

**YEAR IN REVIEW**  
2016 / 17

connecting  
enterprises to  
innovation





## About IPI

IPI Singapore is a non-profit organisation established by the Singapore Ministry of Trade & Industry, to catalyse and enable enterprises to grow their businesses through technology and innovation.

We promote open innovation and work with enterprises to:

- Source for technologies locally and abroad, from both public and private sectors to support their innovation activities.
- Facilitate technology partnerships to bring forth new and innovative products and services to the market.
- Conduct technology landscape studies to support them in decision making when planning for new product or business.

With a strong global network of technology partners, including the Enterprise Europe Network (EEN), we are well-positioned to facilitate connections between technology seekers and technology providers, driving growth and innovation opportunities for Singapore enterprises.



## Message from Executive Director

2016/17 has been a fulfilling year for all of us. In the first year of the Research, Innovation and Enterprise (RIE) 2020 Plan, we rolled out a new strategy to better help enterprises grow their businesses, in addition to our continued facilitation of SME access to local and overseas technologies. I am encouraged by the initial progress made and am confident that our affiliation with SPRING Singapore will bring about greater synergies to benefit our local enterprises.

Working with industry, technology partners and public sector to promote collaboration and drive co-innovation, IPI facilitated more than 30 technology partnerships to bring new and innovative products and services to the market over the last year. Through our online marketplace [www.ipi-singapore.org](http://www.ipi-singapore.org), over 500 technology offers and needs have been introduced to the global innovation community.

The year had several other highlights as well. The Enterprise Europe Network (EEN) Singapore was launched by IPI, International Enterprise Singapore and the Singapore Manufacturing Federation in April 2016. The EEN provides a platform for Singapore organisations to gain access to innovative technologies from Europe for licensing and R&D cooperation. At the same time, it also introduces a new channel for Singapore-based SMEs

***“As a young organisation, IPI has helped bridge gaps to enable open innovation. Building on our fundamentals, we will continue to evolve and bring increased value to enterprises and our technology partners.”***

and research institutions to offer their technologies in finding collaboration opportunities with European partners.

During the state visit to Norway by President Tony Tan Keng Yam, we signed a renewal Memorandum of Understanding (MoU) with the Norwegian University of Science and Technology (NTNU) on 11 October 2016. The renewal MoU will see both parties deepen their cooperation in leveraging each other's networks to promote R&D collaboration, technology transfer and commercialisation between Norwegian and Singapore companies.

We continued to build upon the success of IPI's flagship technology-industry matching event, TechInnovation. The fifth edition in 2016 drew over 2,700 participants in attendance, nearly a 30% increase from the previous year's turnout. The event also saw 120 exhibitors showcasing more than 300 emerging and ready-to-market technologies.

Last but not least, I would like to express my sincere appreciation to my colleagues at IPI for their commitment and contributions to help realise IPI's mission.

As a young organisation, IPI has helped bridge gaps to enable open innovation. Building on our fundamentals, we will continue to evolve and bring increased value to enterprises and our technology partners. This includes introducing new approaches to further catalyse SME interest and help enterprises transform their businesses through the adoption of technology and innovation.

**Professor Lam Khin Yong**  
Executive Director



***“We see companies becoming more receptive to the idea of embarking on open innovation, and placing their trust in us to help them source for the right technologies and partners.”***

*Message from  
Senior Director*



IPI plays a unique role in the Singapore enterprise and innovation ecosystem. As an independent non-profit organisation, IPI is set up to facilitate technology transfer and R&D collaborations with external local and overseas partners, from both the public and private sectors. We see companies becoming more receptive to the idea of embarking on open innovation, and placing their trust in us to help them source for the right technologies and partners.

In 2016/17, we have worked hard to increase our outreach through our various platforms; launched new initiatives such as Enterprise Europe Network (EEN) Singapore, DBS TechMatch; and shared our insights through various thought leadership opportunities. Our combined efforts have helped to build a healthy pipeline of ongoing projects for the future.

Moving forward, IPI will be supporting government agencies in the seeding and formation of innovation clusters. One of the focus areas is to align and support the Industry Transformation Maps (ITMs) – as a start, in the areas of Food Manufacturing and Logistics.

Leveraging IPI's online marketplace and EEN network, we will be supporting SPRING Singapore's Gov-PACT programme to crowdsource or call for proposals from partners that can develop and test-bed innovations together with various government and public sector organisations. In the past year, IPI has worked with various government agencies such as the Housing

& Development Board (HDB) and Jurong Town Corporation (JTC), through which SMEs have secured projects for cleaning, smart car parking, odour elimination at waste bin centres and managing households' energy usage.

IPI wrapped up the year by organising the inaugural Innovation and Enterprise Offices (IEO) Forum on 31 March 2017. Co-chaired with Dr Lim Jui, CEO of NTUitive Pte Ltd, the forum aims to provide a platform for IEOs to share, discuss and learn best practices from one another, thus collectively building a stronger IEO community to drive more IEO-industry collaborations. The strong turnout, open dialogue and willingness to work together gives us confidence that we are on the right track. IPI looks forward to working closely with our local IEO partners to support enterprises in their efforts to adopt technology.

This productive year is only made possible with the dedication from the team as well as support from our partners. We are excited to build on the momentum that we have generated and create greater value and impact to Singapore-based enterprises.

**Dr Sze Tiam Lin**  
Senior Director

## INDUSTRY ENGAGEMENT



**187**

Companies  
Newly Engaged



**103**

Active Negotiations  
Facilitated



**31**

Successful  
Deals

## OUTREACH



**21**

Events  
Organised / Supported



**473**

Technology Offers  
Posted



**40**

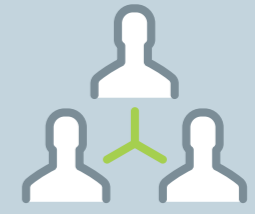
Technology Needs  
Posted

## TECHINNOVATION 2016



**2,721**

Participants



**120**

Exhibitors



**41**

Participating  
Countries



**332**

Technologies  
Showcased



## Key Highlights — 2016/17 Achievements



01



02



03



04



05



06

**01** International Enterprise (IE) Singapore, Singapore Manufacturing Federation (SMF) and IPI jointly launched Enterprise Europe Network (EEN) Singapore on 21 April 2016.

**02** DBS, IPI and Infocomm Investments (IPL) launched DBS TechMatch – an initiative to help SMEs embark on innovation projects to address their business challenges on 15 August 2016. DBS TechMatch aims to connect SMEs with the right technology solution provider.

**03** TechInnovation 2016 attracted more than 2,700 participants seeking business opportunities from over 300 featured technologies from 20 to 21 September 2016.

**04** IPI and the NTNU signed a MoU to promote transnational technology transfer opportunities on 11 October 2016 in Oslo, Norway.

**05** Representatives from 18 local Innovation and Enterprise Offices (IEO) and supporting government agencies came together for the inaugural IEO Forum organised by IPI on 31 March 2017.

**06** IPI welcomed its technology partners to its fifth Tech Partners' Networking Session on 31 March 2017.





Success Story

# EnergyNova X Temasek Polytechnic

## COLLABORATION IN TECHNOLOGY EXTENDS FLIGHT TIME OF DRONES

### The Challenge

Unmanned aerial vehicles (UAVs), commonly known as drones are becoming more popular for both recreational and commercial purposes. Due to the limitations of current lithium batteries, manufacturers are looking for alternative power solutions to keep drones in the air longer and reduce the inconvenience of recharging or changing batteries shortly after a flight.

EnergyNova Pte Ltd is a local start-up which designs and manufactures compact, light-weight, and on-demand hydrogen generators, which when paired with a fuel cell, can be used in a wide range of consumer applications including powering drones.

With an aim to work towards a prototype that can power a drone for two hours, it was looking to further improve its product's design and efficiency as it worked on developing a commercially viable product.

### The Solution

Through IPI's online portal, EnergyNova was connected to researchers from Temasek Polytechnic's Clean Energy Research Centre (CERC), which is under the School of Engineering. Under CERC, a proprietary hydrogen generation system that outperforms conventional systems has been developed.

A research collaboration agreement was inked to integrate Temasek Polytechnic's technology in EnergyNova's hydrogen generation system as well as a licensing agreement that allows EnergyNova to commercialise this improved hydrogen fuel cell system.

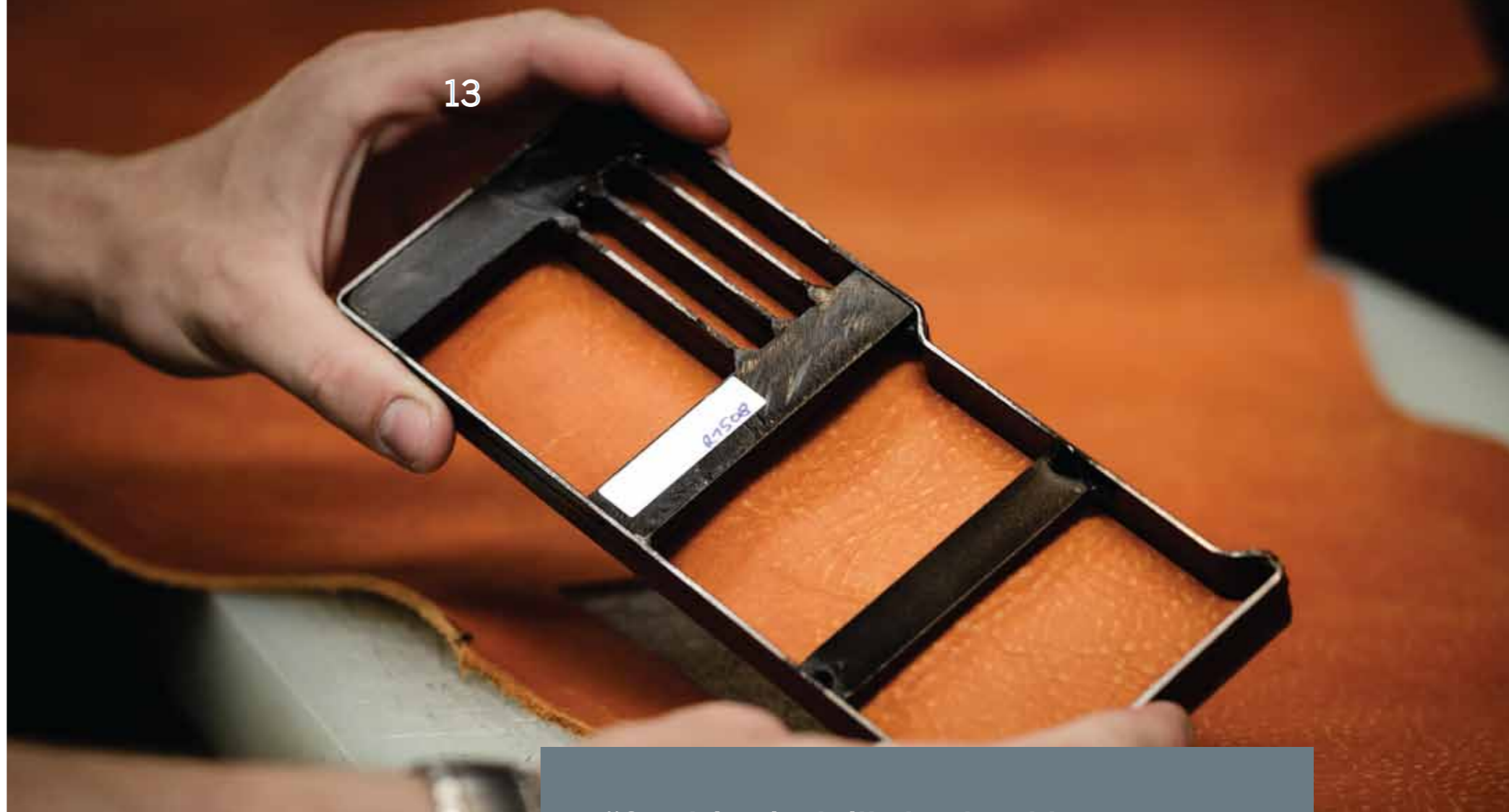
### The Outcome

This technology partnership with Temasek Polytechnic has enabled EnergyNova to improve the performance of the hydrogen generation system and accelerate time to market by approximately 12 months.

*"We are truly excited to work with Temasek Polytechnic to develop this cutting-edge technology. We look forward to working with drone manufacturers to develop more compact hydrogen generation solutions that can power their drones for even longer flights in the near future."*

**Dr George Zhang**  
Founder & Chief Executive Officer  
EnergyNova Pte Ltd





Success Story

# Goodvine X We Are Perspective

**FROM LAB TO RUNWAY**  
— FASHION MEETS TECHNOLOGY

### The Challenge

Technology has opened up new possibilities for fashion brands, thus enabling designers to incorporate new features in their apparel and accessories. Goodvine Pte Ltd (Goodvine), a local manufacturer of leather products marketed under the brand name Tocco Toscano was interested to work with a Singapore-based technology partner to integrate wearable technologies into its new line of bags.

### The Solution

Through IPI, Goodvine was introduced to We Are Perspective (WAP), a Singapore-based industrial design consultancy firm that has experience in developing a wireless security solution that fits Goodvine's requirements.

### The Outcome

Recognising the synergy in a partnership, in February 2017, both parties embarked on product development to integrate security features like a biometric lock mechanism and proximity sensors. Goodvine was also granted the Capability Development Grant (CDG) by SPRING Singapore to work on this technology integration.

*“Goodvine is thrilled to be able to successfully blend technology and craftsmanship to create a new product line by working with the right technology partner introduced by IPI. With this new series of bags slated for launch in early 2018, we hope to offer our customers not only aesthetics and quality, but new functional benefits as well.”*

**Chester Kong**  
Chief Strategy Officer  
Goodvine Pte Ltd



Success Story

# Armstrong X Collagreen

## CONVERTING AQUATIC WASTE INTO COLLAGEN FOR NEW APPLICATIONS IN MEDICAL AND CONSUMER INDUSTRIES

### The Challenge

With increased recognition of the environmental impact and the potential loss in value of by-products from traditionally discarded aquatic wastes such as frog and fish, researchers are increasingly looking at how to recover biomaterials such as collagen and develop them into high value-added products for various applications in the medical, pharmaceutical, cosmetic and food industries.

Armstrong Industrial Corporation (Armstrong), a leading Singapore manufacturing group with operations in Asia covering data storage, electronics, automotive, consumer and industrial sectors, was exploring relevant technologies in new sectors that could leverage its foam, rubber and elastomer expertise. Health and personal care applications was one such potential area.

### The Solution

Through IPI's Tech Alert service and open innovation platform, Armstrong was introduced to Collagreen Tech Pte Ltd (Collagreen), a spin-off from Nanyang Technological University that develops methods to recycle bio-waste from local frog farms and fisheries into high-value collagen.

### The Outcome

In February 2017, a related Armstrong entity and Collagreen formalised a collaboration to develop collagen-based products for the medical, consumer cosmetic skin care as well as food & beverage industries.

*“Armstrong and Collagreen share a vision to synergistically create a high-value innovation-led business that leverages the scientific, operational and commercial strengths that each party has individually.”*

*Phyllis Ong  
Deputy CEO  
Armstrong Industrial Corporation*

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