


Royal Academy of Engineering | Leaders in Innovation Fellowships

# Leaders in Innovation Fellowships Programme

## 10th Anniversary Impact Report







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# Foreword

**As we celebrate the 10-year milestone of the Leaders in Innovation Fellowships (LIF) programme, it is with great pride and excitement that I introduce this Impact Report. Over the past decade, LIF has emerged as a beacon, empowering a global community of innovators, disruptors, and visionaries.**

In a rapidly changing world, innovation stands as the compass guiding us toward a better, more sustainable future. The LIF programme has been at the forefront of this journey, nurturing entrepreneurs and innovators, leaders, who are changing the landscape of their respective industries and nations.

What sets LIF apart is not just the exceptional talent it attracts, but the global impact it achieves. This report is a testament to the countless success stories, groundbreaking projects, and the enduring spirit of innovation that our innovators and entrepreneurs have embodied. They are pioneers, daring to challenge the status quo, taking calculated risks, and pushing the boundaries of what is possible. From healthcare innovations that save lives to technologies that protect our planet, from engineering marvels that bridge divides to entrepreneurial endeavours that lead to accelerated commercial growth, job creation and investment, the LIF community is a force to be reckoned with.

As we embark on the next decade of LIF, we stand poised to amplify our impact further. We will continue to nurture bold, scalable innovations from all areas of engineering and technology that are addressing some of the world's most complex environmental, economic, and societal challenges. We will explore new frontiers and confront emerging challenges, drawing upon the Academy's unique, prestigious network, which brings together expert Academy Fellows, likeminded entrepreneurs, investors, business leaders, researchers, and policymakers.

I extend my heartfelt gratitude to all who have played a role in making LIF what it is today: innovators and entrepreneurs who inspire us, mentors who guide us, funders and partners who support us, and the team who work tirelessly to make it all happen.

Join us in celebrating a decade of innovation, and in looking forward to the remarkable journey ahead.

**Ana Avaliani**  
Director of Enterprise,  
Royal Academy of Engineering





# 10 years of supporting global entrepreneurs

The Royal Academy of Engineering's Leaders in Innovation Fellowships (LIF) programme supports talented entrepreneurs from around the globe to turn their engineering innovations into impactful, sustainable businesses.

We nurture bold, scalable innovations from all areas of engineering and technology that are addressing some of the world's most complex environmental, economic, and societal challenges.

LIF Global is our flagship entry-point programme that supports entrepreneurs at TRL level 4 and above to develop the entrepreneurial mindset. The LIF Community offers events, opportunities and training to support alumni entrepreneurs to grow their business and network, while Advance takes exceptional entrepreneurs through rapid scaleup and international growth.





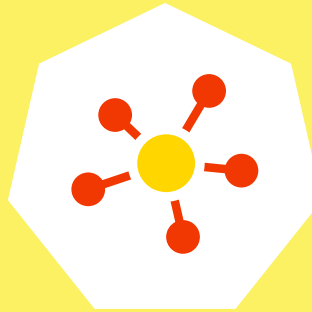
# Success to date



**Over 1,400**  
innovators  
supported



**Over 6,791**  
jobs created by  
LIF-supported  
companies



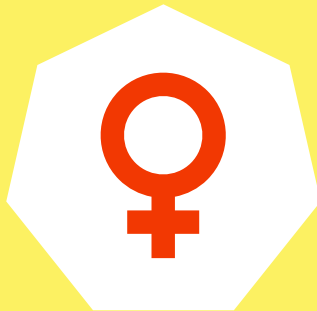
**275**  
partnerships between  
LIF entrepreneurs  
and innovations



**113**  
partnerships between  
innovators, and UK  
organisations and  
entrepreneurs



**225**  
new companies  
started



**35%**  
of innovators and  
entrepreneurs  
identify as women



**Over £182m**  
in funding  
obtained



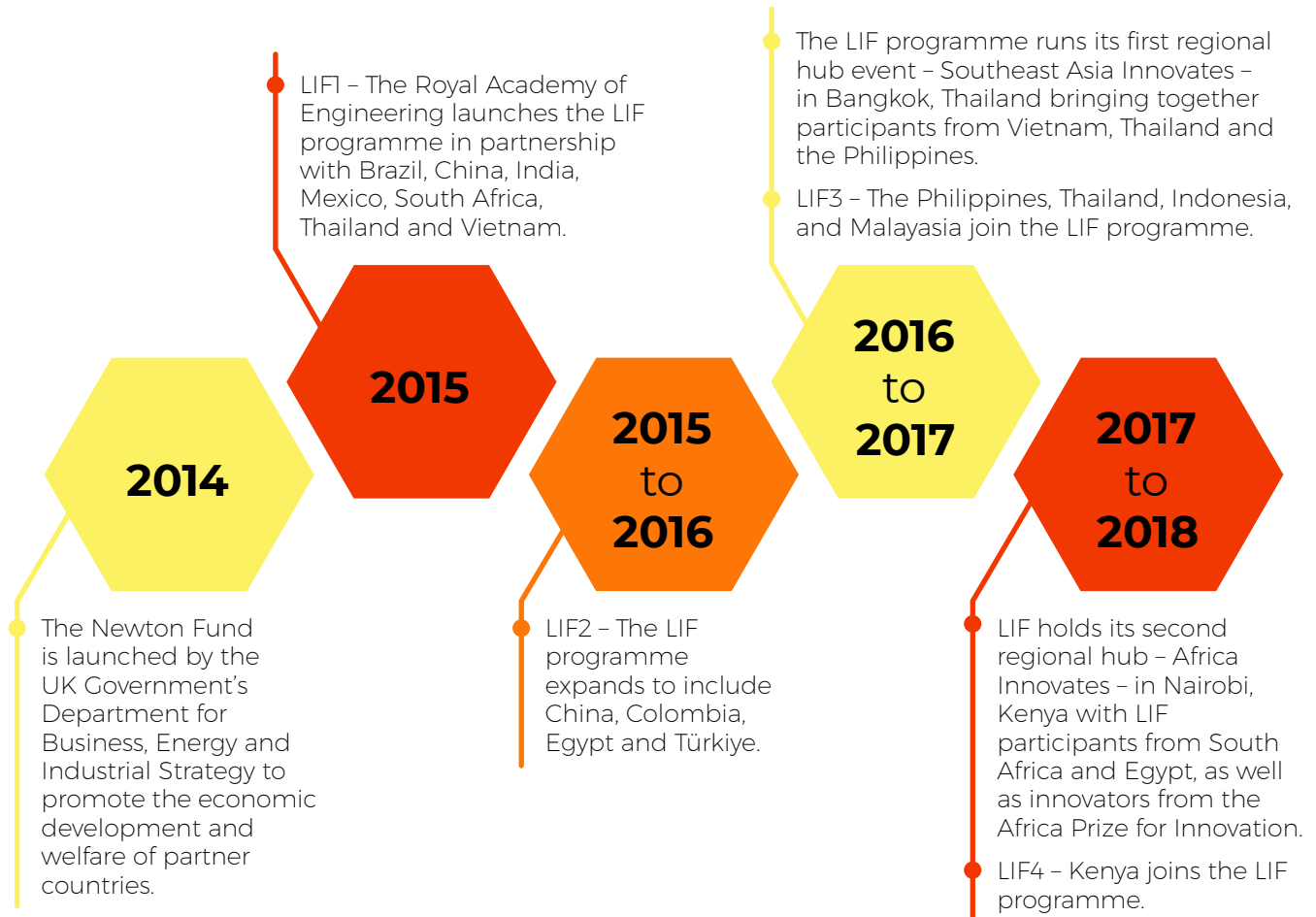
**Over 1,083**  
patents  
registered

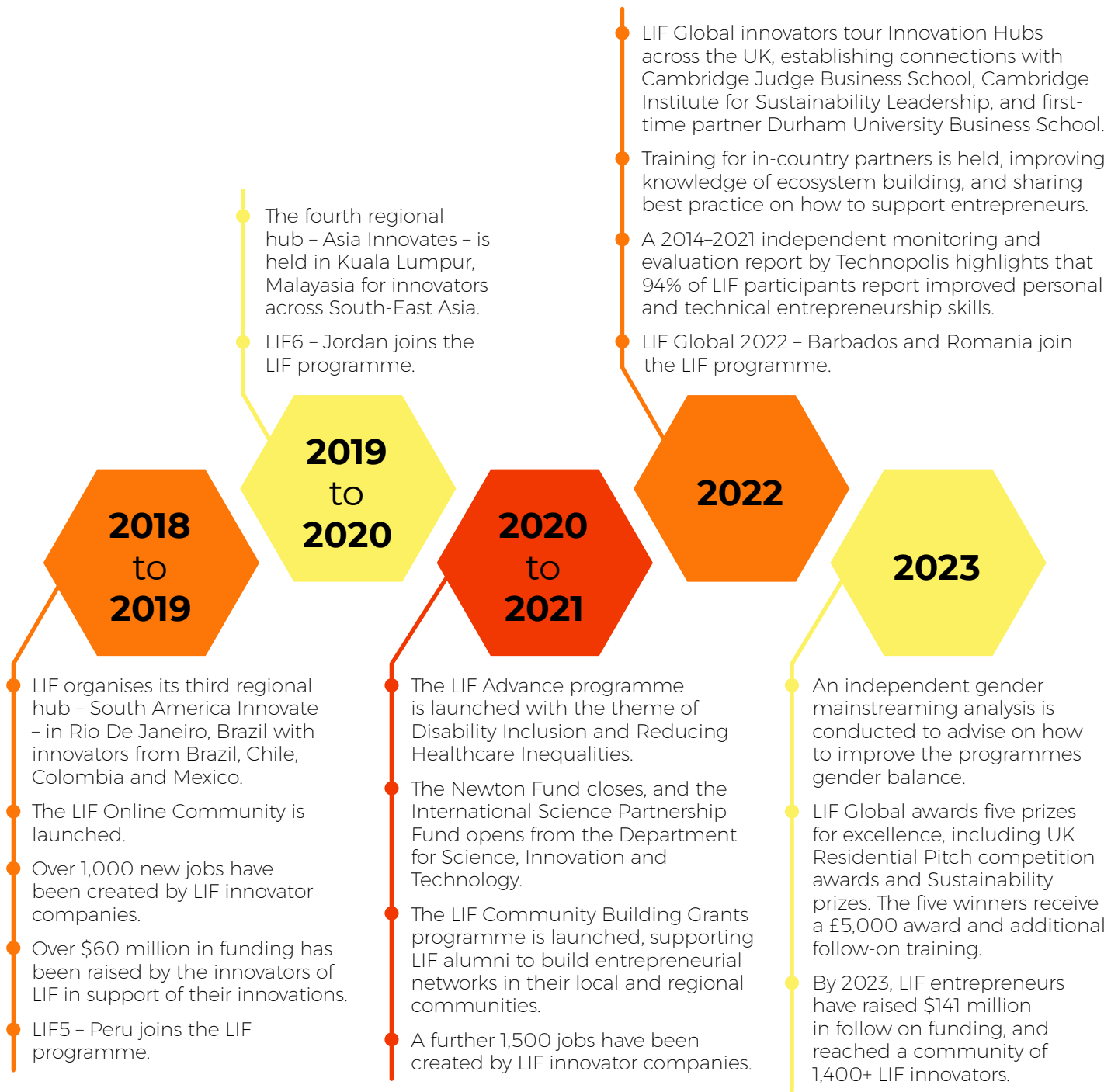




# Timeline

## 10 years of driving impactful innovation – how we have evolved:





# LIF Programme

The Royal Academy of Engineering's Leaders in Innovation Fellowships (LIF) programme supports talented entrepreneurs from around the globe to turn their engineering innovations into impactful, sustainable businesses.





# LIF Global

LIF Global empowers entrepreneurs who are making a positive impact in their communities with novel technologies.





# LIF Community

LIF Community is a continuous learning, peer support, and networking environment for all LIF alumni.





Sign-up to events / workshops, apply for grants as available

Look out for opportunities on Innovators

Annual LIF Day Celebration – 4 March

Stay engaged with the community and the Academy

## BENEFIT



## CELEBRATE



## ENGAGE



# LIF Advance

LIF Advance is a bespoke programme of relationship-building and business growth activities for engineering and tech entrepreneurs who are ready to scale internationally.





# Innovation showcase





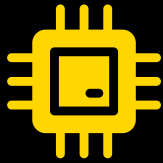
Name:  
**Amiya Kumar  
Samantaray**

Cohort:  
**LIF3**

Country:  
**India**

Company name:  
**Aurassure**

**Sector:**  
**Systems +  
Computing**



**Aurassure: An internet of things (IoT) platform for cities to monitor air quality, weather, and urban flooding in various micro-environments.**

### **What is your technology?**

Aurassure specialises in advanced environmental monitoring solutions, utilising sensor technology and data analytics to provide real-time insight into air quality and flood risks. We help cities, industrial townships, and large private residential complexes to prevent climate disaster.

### **How does your work contribute to the UN SDGs?**

Our work directly contributes to SDGs 9 (Industry, Innovation & Infrastructure), 11 (Sustainable Cities and Communities), and 13 (Climate Action) by innovating for resilient infrastructure, enabling sustainable cities through data-driven insight, and contributing to climate action with real-time environmental data.



### **How has LIF helped you on your entrepreneurial journey?**

The LIF programme has been instrumental in accelerating our product development, providing a broader understanding of customer needs, and offering access to a global network of experts, funding opportunities, and business development resources.



### What benefits did LIF provide?

The most significant benefit has been the opportunity to collaborate with like-minded innovators and mentors. The programme's emphasis on leadership and entrepreneurial skills has also been crucial in navigating the challenges of scaling a technology-driven business.

### What is your advice to budding entrepreneurs?

Embrace the opportunity to learn and collaborate. The LIF programme offers a unique blend of technical, business, and leadership training that can transform your approach to innovation. Stay open to feedback, be proactive in networking, and focus on how your work can make a broader impact beyond commercial success.

### How has the programme developed your business?

We have generated over \$2 million in cumulative revenues in 2016, received over 1,000+ deployments of our product, expanded to over 80 cities, generated over 2 billion in data points, and have bagged marquee clients including Google, Honeywell, and CleanAirAsia to name but a few.

### What are your plans for the future?

We are aiming to reach over 1,000 cities internationally, impacting the lives of over a billion people in the next 3 years through over 10,000 deployments of our product.



Name:  
**Lunjakorn  
Amornkitbamrung**

Cohort:  
**LIF Global 2022**

Country:  
**Thailand**

Company name:  
**Cellunate™**

**Sector:**  
**Environment**



**Cellunate™: An innovative coating solution for sustainable paper packaging to replace the use of plastic coating used by paper packaging manufacturers.**

### What is your technology?

The demand for packaging is increasing. Especially so is the demand for paper packaging, as it is being increasingly used as an environmentally friendly alternative to plastic packaging. One issue, however, is that paper packaging is not inherently water-resistant, limiting its application. Plastic coatings are often applied to paper packaging to address this, but these plastic coatings render paper packaging either entirely non-recyclable, or incredibly difficult to do so.

In response, we have developed Cellunate™, a coating material that confers water and water vapor resistance to paper packaging, comparable to plastic coatings. Cellunate™ enables paper packaging to remain recyclable and biodegradable, as it is derived from cellulose; a similar property to paper itself. Since 2020, we have commercialised our technology for applications in book, archive, and artwork preservation coatings.

### How does your work contribute to the UN SDGs?

By utilising renewable resources for production, we primarily contribute to SDG 12 (Responsible Consumption and Production). Our choice of a plant-based material is central to our commitment to responsible practices of consumption and production. Furthermore, our product's biodegradability ensures that it does not accumulate in the environment after use, thereby also supporting SDG 14 (Life Below Water), and SDG 15 (Life on Land).





## How has LIF helped you on your entrepreneurial journey?

The LIF programme has equipped me with invaluable knowledge and an extensive entrepreneurial network, empowering me with the confidence to transition from the laboratory, on to an entrepreneurial path.

## What benefits did LIF provide?

The LIF programme not only offers essential tools for entrepreneurs to start a business, but also provides a supportive network of like-minded individuals. If you aspire to make a positive impact on the world with your expertise in science and technology, this programme offers the ideal platform for doing so.

## How has the programme developed your business?

Since joining the LIF programme in 2022, we have received funding support from an

international organisation that backs and scales innovative solutions addressing plastic pollution. Additionally, we have had the opportunity to collaborate with key strategic partners from the paper packaging industry to validate the efficacy of our product.

## What are your plans for the future?

Through a business-to-business (B2B) model, we can generate revenue by selling our coating solution directly to manufacturers, or by licensing our intellectual property to larger players, while also supplying them with the key raw materials. We have already conducted tests of our product with manufacturers, and obtained promising results. We are planning to scale-up from our current lab-scale production, and through doing so, we will be able to compete with plastic coating prices within our next two years of operation.



Name:  
**Mariana Delgado**

Cohort:  
**LIF Global 2023  
and Advance 4**

Country:  
**Mexico**

Company name:  
**RCPractica**

**Sector:  
Medtech**



**RCPractica: A device to learn and practice CPR manoeuvres effectively in a portable and flexible way.**

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### **What is your technology?**

RCPractica is an innovative cardiopulmonary resuscitation (CPR) training solution that leverages portable and interactive technology to make the learning and practice of CPR accessible for everyone. Our devices offer step-by-step instruction, and provide real-time feedback on compression depth and frequency. The technology adapts to different scenarios, catering to individuals of all ages, and even incorporating a version designed for pets. From the budget-friendly RCPractica Light, to the advanced RCPractica Pro, our products promote the development of confidence and skill, and contribute towards the development of a more safe and well-prepared community in emergency situations.

### **How does your work contribute to the UN SDGs?**

Our impact centres around SDG 3 (Good Health and Well-being), through targeting a reduction of cardiac-driven mortality rates. By providing effective CPR training which is globally accessible, RCPractica enhances societal ability to respond promptly in emergency situations.



## How has LIF helped you on your entrepreneurial journey?

What stands out the most for me is the profound expansion of my vision. Meeting individuals from diverse cultures, regions, and backgrounds has provided me with a fresh perspective that goes beyond borders.

## What benefits did LIF provide?

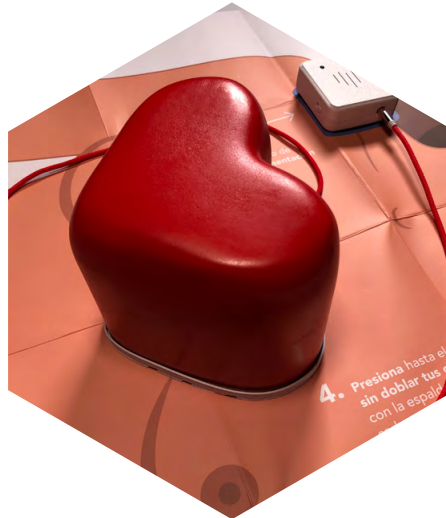
The LIF programme offers a unique opportunity to connect with experts in your specific field, aiding in the maturation of your startup, and facilitating presentations to various stakeholders, including investors, buyers, and members of media. These seasoned professionals, possessing extensive expertise, provide invaluable guidance to support your company's ongoing growth and the development of technology that truly benefits society.

## How has the programme developed your business?

A significant milestone was winning the Pitch Prize, which granted me invaluable mentorship from CEOs of various London-based companies. This experience not only broadened my understanding of my role as a founder and director, but also equipped me with the essential skills necessary for navigating the challenges inherent in a hardware technology company.

## What are your plans for the future?

The top priority of RCPractica moving forward is to expand our reach and impact on a global scale, extending our accessibility to reach more diverse communities. This will involve further developing partnerships, increasing our distribution networks, and extending our localised versions to cater to specific cultural and regional needs.



Name:  
**Abedalrhan  
Habashneh**

Cohort:  
**LIF6**

Country:  
**Jordan**

Company name:  
**Decapolis**

**Sector:**  
**Agriculture**



**Decapolis: We provide a secure platform for storing unalterable records, including measurements during food production and distribution.**

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### **What is your technology?**

Decapolis ensure the safety and quality of both food production and distribution by providing end-to-end traceability, utilising blockchain and IoT technology to track, measure, and validate the production stages of the supply chain.

Our value proposition includes bringing financial benefits to the food producers by lowering administrative costs tied to error, and increasing revenue through facilitating the production of higher-quality food. It offers customizable solutions for various industries.

### **How does your work contribute to the UN SDGs?**

Our work focuses on SDG 2 (Zero Hunger), by enhancing the safety, efficacy, and overall transparency of the food supply chain, reducing the wastage that occurs during this process, resulting in a more efficient global supply chain for food.



## How has LIF helped you on your entrepreneurial journey?

The programme has provided me with a dedicated source of mentorship and integrated support.

## What is your advice to budding entrepreneurs?

My advice would be to utilise all the available resources that LIF can provide as fully as possible, from the early stages of ideation, up to later stages of commercialisation.

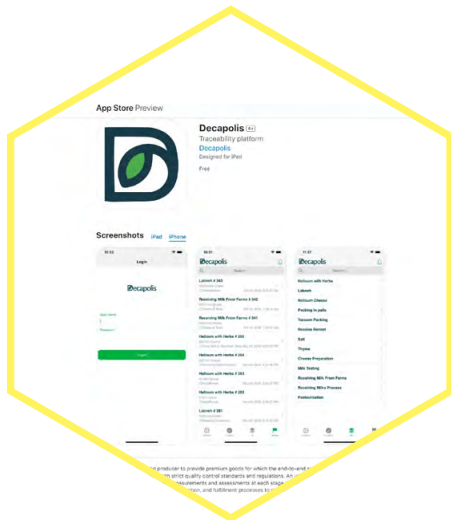
## How has the programme developed your business?

The programme has helped to facilitate a steady growth in our operating revenue over the past few financial periods, allowing the business to grow size accordingly, and to develop global partnerships which would have been previously unattainable.

In October 2022, Fresh Del Monte Produce, one of the world's leading vertically integrated producers, distributors, and marketers of fresh and fresh-cut fruits and vegetables, acquired a 39% stake in the company. Since this, we have developed plans to roll out the Decapolis Food Guard (DFG)<sup>TM</sup>, the blockchain-based traceability solution, across all Fresh Del Monte business segments, starting with Fresh Del Monte's pineapple operations in Costa Rica.

## What are your plans for the future?

We have a strong sales pipeline planned for 2024, expecting upwards of \$4 million in revenue, and executing plans to expand into Nigeria, Britain, US, Costa Rica, and Saudi Arabia.



Name:  
**Jennifer Rodriguez**

Cohort:  
**LIF6 and LIF Advance 2021**

Country:  
**Colombia**

Company name:  
**VBraille**

**Sector:**  
**Education**



**VBraille: I facilitate the creation of inclusive communities through a communication device for blind, deaf, and blind-deaf people.**

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### **What is your technology?**

VBraille is a learning community hosted on a virtual platform, where teachers, caregivers, and families of students with disabilities have access to training content on inclusive education, and can use our technology to develop inclusive environments for schools. One product is our Braille keyboard, which allows for the interpretation of Braille into written text.

### **How does your work contribute to the UN SDGs?**

VBraille directly contributes to the attainment of SDG 4 (Quality Education), with a specific focus on enabling communities facing issues of accessibility to overcome the barriers to an equal education.



### **How has LIF helped you on your entrepreneurial journey?**

The LIF programme provided us with the opportunity to launch our first piece of technology into the market, which was our Braille keyboard. This allowed us to understand our potential market, and adjust our initial business model accordingly. Subsequently, as an alumna of LIF I was able to receive a grant through the Academy's 'EngineeringX' programme, which enabled me to produce keyboards on a larger scale... I was then selected to participate in the LIF Advance programme, where I acquired the skills to improve aspects such as negotiation and sales, in addition to receiving mentorship from experts in the field. With the full support of the LIF programme, and after pivoting our business model several times, I have managed to

establish ourselves as a technology-based company here in Colombia that impacts all of Latin America to make quality education possible for people with disabilities.

### **What benefits did LIF provide?**

The biggest benefit of working with the LIF programme is the comprehensive support it provides to entrepreneurs. Through the programme, I gained access to resources, funding opportunities, mentorship, and valuable networking connections that were instrumental in launching our technology to market, and later scaling our business.

My advice to other people interested in participating would be to fully engage with the programme, take advantage of all the resources and opportunities offered, seek guidance and mentorship whenever needed, and be open to adapting your business model based on feedback and market insights gained. Additionally, persistence and resilience are key qualities that will help navigate the challenges and uncertainties of entrepreneurship. Remember that discipline is necessary for when passion, on occasion, runs out.

### **How has the programme developed your business?**

Since we began the programme in 2019, we have made significant progress. We have pivoted our business model three times based on market knowledge and expert mentorship during this period. This has enabled us to devise a strategy to impact Latin America, taking into account the region's characteristics of technological adoption, and thus establish ourselves as a

company focused on inclusive education. The programme has helped to facilitate my transition from being a researcher, into an inclusive technology developer at a university for people with disabilities, to an entrepreneur of a technology company here in Colombia.

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

Our plans are focused on establishing VBraille as a reference point for inclusive education and technology, supporting both teachers and families of students with disabilities throughout Latin America. We aim to create a fair and accessible environment for all, providing individuals with disabilities the chance to live a fulfilling, dignified, and prosperous life.



Name:  
**Linah Pununu  
Maphanga**

Cohort:  
**LIF5 and Community  
Grants 2020**

Country:  
**South Africa**

Company name:  
**GrooveTech**

**Sector:  
Infrastructure**



**GrooveTech: manufactures low-cost, high-performance polymer modified bitumen from plastic and rubber waste, enabling road agencies and municipalities to mend potholes; cost-effectively improving the lifespan of our roads, reducing environmental harm, and improving the sustainability of maintained road networks.**

### **What is your technology?**

GrooveTech uses plastic waste to fix potholes. We have developed a technology that allows us to manufacture the durable, cost-effective recycled polymer modified bitumen used in our asphalt mix design to fix potholes, thus negating the need for typical methods of pothole re-patching, and with it, the cost of repairs by 8%. This high rate comes from the increased need to service these potholes more frequently (due to the weaker quality of the material), as well as the increased cost of acquiring these materials. Our unique and cost-effective innovation enables road agencies, contractors, and municipalities to stretch their already constrained budget for road maintenance to fix more potholes, while preventing their frequent need for re-patching in the process.

### **How does your work contribute to the UN SDGs?**

In a nutshell, we are helping to address SDG 9 (Industry, Innovation and Infrastructure). We're building sustainable cities using plastic waste, and fostering the infrastructural development of rural road to stimulate economic growth and service delivery. Our materials are durable and





cost-effective, and we are able to contribute towards a sustainable roads industry, the innovation of new materials, and infrastructure development.

### **How has LIF helped you on your entrepreneurial journey?**

Through LIF, I was able to refine my solution, and also raise the funding for further product development, while through follow on support, specifically the events and networking in the UK as part of a funded visit to London Tech Week 2023, I was able to meet key stakeholders in the roads and transport sector from the UK who have helped me to understand the UK market, and prepare for setting up my company in the UK through the Global Entrepreneurship Programme, run by the UK's Department for Business and Trade.

### **What benefits did LIF provide?**

The LIF Programme offers entrepreneurs access to the global innovation ecosystem. In this way, innovators meet and learn from other innovators from other countries. Mentors play a pivotal role in guiding innovators to build novel products which can be commercialised, and to avoid common pitfalls. I was selected by the South African Technology Innovation Agency (TIA) to further develop my solution as part of their Grassroots Innovation Programme. I was then selected by the Innovation Hub to be part of the Open X Innovation Challenge to pilot my solution with the City of Tshwane, South Africa. This would not be possible without the guidance and mentorship that I got from the LIF programme.

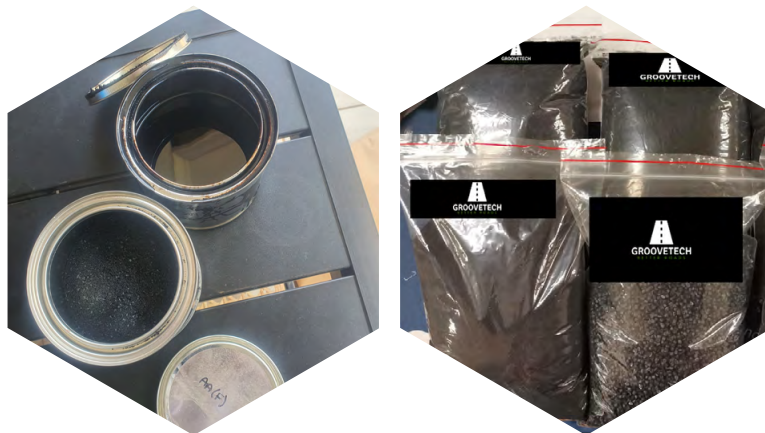
### **What is your advice to budding entrepreneurs?**

Any person interested in the LIF programme should apply, and receive the chance to be included in the great learning and collaborative experience offered by the programme.

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

GrooveTech's plan is to fully commercialise the product in South Africa through gaining all of the industry certifications needed, and building a small manufacturing plant. There are also plans to apply to the UK's Global Entrepreneurship Programme to set up a company in the UK.

Through this, I will be able to run pilot studies on UK roads, and get the in-country certifications required to sell my products in this market. Having a UK-based company will help to provide access to the global tech capital markets, and assist in raising the funds for further commercialisation and expansion.







# Afterword

**For seven years, it was my utmost privilege to chair the Leaders in Innovation Fellowships (LIF) Steering Group, one of the most rewarding tasks that I have ever been given.**

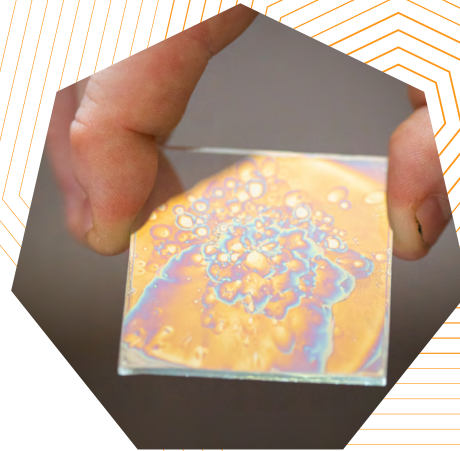
When elected to the Fellowship of the Royal Academy of Engineering in 2012, and asked, as each new Fellow is, where I wanted to serve the Academy in its Mission, I was resolute in my answer: engineering entrepreneurship. So it was that I served my apprenticeship guiding programmes in support of engineering startups and scaleups. Engineering entrepreneurship was grown out of the brand-new Enterprise Hub and its international twin, the LIF programme.

The LIF programme was, in its early years, financed through the government's Newton Fund, which provided benefits from UK-based resources in science and technology to address the 17 UN Sustainable Development Goals with 17 partner countries, all of which elected to participate in the LIF programme – the only programme that can boast this.



LIF identifies that innovation, independent of any commercialisation, is limited in its scope of impact; the programme has established its USP through supporting translation of invention and discovery into commercially viable products and services. Through its Enterprise activities, its network of Fellows and beyond, the Academy has world-class expertise in the processes of translation.

Drawing on the wealth of knowledge offered by not only the LIF team, its in-country partners, their contractors (often from UK universities), the wider innovation ecosystem of international engineering entrepreneurship, and the incredible Fellowship of the Academy, undeniable progress has rapidly been made.



Never, when asking for help from the Fellowship or the wider ecosystem, for access to a contact or service for our LIF innovators, was I denied; rather, the assistance was of the quality that is not available at any price elsewhere. On behalf of all our 1,400+ alumni, I thank each and every person who has provided such a continuously high level of support.

I would also like to remind our LIF innovators, in turn, to give back to others beginning their journey into social entrepreneurship. I would encourage them to reflect upon the support, guidance and care offered by our Senior Programme Managers, Mahmoda Ali, initially, and Lisa Rose, today; do consider most earnestly any request made by them.

I want to thank the founding members of the LIF Steering Group, especially Roger Benson MBE FREng, who has been with me from the start, Michael Lowe FREng, Jacqui Murray and Priya Guha MBE, and all of the current members, under the leadership of Ian Richie CBE FREng, as they guide LIF into the new post-Newton era. I wish them every success - all of our futures might depend on it!

**Dr Norman Apsley OBE FREng**

Immediate Past Chair of LIF Steering Group,  
Royal Academy of Engineering

# Watch our video

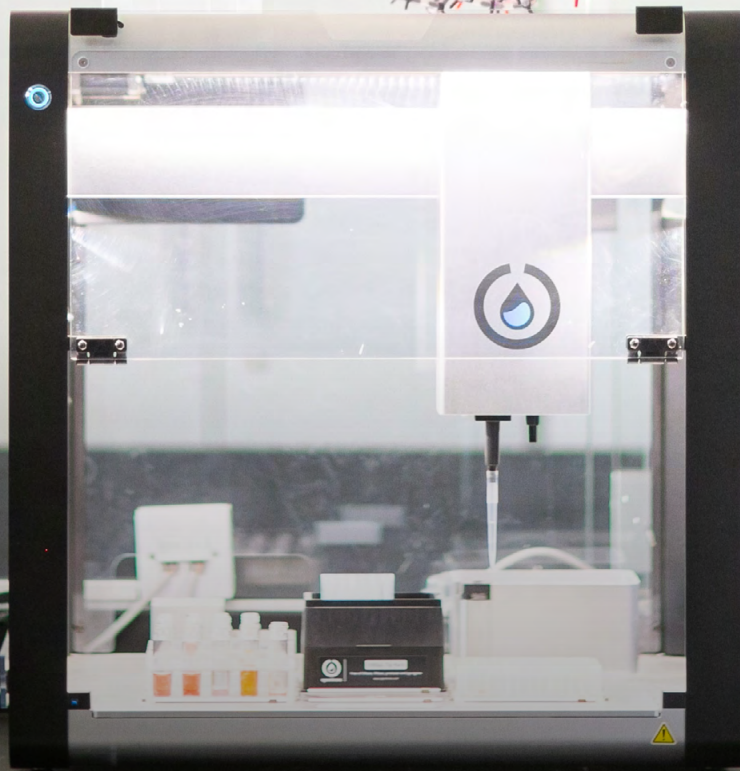
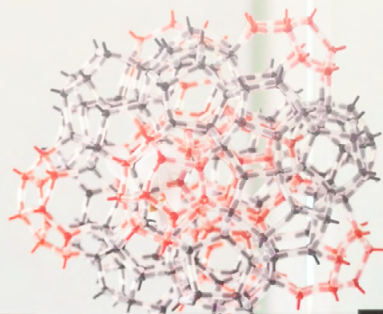


# Contact us

✉ [info-lif@lif.raeng.org.uk](mailto:info-lif@lif.raeng.org.uk)

✕ @RAEngGlobal

in Royal Academy of Engineering





**The Royal Academy of Engineering** is harnessing the power of engineering to build a sustainable society and an inclusive economy that works for everyone.

In collaboration with our Fellows and partners, we're growing talent and developing skills for the future, driving innovation and building global partnerships, and influencing policy and engaging the public.

Together we're working to tackle the greatest challenges of our age.

## What we do

### Talent & diversity

**We're growing talent** by training, supporting, mentoring and funding the most talented and creative researchers, innovators and leaders from across the engineering profession.

**We're developing skills for the future** by identifying the challenges of an ever-changing world and developing the skills and approaches we need to build a resilient and diverse engineering profession.

### Innovation

**We're driving innovation** by investing in some of the country's most creative and exciting engineering ideas and businesses.

**We're building global partnerships** that bring the world's best engineers from industry, entrepreneurship and academia together to collaborate on creative innovations that address the greatest global challenges of our age.

### Policy & engagement

**We're influencing policy** through the National Engineering Policy Centre – providing independent expert support to policymakers on issues of importance.

**We're engaging the public** by opening their eyes to the wonders of engineering and inspiring young people to become the next generation of engineers.