RESEARCH CONTRACTS & INNOVATION

YEARS OF INNOVATION EXCELLENCE

IMPACT THROUGH INNOVATION

INNOVATION AT UCT **2025**

25 YEARS OF IMPACT THROUGH INNOVATION

Contents

Reflections on 25 years of innovation. Vision for the future.

2025 marks a significant milestone. 25 years of transformative innovation, research excellence, and meaningful impact across diverse sectors.

Innovation is more than invention; it's about creating meaningful impact. In this year's edition, themed Impact Through Innovation, we take a retrospective and celebratory approach. It will spotlight the evolution and success of our innovation and intellectual property (IP) portfolio, drawing attention to the most influential innovations that have shaped industries, advanced science, and improved lives globally.

From advancing human and animal health to transforming agriculture and powering a sustainable energy transition, innovation is the catalyst behind every breakthrough we share in these pages. Whether it's a new medical device improving patient outcomes, a biotechnological solution supporting global food security, or clean energy technologies paving the way to a net-zero future, our focus remains clear: progress with purpose.

This report highlights the people, partnerships, and achievements behind a range of inventions over the last 25 years. As we look back at our achievements, we hope to offer insight into our growing intellectual property portfolio and showcase how our innovations are delivering value across industries.

Between 2004 and 2024, 40 spin-off companies have emanated from UCT research. UCT holds equity estimated at upwards of R250 million. UCT spin-offs have received local recognition, including awards from the Cape Higher Education Consortium / Cape Chamber of Commerce, highlighting their contributions to the Western Cape's economic expansion.

UCT's commitment to innovation and technology transfer is exemplified by our investment of R100 million in the South African SME Fund. Through our participation in the UTF and our partnership with the SA SME Fund, UCT is proud to play a pivotal role in shaping the future of South Africa's innovation landscape. The university has made a significant contribution to the flourishing medical device sector in Cape Town with 17 companies in the sector over the last 20 years. Universities can play an important role in developing the local economy.

In 2024, UCT invested R100m in the SA SME Fund, a "fund-of-funds" that has created 16 new venture capital funds, one of them being the University Technology Fund. UCT was a Special Partner in the African-first UTF I launched in 2020 and has invested as a Limited Partner in UTF II launched in 2025. Council has also approved that a portion of UCT's investments be made in private equity, with some of this investment ringfenced to support UCT spin-off in particular, through the Evergreen Fund.

We invite you to not only explore the innovations shaping a healthier, more sustainable world but to walk the journey of the next 25 years of impact with us.

Dr Andrew Bailey
Director of RC&I

Key Impact Highlights

40
SPIN-OFF COMPANIES
launched in 20 YEARS

>250 MILLION
equity held in spin-off companies

178
ACTIVE INVENTIONS

324 **ACTIVE GRANTED PATENTS**

>500
jobs created by spin-off companies

Accumulated income of more than
R50 million
from the commercialisation of intellectual property (IP)

UCT expands its spin-off company portfolio

One of the key functions of RC&I is to fulfill the role of a technology transfer office and commercialise the university's research outputs to stimulate the growth of the South African economy, foster small business development, and transform society for social, commercial, and environmental benefit. This can be achieved through licensing the technology to an existing company, or incorporating a spin-off company. Increasingly, in line with global trends, but also exacerbated by the frequent lack of absorptive capacity in certain sectors of South African industry, UCT is creating spin-off companies as the dominant mode of technology transfer.

To date, 40 spin-off companies have emanated from UCT. The 6 new additions from 2024 have expanded the university's equity portfolio too; UCT acquires equity in spin-off companies either through investment, or due to the intellectual property that is made available. Frequently UCT enters into an irrevocable exclusive license in exchange for equity in the company and the company has a right once 'trigger' conditions have been met to have the IP assigned to the company, so that they have full ownership of it. A particular round of investment is often a trigger, where local investors want the IP to be a company asset. But generally by the time that that occurs, the IP has been navigated by RC&I through patent prosecution to granted patents and one is sure that the company has the means to maintain the IP portfolio.

These spin-offs reflect the university's commitment to driving impactful innovation across various sectors, from biopharma to clean energy.

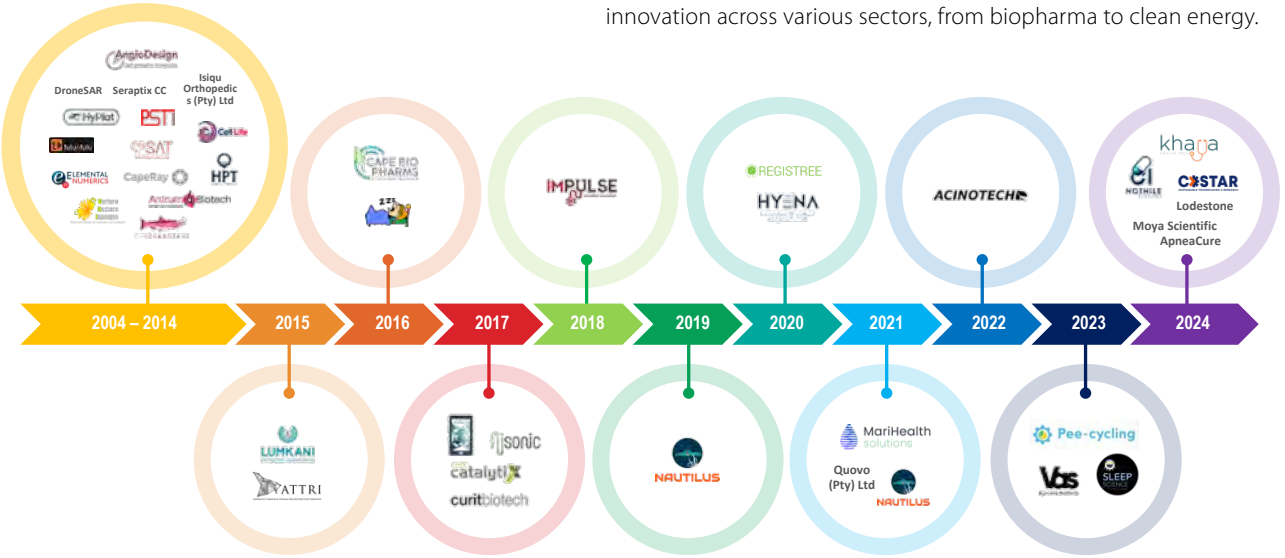


Figure 1. UCT Spin-off Company Timeline

Six New spin-off companies were recognised in 2024

A spin-off company is defined as a company that is incorporated specifically for the (initial) purpose of commercialising specific UCT IP. Although a company may have been incorporated in an earlier year by the founders, UCT recognises the spin-off once an IP transaction has been concluded.

C-STAR – A collaboration between Prof. Michael Claeys and Nico Fischer from UCT's Chemical Engineering department, C-STAR is commercialising a promising portfolio of technologies in the emerging Power to X green energy space. This initiative aims to transform renewable energy into useful products, helping to power the world's green future.

Moya Scientific – Another spin-off led by Prof. Claeys and Prof. Fischer, along with SKEG and UCT as shareholders, Moya (initially called SepaTech) is focused on bringing to market an innovative micro gas chromatography instrument, a product developed largely by Prof. Fischer. This technology is expected to play a key role in chemical analysis and environmental monitoring.

Lodestone – Specialising in magnetometer technology, Lodestone, also founded by Prof. Michael Claeys, will be conducting routine analytical test work on UCT's magnetometers for external clients as well as producing new magnetometers for global researchers within industry and academia. The company is poised to make strides in scientific instrumentation and data analysis. Magnetometers primarily find application for characterising catalysts under process conditions of high temperature and pressure.

Nothile Biopharma – A biopharma spin-off led by Dr. Sincengile Ntshingila of UCT's Hair & Skin Lab (Health Sciences), Nothile is set to commercialise cosmeceuticals specifically designed to combat alopecia. The company's products aim to address hair loss, offering hope to a growing market of patients seeking effective solutions.

ApneaCure – Founded by Dr. Rushdi Hendricks (Health Sciences), ApneaCure is commercialising a biological tendon designed to address sleep apnoea. The product, that he invented along with the late Prof. Deon Bezuidenhout, holds potential to improve the lives of millions of people worldwide suffering from this common condition. UCT will also be acquiring equity in the company in exchange for providing access to the intellectual property. Animal trials have been completed and the first-in-man trials are currently underway (June 2025).

Khaya Health Tech – Founded by Joel Philpott from the Division of Biomedical Engineering departments, Khaya Health Tech has developed a device that both diagnoses sleep apnoea and assists patients in maintaining their airway during sleep. The company is set to make a meaningful impact on the MedTech space, particularly in sleep disorder treatments.

The journey to spinning out

Since the first in 2004, RC&I was involved in the establishment of 40 new spin-off companies, 75% of which are still in business. UCT holds equity in 14 of the spin-off companies with an estimated value of +R250 million.

17 companies have entered the medical device sector, showing how universities can play a key role in stimulating their local environment, creating a new sector in the Western Cape.

Key highlights and awards

In 2012, spin-off company CapeRay Medical Pty (Ltd) won the category for "an outstanding contribution to SETI through Research leading to Innovation in a Small, Medium or Micro-Enterprise (SMME)" for their PantoScanner, which enhances clinicians' ability to diagnose breast cancer. Dr Peter Carrick, through NRI (Nurture Restore Innovate) won the category for "outstanding contribution to SETI through Research leading to Innovation in an NGO or CBO or NPO Organisation".

The PantoScanner Team

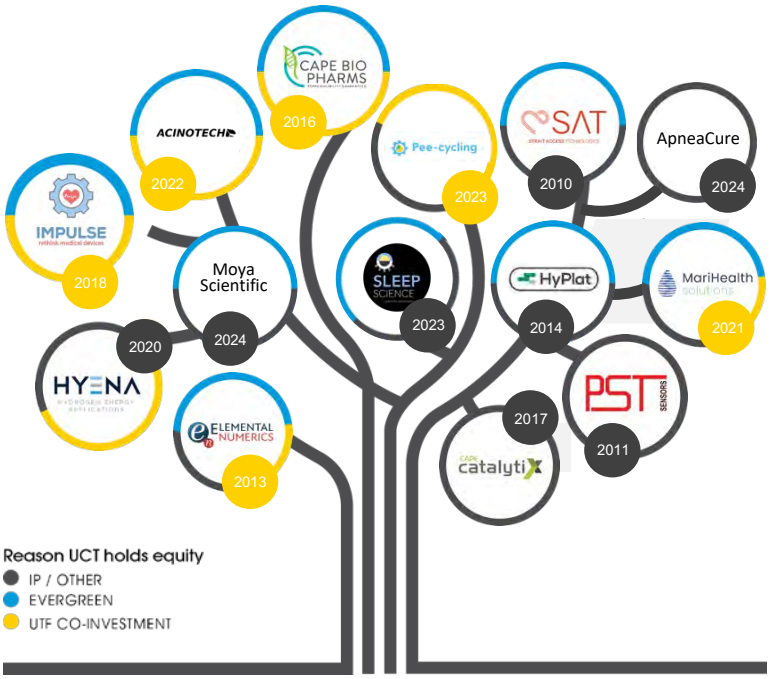


Figure 2. UCT Spin-off tree depicting spin-off companies UCT holds equity in

In 2014, **Lumkani** won the Western Cape Premier's Entrepreneurship Recognition Awards as the best student start-up (November 2014) and won the Comfortable Home Category in the Better Living Challenge 2014 (December 2014), which was run as part of the Cape Town Design Capital 2014 programme. Elemental Numerics won the NSTF-BHP Billiton Awards for "an Individual or a Team for an Outstanding Contribution to SETI through Research leading to Innovation: in a Corporate organisation or Institution".

And more recently, Dr Edmund Wessels of VasMedTech was selected as a joint winner of the coveted 2023 Africa Prize for Engineering Innovation for his work on **FlexiGyn**.

Overview of UCT's IP Portfolio

The university's Intellectual Property (IP) Portfolio has evolved over the last number of years but remains dominated by biotechnology if broadly defined (~70%). We started with a broad representation in human health/pharma and interesting to note that we currently have representation of approximately 30% in human health, which speaks to growth in other sectors. Medical devices account for 15% of our IP.

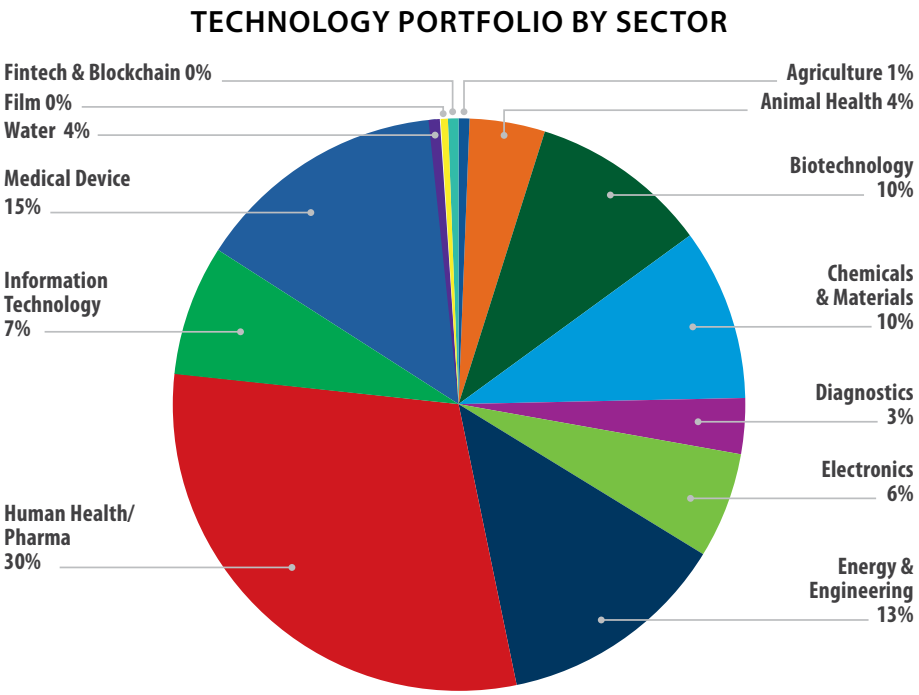


Figure 1. UCT's IP Portfolio sectors

The active IP Portfolio comprises approximately:

44
PATENT APPLICATIONS IN 2024 ALONE

324
ACTIVE GRANTED PATENTS

178
INVENTIONS

The journey of Strait Access Technologies

Strait Access Technologies (SAT) is a spin-off company originally founded by **Professors Peter Zilla, David Williams** and the late **Deon Bezuidenhout** in 2008. The company is dedicated to developing low-cost heart valve replacements, specifically designed for the challenges of emerging economies. SAT heart valves are designed to treat the 40 million Rheumatic Heart Disease (RHD) sufferers worldwide, without the need for open-heart surgery. SAT's biggest breakthrough product is a heart valve with polymeric leaflets/ flaps, instead of the traditional bovine or porcine tissue. This polymer valve promises to eliminate the biggest downside of traditional transcatheter heart valves – calcification – without the need for long term blood-thinning drugs.

Prof Peter Zilla

Prof David Williams

Prof Deon Bezuidenhout

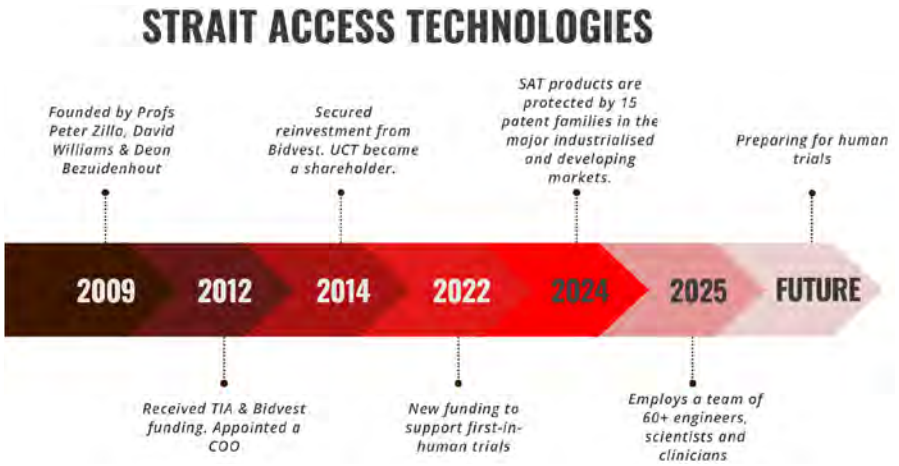


Figure 1. The summarised journey of SAT.

In 2017, the World Health Organisation (WHO) declared RHD is a global health threat. It is a preventable condition triggered by streptococcal bacteria, but when left untreated can cause a patient's immune system to attack their own heart while fighting the infection. This leads to an acute inflammation of the heart and valves accompanied by a fever. Acute Rheumatic Fever primarily affects lower socioeconomic status people without access to penicillin.

SAT employs 60+ engineers, scientists and clinicians. Having successfully completed animal trials, following ethics approval, the first-in-human trial recruitment has commenced. Whilst the technology will have significant benefits in the African environment, its advantages will be equally

beneficial for the developed world where durable transcatheter valves are needed to treat younger patients who suffer from heart valve diseases.

Strait Access Technologies exemplifies a university-driven spin-off success story. Born from UCT's research brilliance, nurtured through strategic partnerships and funding, and empowered by world-class facilities, SAT's journey reflects the power of academic collaboration in delivering real-world impact.

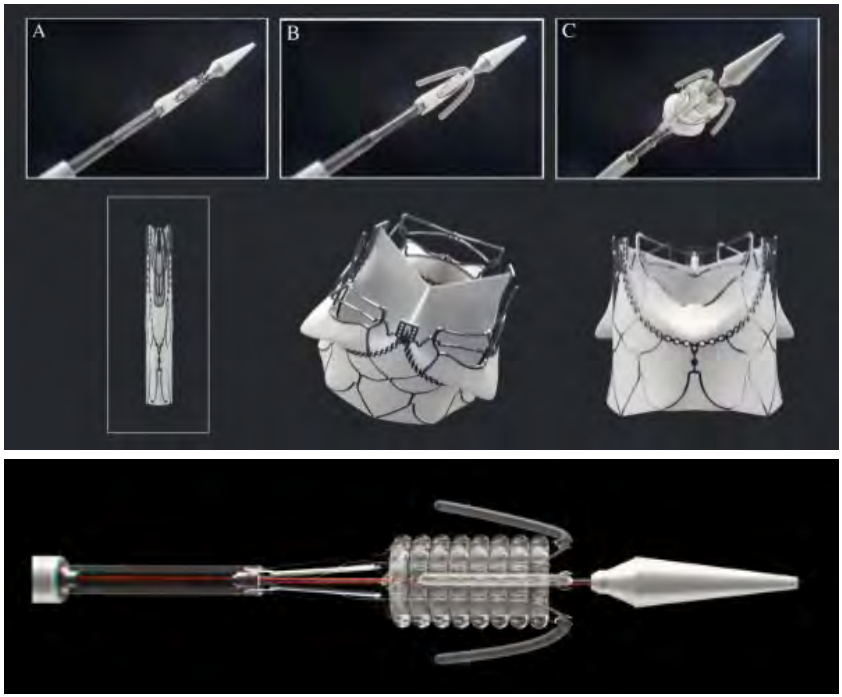


Figure 2. This is the SAT deployment system with a transcatheter heart valve. When crimped onto the hollow-balloon system and inserted into the heart, it has the diameter of a pencil (a). With the balloon arms, it's easy to position the valve correctly (B). When the balloon deploys the valve, it allows blood to flow through, making it unnecessary to stop the heart (C). Once positioned, small nose-like structures hold the valve firmly in place.

UCT MedTech Lab championing medical device innovation

In the heart of Cape Town, the UCT MedTech Lab, housed within UCT's Biomedical Engineering Research Centre and led by **Professor Sudesh Sivarasu**, has been quietly revolutionising medical innovation with a focus on appropriate, Africa-relevant solutions. Blending cutting-edge engineering and deep clinical insight, their work spans two core hubs: the Medical Device Laboratory (MDL) and the Orthopaedic Biomechanics Laboratory (OBL).

Landmark ISO 13485:2016 Accreditation

The ISO 13485:2016 is the internationally recognised standard for quality management systems in the design and manufacture of medical devices, and the BMERC / UCT MedTech Lab is one of the first on the continent to be awarded this global recognition.

Transformative Device Portfolio

UCT MedTech's impressive array of inventions includes:

- **ZiBiPen**, Impulse Biomedical, ZiBiPen represents a new generation of auto-injectors that simplifies allergy management. Its user-friendly design and the world's first reloadable feature make it an easy and sustainable choice, offering practical benefits for those with allergies. This revolutionary device was developed by a Master's graduate **Mr. Gokul Nair**, under Prof. Sudesh Sivarasu and Prof. Mike Levin
- **Easy Squeezy**, Impulse Biomedical, Easy Squeezy is an innovative sleeve that fits over major inhaler brands such as, Asthavent®, Ventolin® and Ciclovent® asthma inhalers. It has a user-friendly, ergonomic activation mechanism that reduces the force required to get a puff out of an asthma pump by up to four times, making inhalers easier for children and those with limited finger strength to use. This game-changing device was developed by a Master's graduate **Mr. Giancarlo Beukes**, under Prof. Sudesh Sivarasu and Prof. Mike Levin
- **FlexiGyn**, Vas MedTech, is a portable gynaecological device developed by **Dr Edmund Wessels** under Professor Sudesh Sivarasu. It enables diagnostics like hysteroscopies without general anaesthesia, making it perfect for rural clinics or mobile outreach. FlexiGyn won the Royal Academy of Engineering's Africa Prize for Engineering Innovation in 2023. First in UCT to win this prestigious continental award.

Prof Sudesh Sivarasu

"The ISO 13485 certification opens doors for our technologies to be adopted more confidently by clinicians, regulators, and international partners. It also sets the foundation for an innovation ecosystem where African-born devices can move from lab bench to bedside with credibility and speed. For UCT MedTech and South Africa, this is a signal that our regulatory, academic, and industrial communities are coming together to build a resilient, compliant, and export-ready medical technology sector. I am proud of the BMERC team and deeply inspired by what this means for the future of equitable healthcare innovation across our continent."

Professor Sudesh Sivarasu

- **Inspyre,** Khaya HealthTech, developed by **Joel Philpott** under Professor Sudesh Sivarasu, offers the advantage of enabling patients to undergo diagnosis comfortably within their homes. What sets the innovation apart is the seamless integration of diagnostic sensors into the treatment apparatus, such that a single device is used for both purposes.

Combined, these devices illustrate UCT MedTech's ethos: that tools must be affordable, user-centric, and locally made.

The list of other medical devices can be found using the link: https://health.uct.ac.za/medtech/medtech-medical-devices

Awards and recognitions by UCT MedTech Incubated Startup companies led by UCT post-graduates trained at UCT MedTech through their MedTech Innovations

Easy Squeezy & ZibiPen - Impulse Biomedical

International & Regional Competitions

- 1st Place – Merck Pharmaceuticals Accelerator (Cape Town)
- 1st Place – Venture Leaders South Africa – Swiss Program
- 2nd Place – MiLi Valuation Competition (Design of Medical Devices Conference, USA)
- 1st & Runner-up – GCIP Medical Devices Sector (TIA Global Cleantech Innovation Program)
- Xi'an International Entrepreneurship Competition (China)
- 2nd Place – BRICS Young Innovator Award
- Finalist – Digital Health Accelerator

Academic & Incubation Accolades

- Most Viable Business Award – University of Cape Town Graduate School of Business
- Award from London Business School (ACCEL) – 2nd place

Innovation Grants & Social Impact Awards

- Tony Elumelu Foundation Grant Recipient
- SAB Foundation Social Innovation Award – 2023 second place
- Aspen Pharmaceuticals Route to Market Challenge – 2023
- Technology Innovation Agency (TIA) Innovation Grant Recipient
- Cape Chamber of Commerce – Best University Spin-Off Company

FlexiGyn™ - Vas MedTech

1. Royal Academy of Engineering - Africa Prize for Engineering Innovation
2. GQ South Africa Man of the Year Award - GameChanger of the Year
3. Africa Impact Initiative - Africa Impact Challenge Winners
4. SAB Foundation Social Innovation Award - Development Award

Inspyre – Khaya HealthTech

1. Most Promising MedTech Award from the MDMSA at the Mediventors Lion's Den Conference (2022)
2. 2nd Place overall in Mediventors Lion's Den Conference (2022)
3. Selected to participate in the Royal Academy of Engineering Leaders in Innovation Fellowship (2024_
4. Shortlisted for the Diversity, Equity, and Inclusion Prize for the Royal Academy of Engineering Leaders in Innovation Fellowship (2024)
5. Finalist in the South African Breweries Foundation – Disability Empowerment Awards (2025)

Sustainable Fuels for a Sustainable Future

UCT has a growing portfolio of patent applications and technologies relating to the eFuels and eProducts value chains, and several spin-off companies to develop and commercialise them have formed over recent years.

eFuels, or electro-Fuels, are a type of synthetic fuel produced by combining green hydrogen (made by splitting water into oxygen and hydrogen through electrolysis using energy from renewable sources) with carbon dioxide (CO_2) captured from the atmosphere or industrial processes. Biogenic CO_2 (i.e., CO_2 produced through the decomposition of biomass), fossil-fuel-derived CO_2 (i.e., CO_2 from the combustion of fossil fuels like coal or oil) or CO_2 from cement plants can be used to produce eFuels. Examples of eFuels include eMethanol, eMethane, eDiesel, green liquified fuel gas (gLFG), which can be made from eMethanol, and eSAF (sustainable aviation fuel). These fuels will not add new carbon into the environment, as they will rely on using recycled carbon emitted into the atmosphere through existing industrial processes for their production.

eFuels have other advantages over fossil fuels. Contrail formation, or condensation trails, occurs when water vapour from aircraft exhaust mixes with cold, humid air. Contrail formation is an additional contributor to global warming by trapping heat in the atmosphere, and its effect is estimated to be three times larger than that of the emitted CO_2. This is primarily due to the combustion properties of oil-derived kerosene. This is much less of an issue with Fischer-Tropsch-derived "Sustainable Aviation Fuel" or "eSAF" (due to the absence of aromatic compounds).

eFuels and eProducts are distinguished from biofuels and bioproducts, like bioSAF, which are derived directly from organic, plant-based or animal-based materials like crops, agricultural waste, or animal fats through processes like the HEFA (Hydroprocessed Esters and Fatty Acids). Still, these processes are more challenging to scale to appropriate commercial scales than eFuels.

Strategic partnerships as a catalyst

UCT, through the Catalysis Institute in the Department of Chemical Engineering, is a member of three consortia involved in the development of eFuels and eProducts, CoalCO_2-X, GreenQUEST and CARE-O-SENE, projects under the auspices of **Prof Nico Fischer**, SARChI Chair in Sustainable Catalysis and the director of the Catalysis Institute, **Professor Michael Claeys, Emeritus Prof Jack Fletcher**, and others.

The CoalCO_2-X programme is funded by the South African Department of Science, Technology and Innovation (DSTI) and managed through the South African National Energy Development Institute (SANEDI). This programme aims to help South Africa develop a technology that can utilise captured CO_2 together with green hydrogen by coupling a reverse water gas shift process with the Fischer-Tropsch synthesis.

The CoalCO_2-X programme has resulted in the design and construction of a laboratory-scale eDiesel demonstration pilot plant based on novel catalyst and process designs. UCT is pursuing patent applications for several of these novel solutions, and a spin-off company, C-STAR Holdings (Pty) Ltd, has been incorporated to commercialise the technology.

GreenQUEST is another consortium whose partners include UCT (including the Catalysis Institute and the Graduate School of Business), the Nelson Mandela University (NMU), the CSIR, Forschungs Zentrum Jülich (FZJ), Futuria Fuels, the African Climate and Development Initiative, the Helmholtz Centre Berlin for Materials and Energy, Sasol, SHV Energy and HYENA (another UCT spin-off company). Sasol and SHV Energy are large industrial associates of the project. GreenQUEST aims to use green hydrogen and captured CO_2 to produce liquefied fuel gas or gLFG, which is the sustainable equivalent to conventional liquefied petroleum gas (LPG) that is used on a large scale in industry for heating as well as in households as cooking fuel. Traditional biomass fuels like wood, charcoal, and household waste emit harmful pollutants when burned indoors. Switching to LPG significantly reduces indoor air pollution, leading to fewer respiratory illnesses, particularly among women and children. This reduces the public health burden and lowers household medical expenses, improving quality of life and economic productivity.

Although conventional LPG is a cleaner-burning energy source than coal, wood and household waste, it remains a fossil fuel. If replaced by gLFG, it would further reduce carbon emissions. UCT's involvement in GreenQUEST includes the development of an entire $CO_2 + H_2$ -> gLFG process flowsheet (and derived techno-economics), improved and novel catalysts for the key conversion step of dimethyl ether (DME) to gLFG, as well as the production of a technical-scale sample and its demonstration in cooking and electric power applications.

UCT is also part of the CARE-O-SENE project – a Germany-South Africa collaboration led by Sasol and Germany's Helmholtz-Zentrum Berlin and funded to a total of R800 million – to develop next-generation catalysts for sustainable aviation fuel production. The partnership includes seven

UCT is pursuing patent applications for several of these novel solutions, and a spin-off company, C-STAR Holdings (Pty) Ltd, has been incorporated to commercialise the technology.

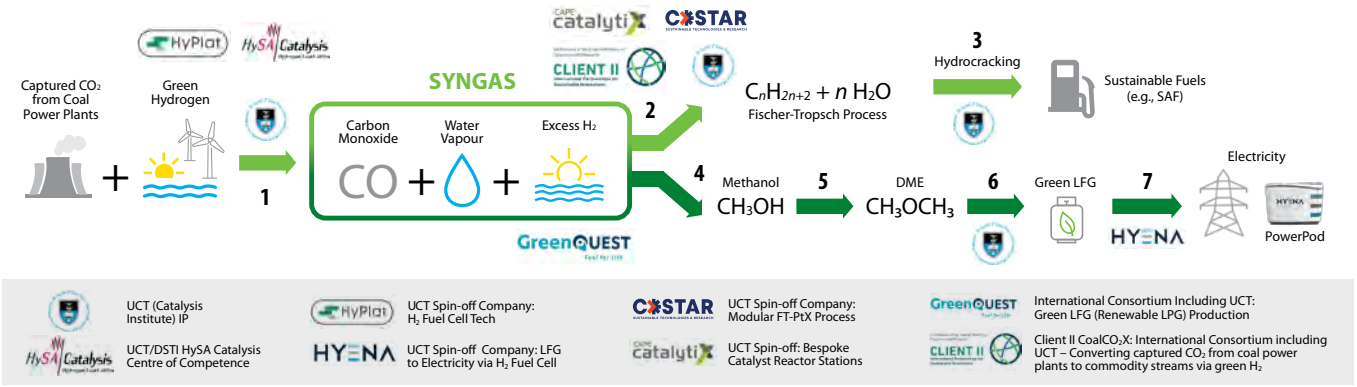
German and South African institutions. The consortium, led by Prof Michael Claeys, aims to develop new catalysts for green kerosene (eSAF) production and demonstrate their suitability on a commercial scale, advancing Fischer-Tropsch technology to convert green hydrogen and CO_2, reducing aviation's carbon footprint.

UCT's contribution to the CARE-O-SENE project focuses on developing a fundamental understanding of the working principles of novel catalysts that are stable under industrial conditions and characterising them in real-time under relevant conditions. All these processes require green hydrogen, the availability of which is closely linked to the availability of renewable energy. With South Africa's immense capacity for renewable energy generation via wind power and solar photovoltaics, the country is well placed to play a crucial role in a future renewable energy trade via eFuels and eProducts as energy vectors. Unlocking green hydrogen will thus be an enabling step for commercialising the above processes in South Africa. There are already several projects and planned projects in Africa. More than fifty-two large-scale green hydrogen projects have been announced across the continent, including the Coega Green Ammonia project and Saldanha's eMethanol project in South Africa, the AMAN project in Mauritania and Project Nour in Morocco.

UCT spin-off companies contributing to a sustainable future

UCT also plays a leading role in developing green hydrogen technologies through the DSTI's HySA/Catalysis Centre of Competence, hosted by the Catalysis Institute and Mintek. The overarching goal of HySA is to provide a sustainable avenue for South Africa's mineral wealth through electrolysis and fuel cell technologies. HySA/Catalysis is one of the three Centres of Competence that form part of HySA, focusing primarily on developing new catalyst formulations for the electrolysis of water and the conversion of hydrogen through fuel cells based on proton exchange membrane technologies. The team further develops processes to coat catalysts on membranes and improve gas diffusion layers. UCT established the spin-off company, HyPlat, to commercialise some of the fuel cell technologies produced by HySA/ Catalysis.

THE UNIVERSITY OF CAPE TOWN'S INVOLVEMENT IN POWER-TO-X PROCESSES



UCT also established another spin-off company, HYENA (Hydrogen Energy Applications). HYENA is developing the POWER POD to deploy fuel cell technology into Africa, where hydrogen distribution is almost non-existent. HYENA's POWER POD is a diesel generator replacement technology that produces reliable, on-site electricity by generating hydrogen from LPG and converting it to electricity via a fuel cell. The POWER POD also has the potential to run off green LFG gas, developed by the GreenQUEST consortium, of which HYENA is a partner.

Philip Hoekstra, UCT's Intellectual Property Manager, also attended the Sustainable Fuels Europe Summit and Connecting Hydrogen Europe Summit between 17 and 19 June in Madrid, Spain. He shares, "I attended the summit to learn more about the industry and to explore potential commercial collaborations". The summit brought together industry representatives from across the value chain, from producers of sustainable fuels , producers of green hydrogen, electrolyser manufacturers, catalyst producers, such as Topsoe and BASF, to end-users of sustainable fuels, such as KLM and Boeing.

In summary, UCT has certainly been busy and rightly so. We are committed to ensuring that the fuels we use in the future are truly sustainable. Our work spans the entire value chain, from green hydrogen generation, hydrogen fuel cells, and synthesis gas production, to the synthesis of diverse hydrocarbon products such as eFuels.

Trailblazers leading the realm of animal health

In the dynamic realm of animal health innovation, two South African trailblazers are leading the charge. MariHealth Solutions, a UCT biotech spin-off company, and Abalobi, a South African-based organisation that emanated from the Faculty of Health Sciences, striving to elevate small-scale fishing communities for social, economic and ecological sustainability

MariHealth solutions

Born in 2021 out of UCT's Molecular and Cell Biology department, MariHealth develops proteomics-driven diagnostics for aquaculture. Their flagship solution, a biomarker-based platform and analytical pipeline, measures the stress and metabolism of farmed aquatic species, enabling better decision-making in fish health management and nutrition.

Their breakthrough achievements include:

- Best University Spin-off Company Award at UCT's inaugural Cape Chamber Innovation Awards (2025)
- SVG THRIVE Global Top 100 Innovators
- Winner of Ocean Innovation Africa Pitch (2024)
- Shortlisted in top global innovation contests: Science Venture Finalist (2022), Global Talent Week SDG14 Semi-finalist (2023)and NCE Seafood Innovation finalist (2024).
- Global Challenge Deep Tech Pioneers Semi-finalist 2024, powered by Hello Tomorrow
- Global Startup Awards Best AgriTech Regional Finalist 2024

Harnessing cutting-edge deep analytics and bioinformatics, **co-founders Sarah Carroll (CEO)** and **Vernon Coyne (CSO)** are driving sustainable aquaculture with molecular-level insight, making aquafeed and fish-health claims more precise and scientifically robust.

Since its founding in 2015 by **Serge Raemaekers, Abongile Ngqongwa**, and **Nico Waldeck**, Abalobi has revolutionised small scale fisheries. Their app suite helps fishers log catches, access marketplaces, and produce traceable, sustainable seafood.

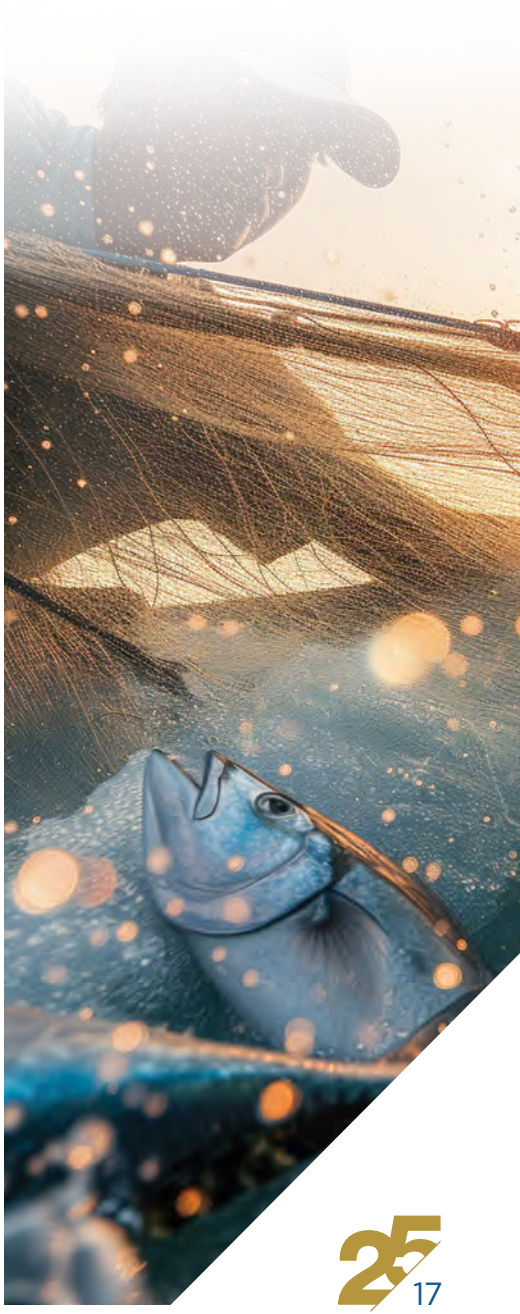
Acclaim & Impact:

- 2017 SAB Foundation Social Innovation Award, spotlighting its social justice and empowerment mission
- Earthshot Prize 2023 Finalist (Revive Our Oceans), recognised by Prince William for providing scalable tech to sustain fish populations and fisher livelihoods.
- 2025 Zayed Sustainability Prize Food Category Finalist, honoured during Abu Dhabi Sustainability Week for its transformational impact. While Abalobi is the isiXhosa word for small-scale fishers, their work and impact have not been small-scale. Working across 10 countries and impacting over 1,600 fishers, Abalobi has boosted incomes up to fourfold by offering market access and promoting ecological stewardship.



Connecting Innovation to Impact

What unites MariHealth and Abalobi is not only their UCT origins but also their mission-driven use of biology and data to promote better livelihoods and environmental resilience. While MariHealth empowers aquaculture stakeholders with molecular insights to support fish wellness and feed efficiency, Abalobi uplifts fishing communities through digital inclusion, traceability, and market agency.



NEW INVENTIONS

Contributing to South Africa's development challenges is one of UCT's strategic goals and the aim is to share knowledge that will benefit society. New and exciting inventions have materialised from the UCT ecosystem in 2024.

Dheda, Keertan
Randall, Philippa

Detection of Lipoarabinomannan and Host Biomarkers to Diagnose Tuberculosis

Blackburn, Jonathan
Maimela, Pamela
Jonas, Eduard

Method for diagnosing pancreatic ductal adenocarcinoma

Fischer, Nico

A Method for Producing a Hydrocarbon Product from Dimethyl Ether

Kotsiopoulos, Athanasios
Harrison, Susan
Hajee, Ishaaq

A Method of Forming a Heap Structure from Acid Producing Rock Material

Patel, Amir
Vally, Amaan
Amayo, Paul

System and method for generating a three-dimensional motion simulation of an animal subject of interest

Patel, Amir
Bowden, Nicholas
Paine, Stephen

Contactless vital signs monitoring of a human or animal subject

Honouring 18 Years of Visionary Leadership

As we celebrate the theme Impact Through Innovation, we also recognise the remarkable contribution of Mr Piet Barnard, who recently retired at the end of December 2024 after nearly two decades of service as Director of RC&I.

Over 18 years, Mr Barnard was instrumental in shaping our innovation ecosystem, laying the foundation for a thriving culture of invention, driving the translation of innovation into real-world impact and helping position RC&I as a national and continental leader in technology transfer and innovation.

Under his leadership:

- The team nearly tripled in size; starting off in 2007 with only 8 people (2 lawyers and 2 people in intellectual property and innovation) housed in the "cottages" between Bremner and the Music School.
- Our research contract numbers increased, which now in some years, exceed 2000, with a value of R4 billion
- Our spin-off portfolio grew exponentially. 35 of 40 spin-off companies were created during his term as Director. Hopefully, UCT will benefit from returns on investment in these companies and/or the licensing of IP protected over the years.
- Strategic partnerships were forged across academia, industry, and government.
- A strong, supportive environment for researchers and inventors was cultivated and various innovation seed funds were initiated as well as an important partnership with the University Technology Fund; a first of its type in the venture capital space in Africa.

Mr Barnard leaves behind a legacy of excellence, integrity and lasting impact. His vision and commitment continue to influence our trajectory and inspire the next generation of innovators.

We extend our heartfelt thanks and appreciation to him for his outstanding service and wish him well in this new chapter

2006 Piet appointed as Director of RCIPS

2008 The PreSeed fund is launched & invention disclosures break the 30 mark

2012 IPAC is established. UCT innovations feature strongly at the NTSF BHP Billiton awards

2013 RCIPS received second round of funding from NIPMO

2014 The most successful year of RCIPS in terms of IP Management & Commercialisation. Launch of TIA Seed Fund

2016 RCIPS rebrands to RC&I

2017 Launch of Evergreen Fund

2019 Launch of the Innovation Builder Fund

2020 Launch of the University Technology Fund

2023 Value of UCT equity in spin-off companies grows to R243 million

2024 Record of R4 billion signed research contracts in value. Piet retires at the end of December

With thanks

There are a number of people and funders who make a valuable contribution that supports our innovation activities, the people generally also do this mostly pro bono, and we appreciate what they do.

INTELLECTUAL PROPERTY ADVISORY COMMITTEE (IPAC)

IPAC makes the decisions regarding UCT Evergreen Fund investments, recommends the appointments to spin-off companies, and needs to deal with the often urgent issues that arise in the life of fledgling start-ups. The committee provides guidance and steers policy development in the innovation space, striving for best practices. IPAC meets five times a year, excluding ad hoc meetings and round-robin decisions. **Prof Jeff Murugan**: Acting Deputy Vice Chancellor: Research & Internationalisation (Chair), **Mr Mughtar Parker**: Chief Operating Officer (acting), **Mr Vincent Motholo**: Chief Financial Officer, **Mr Hardy Maritz**: Director Commercial Development; **Prof Jonathan Blackburn**; **Dr Philippa Tumubweinee** and **Prof Liesl Zuhlke**.

PRIVATE EQUITY ADVISORY GROUP (PAG)

PAG comprises a group of experts in the entrepreneurship and private equity investment space who advise both RC&I and IPAC on investments made by the UCT Evergreen Fund into spin-off companies. They propose deal structures and draw on their experience and sector knowledge. **Mr Gasant Orrie** and **Mr Limont Lehman**.

INNOVATION BUILDER FUND STEERING COMMITTEE

UCT provides a budget to support technology development and innovation to mature the UCT IP portfolio. The Innovation Builder Fund Investment Committee (formerly the TIA Seed Fund Steering Committee) awards up to R500,000 to projects. The committee comprises UCT representatives with different technical expertise, aligned with our technologies as well as external members who have technology development and/or start-up company experience. The committee was chaired by **Piet Barnard**, Director: RC&I (till end 2024) and there are currently 20 active projects. Funding is tranched and project progress (monitored by the RC&I team) is reported on at committee meetings, which are held quarterly. Committee members to end 2024 included: **Dr Caryn Fenner** (external), **Prof Kit Vaughan** (external), **A/Prof Melissa Densmore**, **Prof Neil Ravenscroft**, **Mr Abu Adams**.

EVERGREEN SEED FUND INVESTMENT COMMITTEE

The value of pre-seed funding of R1.5m for the maturation and growth of spin-off companies was demonstrated via UTF 1. Funding available to UCT was fully utilised and will not be available from UTF 2. IPAC approved the creation of the Evergreen Seed Fund, using funds that had been included in the Evergreen Fund from UCT alumni donations. The Investment Committee meets on an ad hoc basis to review applications and we are grateful to the following members for their support: **Mr Limont Lehman, Dr Rein Weber, Mr Sebastian Primm** and **A/Prof JP Theron**; the IC has been chaired by **Mr Piet Barnard**.

UCT-APPOINTED DIRECTORS AND SHAREHOLDER REPRESENTATIVES

Whilst numerous individuals are appointed as Directors to a variety of UCT companies and trusts, the list here only includes people who are appointed to spin-off companies that are commercialising IP developed through UCT research. Appointments are only permitted when UCT holds above a threshold equity amount of equity in a company. **Prof Petro Terblanch**e - Strait Access Technology Holdings, **Mr Tony Pick** - Cape Bio Pharms and Elemental Numerics, **Dr Ntokozo Mthembu** - Cape Catalytix, **Dr Makhapa Makhafola** – HyPlat, **Ms Zanele Mbatha** – HyPlat, **Prof Cyril O'Connor** - HyPlat, **Dr Susan Winks** – Nautilus Enterprises, **Ms Hema Vallabh** – Hydrogen Energy Applications, **Mr Rowan Spazzoli** – MariHealth Solutions, **Mr Sebastian Primm** – Acinotech and **Ms Hilda Martins** – Sleep Science.

DEPARTMENT OF SCIENCE, TECHNOLOGY & INNOVATION (DSTI) NATIONAL INTELLECTUAL PROPERTY MANAGEMENT OFFICE (NIPMO)

RC&I is in the second year of our fifth NIPMO-funded capacity development project. This has been a key enabler in establishing the RC&I technology transfer operation at its current level. The funding has supported new positions that have been adopted by UCT once trialled, as well as a range of awareness-raising activities focused on both IP and the marketing of technologies. Support is provided to facilitate RC&I's engagement with industry and commercial partners in a variety of modes, including expos. NIPMO also provides a 50% rebate of expenses incurred by UCT in the protection of our intellectual property portfolio. This greatly extends the ability that UCT has to support this important activity. The support of NIPMO on several levels is gratefully acknowledged.

UNIVERSITY TECHNOLOGY FUND

UCT is a limited partner of UTF II (i.e. investing directly in the fund), but was a Special Partner of UTF I co-investing alongside the fund through its Evergreen Fund. This unique partnership has enabled UCT to provide significant support to emerging technologies, with a focus on university spin-off companies. UTF II builds on the success of UTF I by providing targeted funding and further strengthening the relationship between the two entities.

The relationship with the UTF Fund Managers, **Mr Wayne Stocks** and **Mr Daniel Strauss** has helped to shape the nature and direction of our spin-off companies as they review our pipeline of investment opportunities.

IP POLICY REVISION WORKING GROUP

Faculty and special representatives have constituted a Working Group to assist RC&I with the review and revision of the UCR IP Policy. A wide range of viewpoints have been ensured due to the diverse interaction with IP across the university. The Working Group has diligently reviewed drafts and suggested areas of classification and where implementing practical means of compliance need to be considered and implemented. **E/Prof Jack Fletcher, Prof Caroline Ncube, A/Prof Phumla Sinxadi, Prof Adam Haupt, Mr Jacques Rousseau, Prof Ralph Hamann, Prof Ulrike Rivett, E/Prof Edward Rybicki**

Key highlights of 2024

6 NEW SPIN-OFF COMPANIES
The highest total per year over the last 25 YEARS

20 LICENCES ISSUED

6 NEW INNOVATION BUILDER FUND PROJECTS were awarded funding
+ with an additional 4 pending

20 patents granted predominantly in
but also in Australia, Brazil, China, Europe, India, Saudi Arabia, the USA

6 SOUTH AFRICA

and the ARIPO region in Africa

41 INVENTION DISCLOSURES
Nearly 25% more than 2023

44 New patent applications

1889 RESEARCH CONTRACTS SIGNED

6 (+14) IP TRANSACTIONS

178 ACTIVE INVENTIONS

>R176k IN INCOME FROM IP TRANSACTIONS

A NEW RECORD **R4bn**
RESEARCH CONTRACTS VALUE
An increase of R1bn from 2023

RESEARCH CONTRACTS & INNOVATION

Allan Cormack House
2 Rhodes Avenue
Mowbray 7701
South Africa

Email innovation@uct.ac.za
Phone +27 21 650 4015
X @UCT_RCI
Website uct.ac.za/rci

LinkedIn www.linkedin.com/company/26570439
Instagram uct.rci
Invention Disclosures IP@uct.ac.za
Research Contract Logging researchcontracts@uct.ac.za

The Department of Science, Technology & Innovation's National Intellectual Property Management Office (NIPMO) is gratefully acknowledged for the financial support that it provides to RC&I for the production of this brochure as well as a host of other technology transfer activities and support to establish new posts and develop the capacity of existing staff. NIPMO also provide UCT with an up to 50% rebate of our IP protection expenses.