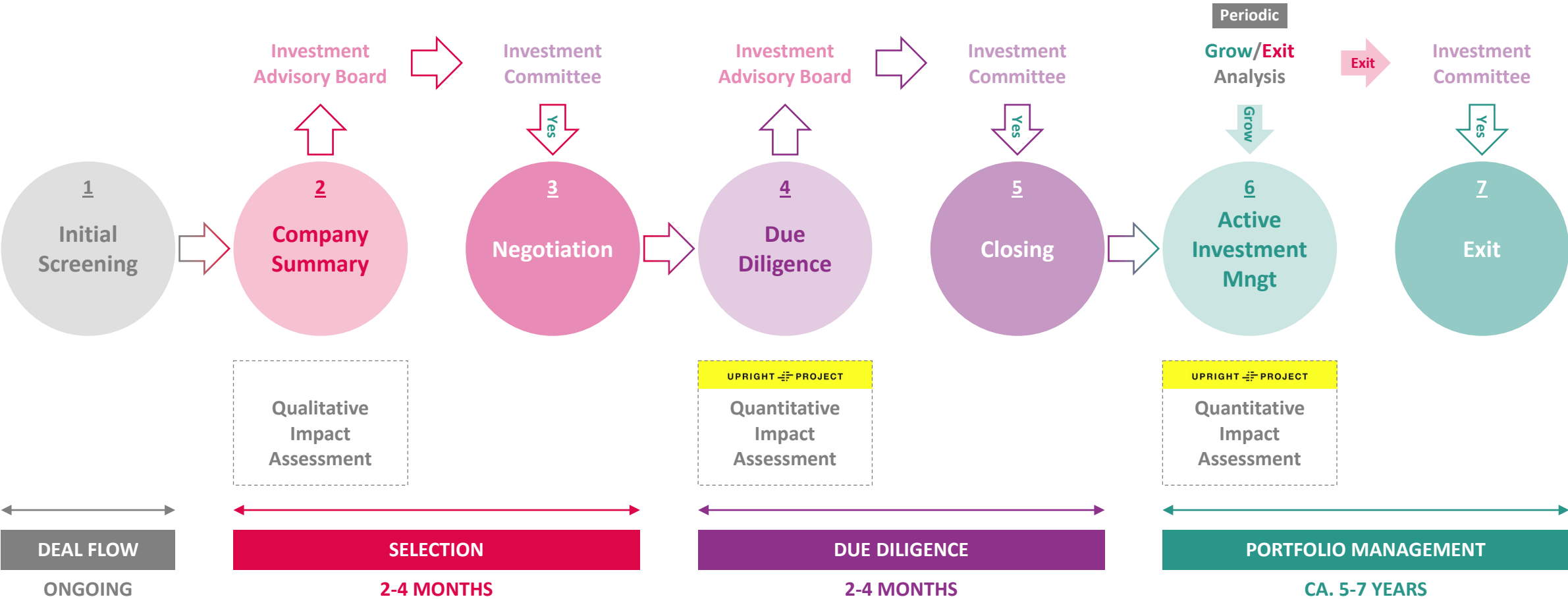
Source: Upright Model Release 1.4.0 on 11/06/2024 at 11:22 GMT (based on information as per 31/12/2023)



¹ iShares MSCI Global Agriculture Producers ETF (managed by BlackRock)

How Impact is integrated into our Investment Process

Impact plays a pivotal role in our Investment Decisions



Regulations

Various Impact Enhancing Frameworks are in Force



With their origin in the EU's Green Deal, the Sustainable Finance Disclosure Regulation (**SFDR**) and EU Taxonomy play important roles in directing private capital towards sustainable activities. These new regulations obligate financial market participants with sustainability claims to be more open about their sustainability performance. The increased reporting requirements improve transparency and help reduce risk of greenwashing. Above all, the regulations incentivize investments in companies that are needed for the green transition.

SFDR Compliance

- ❖ BVP Fund IV operates as an Article 9 fund under SFDR. As an Article 9 fund, BVP Fund IV focuses on investments that have sustainable objectives as their primary goal.
- ❖ BVP Fund IV's investment strategy aligns with the SFDR requirements, demonstrating a clear commitment to sustainable finance and the integration of ESG factors.
- ❖ Furthermore, Chemelot Ventures (CV) and Brightlands Agrifood Fund (BAF) both operate as Article 8 funds under SFDR. As Article 8 funds, CV and BAF are formalized under the SFDR as funds that promote, among other characteristics, environmental or social characteristics and that follow good governance practices.
- ❖ The SFDR sets standards for transparency and disclosure regarding the integration of sustainability risks and the consideration of adverse sustainability impacts in investment decision-making processes.
- ❖ BVP is dedicated to adhering to these regulations and ensuring clear and comprehensive reporting of its sustainability efforts and impacts. By embracing the SFDR, BVP aims to enhance transparency, accountability, and trust in its sustainable investment practices.

EU Taxonomy for Sustainable Activities

- ❖ The EU Taxonomy for Sustainable Activities, commonly known as the EU Taxonomy, is an EU-developed classification system that identifies environmentally sustainable economic activities. Its primary objectives are to provide clear definitions of environmentally sustainable activities for the benefit of companies, investors, and policymakers. The Taxonomy classifies environmentally sustainable activities based on 6 core objectives:
 1. Climate Change Mitigation
 2. Climate Change Adaptation
 3. Sustainable Use and Protection of Water and Marine Resources
 4. Transition to a Circular Economy
 5. Pollution Prevention and Control
 6. Protection and Restoration of Biodiversity and Ecosystems
- ❖ BVP monitors and reports the eligibility and alignment of all its funds with the sustainable objectives outlined in the EU Taxonomy.

BVP Portfolio Overview¹

as per 31/12/2023



 **Renewable Chemistry**

 QORIUM	 CIRCULARISE	 ALIFORM	 niostem
Fund IV	 Resolved Technologies	 PL BioScience WE DELIVER CELL SOLUTIONS	

 **Health**

 ertoro	 fuenix Let no plastic go to waste	 MATISSE PHARMACEUTICALS	 EnzyTag Traceless Ligation
	 ioniqa	 VACiS	 TRIPLEMED Aortic Aneurysm Solutions
		 Corporis Medical	 Hy2Care
CV		 fortimedix SURGICAL	

 **Agrifood**

 Grassa GREEN REFINED SOLUTIONS	 SOILWISE
 KIPSTER	 PECTCOF
 SJB Seed Embedding Technology	 AvL Motion
 VERDIFY	 Greencoverly UPGRADING RESOURCES
BAF	

¹ BVP Fund IV: all investments included | BAF: all investments included | CV: all active investments with remaining fair value > € 0 included

Fund Level Impact Analysis

Chemelot Ventures

The impact of **Chemelot Ventures (CV)** is highly positive overall (+51%), with large positive net contributions in the **Society** and **Health** dimensions.

Net Impact Ratio
+51%

Society



The significantly positive net score is due to the large number of jobs (including tax income) that the portfolio companies created to date

Knowledge



For this dimension, the fund's net score is negative, which is mainly attributable to the scarcity of specialized human capital available in the market and the portfolio company's need for such specialists¹

Health



The positive net impact is mainly driven by the large share of portfolio companies that develop ground-breaking solutions for patients with a positive effect on their quality of life

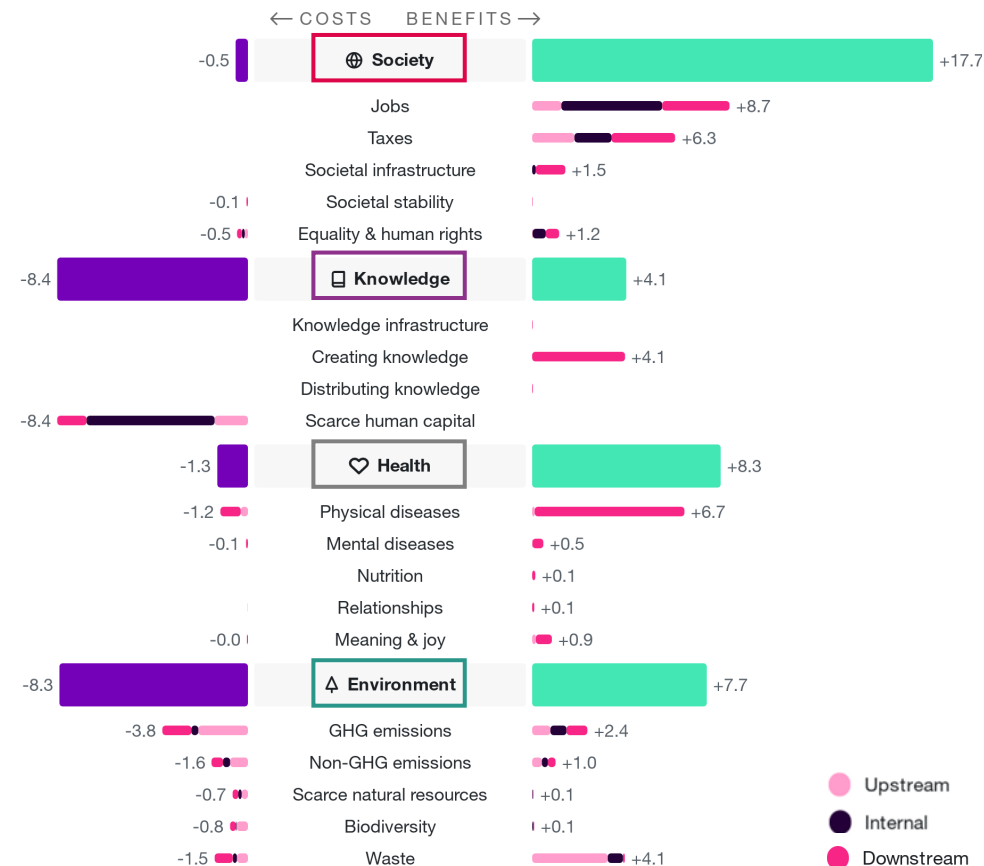
Environment



As renewable chemistry startups constitute a limited portion of the CV portfolio, their positive environmental impact is outweighed by health startups, leading to a slightly negative overall environment score

¹ Relates to the opportunity cost of using a highly skilled workforce that could alternatively do useful and impactful work elsewhere, too. This is typical in the early R&D intensive stages of a startup. This "imbalance" tends to improve as companies mature, and the teams diversify. Furthermore, BVP observes that startup teams generally benefit from a steep learning curve, which is believed to positively impact and benefit society as a whole.

Upright Model – Net Impact Ratio



Source: Upright Model Release 1.4.0 on 28/05/2024 at 13:40 (based on information as per 31/12/2023)

Fund Level Impact Analysis

Brightlands Agrifood Fund

Net Impact Ratio
+21%

Overall, the **Brightlands Agrifood Fund (BAF)** exhibits a positive impact (**+21%**), with significant positive impact in the **Society** and **Health** dimensions.

Society

The significantly positive net score is due to the large number of jobs (including tax income) that the portfolio companies created to date

Knowledge

For this dimension, the fund’s net score is negative, which is mainly attributable to the scarcity of specialized human capital available in the market and the portfolio company’s significant need for such specialists

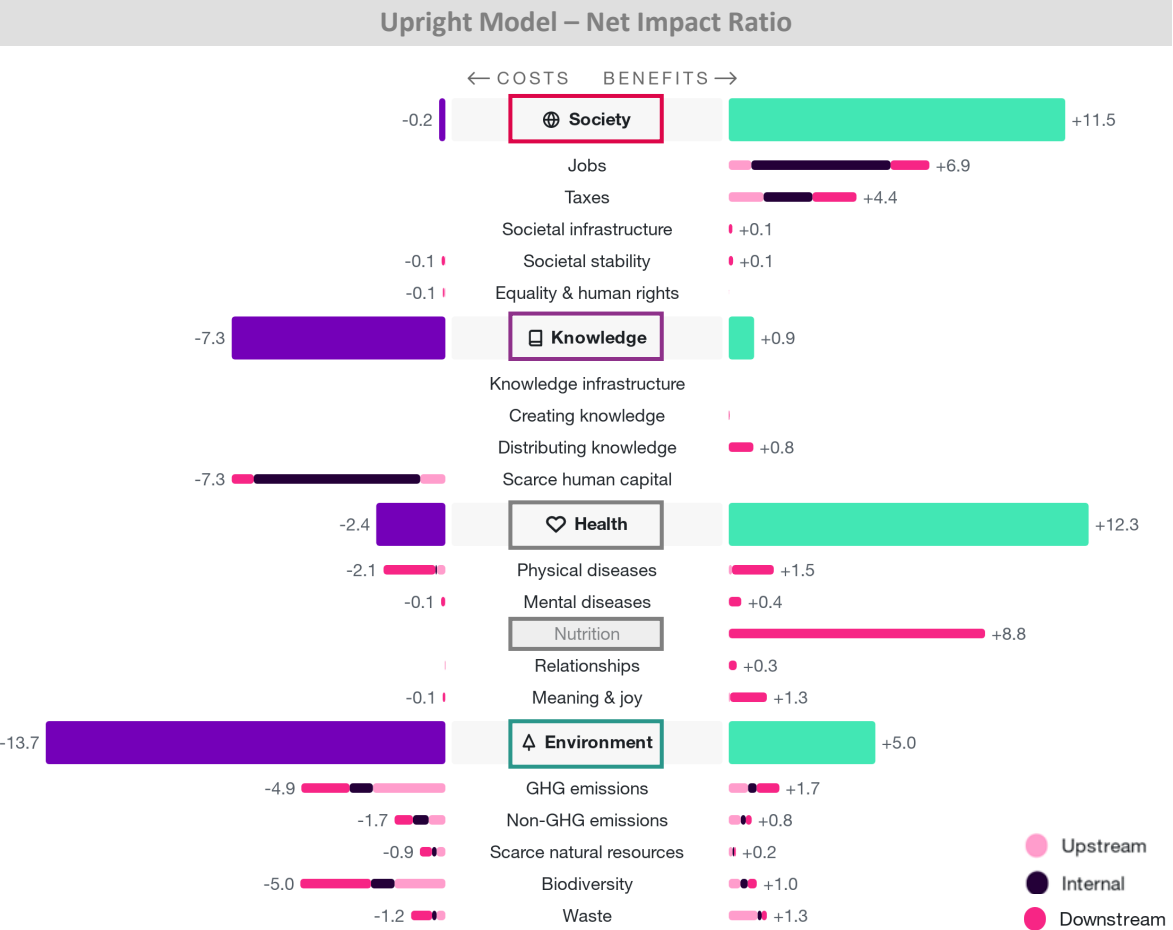
Health

BAF invests in companies that are changing the traditional agrifood sector into a sector producing healthy and high-quality food in a sustainable and regenerative manner – positively impacting “**Nutrition**”

Environment

This dimension is adversely affected by the intrinsic environmental challenges associated with the value chains that the startups operate in¹

¹ With their innovations, BVP’s portfolio companies operate in an agricultural value chain that is associated with inherent negative environmental impacts. In the Upright methodology this may bring about minus points. However, BVP is of the opinion that positive impact can still be made in such a value chain for a successful transformation towards more sustainable, more circular and plant-based agriculture. Examples are: a circular company using dairy waste or a company improving animal welfare.



Source: Upright Model Release 1.4.0 on 28/05/2024 at 13:39 (based on information as per 31/12/2023)

Fund Level Impact Analysis

BVP Fund IV

The overall impact of **BVP Fund IV** can be considered highly positive, with a net impact ratio of **+45%** a.o. due to strong performance in the **Society** and **Health** dimensions.

Net Impact Ratio
+45%

Society



The significantly positive net score is due to the large number of jobs (including tax income) that the portfolio companies created to date

Knowledge



The negative impact score in this dimension is mainly due to the high prevalence of highly educated people (i.e. scarce human capital) in elaborate research activities performed by the portfolio companies

Health



The positive net impact is mainly driven by the large share of portfolio companies that develop ground-breaking solutions for patients with a positive effect on their quality of life

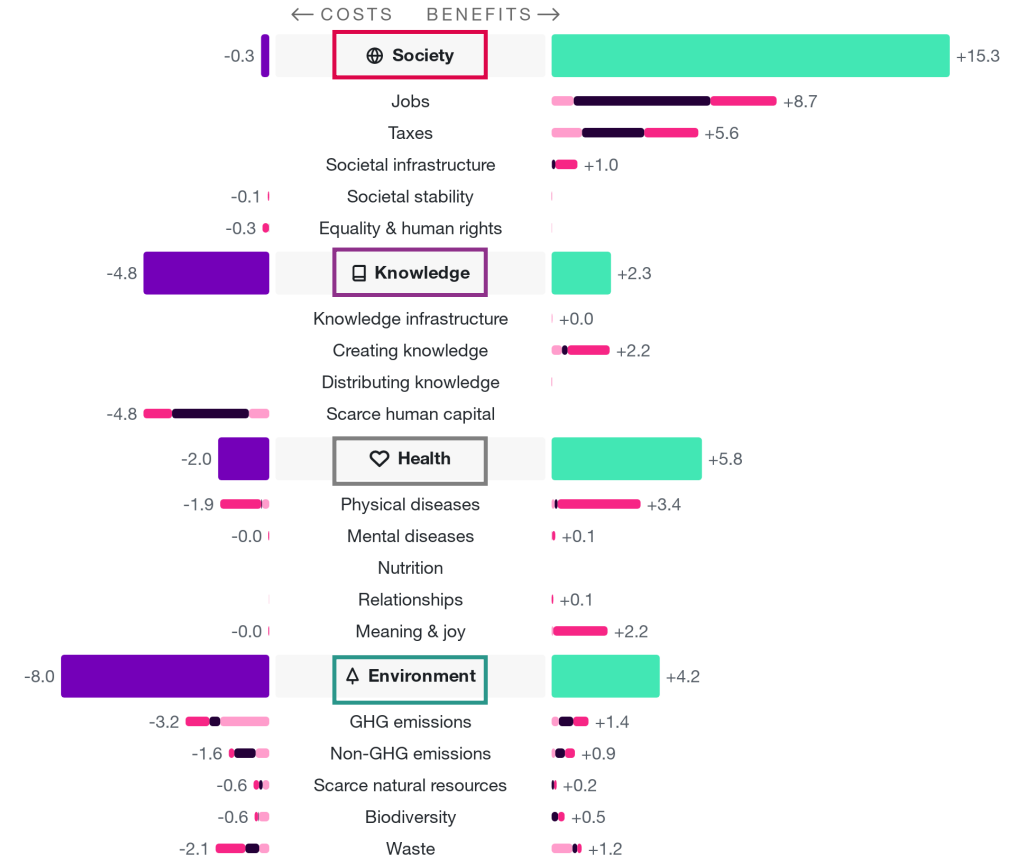
Environment



It is anticipated that Environment metrics will further improve in the coming years through the incorporation of more investments in the biobased and circular sector in the BVP Fund IV portfolio

Note: As BVP Fund IV operates as an Article 9 fund under SFDR, various environmental and social objectives have been incorporated in the investment strategy of the fund. BVP is pleased to mention that the 2023 net impact profile of the fund fully aligns with the binding elements set for environmental and social objectives. BVP aims to further strengthen the fund's net impact in the coming years and to build a well-diversified portfolio with positive impact across all focus areas (Renewable Chemistry, Health & Agrifood).

Upright Model – Net Impact Ratio



Source: Upright Model Release 1.4.0 on 28/05/2024 at 13:41 (based on information as per 31/12/2023)



Ioniqa



Chemical Recycling of Plastics

Clean-tech spinoff from *Eindhoven University of Technology* (NL), specialized in creating value out of PET waste by using its proprietary circular technology

Impact

- Approximately **50%** lower carbon footprint compared to oil-based PET production.
- Only 10% of the 90 million tons of yearly produced PET Polyester is currently recycled. *Ioniqa Technologies* offers an economically viable and technologically adequate solution to this problem, thereby increasing the amount of PET recycled and preventing incineration and landfilling.



Challenge

Large amounts of plastics are incinerated or sent to landfills. Additionally, oceans and nature are increasingly polluted. Currently, only a small portion of the plastics used are being recycled.

Solution

With *Ioniqa's* technology, PET waste can be recycled endlessly, giving the market a high-quality alternative to virgin products. This does not only allow for a better cost base but also addresses the scarcity of recycled PET.

Highlights 2023

- Excellent cooperation with *Koch Technology Solutions* led to further improvement in *Ioniqa's* demo plant in Geleen which produced commercial amounts, opening the door towards future out-licensing of its technology.

SDG Alignment

8 DECENT WORK AND ECONOMIC GROWTH

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

13 CLIMATE ACTION



Fuenix

Chemical Recycling of Plastics



Dutch company that has developed a fast pyrolysis technology that can prevent millions of tons of plastic-related contamination by bringing back virgin-like properties to plastic waste, 100% circular

Impact

- ✦ Chemical plastic recycling emits between 1 and 2 tonnes CO₂ / ton waste less than incineration.
- ✦ 1 ton of LDPE produced from pyrolysis oil, emits 2.3 tonnes less CO₂ than 1 ton LDPE produced from fossil naphtha.



Challenge

Every year, an enormous amount of plastics is being landfilled, discarded or incinerated while only a small proportion gets recycled. Inadequate plastic waste management is associated with increases in GHG emissions and pollution - the latter being associated with negative impact on nature, wildlife and potentially on humans.

Solution

Fuenix' Ecogy® technology converts sorted end-of-life mixed plastic waste into high-value hydrocarbons with virgin-like properties. The solution offers high recovery and conversion rates, enabling a high degree of circularity in the plastic value chain, thereby reducing plastics sent to landfill, incinerators, and nature.

Highlights 2023

- ✦ Agreement signed with *Sulzer* for a strategic stake and cooperation.
- ✦ This will allow the companies to offer complete recycling lines based on *Fuenix's Ecogy®* technology and *Sulzer's* proven separation and purification solutions.

SDG Alignment





Vertoro

Bio-based Alternatives



Vertoro offers a bio-based alternative to fossil resources - using its Goldilocks® technology, Vertoro enables biorefineries at large scale, making products that can be used for a wide range of applications in materials, chemicals and fuels

Impact

- ✦ 65-95% lower GHG-emissions of Goldilocks® technology compared to fossil fuels.
- ✦ Replacing fossil fuels, improving carbon efficiency, and facilitating circularity by using cellulosic waste streams.



Challenge

The use of fossil fuels is a large contributor to climate change. Sustainable and cost-efficient replacements of fossil fuels are an absolute requirement to meet Paris climate targets and support companies in meeting their associated sustainability targets.

Solution

Vertoro's Goldilocks® technology is a new green platform product that can be used to make materials, fuels, and chemicals. It allows for a significant reduction in carbon footprint, at attractive costs.

Highlights 2023

- ✦ Successfully started up its 1 kt demo facility in Geleen, NL.
- ✦ Held a groundbreaking ceremony for its first commercial plant in Rotterdam, NL.
- ✦ Secured JTF funding of € 4 mln + a small-scale EU Innovation Fund grant of € 4 mln.
- ✦ Successful tests of Vertoro's CSO product by partner Quadrise.

SDG Alignment



ReSolved Technologies



Closed-loop Recycling

ReSolved Technologies is a startup dedicated to increasing circularity by regenerating valuable plastics from difficult-to-recycle waste streams and converting them to recycled material of near-virgin quality that is suited for closed-loop recycling in high-end markets.

Impact

- ✦ The carbon footprint of polymers recycled with *ReSolved Technologies'* solvent-based technology has the potential for a substantial reduction when compared with fossil-based polymers.
- ✦ Solvent-based technology allows for closed-loop recycling, thereby preventing plastics from being downcycled, incinerated or landfilled.



Challenge

Engineering plastic waste streams, such as E-waste and car scrap, are complex and often contain legacy additives. For proper recycling, individual plastic types need to be sorted and additives removed. Current technologies only partially achieve this. In the EU, ca. 95% of engineering plastics contained in such waste streams is currently downcycled, incinerated or landfilled.

Solution

Based on a unique solvent-based technique, *ReSolved Technologies* has developed a hybrid recycling technology to address engineering plastics in complex waste streams. Thereby making it possible to separate and purify different types of plastics and to remove a broad range of additives. The high quality recyclate allows for the possibility of closed-loop recycling.

Highlights 2023

- ✦ *ReSolved Technologies* announced the successful closing of a €1 mIn Seed investment made by *BVP* and the *ifund Foundation*.
- ✦ With this funding, *ReSolved Technologies* will have the capability to manufacture recyclate that can be used in various ways (e.g. in electronic equipment, automotive applications and in the building & construction industry).

SDG Alignment





Qorium

Cultivated Leather



Qorium innovates cutting-edge tissue engineering, synthetic biology and cellular agriculture technology to manufacture cultivated leather as a sustainable, high-quality replacement for traditional leather

Impact

- ✦ Qorium’s cultivated leather is estimated to save more than **50% CO₂** when compared to traditional leather and offers significant reductions in water and chemical usage as well as waste creation.
- ✦ Its product contributes to a bio-circular system that is independent of meat and reduces in factory farming, deforestation and animal cruelty.



Challenge

Livestock for the meat and leather industry produces large amounts of CO₂ + methane and requires significant amounts of water. Producing leather also requires vast amounts of energy, the use of harsh chemicals and generates a significant amount of waste. Furthermore, livestock is the main cause of deforestation globally and raising cattle has major animal welfare implications as well.

Solution

Qorium is developing and working towards the manufacturing, selling and distribution of cultivated leather. Successful samples of lab grown collagen have been tanned into real finished leather that are currently being tested and used for presentation purposes.

Highlights 2023

- ✦ Creation and deployment of new, proprietary manufacturing equipment.
- ✦ 50%+ cost reduction for proliferation medium.
- ✦ Awarded a *EuroStars* grant.
- ✦ Hired experienced COO, Ralf Fehrenbach.
- ✦ New CEO, Michael Newton, a former senior executive from Nike, was hired.

SDG Alignment





Circularise



Innovative Blockchain Platform

Circularise is a leading blockchain platform that provides digital product passports for end-to-end traceability and secures data exchange for industrial supply chains

Impact

- By increasing the access to information about materials, production processes, certified material quality and other product life cycle information, *Circularise* enables more transparency and traceability within supply chains. These are essential components to achieve and support a true circular economy.
- Potential to enable a reduction of 551Kt CO2-eq per year in plastic supply chains by enabling more recycling.



Challenge

End-to-end Supply Chain Traceability holds the key to overcoming major challenges that society faces in the areas of circular economy, environmental pollution and carbon emissions.

However, the race to sustainability is held back by concerns around trust, privacy and confidentiality as available key data often is inaccessible, proprietary or incomplete.

Solution

Circularise enables supply chain actors to share sensitive data without risking privacy and confidentiality.

This allows *Circularise* to improve resource use, verify provenance, and conduct carbon footprint and impact assessments.

These are key enablers to unlock the potential of circular economy business models and to drive worldwide adoption.

Highlights 2023

- Secured SAFE investment with SEKISUI CHEMICAL.
- Joined *Global Battery Alliance* to accelerate the development of Battery Passports.
- Circularise's* MassBalancer now supports ISCC EU for RED II compliance.
- Partnered with *GoodFuels* to digitalize ISCC EU system for RED II compliance.

SDG Alignment

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Corporis Medical

Innovative Medical Devices



Corporis Medical is a medical device company developing innovative surgical tools to improve laparoscopic surgery

Impact

- ✦ Less post-operative complications, less trocar wounds herniations and less bowel leakages.
- ✦ Safer laparoscopic procedure, more cost- and time efficient and better procedure outcomes.



Challenge

Post-operative complications such as leakages and herniation are associated with a range of negative consequences such as severe illness, agonizing pain and death. Such complications present a large burden on healthcare costs with post-operative treatment for bowel leakages in the EU and US estimated to cost ca. \$1.5 - 3.0 bln p.a. where costs for treatment of incisional hernia amounts to ca. \$3.1 bln p.a. in the US.

Solution

Through *Laprixa*, the smallest tissue blood pressure device in the world, and *Mediclose*, an innovative device designed for closing trocar wounds, *Corporis Medical* aims to reduce post-operative complications. *Laprixa* is estimated to reduce the occurrence and average costs of bowel leakages by 89%. *Mediclose* is estimated to reduce occurrence of trocar wound herniation by 2-6%.

Highlights 2023

- ✦ *Corporis Medical* closed a €4M series B financing round. This funding will allow the company to finance its clinical trial program and complete its regulatory filings.

SDG Alignment





Hy2Care

Functional Recovery of Cartilage Defects

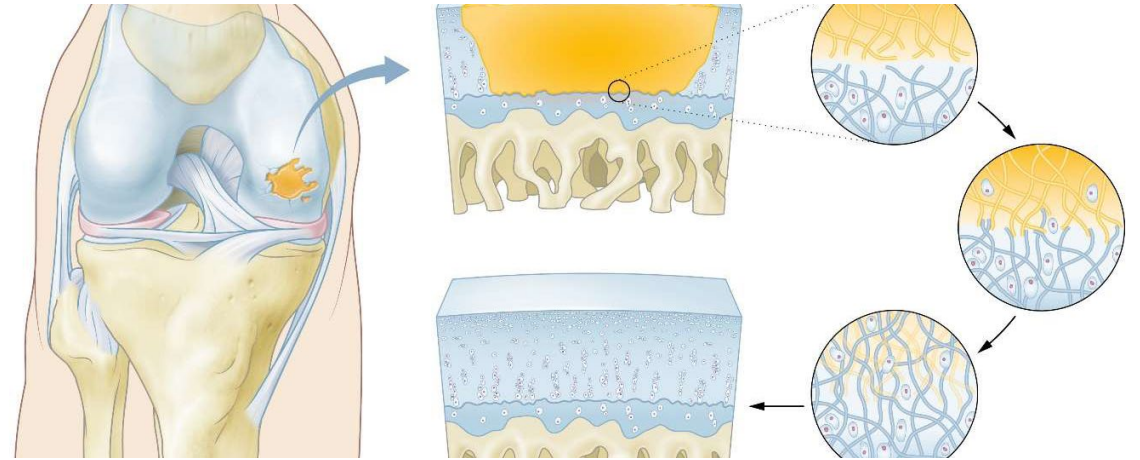


Hy2Care is a clinical-phase company, specializing in advanced joint repair through its proprietary CartRevive® injectable implant.

This unique technology aids cartilage repair by providing a natural scaffold that is populated by native cells and allows the body to heal itself.

Impact

- ✦ Long lasting cartilage defect repair, allowing patients to maintain an active and healthy life. Potentially also preventing onset of osteoarthritis as well as reduction of future follow-on surgeries.
- ✦ Long lasting cartilage repair will reduce future healthcare costs and burden on hospital (staff) related to the cartilage defect.



Challenge

Annually, 750.000 patients (EU and US) with cartilage defects are treated with microfracture or debridement treatments, giving only temporary relief, resulting in repeat treatment and often leading to chronic diseasing, resulting in high societal costs.

Solution

Hy2Care has developed *CartRevive Hydrogel* implant, an innovative therapy designed for cartilage repair. This implant allows endogenous cells to form new cartilage, encouraging the body to repair itself.

Highlights 2023

- ✦ *Hy2Care* announced that it will initiate the next phase of its ACTIVE clinical study to improve cartilage repair of the knee joint. Bringing optimal cartilage repair in the knee one step closer to becoming a reality.

SDG Alignment





TripleMed

Innovative Solutions for Aortic Aneurysms



TripleMed develops innovative and cost-effective solutions for the treatment of Aortic Aneurysms

Impact

- More successful in closing leak in single treatment compared to market standard.
- Cost reduction of 33-66% for Endoleak treatment.
- When used as adjunct to EVAR, reduces reinterventions, number of control CT scans and associated costs.



Challenge

More than 150,000 patients worldwide are treated for aortic aneurysms each year. As many as 10-15% of all aortic aneurysms previously treated with stent-grafts experience leakage (endoleaks) and further growth of the aneurysm. Currently no effective treatment options are available for such endoleaks.

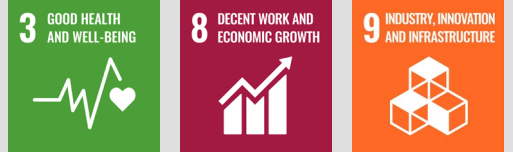
Solution

AneuFix is a 2-component polymer in a syringe. Upon insertion, the 2 components are mixed and then harden into an elastic permanent implant in the aneurysm. With its innovative design, *TripleMed* expects to make a significant improvement to more effective and cost-efficient treatment of aortic aneurysms.

Highlights 2023

- Introduced an improved version of the *AneuFix* product which demonstrates to perform superior to state-of-the-art clinical alternatives.
- Compiled and Submitted Technical Dossier to DEKRA to obtain CE mark.

SDG Alignment





VACIS

Creating Autologous Blood Vessels



VACIS is the leading tissue engineering company for body-own blood vessels and is concerned with promoting in situ blood vessels providing novel therapeutic options for vascular surgery

Impact

- ✦ Providing a lifeline, and reduce levels of complications (infection, thrombosis, inflammation, rejection, etc.) for hemodialysis patients.
- ✦ Saving lives, reducing patient suffering through less interventions and surgery, and less life-threatening complications.
- ✦ Supporting the build-up of regenerative medicine as a new sector for the economy and providing jobs and investment opportunities.



Challenge

A reliable source of blood vessels is a major unmet medical need. Current solution is the prosthetic vascular graft where failure rates are high, resulting in patient suffering and substantial morbidity and health care costs. For hemodialysis (3m patients globally) 35%-40% of grafts require an intervention or complete replacement within one year.

Solution

VACIS' technology uses a unique scaffold, which is temporarily implanted for 4 weeks to induce the formation of a new and fully functional blood vessel. The blood vessel is entirely natural, alive and ready for use. The blood vessel could be used as a vascular access point for hemodialysis, offering a lifeline for late-stage patients.

Highlights 2023

- ✦ EMA (European Medicine Agency) confirmed technology's regulatory pathway.
- ✦ Opening of Boston (US) office.

SDG Alignment

3 GOOD HEALTH AND WELL-BEING

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Matisse Pharmaceuticals

Neutralising Extracellular Cytotoxic Histones



Matisse Pharmaceuticals is a biopharmaceutical clinical stage company dedicated to develop a product portfolio of safe and innovative therapies for disease indications characterized by elevated levels of cell free cytotoxic histones, such as in sepsis and septic shock

Impact

- ✦ Potential to save millions of lives by effectively targeting the root cause of sepsis.
- ✦ Increase survival chances of sepsis patients.
- ✦ Reduction in long-term treatments and readmissions to hospital.
- ✦ Reduction of long-term morbidity.



Challenge

Sepsis is a life-threatening organ dysfunction caused by a dysregulated host response to an infection. According to the WHO, each year 11 mln people, of which 2.9 mln are children under the age of 5, die of sepsis. Sepsis is the most common cause of in-hospital deaths, costing over \$62 bln p.a. in the USA alone. Despite intense research, currently no effective and registered treatment for sepsis is available.

Solution

Matisse's most advanced development is a rescue therapy for treatment of sepsis patients based on its patented use of pentasaccharide depleted heparin (M6229). The negatively charged M6229 neutralizes positively charged histones, which are responsible for tissue damage, organ failure and ultimately death.

Highlights 2023

- ✦ Appointment of Kees Groen and Marcel Jacobs to form the Board of Directors.
- ✦ Addition of two internationally renowned experts, Prof. John Marshall and Prof. Mervyn Singer, to the scientific advisory board.
- ✦ In Dec 2023, *Matisse* agreed on a EUR 3.6 mln finance round with new and existing investors.

SDG Alignment

3 GOOD HEALTH AND WELL-BEING

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

10 REDUCED INEQUALITIES



Fortimedix Surgical

Creating Disruptive Surgical Instruments



Fortimedix Surgical is a medical device company that focuses on developing & manufacturing proprietary articulating instrument technology for robotic and non-robotic applications.

Impact

- ✦ Cost-effective articulating surgical instruments increase accessibility to state-of-the-art care.
- ✦ Exceptional ease-of-use leads to decrease in OR time and thus lower hospital costs.
- ✦ Mechanical versatility enables multiple new applications in e.g. cardiovascular or lung health.



Challenge

The healthcare system is calling for more efficient and less invasive treatment methods. Costly articulating instruments with poor mechanical performance hamper the performance of modern surgical robots and block innovation in minimally invasive and endoluminal surgical procedures.

Solution

Through a fully laser cut product architecture, *Fortimedix Surgical* is able to transform low-cost metal tubes into flexible articulating shafts with complex functionality in the assembled state. The technology has application in endoscopic interventions and minimally invasive surgery.

Highlights 2023

- ✦ In 2023, *Fortimedix Surgical* further developed and widened its surgical tools product lines in close cooperation with strategic partners and realized unparalleled results in terms of dimensions, flexibility, mechanical properties and costs.

SDG Alignment





EnzyTag

Improving Synthetic Routes



Enzytag develops green enzymatic routes for the manufacture of innovative peptide-based biopharmaceuticals, such as small proteins and peptide-containing (bio)conjugates

Impact

- ✦ Reduced ecological footprint through less organic solvent consumption and less energy consumption leading to more affordable drugs.
- ✦ *EnzyTag* enables cost reduction of 50% on active ingredient levels and faster development and production of more complex products at higher purity in comparison to most pharmaceutical peptide and protein producers.



Challenge

Pharmaceutical peptides and biopharmaceuticals are drugs that treat major chronic diseases, such as exenatide and insulin (for treatment of diabetes and obesity), and a large variety of monoclonal antibodies (for cancer treatment). Given the cost explosion in healthcare, there is a high demand for less costly routes to more stable derivatives.

Solution

The platform technology offered by *EnzyTag* enables a reduction in cost of peptide and protein therapeutics, while allowing faster development and higher production of more complex products at higher purity.

Highlights 2023

- ✦ Successful completion of feasibility study for obesity drug in collaboration with big pharma.
- ✦ Moreover, *EnzyTag* successfully completed another feasibility study for an immuno-oncology protein, again in collaboration with big pharma.

SDG Alignment

3 GOOD HEALTH AND WELL-BEING

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



PL Bioscience

Producing Human-derived Platelet Lysate



PL BioScience, a spin-off from RWTH Aachen University, was founded in 2015.

PL BioScience is a commercial stage company. It has developed various human-derived cell growth media supplements in different grades – as necessary for specific applications in academic research, clinical research and stem cell therapies.

Impact

- ✦ Higher performance, efficiency, safety and reproducibility in experimental and clinical cell culture.
- ✦ Reduction in need for animal derived fetal bovine serum (FBS).
- ✦ Decrease in animal cruelty as well as methane emissions.
- ✦ Increased availability of safe regenerative medicine approaches.



Challenge

The industry standard for cell growth supplements is FBS, which is produced from blood that is drawn from unborn cow fetus after which both die. The worldwide demand for FBS amounts over 800,000 liters p.a., resulting in >2 mln calves and cows being killed for FBS production purposes. Safety risks (mad cow disease), high batch variability, animal welfare and ethics have led industry to seek alternatives to FBS.

Solution

PL BioScience produces human-derived platelet lysate, a growth medium for growing and expanding cells for applications such as cell therapy and tissue engineering. Human platelet lysate is produced from expired blood platelets at blood banks and serves as a replacement for animal-derived sera, such as FBS. *PL BioScience's* human platelet lysate provides improved performance and safety over FBS.

Highlights 2023

- ✦ *PL Bioscience* and *Macopharma* entered into a Patent License and Assignment Agreement regarding HPL cell culture supplements.
- ✦ As a result of the agreement, *PL BioScience* will accept a worldwide license under the patents filed by *Macopharma*, with a right to sublicense (through multiple tiers), for the duration of the license period.

SDG Alignment





niostem

Regenerating Hair Growth



niostem is a biomedical company inspired by extensive research in regenerative medicine, software and engineering and is developing an innovative solution that restores the body's ability to regrow hair in people with common hair loss

Impact

- ✦ Effective hair regrowth in people suffering from androgenetic alopecia (common hair loss) without side-effects.
- ✦ Decreasing prevalence of depression, anxiety, and other mental disorders that are currently overrepresented in balding patients.
- ✦ *niostem* has the potential to significantly increase the quality of life for people who are mentally suffering from hair loss.



Challenge

Common hair loss is a global problem that affects 8 out of 10 men and 5 out of 10 women at some point in their lives. In men, this problem can start as early as puberty, potentially causing serious psychological problems including depression. Current solutions in the market are insufficient and can cause significant side effects.

Solution

Based on *niostem's* own Stem Cell Reactivation Technology (SCRT), *niostem* developed a smart, wearable device that reactivates dormant hair stem cells within the hair follicle. By using bio-electrical stimulation, hair stem cells are reactivated reigniting hair and hair follicle growth.

Highlights 2023

- ✦ *niostem* successfully launched a pre-sales campaign via the *Indiegogo* platform, resulting in sales of more than 1.000 devices (>€1M).

SDG Alignment





Aliform

Creating Innovative Medical Devices



Aliform is a medical device startup company on a mission to make skin surgery safer, easier, and more accessible to both patients and clinicians.

Aliform has created an innovative surgical tool that enables physicians to treat skin connective tissue defects in a minimally invasive manner.

Impact

- ✦ Effective treatment of cellulite leading to a positive contribution to perceived quality of life.
- ✦ Portable and easy to use technology that increases the accessibility of treatments for both patients and doctors.



Challenge

Cellulite affects around 90% of adult women and manifests itself as a dimpled skin surface in the area of the thighs and buttocks.

Many of the women with cellulite find their quality of life strongly affected.

However, out of many available treatment options only minimally invasive subcision surgery has shown proven long-term effects.

Solution

Aliform designed *Celluleaf*, a medical device for minimally invasive cutting of connective tissue strands for the treatment of cellulite, scars, transplants and other minimally invasive surgical procedures.

As it is minimally invasive, *Celluleaf* can perform cellulite treatment without damaging nerves and blood vessels. This minimizes the risk of complications.

Highlights 2023

- ✦ Aliform announced the successful closing of its Seed investment round, raising \$1.7 mln.
- ✦ The round was led by BVP, several business angels and US-based accelerator *Health Wildcatters*.

SDG Alignment





Grassa

Biorefining Grass



Grassa developed a biorefinery process for grass residues able to extract protein from these residues, resulting in more nutritional value for the same amount of grass.

- Impact**
- ✦ 30% lower nitrogen emissions in cattle through the creation of easy-to-process proteins that lead to a reduction in waste streams, and the substitution of import products associated with high nitrogen emissions.
 - ✦ Significantly reducing carbon footprint by replacing import-soy with local grass protein.
 - ✦ Improving the farmers' earning model and facilitating the transition from animal-based to plant-based protein production.



Challenge

Radical change and innovative solutions are needed to meet the growing food demand in a sustainable way. Challenges such as optimizing agricultural land use, increasing protein production efficiency, and reducing our dependency on unsustainable crops need to be overcome.

Solution

Grassa's innovative biorefinery process unlocks the full potential of grass and is able to produce up to 250% more proteins per hectare of grass vs. the current use of grass. This efficient use of grasslands mitigates the dependency of farmers on the import of protein-rich crops and their negative externalities.

Highlights 2023

- ✦ Validation that grass after extraction results in 30% nitrogen reduction (30% less emission) via feed intake, without reduction of cattle milk production.
- ✦ First grass-based food applications developed in cooperation with *Flevo Campus*.

SDG Alignment





AVL Motion

Autonomous Harvesting Machines



AVL Motion is a technological innovator in the agricultural sector that develops selective, autonomous harvesting machines.

Impact

- ✦ 1 AVL harvesting machine can replace 18 fulltime-equivalents (FTEs), thereby decreasing dependency on laborers.
- ✦ > 5% increase in asparagus yield because of minimal plant damage thereby reducing food waste.



Challenge

In the last decade, asparagus farmers are increasingly struggling to attract and retain seasonal workers to manually harvest the crops.

In increasing cases, farmers must write off (part of their) yields due to the inability to harvest at the right time due to lack of personnel.

Solution

By offering an autonomous selective asparagus harvest machine, *AVL Motion* provides asparagus farmers with a solution for labour shortages and crop write-offs.

Highlights 2023

- ✦ In 2023, the asparagus season capacity and reliability have been validated.
- ✦ The machine capacity is comparable to manual production in terms of quality and volume.

SDG Alignment





Kipster

Sustainable Poultry Farming



Kipster was founded to find a way to feed the world’s population in an honest way while showing respect for all living beings, and not passing any cost to future generations.

To achieve this, Kipster introduced an innovative animal protein production concept offering animal-, environmental, and people-friendly eggs.

Impact

- ✦ Kipster chickens are fed using food waste streams, significantly reducing the amount of land needed for producing eggs and meat.
- ✦ > 2.500 tons of food waste turned into eggs (NL).
- ✦ > 1.500 tons of food waste turned into eggs (USA).
- ✦ Kipster offers climate-neutral eggs.



Challenge

Consumer concerns over animal welfare, sustainability and transparency are driving the global egg market towards more animal-friendly production.

Additionally, over 70% of the world’s agricultural land is used for livestock feed. This has an enormous impact on ecosystems, biodiversity and nature.

Solution

Kipster offers a new, sustainable model for poultry farming that facilitates high-level animal welfare.

Additionally, by using residual flows from bakeries and other food producers, Kipster aims to bypass the use of agricultural land and the negative impact thereof.

Highlights 2023

- ✦ Kipster announced its certification as a B corporation, also known as B Corp.
- ✦ Four Kipster farms went into operation in the US.

SDG Alignment





PectCof

Biorefining Coffee Waste



PectCof addresses the problem of agricultural waste in the coffee chain, thanks to its proprietary green extraction technology. The company's impact goes beyond the coffee chain, since their first product on the market, Dutch Gum® is a soluble dietary fiber that makes plant-based product development easier and delicious.

Impact

- ✦ 11 million tonnes CO₂-equivalent reduction per year if all coffee pulp would be converted into valuable ingredients.
- ✦ Extends the shelf-life of high protein products.
- ✦ Reduces sugar crystallization.



Challenge

Coffee pulp is produced when separating the bean from the rest of the cherry and is the major side stream in coffee bean production. P.a. 10 mln tons of coffee pulp are produced that have no use and are landfilled. Compared to animal-based proteins, plant proteins face several challenges (flavor, texture and aroma) in their formulation and acceptance by consumers.

Solution

PectCof has designed an innovative biorefinery process wherein the waste stream of coffee cherries is transformed into valuable bio-compounds. *PectCof's* first product to market, Dutch Gum®, contributes to plant-based food and to a world that will be needing 70% more proteins over the next three decades.

Highlights 2023

- ✦ *PectCof* completed their 3rd party food-grade commercial scale production run.
- ✦ *PectCof* achieved the Self-Affirmed GRAS (Generally Recognized As Safe) status for Dutch Gum®, which enables *PectCof* to expand into the North-American food market.

SDG Alignment





S&dB

Seed Enhancement & Precision Planting



S&dB has developed a patented Seed-Embedding Technology (SET) that combines plant seeds with cost-efficient bio-based materials to support and protect early plant growth.

Impact

- ✦ Facilitating a reduction in growth media (peat, stone wool), use of agrochemicals (pesticides, herbicides, insecticides and fertilizers), and CO2-emissions.
- ✦ Increase in crop yield per hectare land and reduction of operating costs.
- ✦ Enable direct seeding in cover crops with no tillage, essential for regenerative farming.



Challenge

World-wide trends such as bans on pesticides, water shortages, and growing demands for food safety are resulting in suboptimal and unpredictable crop yields for farmers and growers.

Solution

Through its Seed-Embedding Technology, S&dB aims to improve precision planting of fine seeded crops and to place seeds in the ground with a larger seed space, which guarantees an optimal germination environment for seeds.

This leads to accelerated plant growth and increased productivity with lower input.

Highlights 2023

- ✦ First significant sales have been made in 2023.
- ✦ *StartLife*, the *Agrifoodtech Accelerator*, selected S&dB to join the 10th cohort of their global acceleration program.

SDG Alignment





Greencovery

Upcycling Food Ingredients



Greencovery is paving the way for a greener, more efficient food ecosystem, in which they strive to let food waste become a relic of the past

Impact

- ✦ Reutilization of cheese rinds leads to saving 7.142 tonnes CO₂ -equivalent per year in demo facility.
- ✦ 168.4 m² land save / kg of fully utilized cheese rinds.



Challenge

Every year, a staggering 30–40% of our global food supply goes to waste, a concerning statistic exacerbated by the immense water, energy and land resources invested in producing unconsumed food.

Solution

Greencovery has developed a technology through which they can extract high quality upcycled ingredients. *Greencovery* enables food companies to apply this technology to their own production side-streams, resulting in more new food ingredients, less food waste and a reduction of carbon emissions.

Highlights 2023

- ✦ *Greencovery* technology successfully transformed diverse plant-based side-streams, amplifying its potential for positive impact.

SDG Alignment





Verdify

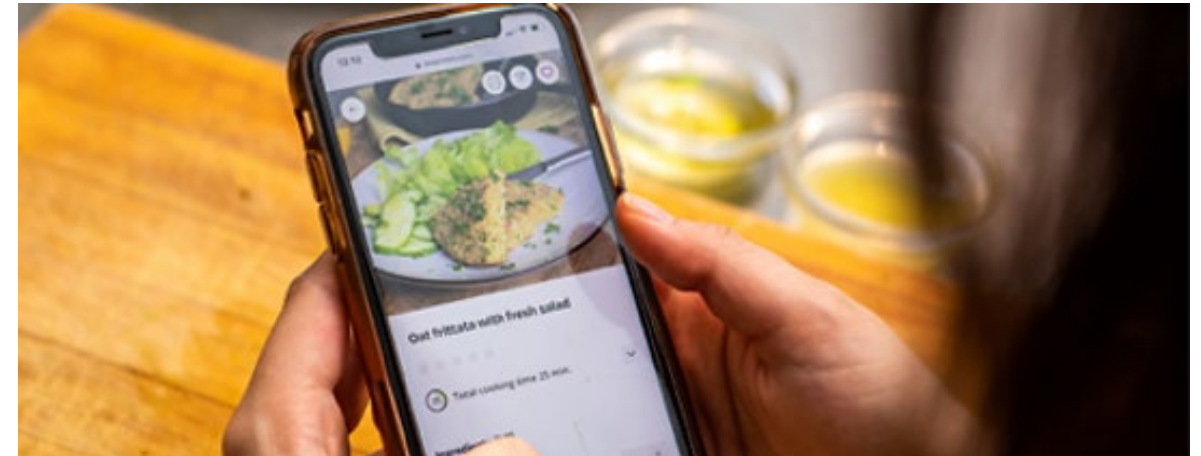
Personalized Nutrition Platform



Verdify is a FoodTech company that develops trusted software for personalizing online meal inspiration. Their mission is enabling people to make better food choices for personal and planetary health.

Impact

- ✦ > 25% Reduction in disability-adjusted life years due to poor diet in general population.
- ✦ 25% increase in the frequency of food-as-a-medicine prescriptions.
- ✦ Increasing the adoption of healthy and more sustainable diets.



Challenge

More sustainable and healthy food choices - at massive scale - are critical for lowering pressure on healthcare systems and the environment.

Considering the many differences of consumer needs and preferences, more is needed than the conventional one-size-fits-all approach.

Solution

Verdify is determined to become a key driver in the global shift towards healthy and sustainable eating by driving better food choices.

This is done by integrating better options in online food environments and introducing a trusted personalized nutrition platform into healthcare systems.

Highlights 2023

- ✦ *Verdify* officially launched *Noory*, a groundbreaking digital nutrition guide.
- ✦ *Noory* enables people facing dietary challenges to prepare and enjoy delicious meals that align with their dietary needs.

SDG Alignment





Soilwise

Bio-based Soil Health Recovery



Soilwise is a company based in Wageningen that develops and markets bio-based soil health recovery technology offering an alternative to chemical decontamination of agricultural lands

Impact

- ✦ **84%** reduction in CO2 emissions when compared with steaming method.
- ✦ **100%** reduction in use of chemicals for soil disinfection.
- ✦ **5% - 15%** increase in crop yield compared to other methods and no use of chemicals or energy-intensive steam.



Challenge

The intensive use and exploitation of soils cumulates diseases. Soil health and biodiversity are important issues in the global agribusiness as it is becoming increasingly clear that conventional agricultural practices and synthetic chemicals ultimately degrade the top layer of soil.

Solution

Soilwise offers innovative bio-based solutions for restoring and strengthening soil health. Through their offerings, *Soilwise* supports growers and arable farmers to restore and improve their soils in a sustainable way and increasing crop yield. Additionally, *Soilwise's* Roots Reset method has proven effective for the control of invasives such as Japanese knotweed.

Highlights 2023

- ✦ Introduction of *Soilwise* technology in Spain and Italy for several new crops.
- ✦ Reached a breakthrough in the treatment of Fusarium in banana plants in the Philippines.

SDG Alignment



Looking Forward

Impact will keep guiding BVP throughout its Decisions

BVP values the opportunity to share the impact successes our funds and startups have achieved in 2023. Addressing the global challenges in the sectors we invest in is not a sprint but a marathon. We will continue to work on our ambitions and already look forward to providing next year's update.

Please do not hesitate to contact us in case of questions as this impact journey is very much about dialogue with all stakeholders. We are always on the lookout for improvements and are convinced we are stronger together in our journey towards a better, healthier and sustainable future!

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